# Final report


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Prepared by: David Donnelly, Rob Mercer, Fiona McLean, Robbie Sefton

instinct and reason

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Meat & Livestock Australia Limited
Locked Bag 991
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## Scoping study: Producer segmentation approaches and barriers to adoption of innovation


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# Abstract

Drawing from a national and international literature review and a survey of Australian marketing professionals, the study concludes that market segmentation has an important contribution to make to encourage producers to innovate in a way that is personally relevent to their circumstances and ‘mind set’. Segmentation should be applied across the whole of the business. The study shows it is successful when undertaken comprehensively and can produce significant and tangible results. The drivers and barriers to uptake of innovation are likely to involve personal values, needs and succession issues and these should be considered within a segmentation. To get the benefits of segmentation, it is critical to develop a comprehensive and up-to-date database to which the segmentation can be tied. This, coupled with the use of digital marketing tools, would allow MLA to take a sophisticated approach to driving its adoption program and achieving greater uptake of innovation among livestock producers.

# Executive summary

Member segmentation will allow personally relevant information to be delivered to all MLA members. It will enable MLA to deliver more customer-centric, targeted adoption initiatives and will ensure the subsequent adoption of research and development.

### *Identify efficient and effective options for segmenting broad acre livestock*

The following criteria will be essential segmentation bases for MLA to consider:

- What wealth is created on farm (amount, resources, current and past)?
- How innovation occurs on farm (mind sets, values, education, social networks, influencer networks, history of innovation)?
- Is the business growing, being maintained or shrinking and is producer profitability on the rise, being maintained or in decline?
- How much investment is made in innovation? Is there a priority placed on innovation, what is their history of innovation, and to what extent is an entity stuck on what it has done in the past?
- Where and who do livestock producers source their information from to make decisions that aid in innovation? Who or what is credible?
- How do red meat producers decide which MLA activities and programs to engage with? What motivates them? How do they determine whether an adoption activity is good value for money, whether they should attend, and the value they will get out of it)?
- How do geographic and climatic systems impact on livestock producers?
- How do the existing education, skills and expertise of the livestock producer impact on their desire and level of innovation?
- How does age and succession planning (or lack of) impact on innovation?
- What is the individual perception of the need to innovate and in which areas?

### *Methodology for completing the segmentation process*

The following process should be adopted to maximise the impact of the use of market segmentation to encourage more rapid innovation amongst members. It includes:

1. Ensure the segmentation is embedded in every aspect of MLA's operation by establishing a whole-of-MLA team responsible for managing the segmentation strategy (IT, R&D, ADOPTION, corporate communications, and finance).
2. A qualitative phase to explore red meat producer's attitudes and behaviours towards MLA and MLA-inspired innovation (this could be done with face-to-face focus groups, online forums or a mix of both). This phase is crucial to ensure the segmentation bases/variables are clearly defined and in simple farmer-friendly language.
3. A survey should be undertaken by at least 3000 members to enable the segmentation solution to be robust. Key in establishing the sample frame is geography, age of livestock producer, type of livestock producer and size of farm.
4. The survey should contain a discrete choice model element to allow a range of adoption approaches to be tested with members. This will produce an advanced segmentation model that will allow MLA to tailor its adoption activities to each segment.

5. Segmentation analysis to identify the segments based on values and attitudes. This will need to be an iterative process where 10–20 segmentation solutions are tested for efficacy and work-shopped with the MLA segmentation team. The ultimate solution/s should be embedded into a decision support tool delivered by the discrete choice model. This decision support tool would be useful for:
    a. adoption initiatives
    b. marketing communications
    c. corporate communications
    d. research and development planning
6. CHAID analysis to develop an algorithm that will tie each MLA member to a certain segment
7. Collect the key variables required by the algorithm so that every member can be placed into a segment. This should be able to be kept to (3–6 variables ) captured over time
8. Develop strategies to meet the needs of MLA member segments.

***Implications for adoption strategies and future investment***

The decision support tool would provide the basis for adoption initiatives as well as identify where money should be invested in future research and development. The segmentation solution should strongly inform all the communication decisions taken by MLA and all innovation adoption initiatives.

By combining the segmentation solution with all the survey data collected about the producer, as well as how they could be influenced to take part in adoption initiatives, a profile can be produced that allows MLA to understand the people it is trying to reach. This profile should form the basis of every ‘brief’ or strategy developed to influence livestock producers.

***Recommend and propose how the segmentation system could be implemented to guide future adoption investment.***

The study recommends:

- A whole-of-MLA cross operational team be established to guide this project to a successful completion
- A robust national segmentation study of red meat producers
- The survey incorporate a choice experiment that houses the segmentation solution
- That an attitudinal/psychographic segmentation solution be sought
- That an algorithm using more basic demographic data be used to identify these psychographic segments in the MLA database
- That a database building project be implemented immediately to capture the 3–6 variables needed to enable this linkage from segment to actual individual producer.
- That the decision support tool is used to guide all MLA decisions on adoption strategies, programs and communications.

# Contents

# 1. Background

Meat and Livestock Australia (MLA) has more than 49 000 members representing around 82 per cent of livestock production in Australia. Recognising that each livestock business was different in its information, skills and knowledge needs, MLA wanted to be more targeted in the way it developed, delivered and funded its adoption initiatives.

The livestock producer sector is not homogenous. Red meat producers and their businesses vary on dimensions such as size, management style, location, production practices, type of technology employed, region of production and many other factors—but these are not necessarily the factors that would produce the most effective segmentation, especially one targeting the uptake of innovation.

MLA has looked at producer segmentation in the past and is aware of the different ways in which producers could be segmented. However, MLA has found segmentation approaches difficult to implement and operationalise and so the advantages and benefits have not been realised. Effective segmentation needs to be easily, cost effectively and realistically implemented and become part of MLA's ongoing strategic and business process.

This project was designed to provide the evidence and recommendations to help MLA establish and operationalise a segmentation approach to re-shape its adoption and communication strategies.

The project:

- looked at existing literature and sources to critically review the successes and failures of current approaches to segmenting primary producers across agricultural industries nationally (including such analysis by MLA) and effective approaches outside of agriculture that provide relevant learnings

- from the literature, identified the barriers to adoption/boundaries to change (and conversely motivators/traits for innovation adoption) to establish any additional criteria for the segmentation

- reviewed MLA's existing data systems to identify what was available to enable the segmentation to be effectively operationalised

- recommends the most effective approach to producer segmentation for the MLA

- develops a methodology to identify the producer segments and the alternative requirements (including process, budget, data, timeframes and frequency) for applying the new approach.

# 2. Project objectives

## Research purpose

This project is the first stage in scoping options of how to effectively and efficiently segment broad acre livestock producers by exploring existing approaches in agriculture and other industries nationally and internationally. The project utilised the most up-to-date information on barriers to adoption of innovation to further underpin the development of producer segments. It is envisaged this will be used to re-shape MLA's approach to communication and adoption activities to ensure the highest possible rate of adoption of R&D and to maximise the overall benefits of R&D for industry.

## Research objectives

1. Identify and evaluate efficient and effective options for segmenting broad acre livestock producers to enable more targeted adoption investment and subsequent impact/adoption of research and development.

2. Outline a methodology for completing the segmentation process and outline implications for adoption strategies and future investment.

3. Recommend and propose how the segmentation system could be implemented to guide future adoption investment.

# 3. Methodology

## Stage 1—knowledge sharing and planning

Stage one involved sharing the existing body of knowledge and planning the project in detail. This included discussion of:

- past experiences, relevant literature and other related research
- past and current strategies, initiatives and the effectiveness of these
- other possible segmentation approaches that appeared to have merit and/or other organisations that could be approached to understand the outcomes of similar segmentation work (for example, AWI and GRDC)
- external factors that may be relevant and impact on segmenting producers and applying the segmentation, and
- past MLA analysis and data systems information.

## Stage 2—literature review

A national and international literature review was undertaken by David Donnelly (PhD in progress looking at the adaptive capacity of rural communities) and Rob Mercer, with support from Dr Rebecca Phillips. The review covered relevant literature on segmentation and barriers to adoption of innovation. Please see appendix II for the full literature review.

The review included an internet search via Google Scholar and the databases of the National Library of Australia and NSW State Library. It also included an assessment of the

ABS Agricultural Census and similar ABARES analyses, an analysis of MLA reports, and a review of the work of similar organisations.

Peer reviewed literature was sourced through academic online library databases and a bibliographic review of key articles and citation indexes was provided.

As part of the search strategy and to manage the scope of the project, inclusion and exclusion criteria were set. Only literature published within the past 10 years in English language publications (with a priority on Australia but not exclusively) were considered.

instinct and reason also met with MLA to understand their existing data and customer management systems and the opportunities and limitations these provided for segmenting members and levy payers.

## Stage 3—assessment criteria and summarising the literature

To effectively assess the segmentation approaches identified from the literature review, criteria were established to assess their relevance, efficacy (particularly in terms of innovation adoption/engagement), and value. The criteria included:

- Identifiability: The extent that distinct groups of red meat producers can be recognised by using specific segmentation bases
- Substantiality: Where the meat producer segments are large enough to ensure the profitability of targeted adoption activity
- Accessibility: The degree to which the meat producer segments can be reached with adoption strategies
- Stability: The degree to which meat producer segments will be stable over time
- Responsiveness: Meat producer segments must respond uniquely to marketing efforts targeted directly at them
- Actionability: Meat producer segment responses should provide guidance on effective specification of marketing instruments.

Using these criteria, the segmentation approaches were appraised and reviewed to identify key themes and findings and produce a summary of major points of agreement and disagreement.

## Stage 4—interim debrief report

A debrief was produced that highlighted the key findings of the segmentation approaches, their strengths and weaknesses, and any gaps in the evidence.

## Stage 5—direct rapid appraisal of segmentation approaches and their operational effectiveness

To both complement and validate the findings of the literature review, a survey was conducted with n=50 industry leaders/influencers, extension specialists and marketing directors (or equivalents) of agri-related businesses/organisations and other organisations using segmentation effectively. The survey investigated what segmentation approaches

worked, how well they worked, whether they were actively used and in what way, using similar criteria as described for the literature review.

In addition to the survey, n=10 organisations were identified for specific case studies with further data collected through follow-up in-depth interviews to explore the segmentation approaches used, why they were effective and how they could apply to MLA. These case studies were selected on the basis of significance, relevance, and preparedness to provide the information needed.

The survey and in-depth interview process identified potential segmentation solutions and the ways to apply a segmentation approach rapidly and cost effectively.

Because some on the information collected could be considered sensitive in terms of business and marketing advantage and therefore interviews were granted on the grounds of anonymity, details of individual organisations and companies are not provided. The table below shows the business activity type of those surveyed and interviewed.

**Table 1: Business types and numbers surveyed and interviewed**

| Business or organisation type | Number surveyed | Number interviewed |
|---|---|---|
| Agri-related | 25 | 7 |
| Transport (e.g. trucking) | 5 | |
| Infrastructure / industry (e.g. biotechnology) | 5 | |
| Professional services (e.g. investment consultancies) | 4 | |
| Consumer products (e.g. ice cream) | 3 | |
| Finance (e.g. credit cards, mortgages) | 3 | 2 |
| Health (e.g. over-the-counter pharmaceuticals) | 3 | |
| Hospitality (e.g. wholesale catering) | 1 | |
| Telecommunications | 1 | 1 |
| **TOTAL** | **50** | **10** |

## Stage 6—reporting and outcomes

The results and discussion in this report draw on the findings from the literature review, the survey and the in-depth interviews.

## The literature review

The purpose of the literature review was to explore the existing knowledge and overlapping ideas about market segmentation as well as adoption and innovation models. This section summarises the key findings. The full literature review, with references, is at Attachment II.

There was extensive support in the literature that an innovation-based segmentation would be a competitive advantage for the MLA and that its adoption strategies and activities would be much more effective if the segmentation challenge could be solved and successfully

implemented. Furthermore, the literature stressed that the segmentation would be even more powerful if used in conjunction with digital marketing tools.

**Marketing database**

A marketing database is critical for storing information about each producer and housing the segmentation and any choice model. For the segmentation to be successful, MLA must be able to identify each individual producer and assign them to a segment.

The database should be an MLA business priority because it, more than any other factor, will be the key to making the innovation segmentation succeed. As a marketing database, MLA will be able to use it to create a direct communication channel and to continually add to its understanding of the livestock producer market segments.

**Market segmentation and innovation**

Market segmentation—a method for dividing a heterogeneous population into groups or segments that are more homogenous—was identified by many researchers as having application to agricultural technologies. Along with geographic or demographic information, the literature shows that farming systems, behaviours, attitudes, and values can be used effectively to better understand the ways farmers innovate to enhance productivity.

Identifying the innovation strategies or approaches in livestock production, and how producers learn about these innovations, will be the foundation stone that informs the market segmentation of MLA's 49,000 producers.

All livestock producers innovate. But they do it with very different mind sets—at various speeds, in many different ways, as individuals and as communities, as farms and as farming systems—and they are all influenced by situational factors such as geography, history, profitability, experience with change, size of farm, succession planning, and many other factors.

But to get real value from the segmentation and to be sure in reflects innovation, other factors need to be considered as bases including:

- attitudes to change (position in the stages of change model)
- attitudes to climate change (perceived climate change risk may trigger innovation action)
- attitudes and behaviours towards technology
- the presence of transferable skills
- the connectedness of the producer to other producers
- the preparedness to look at innovative and entrepreneurial marketing opportunities.

The segmentation must be able to identify the levers for each segment to trigger their contemplation of innovation. Each segment must be described in the final segment solution by how it makes choices regarding the adoption of innovation on farm, how action starts on innovation, and how decisions are taken about continued investment in innovation over time.

The prevailing view is that globalisation is making the larger farms more profitable and smaller farms less profitable. While this makes intuitive sense there is also some evidence that this does not necessarily have to be the case and that medium-sized farms are in fact more likely to be the better performers.

It will be important to ensure response to structural change by livestock producers is considered in any segmentation study looking at measures such as farm size, rented land and hired labour, degree of farm specialisation, intensification, debts and financial stress, and geographic location.

An understanding of the diversity within rural communities and landholders in regard to social and economic factors is necessary before attempting to change behaviour. This is, of course, what MLA is attempting to get right in its innovation segmentation project.

**Innovation and adaptive capacity**

Innovation covers many different producer activities and can take a wide variety of forms, thus adding to the complex nature of any market segmentation that purports to find heterogeneous groups amongst producers.

The literature suggests that innovation has three components: hardware (the physical technology), software (the information upon which a technology runs), and management (technologies that aid decision making, business administration and marketing). These three facets of innovation need to be considered within the process of selecting MLA's segmentation base.

Farming operations entail complex decision-making problems. Recent information technology-based innovations have been designed to support farmers in their operations yet despite the availability of these the uptake among farmers is surprisingly low. The literature cites an adoption rate of less than 10 per cent among German farmers and concludes that critical aspects for uptake rest on 1) the perceived ease of use of the technology, 2) the perceived usefulness of the technology, and 3) any other influences such as observability of the outcomes of its use and its ease of use, communicability about the benefits, and the ability to trial it on their own land and to achieve positive experiences. It also found that organisational attributes such as the farmers' historical innovativeness, education level and age all impacted on the uptake of precision agriculture technology as well as farm size and resource availability.

Interest in adapting is also at the heart of change. There is a lot of literature surrounding psychology's stages of change model that places great importance on desire to change as being a precursor to real change in behaviours. Approaches used to measure the various points on the stages of change model could easily be adapted by the MLA to derive strong measures for the current interest in innovating.

It is clear the MLA should consider adaptive capacity as a potential segmentation base. Knowing how to trigger graziers who are at different stages of change and perception of the risks of inaction, or to enhance their planning, learning and organising skills, or to build their ability to cope or to drive interest in change are challenges that the segmentation study could overcome.

Recent segmentation research of Australian cattle graziers found four producer segments linked to adaptive capacity. Namely:

- Type 1: 43% of cattle producers were vulnerable because they had low strategic skills and low interest in changing. Their mean age was 59 years.
- Type 2: 41% had low strategic skills, and poorly managed risk and uncertainty. Their mean age was 51 years.
- Type 3: 13% had a stronger psychological and financial buffer, were well-networked and had larger operations. Their mean age was 52 years.
- Type 4: 3% managed risk well, liked to experiment and were interested in change. Their mean age was 41 years.

This piece of work suggests some key characteristics of red meat producers that should be measured in any MLA segmentation study—age, occupational attachment, transferable skills, financial buffer, environmental awareness and the degree of connectedness of farmers to relevant others.

The ability to cope with change focuses on the financial and emotional capacity of graziers to deal with the threats and actuality of challenges and what role the good years play in building these dual abilities. Any other change or innovation will also require both a financial and emotional capacity to be present and is equally relevant for innovation.

The literature suggests MLA would do well to incorporate a wider definition of where innovation occurs because of the greater impact that could be had on innovation uptake and consequent productivity enhancement, by leveraging the entire farming system and the social and economic networks that underpin it.

An innovation based segmentation solution needs to incorporate the farming system (not just individual producers) and it needs to look more broadly than just livestock production. MLA would need to consider the existing farmer groups and whether membership of them creates a special category of producers that could act as a multiplier for livestock producer innovation. There may also be an opportunity for MLA to work with red meat producers and other leading stakeholders/groups to set up new groups or leverage from existing groups.

In a world of declining attention because of information overload, the impact of adoption information is critical. A study of cattle graziers in the Burdekin region which looked at adaptation to climate variability concluded that rather than there being barriers and resistance to innovation, graziers needed a range of specific forms of assistance to innovate. It cited the need for:

- simple information about how to make the most of a good season, and how to reduce the biophysical impacts during a bad season,
- new skills and strategies to deal with the range of probable scenarios for their region,
- financial advice about the costs of change, and
- encouragement to develop an interest in the future and be motivated to develop new skills to reduce risks.

Perception of risk means that the need to innovate gets on the agenda of graziers. For example, a study on climate variability and adaptation looked at perceptions of risk such as

how likely farmers believed they would be to survive droughts, whether they were more positive towards approaching drought periods than in the past and whether there was more interest in learning to survive drought periods now than in the past. Similar questions could be devised that measure perceived risk of falling meat prices, rising costs of production, export market decline etc., and could provide the MLA with a view on perceived risks of not changing or innovating.

Planning, learning and reorganising are about how well a grazier can actually implement innovation. The capacity to adapt is in some regards a measure of producers' capacity to convert, reapply or redirect existing resources (financial, natural, human, social or physical) to successful adaptation strategies Again, similar questions could easily be devised that measure preparedness and skills to manage innovation in meat production.

**How farmers learn**

The literature also raised the importance of understanding how knowledge is acquired by livestock producers, and this will need to be reflected in MLA's adoption strategies. MLA should explore which elements and outputs of knowledge transfer livestock producers are involved with.

The wider learning environment should be considered and could be used in segmentation exploration. The thinking is that more collaborative or joint knowledge production creates local knowledge. The MLA segmentation could look at how it can help 'global' knowledge become local knowledge. Knowledge networks should be identified and farmer connections to these networks measured. These may include farm employees, financial advisers, suppliers and the markets themselves. Change agents who enable change are central to delivering 'knowledge exchange' and need to be identified.

MLA needs to further explore the management priorities that farmers have and ensure a variety of advice sources and information styles are provided that accommodate a variety of producer information-acquisition strategies.

**Barriers to innovation**

Barriers to innovation include structural handcuffs, risk aversion, lack of knowledge or confidence about the profitability of the innovation, along with its complexity, trialability, compatibility, and the observability of outcomes. Other possible barriers include financial costs, the landholder's beliefs and opinions towards the new practice, the landholder's level of motivation and perception of the relevance of the practice, and the landholder's attitudes to risk and change.

**Challenges in segmentation**

The literature highlighted a number of challenges in segmentation and these were explored further in the survey and in-depth interviews. These were:

- Insights into farmer activities must be found that are capable of delivering segment homogeneity
- Segmentation is a point-in-time measure yet farmers operate in an ever-changing world. The segmentation can start to decay immediately it is established

- The assumption that the segmentation information required can actually be obtained
- Information may be unobservable or unobtainable, and even if available its meaning may be ambiguous. This may be because in reality farmers may be pursuing strategies that are not clear to themselves, let alone the interested observer
- Segmentation demands time and attention
- Simply avoided because managers do not understand how to approach it
- Segmentation requires a reliance on colleagues in other departments to implement the actions arising. Difficulties can be experienced with internal marketing, communication, and coordination within the organisation.

MLA's innovation segmentation need to be interactive and flexible because the MLA and livestock producers are in a constantly changing environment (drought, floods, fire, changing government policy, changing global demand, etc).

**Conclusions**

There is extensive support in the literature that innovation-based segmentation would be a competitive advantage for the MLA if the segmentation challenge could be solved and successfully implemented.

The literature is clear that segmentation bases need to go much further than basic demographics and consideration needs to be given to attitudes and psychographic details.

# 4. Results

The results from the literature review and the survey and in-depth discussions are recorded separately. The full literature review is at Attachment II.

## Literature review

***Effectiveness of segmentation as a tool for enhancing adoption***

There was extensive evidence in the literature to support MLA implementing an innovation-based segmentation. It strongly indicated that segmentation, used in conjunction with an up-to-date database and digital marketing tools, provided the most effective approach and provided businesses with a competitive advantage.

There was extensive evidence that each livestock producer was likely to differ in their approach to innovating in their business of producing livestock (beef, cattle, sheep meat and goats). This resulted in different behaviours on farm with regard to innovation.

Many livestock producers appeared to innovate—but they did it with very different 'mind sets', at various speeds, in many different ways, as individuals and as communities, as farms and as farming systems—and they were all influenced extensively by situational factors such as geography, history, profitability, experience with change, size of farm and succession planning.

The following table summarises segmentation bases that have been shown to work in the literature. With the highly situation specific nature of segmentation there is no point trying to give weight to one on these variables over another. This table is suggesting that all these potential ways to understand the producer market should be considered in the segmentation process and discarded or adopted as the exploratory research indicates.

**Table 2: Impacts on innovation—potential segmentation bases**

| Impacts on innovation (segmentation base) | Differentiator | Should be included in next stage exploration |
|---|---|---|
| What wealth is created on farm (amount, resources, current and past)? | Yes | Yes |
| How innovation occurs on farm (mind sets, values, education, social networks, influencer networks, history of innovation)? | Yes | Yes |
| Is the business growing, being maintained or shrinking and whether producer profitability is on the rise, being maintained or in decline? | Yes | Yes |
| How much investment is made in innovation, priority placed on innovation, history of innovation, and extent that the entity is stuck on what it has done in the past? | Yes | Yes |
| Where and who do red meat livestock producers source their information from to make decisions that aid in innovation? | Yes | Yes |
| How do producers segment themselves based on the activities and programs that organisations like MLA deliver (i.e. how do they determine whether it is good value for money, why they should attend, and what they will get out of it—is it about seeking new or more information about a specific area for improvement or networking with other producers or getting time off the farm)? | No | Yes |
| How do geographic and climatic systems impact on livestock producers? | Yes | Yes |
| How do domestic and international commodity prices impact on the producer through decreased profitability? | No | Yes |
| How do the existing education, skills and expertise of the livestock producer impact on their desire and level of innovation? | Yes | Yes |
| How does age and succession planning (or lack of) impact on innovation? | Yes | Yes |
| What is the individual perception of the need to innovate and in which areas? | Yes | Yes |

In addition to the segmentation bases identified in Table 2 above, other factors discussed in the literature included:

- attitudes to change (position in the stages of change model)
- attitudes to climate change (perceived climate change risk may trigger innovation action)
- attitudes and behaviours towards technology
- the presence of transferable skills
- how connected the producer is with other producers, and

- the preparedness of the producer to look at innovative and entrepreneurial marketing opportunities.

***Individual producers need to be identified and assigned to a segment***

There was extensive literature that discussed the problems of segmentation for the 'manager' and these included a lack of guidance on how to do it and how to implement it. It also discussed how those segmentation approaches that had failed had usually done so because the segmentation solutions were not able to be tied to individual customers leading to generic responses from organisations to the segments. Segmentations flourished when they were embedded in the organisation's everyday activities, for example where choice-based insights were embedded in predictive decision-making tools and adoption approaches were developed for a specific 'mind set' and demographic / geographic / financial profile.

The literature also pointed to segmentation solutions that lacked the core ingredient of accessibility. Just identifying that a segment exists won't be enough if you can't reach that segment. Hence the MLA segmentation solution needs to be able to be tied back to the data base so that every meat producer can be assigned to a segment. Then whether using email or direct mail personally relevant information can be provided to each member.

***Knowing the levers for each segment to trigger contemplation of innovation***

When looking at the adoption of innovation, the literature stressed the importance of each segment being described by how it made choices regarding the adoption of innovation on farm, how they approached innovation, and how decisions were taken about continued investment in innovation. This was often achieved through choice modelling which predicted uptake. This is essentially the model used by the major big four banks and has been in place for more than 10 years.

***The key enabler is an up to date database that is accessible and contains key data***

The literature was strong in its insistence of an up-to-date and comprehensive database being the key to effectively implementing a segmentation approach. Effective databases captured the segmentation as well as other information such as geography, size of farm, stock numbers, growing or shrinking form, use of innovation, and profitability.

***Other standard segmentation assessment criteria***

There were six criteria for segmentation that were almost universally agreed as being the basic building blocks for effective producer innovation-based segmentation:

- Identifiability: The extent that distinct groups of customers can be recognised by using specific segmentation bases is easily measured
- Substantiality: Where segments are large enough to ensure the profitability of activity
- Accessibility: The degree to which the target segment can be reached with communications and other adoption activities
- Stability: The degree to which segments will be stable over time
- Responsiveness: Segments respond uniquely to marketing efforts targeted at them
- Actionability: Segment responses should provide guidance on effective specification of marketing instruments.

**Table 3: Segmentation Criteria**

| Segmentation criteria | Details | Assessment on the basis of the literature |
|---|---|---|
| Identifiability | Extent that distinct groups of red meat livestock producers can be recognised by using specific segmentation bases that are easily measured. | This is achievable. |
| Substantiality | Where the segments are large enough to ensure the profitability activities targeted to them. | This is achievable. Geography may play a crucial role reducing the size of local segments and making adoption activities challenging, but will work nationally. |
| Accessibility | The degree to which the target segment can be reached with communications and adoption programs. | Discussed above. |
| Stability | The degree to which segments will be stable over time. | Even if the goal of heightened innovation was achieved, the segments would still be more stable than many other market places. A segmentation life of 5–10 years should be achievable. |
| Responsiveness | Segments should respond uniquely to marketing efforts targeted directly at them. | This is achievable. |
| Actionability | Segment responses should provide guidance on what would be effective marketing instruments. | This is achievable. Adoption activities, communication, and innovation uptake all point to different patterns of behaviour regarding innovation and demand a segmented approach. |

# Survey and in-depth interviews

### *Why do segmentation and how effective is it?*

Figures 1 and 2 below show that about four in 10 respondents (39%) had worked on more than five market segmentations in their career, and about two thirds of all strategies had been undertaken across multiple categories.

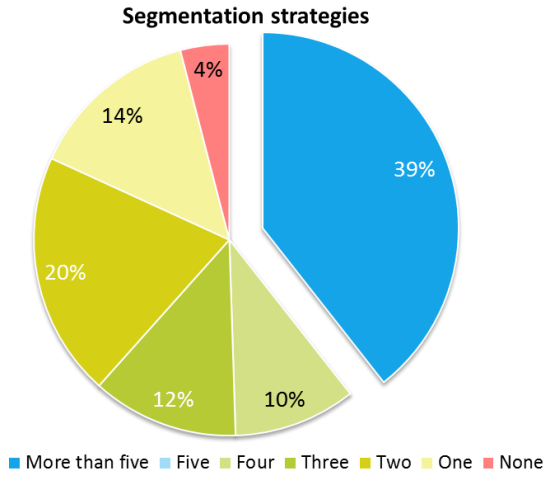



**Figure 1: How many market segmentation strategies have you worked on in your career (n=50)?**

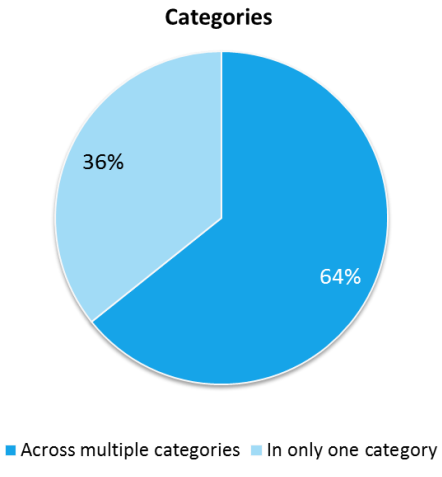



**Figure 2: Which of the following best describes your experience with market segmentation (n=50)?**

Figure 3 shows that the majority of segmentation strategies were considered successful (89%) and that only four per cent were considered not successful.

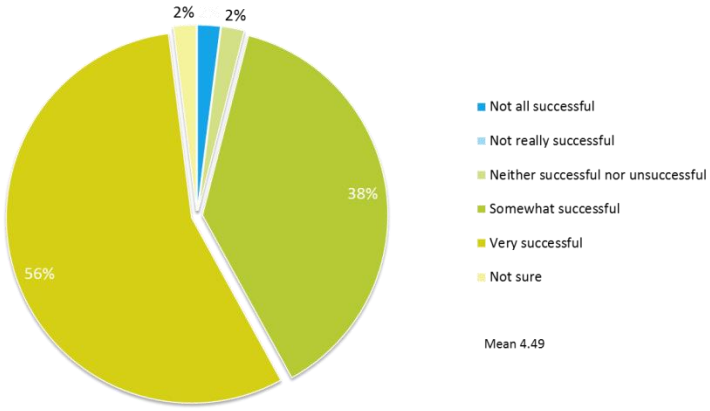



**Figure 3: How successful do you rate your segmentation strategy (n=50)?**

### *Segmentation bases and methodology*

As seen in figure 4, the most common segmentation bases used by respondents were customer needs (85%), clusters of customers doing similar things (84%), demographics (83%) and geography (82%). These were followed by market behavior and media or channel use, and psychographic details. Segmenting by the strategy of the company or competitors was the least common.

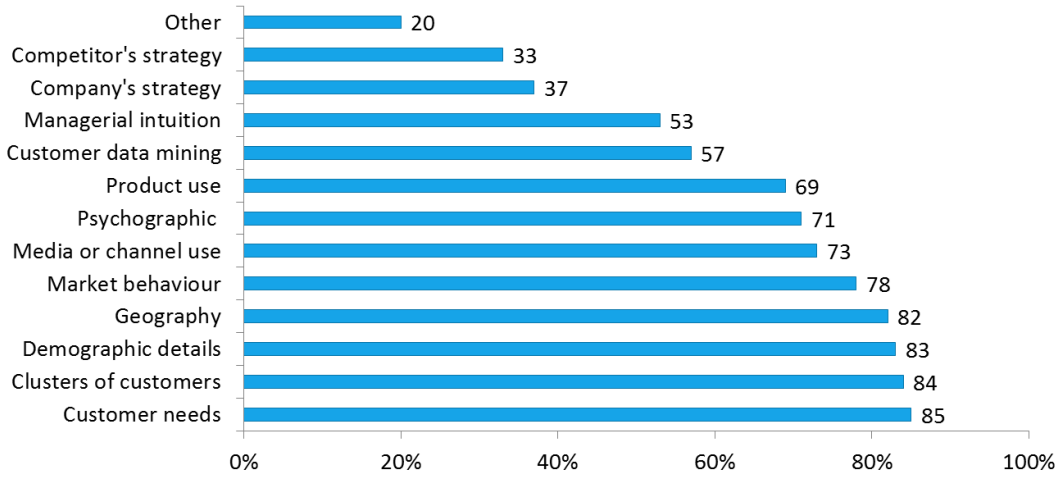



**Figure 4: What kind of segmentation bases have you used in market research segmentation projects (n=50)?**

Based on the respondents' experience, segmenting by customer needs, product use and psychographics were all recommended similarly, followed by market behaviour and demographic details. As can be seen in figure 5 below, there was a significant drop to the other recommended bases.

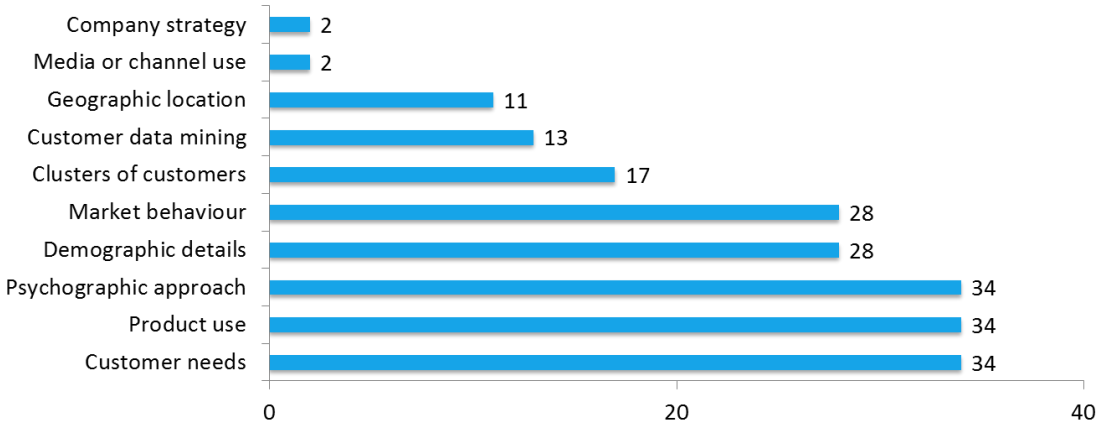



**Figure 5: What segmentation bases would you highly recommend (n=50)?**

Just over half the respondents have used cross tabulations of various customer characteristics. Also commonly used were cluster and factor analysis and multiple regressions. Discrete choice modelling had been used by 31 per cent of those interviewed. PEST theory (political, economic, social and technological analysis), personal construct theory, artificial neural nets and CHAID analysis (Chi-squared Automatic Interaction Detector) were each cited by a small number of participants. This can be seen in figure 6 below.

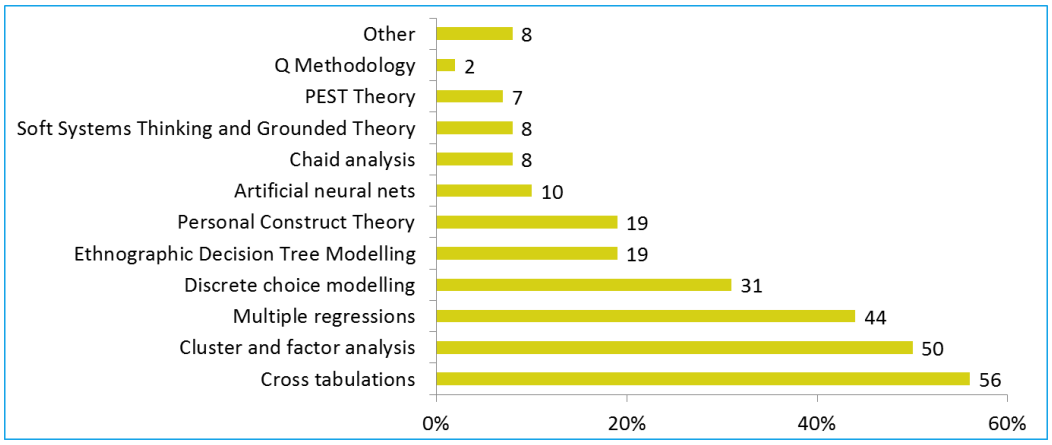



**Figure 6: What kinds of market research methodologies have you used in segmentation projects (n=50)?**

Figure 7 below shows that cluster and factor analysis dominate the recommended methodologies, followed by multiple regression and discrete choice modelling. These methodologies are most often used to uncover needs and understand how decisions can best be influenced. Ethnographic decision tree modelling is also used to understand human behaviour in the context of the most powerful influence on behaviour—namely the environment people operate in.

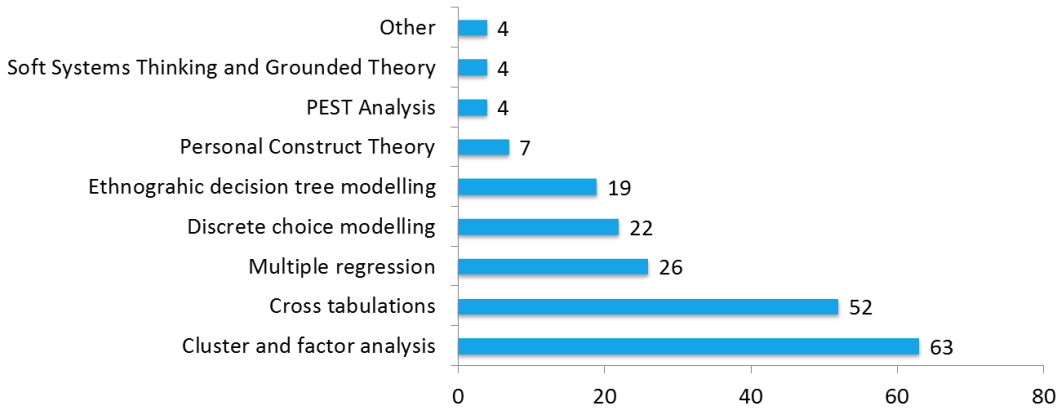



**Figure 7: Which methodologies would you highly recommend (n=50)?**

Most respondents tied the surveyed segment to their customers/database by asking questions to enable this. This approach was recommended by seven in ten. Almost half the sample suggested creating algorithms from collected data tied to your own database. Clearly a combination of the two would be even more powerful. Approaches and recommendations are shown in figures 8 and 9 below.

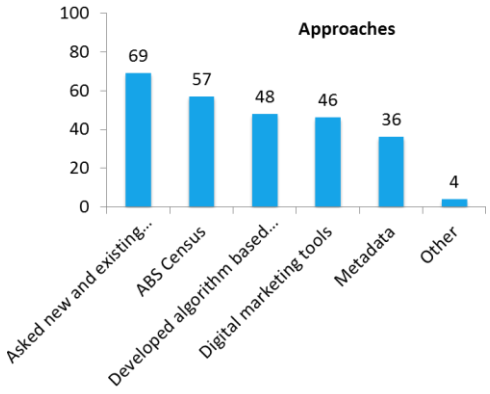



**Figure 8: Which of the following approaches did you use to tie the surveyed segment to real customers/databases (n=50)?**

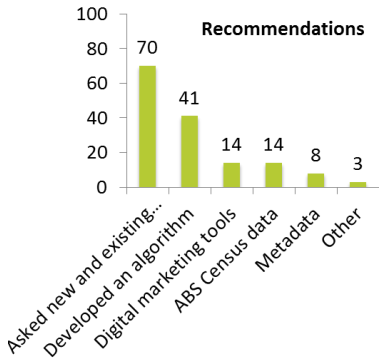



**Figure 9: Which of the following and which of these would you highly recommend (n=37)?**

### *Criteria for segmentation*

As can be seen in figure 10 below, identifiability and accessibility were rated as being highest in importance and stability the lowest. This question allowed a number of criteria to be rated high, medium or low.

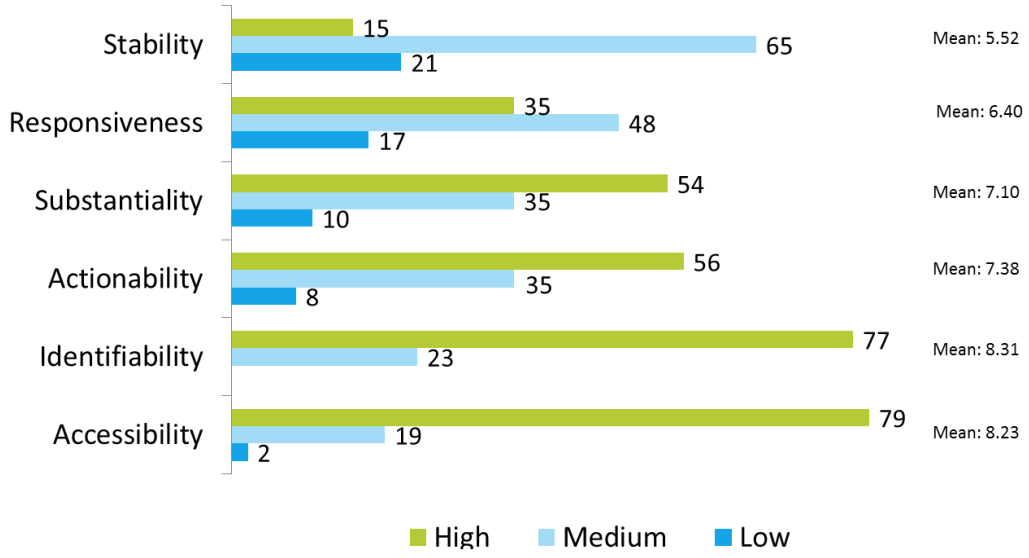



**Figure 10: In your experience how important is each of the following segmentation criteria when implementing a segmentation strategy (n=50)?**

When asked to pick one as being the most important, almost a third of respondents (32%) rated identifiability first, closely followed by accessibility (32%), and then substantiality (15%).

### *Innovation segmentation*

Only 17 per cent of respondents (n=8) claimed to have used innovation as a base for segmentation. Further probing however suggested that only a few had used innovation in a true segmentation model.

NZ has looked at why farmers take so long to take-up innovation when it is clear that the innovation would increase profitability. They have looked at decision-making as a criteria and found that early adopters were more likely to have good decision-making skills (research, ability to weigh up facts, tie them to their situation, etc).

The need to define the concept of innovation and potentially reposition it was raised. One respondent had found through research that innovation meant different things to different people—it could mean technology, capital investment, significant restructures and importantly outlay—and farmers did not always consider these a priority.

It was also pointed out by respondents that farming was a generational occupation and therefore there was an evolutionary approach to innovation if they were not early adopters. However, in this evolutionary phase the resistant older farmer and his/her more innovation-leaning children were often both present. Therefore of necessity, there was a need to create sub-segments to target both these older and younger audiences who would respond to different messages (and it was stressed that the younger ones were not always successful in influencing their parents).

### *Issues faced*

Not having enough time to effectively implement the segmentation and a lack of support from internal marketing staff and managers were the most often cited issues. Another 17 per cent said not being able to find an effective segmentation solution was the most difficult complication.

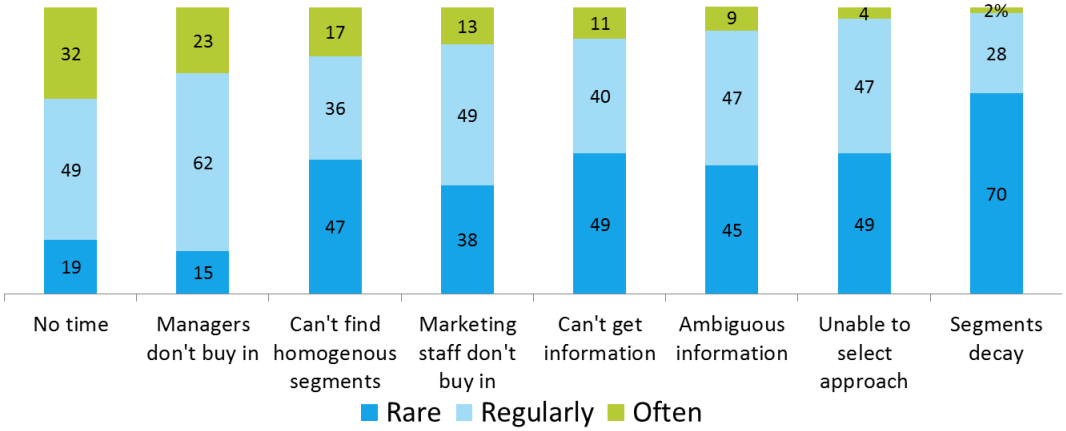



**Figure 11: In your experience, how strongly, if at all, have you faced the following complications when implementing a market segmentation strategy (n=50)?**

These issues were current with more than a third of respondents (38%) reporting that not having enough time was still the biggest issue they faced. Figure 12 shows the issues currently being faced.

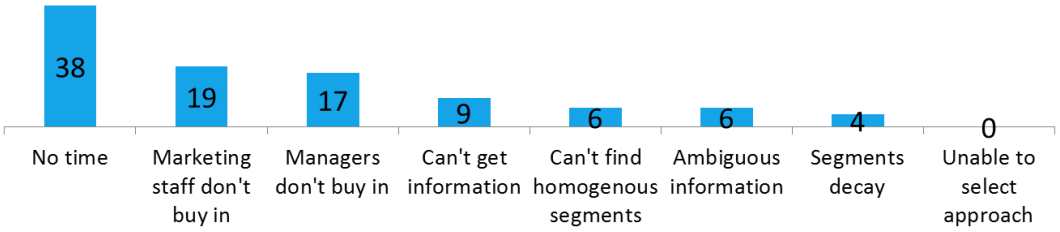



**Figure 12: Which of these is the most salient market segmentation issue for you right now (n=50)?**

### *Databases and digital marketing tools*

The majority of respondents believed that both a database and the use of digital marketing tools would be essential for MLA to undertake its work.

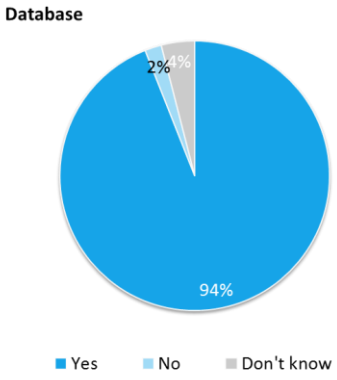



**Figure 13: Would you agree that building a database is essential for MLA (n=50)?**

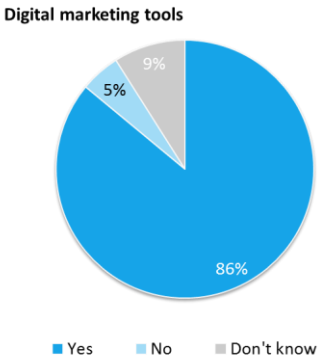



**Figure 14: Would you agree that using digital marketing tools is essential now (n=50)?**

All respondents believed that databases should hold information about people's communication preferences and one quarter thought this was the most important data. Who was a customer and where the data was held in the organisation were also very important.

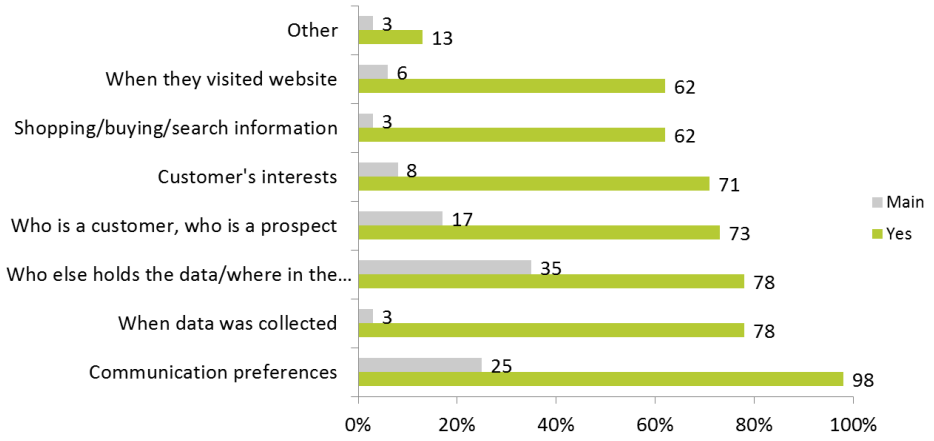



**Figure 15: What data would you consider to be essential in a market segmentation database (n=50) and which one is most important (n=50)?**

### *Case studies*

Ten in-depth interviews were undertaken and case studies recorded—seven were with agriculture-related businesses and organisations, two within the finance sector and one within telecommunications (see Appendix I). These interviews provided real-life segmentation examples and allowed us to explore the highlights and lowlights of their approaches.

The cases studies all reinforced the importance of having a database that was up-to-date and which had segmentation built into it. Some achieved this from building a new database from scratch but others built onto their existing databases. Some organisations, for example in the bank and credit card case studies, were able to use transactional data to build detailed profiles of their customers quite easily. Other organisations (for example in the pork industry case study) used a customer relationship management (CRM) to bring together data that until then had been held in different databases throughout the organisation. Having a whole-of-organisation database into which segmentation can be built and applied is an investment that can be used for strategic activities for years to come (as seen in the cattle industry case study).

All talked about how important it was to have the support of the whole organisation but how difficult this could be. Those organisations where the senior management team had decided on a consumer-centric approach and segmentation was part of the solution, reported success (for example, in the telecommunications case study). Those organisations where segmentation was seen as 'just a marketing strategy' reported difficulty engaging the different groups and encouraging a whole-of-organisation approach, for example a sales team that wouldn't record information on the database. Cross-organisational support is essential for success.

Another important theme that emerged in the case studies was how segmentation, once established, could become an ongoing part of the organisation and its product development. This is particularly clear in the case studies form the financial institutions and the pharmaceutical industry. What starts as a segmentation in order to improve access to

customers/members can become a feedback mechanism and play a role in the development of new products and initiatives.

Segmentations range from the simple to the complex. The more complex involve psychographic segmentation where attitudes and behaviour are explored and targeted. Those who had undertaken psychographic segmentation talked about how powerful and exciting it was and how it helped them understand their consumers/members better than they had before. It can also help uncover attitudes and behaviour which had been masked by the paucity of existing communication. When discussing how to increase innovation respondents spoke about the need to understand 'mindsets' to understand triggers and barriers. This was usually done through psychographic segmentation. The case studies from the financial institutions show this clearly, as does the pork industry case study.

There is evidence of longevity with one of the big four banks still using a segmentation of mortgage customers 10 years after the segmentation was designed and implemented. The reason for the longevity and ongoing usefulness of the segmentation was due to the ability to be able to identify the psychographic segment based on data held by the bank. An algorithm was produced by the segmentation research team using the survey sample of customers that predicted membership of a segment to within 70–80 per cent probability. The bank was able to wash this algorithm over their 2.4 million customers and allocate everyone to a segment. Then marketing was able to direct market to each individual customer using tailored communications. Respondents talked about the value gained from the up-front investment in a data base and a robust segmentation but cautioned that the investment was futile unless the organisation was behind it and implemented it.

# 5. Discussion

## Why do segmentation and how effective is it?

Segmentation is undertaken by most businesses and organisations—albeit to different levels of complexity. Many used segmentation to improve and target their communications, or to position their product or brand within a niche market.

Communication is important for MLA—having a good understanding of its members' communication needs, how to reach them, and the different messaging required for each segment can mean the difference between being perceived as a member-driven organisation and one which places its members last. Tailoring messages according to segmentation can make a difference in both efficiency and effectiveness. A respondent from the pork industry discussed how communicating with some segments on innovation was 'useless' and how they had found that communication about best management practice had proven to be a far more effective approach.

Other reasons cited in the research that are relevant to MLA were:

- understand lag times with farmers and encourage them to innovate at the right time
- identify specific segments who represent risk and address them

- understand why people reject evidence-based communication messages around science, technology and innovation
- validate behaviours
- identify opportunities to grow the business.

A number of respondents spoke about the importance of having evidence to support a change in the way the business approached its customer base, and that the instinct of managers or marketing staff was no longer considered enough on which to base business investments.

The survey found that the majority of segmentations (89%) were considered to have been successful and either met or surpassed KPIs.

## Segmentation bases and best practice methodologies

Businesses and organisations used a variety of segmentation bases but based on the survey, the most common were customer needs (85%), clusters of customers doing similar things (84%), demographics (83%) and geography (82%). Some respondents couldn't recommend a segmentation base because it depended on the strategy and what they wanted to achieve.

Using customer needs as a base can reveal sub-segments previously not known or clear, and which require different messages and communications because the sub-segments have different barriers and drivers. For example, of the three segments identified within the pork industry, they found two additional sub-segments in family owned farms with polarised generational views on how innovation should be adopted or if it should be adopted at all.

Psychographic segmentation was often regarded as the most difficult to do and understand, but also was often the most effective. Market segmentation according to psychographic details including value segments was seen by those who had looked at innovation as an important way to correlate attitudes towards innovation, science and technology and farmer/customer receptiveness to it.

Overall, survey respondents thought all the criteria mentioned were important in most situations. The reasons for choosing one as being more important than another were often along the lines of:

- If you can't identify the segments, then it's a waste
- If the segmentation isn't profitable, then it's a waste
- If you can't access them, then it's a waste
- If they don't respond, then it's a waste
- If you can't take action, then it's waste.

It was therefore more meaningful to look at what was the least important (stability) than the most important. Stability was regarded as the least important because respondents accepted that people would always move between segments for reasons as diverse as geography, age and farm succession: wanting stable segments was seen as being unrealistic.

Few respondents knew much about segmentation methodologies—this was usually done by research companies or company analysts, or through simple common-sense measures that they had no name for—*"we just used all the women aged under 50 who lived in a certain area because we thought they were our target".*

The survey found that the more typical statistical methodologies for this sort of work—cross tabulations, cluster and factor analysis and multiple regressions—were the most commonly used but that discrete choice modelling was becoming more common, particularly where the research was going to be used to guide business and marketing approaches for a number of years to come.

There is evidence of longevity with one of the big four banks still using a segmentation of mortgage customers 10 years after the segmentation was designed and implemented. The reason for the longevity and ongoing usefulness of the segmentation was due to the ability to be able to identify the psychographic segment based on data held by the bank. An algorithm was produced by the segmentation research team using the survey sample of customers that predicted membership of a segment to within 70–80 per cent probability. The bank was able to wash this algorithm over their 2.4 million customers and allocate everyone to a segment. Then marketing was able to direct market to each individual customer using tailored communications.

This same outcome is required by MLA in its segmentation of red meat producers.

## Criteria for segmentation

Based on both the literature and the survey, the main criteria for effective segmentation were accessibility and identifiability. These were considered important to:

- Get it right at the beginning—define the segments, make sure they really are the segments, and then test them. Find out the most effective way to reach them.
- Commitment and understanding of the segments across the organisation.
- Ensure segments are segmented by difference, not similarities. Segments are only valid if statistically different.
- The challenge is how to then reach them without contaminating the message by using the right channels and use relevant people outside the segment to influence and convert—for example, if the Republican Party had sold the message around climate change rather than Al Gore the outcome would be very different.
- Know why you're doing segmentation, what it is you want to find out or understand, and what you're going to do with the information. Be clear about this before you start.

## Where to start with innovation segmentation

Based on the research, few companies had implemented strategies based on innovation although a few were currently developing such strategies and most said they were looking at it.

Benchmarking is important in innovation so you can understand the start points and determine what measures are needed to measure evidence and set up targets. When

researching innovation it is important to ask more than if a producer has adopted an innovation—to understand the drivers and barriers it is critical to explore areas such as what results they had seen, whether they would continue using the innovation, if not why not etc. This is the information MLA needs to tailor its communication and adoption work effectively.

Innovation is also about feasibility. Understanding the feasibility for each individual grower of introducing an innovation will provide MLA with a better picture of the segment's likelihood to adopt a particular technology. Understanding capacity to innovate will allow MLA to better target innovation ideas. Capacity to innovate will require MLA to measure understanding, set targets and to track and measure adoption.

It is important to understand the innovation impact on segments by individual characteristics, stage of life etc as these 'peripheral' values, issues and contexts probably have the greatest impact on the adoption of innovation. Based on the research covered in the literature review, the following key measures will be important to include in the segmentation survey to understand capacity to innovate:

- What wealth is created on farm (amount, resources, current and past)?
- How innovation occurs on farm (mind sets, values, education, social networks, influencer networks, history of innovation)?
- Is the business growing, being maintained or shrinking and whether producer profitability is on the rise, being maintained or in decline?
- Where and who do red meat livestock producers source their information from to make decisions that aid in innovation?
- Is the business growing, being maintained or shrinking and whether producer profitability is on the rise, being maintained or in decline?
- How much investment is made in innovation, priority placed on innovation, history of innovation, and extent that the entity is stuck on what it has done in the past?

In addition to the capacity to innovate what closely follows is then the perception of the need to innovate. The greater the perceived need to innovate the more readily innovation is adopted.

Understanding each individual producer's perception of the importance of innovation and in which areas is another critical area of investigation.

## Warnings and good advice

Segmentation is a well-recognised approach in marketing and stakeholder management, but like MLA, many organisations have had problems implementing and operationalising their segmentation. Interestingly, many organisations spoke about similar issues when asked about problems, and many spoke of similar factors when talking about their successes.

**Table 4: Issues and success factors**

| Common issues | Common success factors |
|---|---|
| Not having the time to bed it into business operations (32%) | Tying it into an up to date database |
| Not getting buy-in either at senior levels (23%) or from internal marketing and communications staff (13%) | Making it a business priority not just a marketing priority |

| | |
|---|---|
| Not being able to find homogenous groups (17%) | Invest in getting it right at the beginning/asking the right survey questions |
| Can't get the information needed (11%) or find that the information is ambiguous (9%) | Take the time to socialise it within the organisation—this gets buy-in and helps people understand how they can use it. |
| Didn't do enough research at the beginning to fully understand drivers and motivators | Qualitative research is essential covering the critical possible segmentation bases to ensure an effective survey can be developed |
| Gaining acceptance among managers when the evidence was contrary to their gut instinct, experience or intuition | What are some best practice systems for changing culture in this aspect |

- Having the capacity to react to issues quickly was regarded as a key benefit of segmentation (and maintaining an up-to-date database) because it meant being able to get to people through their preferred communication channels and delivering a message or product that would resonate with them.

- Influencers were seen as an important element to identifying in segmentation because they hold significant psychological power and are important conduits for leadership and advocacy.

- A few respondents cautioned about making it too complex and ending up with a segmentation that was not viable or measurable.

- It was also seen as important to record who did what role on your database and not just the name of the business. This informs their information needs and helps you position the message so it resonates with them. For example, if you wanted to encourage a farming business to take on a new feed, you might want to contact the nutritionist with scientific detail. This would be different messaging from that suitable for business manager. One interviewee told the story of a time when CEOs of producer companies were asked if they had adopted a particular technology and the answer was no. The question was then asked of the vet/consultant/nutritionist employed or contracted by the company and the answer was yes.

- Don't sell a single innovation message around benefits but also the barriers for each segment and tailor these messages.

- Ensure buy-in and understanding from the organisation by approaching internal communication strategically and explaining how segmentation works at a business level. Some organisations found that having 'champions' in different areas worked well and others preferred to integrate the segmentation into the organisations' strategic and tactical plans.

- Most organisations found that their sales teams needed new 'tools' to make the change from a product-focus to a customer-focus.

- Once you have a segmentation it is important to ensure that any future research or study can build on the segmentation as there is real value in tracking and measuring what is happening over time.

- Understanding the value segments that drive attitudes and behaviours (not attitudes and behaviours alone) allows you to adapt strategies for success.

As mentioned previously once the segment solution/s is identified then each member must be assigned to a segment. CHAID analysis has been used in at least five of the most effective segmentation studies to enable the organisation to tie every customer to a certain segment with a degree of probability that is acceptable. Usually three or four key variables will be used and they will, in all likelihood not be currently held by MLA because the data base presently does not capture much information about red meat producers at all.

It is impossible to know which variables MLA needs to collect but this will be known at the completion of the MLA segmentation study. As soon as they are known MLA as a matter of urgency should start collecting these critical pieces of information that will enable every member to be tagged to a certain segment probably/possibly defined by capacity and desire to innovate.

***Influencers***

The importance of influencers cannot be underestimated particularly in an industry which is responsive to trusted sources and peers. Influence marketing is where a focus is placed on specific individuals (or types of individual) rather than the target market as a whole. It identifies the individuals that have influence over decision-makers and targets some marketing activities around these influencers. Influencers can be within the broader target, in the supply chain (retailers, manufacturers, etc.) or may be so-called value-added influencers (such as journalists, academics, industry analysts, professional advisers, and so on).

Partners were singled out as being highly receptive to innovation and targeted by many for communication.

Influencers can be used in a number of ways but most importantly, they should be used to persuade and encourage others. Finding opportunities to bring producers together with influencers is a powerful form of communication and a particularly good way to encourage innovation. Producers are more likely to listen to the experience of their peers and take on their recommendations, than they are to respond to an organisation, even a member-driven organisation such as MLA. This is a particularly good way to reach out to the laggards who will sometimes only adopt an innovation when they realise they may become the only one left not doing it.

It's also important to remember that influencers and early adopters often come from smaller farms and businesses that are 'hungry' to be successful and want to move into the next bigger/successful segment. This desire to move into the next segment can be a significant motivator or driver.

***The False Adopter***

The False Adopter is another segment which emerged during interviews. These are the people who appear to be innovating or say that they are innovating, but when examined more closely are not. This segment tends to report their aspirational goal or personal construct of themselves, not where they actually are.

This segment can be problematic if they are influential among their peers. They are likely to benefit not just from communications, but an actual checklist and educational tools to test what they know and whether they are implementing or not.

More research would need to be done to understand the characteristics of this segment, and their size, as they are either potential problems or potential advocates and influencers if managed well.

## Databases and digital marketing tools

There is no doubt from the literature review and from the survey and in-depth interviews that the key to using segmentation effectively lies in being able to allocate every entity to a segment and have this tied into the database.

Databases are only as good as the data they hold. MLA's first step towards a more sophisticated and targeted approach to its adoption work is to complete its database.

The need to record communication preferences (including preferred channel) was considered essential by 98 per cent of the survey respondents. Other than communication, businesses and organisations took different approaches to their databases—in the survey and in-depth interviews some people saw recording when the data was collected as critical to track (78%), others customer interests to tailor products, services, and needs, as well as barriers. But they all collected the information they needed to understand their customers or members better.

Tips and advice from the survey and in-depth interviews included:

- Record the linkages across farms, supply chains etc to understand patterns and market segments. Sometimes you need to do this across different areas of your organisation to bring databases together. It might be possible to purchase a database or customer relationship management (CRM) system of the shelf and extract information from any existing databases.
- Look for data sets not fields; build it to understand your customers and build relationships.
- Your database should help you understand your members and all the emotional values and behaviours around them, not just the economic drivers and business statistics.
- Make sure your database, CRM and digital tools' interfaces are set up to be compatible at the start.
- Add in the variables and information to help you segment them better and provide bespoke communications.

- Don’t collect data and attributes for the sake of it but to determine pre-determinants of behaviour. For example, MLA is unlikely to need information about religion or voting preferences so don’t ask for it. The research undertaken to establish the segmentation will be clear about the attributes to collect. Also look at data in isolation and in combination.

Digital tools figured strongly in the literature review and were considered essential by all the organisations/businesses interviewed and 86 per cent of those surveyed. The reasons they gave included:

- It’s the fastest, cheapest and most flexible way to communicate and receive feedback and all in real time.
- Digital tools can be used to track information and target specific segments, and are relatively inexpensive now (compared to the costs of just a decade ago), but not all users will choose to have communications online, whether because of a personal preference or because of poor internet coverage. It’s important to make it part of the marketing mix driving adoption.
- Digital tools allow you to access niche market segments and target people in the same ‘ideological pond’, and ensure you do not cross contaminate your message. If a mass media message is sent it will not be relevant, will not resonate and will demonstrate a lack of understanding of that segment’s business and needs, therefore also contaminating the relationship.
- Twitter can be useful to find out what people do and don’t like, and Facebook tells a lot about their interests and values.
- Cookies can be used to track web and social media activity which can then be generated through the CRM or other tools to roll out campaigns, messages etc.

# 6. Conclusions and recommendations

The literature review showed clear support for the use of sophisticated market segmentation as a tool to encourage and improve the take-up of innovation and adoption on farm. The power of market segmentation, and particularly psychographic segmentation, was supported in the survey and the in-depth interviews.

The key issues raised were the importance of:

- having an up-to-date data base.
- investing the time to get the segmentation right at the beginning.
- Taking a whole-of-organisation approach and using the segmentation to become a customer-centric organisation.

The following process is recommended to ensure MLA is able to:

- Maximise the impact from a member segmentation

- deliver customer-centric, targeted adoption initiatives to maximise the impact and adoption of research and development

***1. Whole-of-organisation approach***

Establish a whole-of-MLA team to take responsibility for managing the segmentation strategy. This would likely include representatives from IT, R&D, adoption, corporate communications, and finance. The team's responsibility would be to ensure the segmentation is embedded in every aspect of MLA's operation.

***2. Database***

MLA needs a database to house information about its members—who are they are, how to contact them, what they produce, the size of their holding etc. There should be only one database in the organisation and all communication should be kept within it. An off-the-shelf customer relationship management (CRM) should be investigated.

***3. Develop and embed the segments***

Undertake qualitative research to explore red meat producer's attitudes and behaviours towards MLA and MLA-inspired innovation. This phase is crucial to ensure the segmentation variables are clearly defined and in simple farmer-friendly language.

Undertake a survey of at least 3000 members to ensure a robust basic frame of reference. Important here would be a mix of geography, age of livestock producer, type of livestock producer and size of farm.

The survey should contain a discrete choice model element to allow a range of adoption approaches to be tested. This is an advanced segmentation model that will allow MLA to tailor its adoption activities to each segment.

Undertake a segmentation analysis to identify the member segments based on values and attitudes. This will need to be an iterative process where 10–20 segmentation solutions are tested for efficacy and work-shopped with the MLA segmentation team.

Imbed the final solution/s in the decision support tool delivered by the discrete choice model.

Use CHAID analysis to develop an algorithm to tie each MLA member to a segment.

- Collect the relevant data base variables from all members over time

***4. Develop strategies to meet the needs of MLA member segments***

Adoption strategies and projects and communication and marketing about these should be designed and implemented around the identified segments.

***5. Implications for adoption strategies and future investment***

The decision support tool would provide the basis for adoption initiatives as well as identify where money should be invested in future research and development.

By combining the segmentation solution with all the survey data collected about the producer, as well as how they could be influenced to take part in adoption initiatives, a profile can be produced that describes the group of people MLA is trying to reach. This profile should form the basis of every 'brief' or strategy developed to influence livestock producers.

# 7. Appendices

i. Case studies
ii. Literature review
iii. Glossary of terms

# Appendix I

1. Red Meat
2. Big 4 Bank
3. Large general insurance company
4. Credit cards
5. Pharmaceuticals

6 Telecommunications

7. Pork industry body
8. Cattle industry body
9. Agricultural researcher
10. Government department

## Case Study

# Red Meat

Background:

This is an overseas case study where the red meat sector is a key driver of the country's economy. Even so, its profitability has been inconsistent and often unsatisfactory for producers, processors and exporters alike, despite huge scientific and technological advances in farming and processing. In fact when profitability had eroded to unprecedented low levels, the government initiated a drive to double the country's overall exports. As a result a strategy was developed to identify how profitability of the red meat sector could be increased, sustainably, and how re-investment in the industry could be promoted.

The strategy identified three areas with the greatest potential to sustainably increase profitability—in-market coordination, aligned procurement and sector best practice—while putting other long-held beliefs about known issues, including processor over-capacity and stock transport, into perspective. In particular there were some perceptions that farmers were not gaining or capturing the benefit from the value chain beyond the farm gate.

The strategy identified that despite the visibility of the value chain beyond the farm gate and its fragmented and disjointed nature, reasonable value was being obtained because of the level of competition that existed, and that there were only some elements of potential improvement.

At the same it identified that in fact there were red meat farmers who were performing very well and profitably despite the market, and that the greatest potential to improve profitability was in fact behind the farm gate. The strategy identified that while many farmers were concerned about prices, interest rates, the weather and other things outside of their control, the high performing farmers concentrated on the things within their control behind the farm gate and in particular on innovation in its different forms. However the strategy did not identify why some farmers were more profitable, what motivated them to take this approach, what barriers were preventing others from having the same mindset and using this approach, what would motivate these other farmers and what would best achieve this and lift the performance of the industry as a whole.

Issue:

The aim of the current project was to build on the strategy (focusing on two of the three themes identified) and explore further profitability within the sector and looking at why some farms were more profitable than others. The focus has been primarily around productivity behind the farm gate and on what was within farmer control. This has included: (a) understanding behavioural change within the sector and between the different types of farmers (in terms of the drivers for those performing well, the barriers for the others and what will provide motivation and leverage for change in on-farm practice for those other farmers); (b) understanding what were the best channels for communicating, engaging and supporting the on-farm behaviour and the investment change needed.

Approach:

As a starting point, the organisation has 60 years' worth of information based on surveys each year of 4 per cent of farms (550) which forms the basis of an annual estimate of the farm situation for the year ahead. The data was analysed by looking at lamb production, including by geography, price per head, kilograms per hectare and dollars per hectare.

Firstly it was found that despite improvements, there was significant variability in profit per hectare in the sheep and beef sector (with still a sizeable opportunity to improve profitability). Secondly, it was found that the performance gap for key indicators between the top 20 per cent of performers and those in the second to lowest quintile (excluding lowest 20 per cent of performers) demonstrated a clear opportunity to improve productivity. Whilst there was found to be little difference in return on a per head basis (only 3 per cent), there was a significant gap on a per hectare basis (134 per cent by kilogram per hectare and 135 per cent by dollars per hectare) no matter what class of farm. This indicated that the biggest impediment to profitability was not price, but farming practice (i.e. the preparedness to apply new techniques or innovation) in a sector identified as having low uptake overall in knowledge and technology. The gap in knowledge was in understanding the 'why' in terms of behaviour change and how to best support and achieve it.

A partnership of the case study organisation, the farmers it represents, processors and government was formed and a funding source established for a red meat profit program. As part of the program a qualitative and quantitative research project was undertaken in parallel to a global scan of extension programs and models.

The first part of the research project was to identify the top 100 performing red meat farmers. This was based on a combination of very sensitively and confidentially managed sources, including the organisation's economic survey dataset mentioned earlier, financial advisers, banks, a peak accounting organisation and industry knowledge/networks. There was also a global scan of red meat profitability looking at the current trajectory and how they could change the arc by transforming behaviour and activities.

The next stage involved qualitative research and involved:

- Fifteen focus groups of farmer partnerships (i.e. farmer, partner and/or family) with 6 to 12 participants in each across the country and sector; with two of the groups being women-only focus groups
- Ten indepth interviews with indigenous agribusinesses (recognising that they represent 20 per cent of the relevant landholdings in the country)
- Twelve intensive farm case studies involving visits to the farm business and 6 or more hours of conversation and review of the farm enterprise (sometimes involving overnight stays)
- Thirty indepth interviews with 'trusted' advisers—wider than just farm advisers and including accountants, banks, etc—to gain insight and test whether a hypothesis that having more farm advisers will address the gap that exists in innovation adoption and in increasing profitability.

Following the qualitative research, a nationally representative 25–28 minute telephone survey of 1000 red meat farmers was conducted. The level of engagement of respondents

was high because of the very transparent manner in which it was conducted and because it was understood that the primary purpose of the research was to help improve farm profitability.

In addition to the above research, they also undertook work to develop a new extension model with restructuring over the last four to five years from a central model to a regionalised and disseminated approach. There was also a steady shift from a top down approach to a more farmer centric, cooperative, bottom–up philosophy.

Despite this restructuring it was found that while the extension model 'was not broken, it was not working' either. As an example, it was explained that within a year 375 events were run with a total of 17 500 attendees (comprising 5000 unique farm enterprise attendees). Therefore while penetration was high, it had not achieved wholesale behaviour change.

As part of understanding the potential extension model solution, the organisation undertook a global scan looking at 60 extension programs that were relevant (mainly in Australia, UK, USA and Asia, but also in Argentina) and identified the drivers for extension models, including the contextual factors (or observable differences), geography and intensity. One aspect has arisen regarding a cooperative research and extension (AACREA) approach. From this scan, the organisation developed a tool that identified, based on the farmer profiles, the type of extension that would be most appropriate.

The next stage involves combining the results of the research and global scan for a series of case studies and pilots of extension models using a matrix system comprising: (1) individual farmers with technical advice support; (2) groups of 5 to 10 farmers with technical advice support; (3) a regional hub model. This includes looking at farmers being in control from top to bottom in the innovation/development process; the effect of farmers working with farmers (to provide confidence in making change and in holding each other accountable); and farmer plus processor/value chain models. The pilots will involve: (1) running the segmentation study across the pilot farmers to identify their segment and how to motivate and support them specifically; (2) a financial assessment across the farm enterprise to identify the level of performance; and (3) using the tool developed to determine what the extension approach would be most appropriate. This will be done three times throughout the pilots to identify what if anything has changed in terms of on-farm behaviour, financial performance and what extension has worked most effectively. (It was commented that the future extension models are likely to be farmer centric and orientated to the value chain, and that funding bodies will need to adjust to having to respond more to specific requirements).

Result:

The combined research results (only recently completed) identified among other things that there were five segments which could be described as: (1) The change focused; (2) Pushing hard but followers; (3) Cautious changers (often solo operators, i.e. without a partner and so not having someone close to discuss opportunities, options and decisions); (4) Taking it easy; and (5) Change resistant.

There were three key trusted influencers in the farmer decision making process: (1) The role and influence of the life partner (e.g. wife) and/or other family member—in fact the role and impact of women in the decision making process can be critical; (2) Other farmers—peers

play a vital part in the process as sharers of innovation, sounding boards, etc; (3) The veterinarian.

It has also been found that 65 per cent of red meat farmers don't budget and of the remaining 35 per cent, 30 were not classified as being effective. This leaves only 5 per cent who were characterised as fully effective budgeters. This is worth noting, particularly in light of the earlier strategy research which discovered that 80 per cent of farmers actually believed that they were performing at the top 20 per cent of the industry which offers an explanation for why some farmers do not seek to improve.

The pilot testing will help to determine the model to use for the future and the value and relevance of the segmentation in this. The next step also includes understanding the lag time between farmers hearing about or seeing an innovation that will significantly improve their profitability, and taking it up—is it just the cost of the investment or is it their inability to process the facts and make a decision?

Using data bases:

The organisation is still relatively new to using a customer relationship management database, with concerted use and application of the database only in the last 18 months. It is estimated that the database has reasonable coverage and accuracy (around 65–75 per cent), with improvements continuing.

The database identifies who has attended events or access services, what they attended or used, and specifically who in the farm enterprise actually attended. They have introduced processes and tools including the use of iPads at events for noting attendance and checking and confirming the accuracy of details with simple details like a phone number being updated at the time and the option of indicating more detailed information needs a follow-up contact to update.

There is not a plan at this stage to incorporate the segmentation into the database but this may change depending on the outcomes of the pilots.

Key learnings for MLA:

- There is evidence that on farm practice improvement and innovation is a major factor in farm enterprise profitability.
- There are likely to be segments of farmers who believe they are innovative and high performing (but are not) and who therefore disconnect with the need to innovate.
- Using innovation adoption as a basis for segmentation and determining the approach to engaging and generating behaviour change in behind farm gate practices has validity.
- There is a need to take account and accommodate the different people in the decision making process for a farm enterprise, and in particular acknowledging the partners' role and the value of farmer-to-farmer relationships.

**Case Study**

## Big 4 Bank - Mortgage customers

Background:

The mortgage business is highly competitive and very price based. However the analysis showed that many Australians use their home as the prime driver of wealth creation. It was also hypothesised that wealth creation using the home loan would follow a small number of unique paths determined by preparedness to take risks.

The bank undertook a significant customer and potential customer consultation that involved over 40 group discussions across Australia to identify and ratify the various wealth creation paths and to better understand how these paths are determined. This qualitative research was integral to developing the detailed understanding of what was important to its customers as well as to develop ideas for highly tailored product to certain segments.

The company uses its segmentation solution to brief advertising agencies, to undertake direct marketing to customers as well as to develop new product to certain segments where there are opportunities.

This segmentation project has been the driving force in both retention and acquisition mortgage strategies for more than 10 years.

It is widely recognised within the organisation that without providing personally relevant information fewer customers and potential customers will be acquired or retained.

Issue:

The company wanted to understand the dominant mind sets that existed with regard to home mortgages and how Australians used their home mortgages to build wealth over time. Again the strategy was to use these segments to build the most effective acquisition and retention strategy and then tailor communications and new product development appropriately. In total nine segments were identified and profiles.

Approach:

The following approach was used:

- Extensive internal consultation to make sure than the project had wide support internally (operations and marketing were considered highly aligned and this contributed to the success of the segmentation)
- Extensive focus group consultation with customers and potential customers which explored personality traits, values, attitudes and behaviour. The group discussions covered a wide geographic region as well as being structured around life stage or life experience.
- Following the qualitative stage an organisational workshop was conducted to agree the most valuable segmentation bases.
- This organisational agreement guided the survey development and the development of a choice experiment

- A survey of 3600 customers (2.1 million customers in their mortgage book) and non-customers was conducted and included a choice experiment that test a range of price, distribution, marketing and promotional ideas around mortgage product.
- Over 20 segmentation solutions were run and all were embedded into the decision support tool that housed the choice model and survey data. This tool allows 'what if ' scenarios and profiles to be run
- CHAID analysis was used on the data set to develop a set of algorithms that predicted psychographic segment membership based on a set of basic demographic variables
- The algorithms were washed over the 2.8 million plus customers allowing targeted marketing to be developed. The algorithm is washed over the entire data base quarterly as people did shift segment.

Result:

The segmentation and associated marketing and product strategies have been extremely successful with bank focusing on building the value proposition. It is attributed with the bank growing its home loan business in the down turn of 2003/4 because it could talk in more relevant ways to its mortgage customers and better understood what their needs and aspirations were.

Using data bases:

The company uses their data base on a monthly basis for marketing activities—they consider it the mechanism through which they both identify their segments and understand them. It has been built primarily through transaction data and includes segmentation identifiers but creative agencies are briefed on the basis of the decision support tool and the profile it runs for any segment communication. The profile forms an integral element of the creative agency brief in terms of who that communication is going to.

Key learnings for MLA:

- Psychographic/values based segments are the most powerful and exciting for marketers and creative agencies to work with.
- The choice model will identify the key triggers of involvement in adoption for each segment and should be incorporated in the MLA segmentation study (the potential triggers to be tested will be developed in the qualitative study that precedes the segmentation study).
- Segmentation helps direct communication as well as directing change of product.
- Segmentation should be built into the database and this may involve collecting some new information.

**Case Study**

## Home insurance

Background:

The insurance business is highly competitive and difficult to persuade customers of the value of insurance. Some customers see insurance as a grudge purchase while others value their assets and value the ability to reduce risk by taking out insurance. It was hypothesised that personality traits along with life experience may determine the various mind sets that are present amongst consumers with regard to home and motor insurance.

The company undertakes frequent and robust consumer research so they can identify opportunities to build better product and develop more effective marketing and sales initiatives. Over time this has helped the company develop an understanding what is important to its customers as well as to develop highly tailored product to certain segments.

The company uses its segmentation solution to brief advertising agencies, direct marketing to customers as well as new product to certain segments where there are opportunities.

The organisation while having to reduce it segmentation activity post the global financial crisis is committed to segmentation as being the most valuable way to build greater value in its customer base and to enhance its marketing effectiveness.

It is widely recognised within the organisation that without providing personally relevant information fewer customers and potential customers will be acquired or retained.

Issue:

The company wanted to understand the dominant mind sets that existed with regard to home and motor insurance in order to build the most effective acquisition and retention strategy and then tailor communications and new product development appropriately.

Approach:

The following approach was used:

- Extensive internal consultation to make sure that the project had wide support internally (operations and marketing were considered highly aligned and this contributed to the success of the segmentation)
- Extensive focus group consultation with customers and potential customers which explored personality traits, values, attitudes and behaviour. The group discussions covered a wide geographic region as well as being structured around life stage or life experience.
- Following the qualitative stage an organisational workshop was conducted to agree the most valuable segmentation bases.
- This organisational agreement guided the survey development and the development of a choice experiment
- A survey of 2000 customers and non-customers was conducted and included a choice experiment that test a range of price, distribution, marketing and promotional ideas.

- Over 20 segmentation solutions were run and all were embedded into the decision support tool that housed the choice model and survey data. This tool allows 'what if' scenarios and profiles to be run
- CHAID analysis was used on the data set to develop a set of algorithms that predicted psychographic segment membership based on a set of basic demographic variables
- The algorithms were washed over the 2 million plus customers allowing targeted marketing to be developed.
- One segment was identified that wanted more insurance. Ethnographic interviews were conducted with targeted customers that were members of this segment and a premium insurance product was established and marketed directly to the target segment.

Result:

The segmentation and associated marketing and product strategies have been extremely successful with the insurance company focusing on building the value proposition with a highly intangible product – insurance. It was also successful with the new product innovations.

Using data bases:

The company uses their data base regularly for marketing activities—they consider it the mechanism through which they both identify their segments and understand them. It has been built primarily through transaction data and includes segmentation identifiers.

Key learnings for MLA:

- Psychographic/values based segments are the most powerful and exciting for marketers and new product developers to work with.
- Cross organisational support is essential for great success. Segmentation is relevant to many aspects of the business not just marketing.
- The choice model identifies key triggers of involvement for each segment and should be incorporated in the MLA segmentation study.
- Segmentation helps direct communication as well as directing change of product.
- Segmentation should be built into the database and this may involve collecting some new information on meat producers.

**Case study**

## Credit cards

Background:

The credit card business is highly competitive. This international credit card company undertakes regular values-based research across the world so they can compare different country markets against each other and tailor their marketing accordingly. Over time this has helped the company develop an understanding what is important to its customers—for example, their home and furnishings, learning, prestige, or recognition. Understanding the variations in values between and within their markets helps them understand the creative execution of the brand.

The company uses commercially available data groups when they undertake segmentation research as well as the information they have available to them such as average spend and age, where customers spend their money, how much they spend in retail versus on health, their income and their work status. They also try to work out their prospective market using segmentation to assess where customers probably have more disposable income than what is appearing on their credit card. They consider choice modelling to be the most effective technique in transforming their research findings into marketing strategies.

The company is also involved in the business-to-business (B2B) market, encouraging businesses to use credit cards for business payments. This case study focuses on their B2B market.

Issue:

The company knew the large business payment market well but wanted to understand how much of a business's invoices were put on credit cards, and then wanted to increase this percentage and have those using other credit cards move to one of the company's cards.

Approach:

They began by using a third party data agency to extract relevant information. They analysed how B2B payments were made by first looking at geography, Guest Research, and the IBIS data base. They also used some 'managerial intuition' but looked through their own and other databases to back this up. They couldn't get specific locations for businesses but could get size by using Dunn and Bradstreet's database along with publicly available data.

In this case study, their methodology involved interrogating third party databases as well as their own data and they found this was enough to produce clear results. Their information indicated that the segment most likely to be under-using credit cards for business payments was the small business segment, and particularly where these businesses were set up as trusts.

Once they began to understand the large number of small business set up as trusts, their challenge was to understand the beneficiary and regulatory issues around who benefits from the trust if things go badly, and anti-money laundering regulations. They spoke with businesses within the segment as well as financial advisors in a bid to better understand the issues and implications with the use of credit cards for trusts.

In order to resolve the issues and make credit cards payments an attractive option for this market, the company needed to change their product before adapting their marketing. They were required to change underwriting policies to accommodate small businesses who were set up as trusts.

Once they had done this, they were able to target small businesses with their new product which had been tailored to meet their needs.

They found this segmentation easier to 'sell' internally because it wasn't values-based. Their experience has been that while value-based segmentation is equally valuable—and in many cases more valuable—it is more difficult for businesses to understand and adopt. When they conduct values-based segmentation, they implement internal communication strategies to help staff understand not just the segmentation, but what it is saying about the way they are doing or not doing their work.

Result:

The segmentation and associated marketing strategies were considered very successful as they were able to double their business in this segment. It was also successful because before this, they had tended to segment by industry type rather than size and this piece of work was the first time they realised the large size of the small business sector and this opened up a number of business opportunities.

Using data bases:

The company uses their data base regularly for marketing activities—they consider it the mechanism through which they both identify their segments and understand them. It has been built primarily through transaction data and includes segmentation identifiers.

Key learnings for MLA:

- Third party data bases can be used, along with an organisation's own data, to gain insights and identify segments.
- The key insight can lie within a sub-segment of the traditional segment.
- Segmentation doesn't just help you direct your communication; it sometimes directs you to change your product.
- Segmentation should be built into the database.

**Case study**

## Pharmaceutical industry

Background:

The pharmaceutical industry—both prescription pharmaceuticals and over-the-counter medication—is a big user of psycho-graphic or values-based segmentation. This is because decisions around health treatments are closely related to a person's motivations, attitudes and values.

Issue:

This study involved an overseas pharmaceutical company looking to increase their share of the over-the-counter indigestion medication market. It was well-known within the medical and pharmaceutical sectors that indigestion went largely undiagnosed and untreated but little was known as to why.

With a lot of people choosing not to treat their indigestion, this was a large untapped market. But to target them correctly, they needed to understand why these people chose not to treat their indigestion, especially with over-the-counter medication.

Approach:

They began by looking to understand the issue better. They conducted facilitated discussions and in-depth interviews with consumers, pharmacists, general practitioners and gastroenterologists to tease out the issues and suggest the segments, and then quantitative research to validate the segments and estimate the sizes.

There were some surprises thrown up by their research. They had presumed that age would be a key factor in the market—that the older you were the more likely you were to have untreated indigestion—but instead found that it was more likely to be younger people. By taking a psychographic approach to their segmentation, they sought to understand people's attitudes towards 'minor' health problems, their decision-making around whether or not to see a doctor, and whether or not to actively seek over-the-counter medication.

They identified a significant segment which comprised mostly younger people and who chose to ignore their indigestion because it didn't 'fit' with the image they had of themselves. These people thought of indigestion as an "old man's" problem and something they didn't want to be associated with.

The company chose to concentrate on this segment because they thought they could use their insights from the segmentation to change their attitudes and respond to the marketing investment.

With the insights from their research they decided they needed to reposition indigestion so that its acknowledgement and treatment were more socially acceptable, especially for younger people. Through their marketing, they positioned indigestion as something that affected people who were 'on-the-go' and had busy lifestyles.

They changed their advertising imagery to reflect young people with action-packed lifestyles and their messaging to reflect to ease and simplicity of treatment. They changed their packaging to reflect this, designing small handbag/wallet sized packaging that looked more like a throat lozenge than traditional medication. They also directed their point-of-sale advertising to supermarket check-outs where their purchase could be made on impulse rather than in the medication aisle where a person would have to actively to seek treatment.

The company experienced some resistance from within their sales area because they were being asked to talk about their product in a different way. They overcame this with internal communication and selling 'the voice of the customer'. The resistance was easily overcome.

Result:

The result was a 'significant' increase in sales from the non-traditional market i.e. they increased the size of the market as well as their market share.

Using data bases:

The company maintains an up-to-date database that has been built through sales contacts and segmentation. They regard their segmentation as a critical part of the data base and it is used regularly for marketing campaigns and refining communication and messaging.

Key learnings for MLA

- Important to identify the segments.
- Important to validate through research—sometimes you find out that your assumptions were completely incorrect and if acted upon would have led to failure.
- Segmentation can be used to reposition products or services so they are more 'acceptable' to an audience.
- Segmentation should be built into the database.

**Case study**

## Telecommunications

Background:

Telecommunications is a highly competitive business that covers the consumer and business markets. Many companies have changed from the traditional organisational model which structured along organisational lines, to one that is consumer-centric and organised according to customers and their needs. They have done this to help them understand their customers better. This case study looks at how a telecommunications company used segmentation to shift its approach to its wholesale and business-to-business (B2B) sector.

Issue:

This telecommunications company wanted to introduce a market-managed and needs-based approach which would shift their product segmentation focus to a business and customer-centric one across the wholesale and B2B side of the business.

The company believed they weren't taking enough advantage of opportunities in the marketplace because their approach and product offerings were too broad—that by offering a product to suit everyone, it in fact suited very few customers. They wanted to target their customers better, differentiate the company and its offerings, and meet distinct customer needs. They saw the challenge as providing an end-to-end solution for customers as well as developing the internal capacity to deliver it.

Approach:

Their approach had the full support of their new CEO. They began by undertaking the biggest piece of qualitative and quantitative research their company had ever undertaken in Australia. They had assumed that they would be able to adopt the same segmentation that the USA arm of their company had effectively used, and this broke the wholesale/business sector into five segments.

The introduction of the segmentation into the business resulted in a whole redesign of the company's approach to its business.

Instead of the traditional organisational model, they set up segment teams and aligned these across the organisation to identify the end-to-end product solution for each segment. They then developed product, media, communication and marketing strategies for each segment and worked with their IT and product teams to develop the necessary interfaces.

A centralised marketing team worked across the segment teams to get their campaigns in place and develop new roles and job descriptions. It took a lot of work from the CEO, communications and all levels of the business so that everyone understood that this was how they would go to market, that the customer was at the centre of everything they did and that this was the company's vision and focus. They worked hard to get people on board by communicating and engaging across the leadership teams, talking to them about what the project was about, selling it in and getting people to take ownership.

There was also the challenge of getting the team to think about the customer and customer needs (versus the 'widget') and the whole customer journey. It took a while for staff to understand that the customer experience was part of the solution, and the power of that to differentiate the company and its offerings.

Result:

The result was seeing an entire company change its focus from product and technical outcomes to a customer-driven approach. The down side was that by using the USA segmentation they had produced segments with too few companies to make them cost-effective to target separately—the USA segmentation could not be effectively overlaid on Australia's smaller population. They later reduced the five segments to three and this segmentation is still being used today.

Using data bases:

For this company the database is the tool that allows them to use their segmentation—once their segmentation was considered successful they applied it to the database and ensured that all future entries were coded with the relevant segmentation bases.

Key learnings for MLA

- Applying another segmentation won't necessarily work—need to validate your segmentation
- Segments need to be sizeable and profitable otherwise you can spend a lot without any ROI.
- Successful segmentation requires a lot of work to be done internally to ensure it's understood and operationalised at every level.

**Case study**

## Pork industry body

Background:

The pork industry is a small sector and possibly still recovering from recent times which saw record droughts, a high Australian dollar, and the collapse of export markets and pig prices and sent between 15 and 20 per cent of the industry out of business. There are around 20 large producers responsible for 50 per cent of the market, and 400 medium producers responsible for 40 per cent of the market. The remaining 10 per cent are small producers and most probably involved in other forms of farming.

Issue:

After difficult times in 2007–08 there was a feeling within the industry that things needed to change and that innovation and the uptake of technology was probably the most important factor for the industry's survival. Those producers who had adopted innovation—generally the larger producers— had fared better than those that hadn't. The issue they faced was how to engage the medium and smaller producers in innovation.

Approach:

They began by looking at their three size-based producer groups:

1. The large consolidated producers who operated like companies
2. The medium-sized producers who were often family-owned
3. The small producers who were not easily engaged and who were probably conducted mixed farming or hobby farms.

They conducted research looking at the information and other needs of these three groups, focusing in particular on what encouraged or discouraged them to take on innovation.

The research indicated that while dividing the industry into three key groups was useful in some situations, it had prevented them from gaining a full understanding. Their biggest learning was in the middle group which turned out to comprise two segments.

The first segment comprised those producers who were very well organised and likely to become large producers. These were early adopters and in some cases earlier adopters than their first group of large producers. They were likely to become the leaders of the future.

The second segment in this group was in some turmoil, usually as a result of succession issues and tension between the old way of doing things and the new way. The organisation had not realised how big a problem succession planning was until it was highlighted in their segmentation. This segment appear to be the least stable with some eventually moving into the other segment and others declining their production and moving into the small producer category.

The small producer segment was found to be problematic. They were less likely to engage with the industry—and therefore innovations within the industry—because they didn't identify

with it. They were also less likely to have quality assurance processes or understand even the basics of biosecurity. They were also less likely to use the services of a vet familiar with pigs.

Following their research they had four segments and the organisation based its communications on innovation and farm management. For the pig industry communicating with some segments on innovation is considered useless and an improvement within the industry more likely to be achieved through information on best management practice instead. Early adopters needed different communications and were more open to looking at what was happening and how they could use it.

Results:

The organisation considers their segmentation work to very successful but more as part of an ongoing journey than as an end in itself. They know their customers better than ever before, they tailor their information more effectively which has led to efficiencies, and they believe they are starting to understand the drivers of innovation and how to influence these.

Using databases

The organisation uses a CRM which incorporates information previously held in separate data bases. The CRM considers the whole supply chain as this provides a bigger picture that lets them see patterns and links.

Key learnings for MLA

- Segmenting on demographics such as size only gives you so much information. Attitudes and behaviour (psychographics) can tell you much more
- Rogers's innovation diffusion theory is relevant in the agricultural industry although not all producers fit neatly into one category (i.e. early adopters) for every form of innovation in their business.
- Look at segments as a whole, for example the supply chain is relevant too.
- Set targets to aim for and measure against.

**Case study**

## Cattle industry body

Background:

This cattle breed industry body is responsible for ensuring the quality of the herd and encouraging its improvement through research and modern genetic breeding technology.

Issue:

To improve the herd, the organisation needed farmers to take advantage of the modern genetic breeding technology available to them but did not have the resources to reach out to everyone farming the breed. They needed to focus their attention on those farmers most likely to be receptive to innovation.

Approach:

The organisation started by reviewing the information they held on their data base. They had information which showed who was using breeding technology as well as who was showing an interest in the technology by requesting in formation, attending seminars etc. They could also tell which members were showing no use or interest in technology. They used this as their basis for segmentation and came up with three segments—early adopters, conservatives, non-users.

They were keen to provide all members with information about genetic breeding technology but used their segmentation to tailor the messages. Those who were non-users received basic information and an invitation to seek out more information on the website. They then invested their resources in the breeders who were using new genetic breeding technology, or were considering adopting it. They designed different information/education resources for the early adopters and the conservatives, with slightly different messaging reflecting the current use of the technology. They invested most of their resources in providing the most complex and instructive information to the high technology users where they would get the biggest return. While the group represented only five per cent of the organisation's members, it was where they would have the biggest influence and it was a group who would in turn influence other clients to embrace the technology. They also knew that improvements in the herd at this 'top end' would flow through.

Results:

Their strategy was considered very successful and they met their KPIs with regard to a genetic improvement in the herd. They also reported that their segmentation allowed them to invest their time and energy in the area where they would get the 'biggest bang for their buck' without neglecting the needs of other members.

Using data bases:

The organisation is aware that it is a fast-changing industry and that while the nature of the segments won't change in the immediate future, some members will move between segments, hopefully towards higher engagement with technology.

They stressed that they could not have developed and implemented this strategy so quickly and easily without their comprehensive and up-to-date database. This is considered critical.

The herd within Australia is relatively small and the organisation already had and maintained a comprehensive and up-to-date database they were able to draw from. From this data base they were able to see how familiar their clients were with genetics/breeding technology and whether or not they were using it. While this information had been collected, they had not seen it as a segmentation base until this time.

Key learnings for MLA

- Simple innovation adoption segmentation can be effective
- Target early adopters with complex information
- Targeting the group which will give the greatest ROI is effective
- Maintaining a comprehensive data base is critical

**Case study**

## Move from high fat meat to lean meat

Background:

This case study comes from a retired agricultural researcher who spent much of his career working with farmers and seeking to understand them better. Over the years he became a great fan of ethnographic research: “you can look at your segments by size, productivity, return, market activity and location, but you need to sample to get an understanding first and foremost a) where farmers are at, what they are doing, where they can do it better and how to get there, and b) how they can value-add to their product by adopting certain practices such as better stockmanship, identifying better markets etc. … The interesting thing was it was the partners who actually better understood what was being explained.

Issue:

In this study, the issue was to get farmers to understand changes in the market, particularly a major shift in consumer demand for lean pork at a time when farmers were producing high fat pork which had traditionally been the industry standard.

Approach:

The first step was to clearly define the industry’s needs including carcass definition so that farmers understood the new industry bench mark and how they could best achieve lean pork grades through changes to the quality of feed used and the breeds of pig that would make the most efficient use of that feed.

The second step was to identify who they needed to target. Previous experience suggested there would be mixed reactions to understanding and implementing change. Some farmers would be early adopters because they knew they would make a good living out of a higher quality product, others would be late adopters because they wanted to see their peers put the new approach into practice first. Others still would be in financial straits and adopted out of sheer desperation and need. There would also be the laggards who were making enough money out of a lower grade product so were not driven to innovate or change; the cynics who didn’t believe there were changes in the market, and finally the blind fatalists who just hoped they would make it through. Overlaying this were also the emerging generational issues and attitudes towards change between the old and the new and the young and the old.

Qualitative research was conducted where farmers where asked whether they intended to implement or change their practices, how they felt about needing to make changes, what barriers they faced, what were their goals and aspirations, their profit and cash flow targets and whether they saw their farm as a business or a lifestyle. They looked at generational issues and who had the most influence. They created scenarios based on where these segments were, used dollars as a criterion and overlaid that with their values.

They created scenarios based on these findings, and socialized them with the identified key influencers and the segments directly, and through fact sheets and forums.

They also helped facilitate forums and brought people together. When a solution couldn't be found or there was a gap in government support or resources, the smart ones would broaden their horizons, form groups and alliances and start to undertake research and address issues themselves including developing their own advisory services for other farmers.

The other issue found was that meat producers were more likely to take their time to think about things before acting because they tended to think they had a lot of time to implement change, coupled with the reality that it takes a long time to implement change in beef cattle herds. This was unlike wheat farmers who lived with seasonal crops and annual cheques and saw change as occurring much quicker. For meat producers, production is continuous and that appeared to either make them more complacent or fire them up depending on whether they had high and low throughput—the higher the more acute and the more sensitive.

Farmers were also found to be competitive and so they used field days and other events for carcass competitions to show what a premium vs low grade product looked like and what it took to get that calibre of product—it was visual and hands on. They also used diaries and spent time with pig producers to track what was going on and what they were doing. There could be an issue in the operations, housing, feed etc that they were unaware of or that there were better ways to do it.

In addition to socialising and educating farmers, a similar process was used to educate and talk to the supply chain so that they also understood the grade of meat that would be acceptable to supermarkets in particular.

Given farmers often fed pigs their own grain and were using other breeds that didn't fare as well under Australian conditions, the approach also helped farmers work through their pig management and marketing cycles to understand at what point they could fully adopt and meet the new standard by bringing the pigs and profit equation together. This included identifying off farm and on farm issues—specifically quantity, quality, inventory and cash flow and allowing farmers a realistic time frame over a ten year period. The value of 'baby steps' gave people not only targets but also time to think about it, and incrementally implement and innovate to meet the new standard.

Result:

Finding the right people to talk with was central to the success of the project. These included a) people who had already identified they had a problem and now wanted the resources and a sounding board to help solve it and b) those who they had worked with to identify the issues and barriers and how to address them.

The other key success factor was delivering the project in realistic steps that would allow the different industry segments to change on an incremental basis and identifying where and how they could do this financially through their management, marketing and pig production cycle.

The segmentation also identified who were drivers of innovation who in turn would then influence others to innovate. Late Adopters watched the results of the Early Adopters and once implemented and proven were then were prepared to change. Laggards also then

looked to the late adopter segment to see if the financial gain was sufficient to change current practices. Educating and working with the entire supply chain also drove change, with butchers and supermarkets, once aware of the new standard, only accepting the premium lean grade.

In less than five years, the new standard for lean pork was fully adopted and appeared on all supermarket shelves.

Using data bases:

“You can’t know or assist what you can’t find or identify.”

Knowing your customers only by demographics will provide very little useable information—without knowing what pushes their buttons, their goals and interests, it’s almost impossible to engage them and demonstrate the barriers and issues they face. A good data base will capture your influencers, the basics of stock type, size, numbers etc, and also your members’ values, their goals, their needs and their barriers. A good data base should also be able to help you measure and track your programs and advice.

Key learnings for MLA

- Talk to members, ask about their issues and concerns etc, and record the information in your data base.
- Many people respond well to innovation if it means earning more money—make the economic argument.
- Don’t just talk to farmers as individuals—talk to them as a family or a business unit.
- Accept Innovation Theory and that you will always have early and late adopters and laggards. Work with this, not against it.

## Case study

# Government agricultural department

Background:

This is a simple case study in segmentation but an interesting example of how a government department looked at the opportunities and threats that they faced in achieving their goals and used a simple segmentation model to help them focus resources on the areas that would make the biggest difference.

Issue:

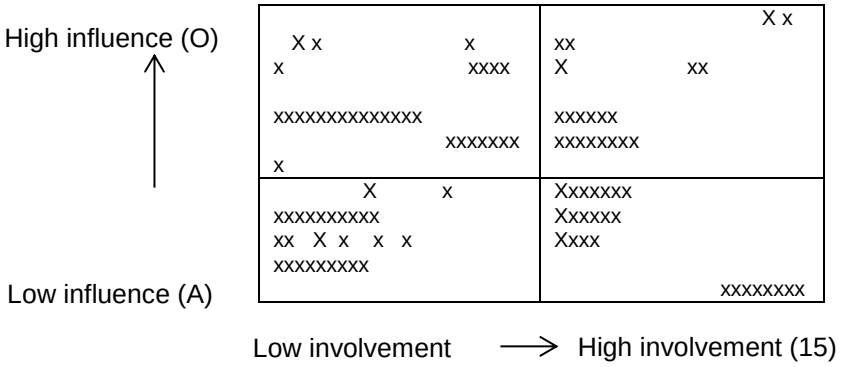
Trying to communicate and engage with all livestock producers across the state was too time consuming and ineffective, particularly in an environment of scarce resources. It had become necessary to identify all their clients and determine how much resources they invested in communicating with them—how much, what type, and how often. They needed to know how important the people they were talking to were, how to talk to them and what messages would be most relevant and effective. They also needed to know which clients would spread messages or influence the agenda.

The department called in a communications expert who told them that they would need to segment their customers if they were to achieve their business and communication objectives.

Approach:

The department already had a data base which was segmented along the lines of livestock type and organisation type which gave them some idea but was not enough to determine where they would get 'the biggest bang for their buck'. They considered different segmentation bases and approaches but in the end chose influence and involvement as the two key factors that affected their business and communication objectives—influence because of a farmer or a farming group's ability to influence political agendas and therefore the department's objectives, and involvement to capture the level of willingness to work with the department in areas that required change.

They considered different ways to achieve the segmentation but decided that by using their existing database and the knowledge held within the department, that they could do it in-house. They then began a lengthy and quite intense process of mapping the individuals and organisations on their data base to a traditional matrix model as shown below.



To do the mapping they had a series of workshops ranging in size from just a few people to small groups, depending on the levels of shared knowledge and experience. They then held a series of one-on-one meetings with senior executive to refine the mapping and seek their support and buy-in.

Once they had an agreed matrix they merged the information into their data base by scoring each entity against influence and involvement, for example a highly influential entity with only moderate involvement might be coded O8. This gave them the ability to choose any group of entities according to type, livestock, influence or involvement, or any combination of these.

The next step was to develop a plan to get people on board by showing them what had been done and how they could use it to improve their work. They held workshops for project managers at senior levels to get their support and to use the segmentation to influence strategic planning. They then worked with people at a tactical level to ensure individual project plans under the strategic plan also reflected the segmentation.

Key messages and communication product types were developed for each of the segmented groups to reflect not just their organisation type or livestock interest but also their level of influence and involvement.

Result:

At the time of the interview, the tactical level project plans were only just being rolled out so clear results were not available. What they have achieved however was a deeper understanding across the department of who their key clients were, i.e. which entities were likely to influence the political and agricultural environments and therefore worth investing resource into the relationship. They also know now which entities are likely to either seek involvement or be most likely to become involved in the change measures they needed to implement.

They are changing their approach to communication to reflect the segmentation. All the entities on the database receive regular communication, but those more influential and involved receive more detailed and regular communication. Messages are also more likely to reflect a ‘partnership’ feel for those rated as more involved. They expect to keep refining their communication as their plans are rolled out and they receive feedback.

Using databases:

The department started out with a data base that already had some segmentation built into it and they were able to extend this to incorporate their new segmentation. The data base was the key to being able to develop and roll-out their new segmentation. They cautioned that it was critical to ensure the database was kept up-to-date and was built to allow for future expansion.

Key learnings for MLA

- There are many different segmentation bases that are effective depending on your business and communication objectives
- Segmentation requirements can change over time—it’s important to make sure they reflect your needs

# Appendix II

instinct and reason

# INNOVATION SEGMENTATION & OVERCOMING BARRIERS TO THE ADOPTION OF INNOVATION

10 July 2014

| | |
|---|---|
| **Prepared For** | MLA |
| **Contact** | Jane Weatherley |
| **Consultants** | David Donnelly |
| **Reference** | J2040 |

www.instinctandreason.com

SYDNEY

Level 1, 420 Elizabeth Street, Surry Hills

NSW, 2010 Australia

+61 (2) 9283 2233

LONDON

19 Devonshire Street, London

W1G 7AH United Kingdom

+44 (0) 203 355 4454

CANBERRA

103/ 11 Trevillian Quay, Kingston

ACT, 2604 Australia

+61 (2) 6123 0335

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# 1. Introduction

### *Introduction*

Meat and Livestock Australia (MLA) has over 49,000 members representing approximately 82 percent of livestock production in Australia. Recognising that each livestock business is different in their information, skills and knowledge needs, MLA is seeking to generate a better understanding of how we can be more targeted in how we develop, deliver and fund our adoption initiatives. This project is the first stage of scoping potential options of how to effectively and efficiently segment broad acre livestock producers, by exploring existing approaches in agriculture and other related industries nationally and internationally.

The project will also use the most up-to-date information available on barriers to adoption of innovation to further underpin the development of producer segments. Once an effective approach is identified, it is envisaged this will be used to re-shape MLA's approach to adoption to ensure the highest possible adoption of R&D is achieved and overall benefits of R&D are maximised for the industry.

### *Background and context*

Innovation around livestock production has been an important characteristic of farmer behaviour in the rural sector's history of productivity growth. This characteristic has traditionally been supported by ongoing investment in rural research and development (R&D) (DAFF, 2010).

Australian livestock production is strongly export oriented, and competes in an international market that is distorted by high tariffs, farm subsidies, and non-tariff barriers. Ever since agricultural prices began to decline in real terms in 1974-75, Australian farmers have relied on productivity increases to maintain their competitiveness in international markets and sustain their businesses and incomes.

In addition to lower prices Australian farmers are now being challenged by increasing climate variability, and competition with the mining industry for finite natural resources and skilled human resources. This means there is much greater pressure to improve productivity growth in the rural sector through innovation. Increasing global demand for food also creates an opportunity for Australia to supply a greater share of global food needs so that productivity enhancements should lead to greater wealth generation for producers.

While productivity growth in Australian agriculture has been high in the last two to three decades, analysis conducted by the Australian Bureau of Resource Economics (ABARE) indicates evidence for a slowdown in innovation in mixed crop-livestock industries (2001). At the same time, Mullens and Orr (2007) found that that funding for agricultural research has been static for a couple of decades but that research intensity (a measure of R&D investment relative to GDP) had declined. Mullen speculated that domestic R&D activities may be directly responsible for productivity growth in the order of 2 per cent per annum. Despite ABARE's data on productivity growth, since the early I970s, there has virtually been no change in the real gross value of Australian agricultural output, notwithstanding a two-fold increase in the real value of world trade in agricultural products. Agriculture is an increasingly unattractive national investment, with aggregate real net farm income falling two-fold over the twenty years to 1994–1995 (Gleeson, 2000). The opportunity cost of failing to fully capitalise on global demand for food makes innovation of greater importance.

Productivity growth is directly influenced by the level of adoption of innovation and investment in research, development and extension activities (RD&E). This project seeks to find a way to enhance MLA's influence on the adoption of innovation by Australia's livestock producers.

The livestock producer sector is not homogenous. Producers vary on dimensions such as size, management style, location, production practices, type of technology employed, region of production (Rosenberg and Turvey, 1991) and many other factors.

Moreover livestock producers, like many other business owners and managers, are reducing the attention they give to new information (Accenture, 2000) as a result of the phenomena of information overload. The Accenture work on the 'attention economy' shows that one of the crucial keys to gaining attention is to ensure the information is personally relevant. To achieve the requirement of relevance dictates a level of knowledge of each individual livestock producer and having the ability to tailor the RD&E activities targeted to them to ensure their relevance.

R.S. Llewellyn (2007) concludes that "the ability and resources required to pay attention to and process information can be a major bottleneck in adoption decisions." This issue is increasingly relevant as managing the farming system becomes more complex and the demands on farm decision-makers increase. Llewellyn cites Nobel Prize winning economist Herbert Simon who says:

*"…in an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information is consumed is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it."* (Simon 1971, pp. 40-41)

Market segmentation has been identified by many researchers as having application to agricultural technologies (Emtage, Herbohn, & Harrison, 2006; Kaine & Bewsell, Boland & Linehan, 2005; Strong & Jacobson, 2006). Market segmentation is a method for dividing a heterogeneous population into groups or segments that are more homogenous (Dickson & Ginter, 1987; Strong & Jacobson, 2006). Different characteristics, such as geographic or demographic information can be used to segment a population (Blocker & Fliny, 2007; Haley, 1968). The domestic and international literature shows that many other farming systems, farmer behaviours, attitudes, and values can also be used to better understand the ways farmers innovate to enhance productivity.

This has resulted in many attempts to effectively segment farmers. In each case the purpose is to group farmers that behave differently (Riquier et al., 1997). The main assumptions of the segmentation concept are that buyers can be grouped into segments such that preferences / behaviours / attitudes are homogenous within segments and heterogeneous across segments and that the resultant external offerings which are tailored to the needs of each segment outperform more generic offerings (Green and Krieger, 1991).

Identifying the overall innovation strategies or approaches in livestock production and how producers learn about these innovations will be the foundation stone that informs the market segmentation of MLA's 49,000 producers. It is important to make one final point. Market segmentation is the prime ingredient for the design of new business models. It is more than a tool for adoption activities but one that could transform the way MLA operates in a fundamental way. Segmentation is increasingly seen by some as a tool for resource allocation for the purpose of making strategic decisions about how resources should be allocated within an organisation, not just who to target with what information (Plank, 1985).

### *Purpose of the literature review*

It is difficult to measure the success of the numerous attempts at market segmentation on effective adoption programs because these results are rarely, if ever, published. An attempt will be made to do this through a primary research activity as part of this project where marketing managers in Australia (in livestock production, other agri-businesses and even other categories) will be interviewed with a view to determining segmentation success criteria.

The purpose of this literature review is to explore the existing knowledge and overlapping ideas about market segmentation, adoption and innovation models.

To review this literature we start by looking at how market segmentation can provide a platform for strategy development and what this platform should take into account to optimise enhanced adoption activities that deliver innovation information that outperforms a generic offer because it 'suits' the style of the individual livestock producer.

Finally, we then look at understanding the process of innovation (especially in an agri setting) and investigate how segmentation and adoption works to trigger the adoption of innovation.

To do this the following ideas have been searched:

- What are the criteria for effective market segmentation?
- We need a farmer segmentation where innovation is the base – does this work?
- Innovation in theory
- How do farmers innovate? What types of innovators are there?
- What is the role of information and other adoption activities in innovation?
- What are the criteria for effective adoption activities?

### *Organisation of the literature review*

The literature review explored:

- What are the necessary criteria for effective livestock producer innovation segmentation?
- How does innovation occur with livestock producers?
- Where does innovation occur?
- How do red meat livestock producers learn?
- What are the necessary pre-requisites for innovation?
- What would be the basis of effective adoption?

### *Scope of the literature review*

The literature review has explored the following key words:

- farm producer segmentation
- farmers + innovation + segmentation
- innovation segmentation
- database segmentation
- basis of innovation in farming
- agricultural producer segmentation
- beef producer segmentation
- livestock producer segmentation
- primary producer segmentation
- agricultural market segmentation
- agricultural producer innovation
- segmentation in agricultural marketing
- farmer segmentation
- primary producer segments
- agricultural producer market segments
- farmer market segments
- agricultural industry segments
- Australian farming segments
- Australian agricultural segments
- segmenting Australia's farmers
- species segmentation in Australian farming

- segmenting livestock producers
- livestock producer segmentation
- producer segments
- primary producer segmentation analysis
- Australian farming segmentation analysis
- farm enterprise segmentation
- agricultural industry segmentation
- market segmentation
- innovation intermediaries
- innovation brokers
- innovation intermediation
- agricultural adoption innovation
- landholder typologies
- farmer typologies
- agricultural producer typologies
- farm typologies
- farmer groups
- agricultural innovation
- producer preferences
- farm diversity
- landholder profiling
- agricultural innovation barriers
- agricultural innovation adoption barriers
- agricultural adoption segmentation

The following journals were used:

- American Agricultural Economics
- Review of Agricultural Economics
- Food Policy
- International Food and Agribusiness Management Review
- Journal of Animal Science
- Journal of Agribusiness
- Agricultural Economics
- Journal of Extension
- Journal of farming systems research
- Agricultural Systems
- Extension for farming systems journal
- Rural social research
- International conference for farming systems RD&E

Search Portals

- Google Scholar
- National Library of Australia
- NSW State Library
- University of Canberra
- Australian National University

# 2. Criteria for effective livestock producer innovation segmentation

### *Background*

In the instructional and well regarded e-text book, *Market Segmentation Conceptual and Methodological Foundations*, edited by Michel Weddel (2003), Wagner and Kamakara claim that "market segmentation may appear to be quite simple (the classification of customers into groups) but it may be one of the richest in marketing science in terms of scientific advancement and development of methodology".

We have decided to start this literature review on the basis of the best generic thinking about market segmentation and what essential elements must be present to deliver a successful innovation segmentation outcome for the MLA, before integrating this generic knowledge with the real world of red meat livestock producers and how they come to innovate.

There are six criteria for segmentation that are almost universally agreed as being the basic building blocks for effective producer innovation-based segmentation:

- Identifiability: The extent that distinct groups of customers can be recognised by using specific segmentation bases is easily measured
- Substantiality: Where the segments are large enough to ensure the profitability of targeted activity
- Accessibility: The degree to which the target segment can be reached with communications and adoption programs
- Stability: The degree to which segments will be stable over time
- Responsiveness: Segments must respond uniquely to marketing efforts targeted directly at them
- Actionability: Segment responses should provide guidance on effective specification of marketing instruments.

Market segments do not have to be limited to 'real' aspects that occur naturally but can be defined by agencies in any way they like to enable them to better serve those they are dealing with or desire to deal with. The identification of market segments and their elements is highly dependent on their bases (variables and criteria) and the methods used to define them. These are the two fundamental dimensions of segmentation. They are crucial to the number and type of segments selected as well as their usefulness.

### *Bases of segmentation (and the market)*

The choice of the segmentation base follows directly from its purpose (e.g. new product development, pricing, promotion, etc) and the market. In the most successful segmentation project we have worked on for a major Australian bank we segmented their 2 million customers according to their wealth creation strategies. The segmentation base was highly fit for purpose because most Australians who create wealth build it through the equity in their home and later use this for property investment, equity investment, etc.

In the MLA's case it will be innovation variables and criteria that will form the base for the segmentation, and the market is Australian livestock producers.

The MLA will be working with farmers who are consumers of innovation but are also business people. When attempting to influence them there is a need to look at learnings from both the industrial and consumer research point of view as they are different types of markets and often have different ways of operating.

### *Is MLA dealing with a business or consumer market or both?*

Business markets involve the sale and purchase of goods and services to other businesses that facilitate the generation of the finished product, which is generally then re-sold to an end user (consumer). In contrast, consumer markets involve the purchase and sale of goods and services to consumers for their own use rather than for resale.

There are significant differences between these two types of markets and with the marketing strategies adopted to serve them. These strategies need to be developed based on the needs, wants and buying processes of the particular market.

Buying decisions for consumer markets can be complex for large purchases such as cars, houses and holidays, where multiple family members such as husbands and wives, even children will be involved to make a collective decision. However for smaller day to day products and services there is usually a much more simple buying process where one person will be the decision maker and there will be generally a low-level relationship between the buyer and the seller, as in the case of a supermarket purchase.

In business markets however, the buying process may involve a high amount of decision making and will often have more than one individual involved in the buying process. For example, there may be an agronomist or accountant or even employee involved in the specification of the product or service and the farmer's spouse/partner may be in charge of price negotiations. In the paper *Understanding farmers' strategic decision-making processes*, Farmar-Mowers and Lane (2008) found that the decisions taken by farming families use different decision systems depending on their motivations and aspirations. They explain that a farmer may use a family decision system if his aspirations for that decision will result in care for the family while the farmer will use a business decision system if the choice will result in making money.

Livestock producers are clearly both a facilitator of the finished product but also a consumer of innovation adoption products.

MLA needs, at least in part, to think of livestock producers as acting as a business to business market. As Sheth and Sharma point out, with the increasing turbulence in industrial markets they suggest that relationship marketing is an appropriate strategic response. "With increasing turbulence in the market place, it is clear that firms have to use the customers' intentions towards collaboration with the supplier as a segmentation base" (1997).

MLA may need to use relationship marketing approaches with livestock producers who act as a member, a consumer, and at times a business to business customer.

Sheth and Sharma argue, "it is better to move away from transaction oriented marketing strategies and move towards relationship oriented marketing strategies for enhanced performance" (p. 91).

Again drawing from Sheth and Sharma, business to business market characteristics and trends or tendencies that are likely to be identified during segmentation research are summarised as follows, and most of these could be relevant to livestock producers:

- Supplier as a customer (sometimes livestock producers will act as a regular customer and respond directly to an initiative without consultation)

- Service procurement processes and procedures (sometime livestock producers, especially the large ones, will have procurement systems or strategic plans that will need to be negotiated before any investment in innovation is made)
- Legislative rules and regulations (these govern quality control, the use of natural resources on their land, marketing, etc, and need to be factored into the segmentation thinking)
- Values (these may be shared rather than being just the values of one individual)
- Global sourcing (not just local buying and selling, but export markets are often involved)
- Bonding with suppliers (forming habits regarding who they deal with – some livestock producers are extremely loyal, while others are not)
- Hub and spoke organisations (livestock producers may operate in many locations with different people managing various elements)
- Supply experience curves (organisations that do things many times manage down the experience curve, and changing what you do can lose you the advantages of being well down the experience curve)
- Cross-functional supplier teams (agronomist, accountant, etc).

The conceptual segmentation framework must be able to deal with these tendencies, and relationship marketing appears to be appropriate as relationships help build predictability into the company's environment. Relationship marketing requires that any tendencies be dealt with in a strategic manner, as the organisations of both the supplier and customer are affected in several ways.

### *Beyond segmentation to hyper-personalised interactions*

There are many new technologies present in 2014 that stretch market segmentation to the next level and could deliver even greater innovation benefits for MLA members through the segmentation project. These digital marketing technologies can deliver on the MLA's need for relationship marketing with livestock producers and leverage the benefits of market segmentation.

MLA could incorporate digital marketing software in the segmentation project as this is a necessary pre-requisite for being able to make the innovation segmentation actually work. Digital marketing software would help MLA change the nature of the livestock producer customer experience by increasing engagement and driving innovation. The technologies could make relationship marketing possible with the 48,000 livestock producers by using member data and each individual member's innovation behaviours to inform and drive every MLA interaction with them in real time. These technologies allow MLA to capture more livestock producer behaviours from more sources and then automate this knowledge to deliver highly personalised interactions with MLA via the website and in marketing/innovation communications.

Some of these technologies have emerged from direct marketing areas using email and marketing automation. But the range of available tools and techniques that capture customer behaviour and leverage automation to drive highly relevant customer communications that have greater attention-getting power is expanding.

For a successful livestock producer innovation segmentation **THAT WORKS** MLA should incorporate state of the art digital marketing software as part of the solution. This depends on having livestock producer email addresses. Ensuring MLA has this email connection with all producers should start today.

### *Methods of segmentation*

Despite the emergence of a wide range of digital marketing tools that go beyond basic segmentation, the reality is these new digital marketing technologies are only useful if they leverage effective, logical and powerful segmentation bases that deliver on the six criteria for a segmentation outlined previously.

Segmentation remains alluring for the MLA because of the promise that livestock producer insight can be developed into a MLA business response that yields sustainable advantage over the current 'one size fits all' approach when it comes to delivering adoption services designed to encourage innovation with livestock producers.

As mentioned already, there has been a significant focus in the literature on the 'how' of segmentation. The literature on methodologies (included digital marketing software) suggests at a generic level the opportunity to use a number of criteria, or levels, as LaPlaca (1997) refers to them, which provide an increasingly fine-tuned analysis of the marketplace.

The literature also offers a range of other ways in which markets can be segmented using criteria such as product use (Nakip, 1999), market behaviour (Dibb & Simkin, 1994), an understanding of customer needs (Albert, 2003), and a psychographic approach to give insight into motivations, attitudes, and values (File & Prince, 1996). In addition to customer and market-based criteria it has also been proposed that segmentation can be based around the variables of the strategy of the firm (Verhallen, Frambach, & Prabhu, 1998) or the strategy put in place by competitors (Sollner & Rese, 2001).

Instinct and reason itself has also segmented market places on the basis of product choice and how different segments can be identified and profiled on the way consideration changes as the product attributes are changed (discrete choice modelling).

Another approach is also popular, and is referred to as horizontal market segmentation. This is where markets are segmented according to potential clusters of customers using similar products across a range of business organisation types or across several industries, e.g. the similarities in the use of computers in hospitals, manufacturing industries, government, etc. This approach has the advantages of being able to identify a large number of potential customers, and spreading the risk.

Another 'natural' (or at least 'intuitively important') variable is geographic location, and this can reflect purchaser needs when the industry itself is dependent upon the geography of the area, for example natural resource users such as livestock producers.

Customer data have also offered some hope for the identification of segmentation variables such as total beef production, or number of on-farm employees, because such data can usually be obtained fairly easily and may well impact on the way that innovation occurs (a wider variety of skill bases may make innovation easier). It seems reasonable to suggest that producer data analysis can be related to producers' needs for innovation; e.g. adoption activities may need to be modified depending upon the number of employees at a farm or the size of the herd. However, there are several problems with using size of farm measures for segmentation purposes. First, farm size can be measured in many ways, including total size, area, or size and number of individual properties, by sales value in the last year or last ten years, asset value, or some other type of activity measure, as well as by number of employees or productivity ratios. Each may or may not be related to innovation. Second, organisation size can be several steps removed from the individual producer's needs as they relate to innovation.

Confusion sometimes arises size is used as a surrogate variable, because its importance is often discussed in terms of secondary considerations such as innovation potential, the

degree of formalisation in innovation procedures and management processes, or the specialisation of functions. The issue here is that if these secondary considerations are an indication of different customer requirements, then it is these considerations that should be the focus of segmentation, rather than measures of size per se.

Other emerging methods that could be used as a basis for MLA's segmentation include managerial intuition (Millier, 2000) and the role of artificial neural networks (Fish, Barnes, & Aiken, 1995). Millier (2000) suggests that managerial intuition, which he defines as data collected through experience, can also be used in the segmentation process, with particular application to the marketing of technologically driven, new products for which markets have yet to emerge.

In addition we have identified the potential use of Ethnographic Decision Tree Modelling, Q-Methodology and Personal Construct Theory, as well as Soft Systems Thinking and Grounded Theory (Pereira, 2011).

All of these methodologies are potential methodological solutions for MLA innovation segmentation and should receive some consideration.

Practising managers find the achievement of even the most important of strategic marketing tasks difficult (Millier & Palmer, 2000). The actual practice of segmentation appears to be at least as challenging as other important marketing priorities. Nearly 30 years ago, Shapiro and Bonoma (1984) noted that segmentation was used more as a way of explaining and understanding marketing outcomes rather than as an important component of planning for the future. Despite the proliferation of advice on techniques for segmentation, there is much less guidance in the literature on how to undertake this task.

### *A number of segmentation complications have been identified*

Complications include:

- Firstly, insights into farmer activities must be found that are capable of delivering segment homogeneity (Sollner & Rese, 2001)
- Segmentation is a point in time measure yet farmers operate in an ever-changing world. The segmentation can start to decay immediately it is established (Sollner & Rese, 2001; Freytag & Clarke, 2001; Nakip, 1999)
- The assumption that the segmentation information required can actually be obtained (Sudharshan & Winter, 1998)
- Information may be unobservable or unobtainable, and even if available its meaning may be ambiguous. This may be because in reality farmers may be pursuing strategies that are not clear to themselves, let alone the interested observer (Verhallen et al., 1998)
- Segmentation demands time and attention
- Simply avoided because managers do not understand how to approach it
- Even having identified and implemented an appropriate method for segmentation, "the existing literature offers only sparse guidelines on how to evaluate and select segments" (Freytag & Clarke, 2001; Dibb and Simkin, 1994)
- Segmentation requires a reliance on colleagues in other departments to implement the actions arising. The barriers to implementation have been identified (Dibb & Simkin, 2000), with internal marketing, communication, and coordination within the organisation being identified as the most significant.

Dibb and Simkin (2001) rate infrastructure barriers as a prime cause of segmentation failure. They argue that all aspects of segmentation can suffer when an organisation's infrastructure

is inappropriate or too inflexible to deal with the process. These difficulties encompass anything to do with the corporation's culture, structure, or resources acting as a segmentation barrier. For example, the marketing function in a business with a particularly entrenched organisational structure may fail in its attempts to implement segmentation if it has not secured the commitment of senior managers. Similarly, a business lacking the financial resources to collect appropriate market data also will have problems adopting a segmentation approach. Many infrastructure difficulties relate to people issues and they arise because the business is devoting insufficient people resources to the segmentation process or because the individuals involved lack the required skills and experience to carry it out – i.e., poor communication between functions and inadequate commitment.

Dibb & Simkin also cite segmentation process issues as being central to effective segmentation. They say that despite an extensive segmentation literature, there is surprisingly little practical help for those wishing to apply a market segmentation approach. Whereas many managers are familiar with the STP (segmentation, targeting, and positioning) notion of marketing segmentation, they often express surprise about the shortage of practical advice on how to proceed. Bonoma and Shapiro make the following observation about the situation:

*"Though a wide variety of segmentation schemes has been proposed since Smith first argued for the advantages of market segmentation, managers have not been offered guidelines for how to choose segments, analyse serving costs, or monitor resulting customer groups in a way that allows simplicity of choice and clarity of results. Consequently, in many businesses only the most simple and intuitive segmentation attempts are made in other, more sophisticated ones, management has little idea if its segmentation expenditures are effective* (1984, p. 257)

So what kind of guidance are managers seeking? Common questions about market segmentation:

- What process will be followed to generate the innovation segmentation?
- Who will be involved in the project? From what business areas?
- Where will the project start, and what data do I need?
- What should be done with the data?
- What variables should be used to segment my market?
- How will MLA and the consultant know if they have used the right variables?
- How will MLA know if they have a sensible/robust solution?
- What will MLA do with the segments once they have them?
- How will MLA know if the segmentation solution is effective?
- When will MLA need to change or update the segmentation?

MLA needs to plan in conjunction with the MLA innovation segmentation study to embed the segmentation solution into the basic fabric of its business and involve all internal stakeholders at every step of the way.

The segmentation solution that is generated should provide guidelines on how it should be used when making operational decisions.

The questions above provide a good start for the outline of the brief that might go to the marketplace when looking for a consultant to generate the innovation segmentation.

### *Practical solutions need to be found in the real world not in academia*

Turning to the literature for practical managerial guidance is unlikely to be fruitful. Many papers we have found conclude by noting the limited nature of the work, the specific nature

of the investigation, or the fact that the work reported, whilst interesting at the general level, is unlikely to provide specific guidance. “In the unlikely event that a practising manager will review the literature such a manager is unlikely to find anything other than general or even anodyne guidance on the matter” (Brown, 1996). This has been the experience in this MLA literature review process.

The MLA needs to keep in mind that producers differ in their strategic type and orientation regarding innovation and, as a consequence, are likely to respond in different ways to adoption strategies. Even having identified and implemented an appropriate method for segmentation, “the existing literature offers only sparse guidelines on how to evaluate and select segments” (Freytag & Clarke, 2001). Dibb and Simkin (1994) note the importance of offering guidance with respect to the implementation of academic schemes for segmentation, but they make the point that this need is yet to be addressed in the literature.

From a practitioner perspective, Millie (2000) compares and contrasts the theoretical approach to segmentation with that found in industrial companies. In these circumstances such companies are “miles away from putting in practice these linear and well run in methods” (Millie, 2000). Millie notes that in practice, segmentation is a challenging and difficult task for the practising manager to undertake because it is (1) context dependent, (2) interactive, (3) difficult and demanding, and (4) must be implemented as part of day to day operations.

In the MLA situation the innovation segmentation that will be generated will need to be highly context dependent, generalised and should avoid prescriptive guidelines which will be inappropriate. Simply adding more criteria to reflect the complexity will not simplify the task for the MLA.

It will need to be interactive because the MLA and livestock producers are in a constantly changing environment (drought, floods, fire, changing government policy, changing global demand, etc). So the application of complex, linear, and step-by-step guidelines for marketing innovation will be inappropriate (Millier & Palmer, 2000). In the circumstances of the specific organisation, the MLA adoption team will have more contextually relevant and appropriate information but may be unable to use this if the segmentation is too tightly managed.

Segmentation is also difficult and demanding and will require the MLA’s time and attention. This, combined with lack of understanding as to how to undertake the task, could lead to the task being avoided because managers do not understand how to approach it.

Innovation segmentation needs to be implemented by the entire MLA organisation and this will require the practising manager to make it happen. It will need to be supported by the required systems and processes to effectively manage the innovation adoption program to the 48,000 livestock producers.

To overcome these challenges the MLA needs to build a segmentation framework that works in changing circumstances (adaptable to drought, cost of production, falling prices, etc). It will require the segmentation to be housed in an interactive tool that allows ‘what if’ questions to be asked (i.e., if the farmers in region Y are in drought how should we effectively continue the innovation process in these changed circumstances). It therefore becomes a tool that managers can use to effectively manage the MLA’s activities easily. And in fact it can be an implementation tool that provides briefing profiles to any new adoption project. It goes without saying that the innovation segmentation should allow new adoption projects to be briefed, delivered and evaluated and that each individual livestock producer is assigned a unique identifier that allows targeted information to be sent.

# 3. How does innovation occur with livestock producers?

### *All livestock producers innovate (in some form)*

An important start point for the MLA is to recognise that virtually every farmer innovates.

This point is made recently in a thesis looking at adoption of innovation by livestock farmers in Brazil (Pereira, 2011). Pereira notes that according to Rogers (1962, 2003), the newness of an innovation or technology is determined by the person perceiving it. So when an innovation or new technology is tried for the first time by a user it is an innovation for that user, irrespective of how long ago it was first used by others.

Diffusion of innovation is a pervading idea in the literature surrounding innovation. Most diffusion studies deal with technological innovations and so technology and innovation have been commonly used as synonyms (Rogers, 2003).

Schumpeter (1934) defines innovation as having five dimensions: (1) the introduction of a new good; (2) the introduction of an improved method; (3) the opening of a new market; (4) the use of a new supply of raw materials; and (5) the better organisation of an industry. Hurley and Hult (1998), based on several authors, discuss innovation as a process by which organisations continuously implement new ideas, methods, products or services in order to keep competitive.

As a result, innovation covers many different producer activities and can take a wide variety of forms, thus adding to the complex nature of any market segmentation that purports to find heterogeneous groups amongst producers.

Pereira also points out that the definition of innovation encompasses two components: ‘hardware’ and ‘software’. Hardware is the physical object that embodies the technology whereas the latter refers to the information upon which a technology runs (Rogers, 2003). According to Rogers (ibid), technology is usually thought of as hardware, although sometimes it can be almost completely based on information. Building on the ‘hard’ and ‘soft’ nature encompassed by technologies, Jin (2002) describes ‘hard’ technology as consisting of the material object (i.e., tangible entity) and ‘soft’ technology as the intellectual technology or, in other words, the knowledge (i.e., intangible entity) applied to solve problems. Examples of predominantly ‘hard’ and ‘soft’ technologies applied to farming systems are grass seeds and budgeting, respectively. Technologies vary not only in nature (e.g., ‘hard’ and ‘soft’) but also in the area of application. Different types of technologies focus on different areas of the farm business, such as production, environment and management. Although there are no clear boundaries whether a technology is production or environment related, given their intertwined character, in this research a distinction is made based on the primary focus of particular technologies. Thus, production technologies are mainly directed to increase meat quality, cattle production and/or productivity. In contrast, environmental technologies essentially focus on the conservation of natural resources and the mitigation of environmental impacts.

There is also a third group of technologies – managerial and these technologies to aid decision making, business administration and marketing. They focus primarily on supporting the organisation and control of the farm business in order to improve its efficiency, reduce costs or increase margins.

Since the innovation segmentation developed by the MLA should use innovation as its base, these three facets of innovation need to be considered within the process of selecting the segmentation base.

### *Technology and farming innovation*

Farming operations entail complex decision making problems. Making changes in this environment adds to that complexity. Recent information technology based innovations have been designed that can support farmers in their operations (Aubert, Schroeder & Grimaudo, 2012). They point out that despite the availability of these tools and applications that support sophisticated decision making and operation, the uptake of precision agricultural (PA) technology among farmers is surprisingly low. They cite an adoption rate of less than 10 percent amongst German farmers. Aubert focuses on the adoption of technology specifically using a diffusion of innovation lens and concludes that critical aspects for uptake rest on 1) the perceived ease of use of PA technology, 2) the perceived usefulness of the technology, and 3) any other influences such as observability of the outcomes of its use and its ease of use, communicability about the benefits, and the ability to trial it on their own land and to achieve positive experiences. They also found that organisational attributes such as the farmers' historical innovativeness, education level and age all impact on the uptake of precision agriculture technology. In their study farm size and resource availability also impacted on the uptake of precision agriculture.

### *Links to other change agents*

As well as the individual farmer and their propensity to innovate, studies have found that the presence and connectedness to a range of external organisations providing adoption services provides better solutions for the diversity of farmer needs and the location specific issues. Rivera and Sulaiman (2009) argue it is possible for extension to offer a broad range of services, but only if it embraces a new role of facilitating links between farmers and a variety of service providers.

MLA segmentation should consider partners in terms of who is acceptable to red meat producers and who has the widespread distribution.

### *Why does innovation occur?*

Rajalahti (2008) in his summary of an international workshop on enhancing international agricultural systems suggests that most innovations occur in response to the potential for added value. This idea indicates that MLA should consider the impact of focusing on innovation research to drive value add, and whether identifying and helping red meat producers exploit niche business opportunities may be one way to foster and encourage innovation. The opportunity that springs to mind is the rapid growth in farmer markets and in food and wine tourism which has at its core the consumer's desire to connect with food producers and what they create. Many farmers are missing out on this opportunity because the activity doesn't fit in their normal farming mindset.

MLA segmentation should consider whether some farmers have an entrepreneurial mindset that responds to market opportunity.

### *Can innovation occur in marketing itself?*

Blandon (2010) in *the importance of assessing marketing preferences of small-scale farmers – a latent segment approach* showed that different farmer segments chose how to market their products in very different ways. Blandon used discrete choice modelling to identify how various attributes of the marketing system drove the farmer choices of where and how to market their products. It is possible that innovation could occur in the way the product is marketed, and some producers will be more interested than others to innovate around the marketing of their products.

In a recent study of consumers exploring food and wine tourism, Instinct and Reason (2014) has found considerable and rising demand from city dwellers for food products grown uniquely to a region and where farmers and their growing practices are increasingly of personal interest.

In another report from back as far as 1996, Drabenstott (1996) pointed out that new lifestyles, shifting demographics and a growing appreciation for the link between diet and health are leading to wholesale change in the way people eat and the foods they buy. While Australia's retail duopoly has dampened this demand in Australia, the recent rise in the appeal of farmers' markets heralds new opportunities for farmers to innovate around their marketing and distribution channels.

MLA segmentation should consider whether some farmers have an entrepreneurial mindset that responds to new marketing and distribution opportunities.

### *Relevance of innovation to red meat producers*

In a world of declining attention due to the increasing impacts of information overload, the relevance of adoption information is essential in ensuring the receiver pays attention to it. The important work by Marshall and Smajgl (2013) looked at how producers' capacity to adapt (or innovate) for climate variability was influenced by four dimensions: 1) the perception of risk, 2) skills in planning, 3) financial and emotional flexibility, and 4) interest in adapting. Marshall and Smajgl found there was significant heterogeneity between cattle graziers in the Burdekin region based on various combinations of high and low capacity for the four dimensions.

They represent a potential bases for segmentation for the MLA

Marshall and Smajgl found the following:

*"The research provides two new critical insights into graziers' adaptive capacity that might assist to sustain the grazing resource. First there is significant heterogeneity in the adaptive capacity of graziers in the Burdekin region to climate variability. Many graziers exhibited very high levels of adaptive capacity whist many displayed very low levels. In fact of the possible 16 combinations describing adaptive capacity on rangelands, all combinations were represented to some extent. These results suggest that only some individuals will have the capacity to respond appropriately to policies and practices that enhance climate adaption."*

*"Second [their results] suggest that only about 18 percent of the sample rated highly on each of the dimensions of adaptive capacity … the lesson here is that policies designed to enhance climate adaptation success that are rejected or ignored by graziers are likely to be interpreted as meeting barriers or resistance …"* (pp. 91-92)

Marshall and Smajgl go on to suggest that it's not barriers and resistance, but that graziers need a range of specific forms of assistance:

*" … a significant proportion of graziers need more information about how to manage for the uncertainty of climate variability and of climate change in particular. Many graziers need simple information about how to make the most of a good season, and how to reduce the biophysical impacts during a bad season. Many need to develop skills and strategies to deal with the range of probable scenarios for their region including how to prepare for extreme events. Many need financial advice about the costs of change, and they need encouragement to develop an interest in the future and be motivated to develop new skills to reduce the risks associated with climate variability. Well-designed policies should take account of the various dimensions of adaptive capacity and the associated limitations."* (ibid)

Most important of all for the MLA segmentation project is that Marshall and Smajgl identify heterogeneity that requires different adoption processes. As they say:

*"Any single initiative to address grazing land management practice is unlikely to address the needs of all… rather multiple strategies that take into account the diversity in the adaptive capacity of resource users are more likely to be successful."* (ibid)

### *Impact of Structural Change*

The prevailing view is that globalisation is making the larger farms more profitable and smaller farms less profitable. While this makes intuitive sense there is also some evidence that this does not necessarily have to be the case. Iraizoz et al. found:

*"Regarding structural change, little evidence is uncovered [from their study] to support the bimodalisation theory of the strong getting stronger with medium sized farms disappearing. The best relative performance recorded over the analysed period [1996 1999)… was achieved by the medium sized [farms] on most indicators. In contrast the larger farms in terms of area, value of output and value of assets and who were in a relatively healthy position at the start of the measurement performed far more modestly."* (2006, p.164)

We mention this to ensure response to structural change by livestock producers is considered in any segmentation study. The key measures used in Iraizoz et al. were farm size, rented land and hired labour, degree of farm specialisation, intensification, debts and financial stress, and geographic location.

Structural change and its impact do lead us directly to a discussion on the adaptive capacity of producers in the face of change.

### *What is adaptive capacity?*

Adaptive capacity is an anthropological term and is considered a crucial component of resilient systems. It describes the necessary 'preconditions' for adapting to change (Gallopin, 2006; Grothman & Patt, 2005; Janssen & Ostrom, 2006; Adger et al., 2005; Pielke 1998). It refers to the ability of individuals or communities to adapt to adversity and stressful life-events by 'reorganising' through networks or institutions that learn, store knowledge and experience and are creative, flexible and novel in their approach to problem solving (Vayda & McCay, 1975; McKay, 1981; Sonn & Fisher 1998.)

Just as adaptive capacity has been linked by Marshall and Smajgl to innovation around climate variability there is no reason to suspect that the same criteria won't also influence innovation or adaption to any other change or challenge a meat producer faces.

It is clear the MLA should consider adaptive capacity as a potential segmentation base.

Marshall's early work uncovered that the capacity to adapt is dependent on 1) perception of risk, 2) capacity to plan, learn and organise, 3) proximity to the threshold of coping, and 4) level of interest in adapting to change.

Perception of risk means that the need to innovate gets on the agenda of graziers. In Marshall's work this was measured using simple scales that captured the perceptions of various risks such as how likely they believe they would be to survive droughts, whether they were more positive towards approaching drought periods than in the past and whether there was more interest in learning to survive drought periods now than in the past. Similar questions could be devised that measure perceived risk of falling meat prices, rising costs of production, export market decline etc., and could provide the MLA with a view on perceived risks of not changing or innovating.

Planning, learning and reorganising are about how well a grazier can actually implement innovation. Marshall again measured using simple scales that asked graziers to rate their skills to plan and prepare for drought and the presence of plans to cope with drought. Again, similar questions could easily be devised that measure preparedness and skills to manage innovation in meat production. The capacity to adapt is in some regards a measure of producers' capacity to convert, reapply or redirect existing resources (financial, natural, human, social or physical) to successful adaptation strategies (Allison and Ellis, 2001; Nelson et al., 2010a).

The ability to cope with change focuses on the financial and emotional capacity of graziers to deal with the threats and actuality of challenges and what role the good years play in building these dual abilities. Any other change or innovation will also require both a financial and emotional capacity to be present and is equally relevant for innovation.

Interest in adapting is also at the heart of change. The work by Marshall here appears to be sparse but there is a lot of literature surrounding the stages of changes model which is anchored in psychology that places great importance on desire to change as being a precursor to real change in behaviours. Approaches used to measure the various points on the stages of change model could easily be adapted by the MLA to derive strong measures for the current interest in innovating.

In Parminter's paper *Pathways for innovation: influence of industry structures and producer social networks* (2007, p. 3) he points out, "that many researchers have described the process of development and adoption of agricultural technologies as if it has been a one step process from non-adoption to adoption or rejection." However, he also points out that, "we know from human behaviour studies that changing previously established ways of doing things is more likely to involve several steps in a multi-stage process." A multi-stage process, based on the work of Prochaska et al. (1994), would consist of:

1. Precontemplation. A growing recognition that a problem or opportunity exists and needs to be taken notice of.
2. Contemplation. The problem is recognised and any difficulties with understanding how it might be addressed are dealt with.
3. Preparation. A private commitment to change has been made and this is increasingly strengthened and made public.
4. Action. Time, energy and resources are applied to make the required changes.
5. Maintenance. Performing the new behaviour becomes less of an effort and more automatic.

Parminter found that individuals appear to have a number of adoption stages when they are adopting a technology and each of these stages have different requirements for industry support to encourage successful behaviour change.

On the basis of Parminter's work we felt that some mention of the stages of change or transtheoretical model of behaviour change should be covered in the literature review.

### *What is the stages of change or transtheoretical model?*

The transtheoretical model of behaviour change comes largely from the literature around individuals changing their behaviours (most often health related behaviours), although instinct and reason has used it extensively in changing road safety behaviours, changing the behaviours of trail bike riders in national parks and even getting people to change their commuting behaviour and making more use of public transport. The stages of change model assesses an individual's readiness to act on a new behaviour, and provides strategies, or processes of change to guide the individual through the stages of change to 'action' and 'maintenance'.

The transtheoretical model is also known by the abbreviation 'TTM' and is another term for the 'stages of change' model. A popular book, *Changing for Good* (Prochaska, Norcross and DiClemente, (2013) and articles in the news media have discussed the model. It is arguably the dominant model of health behaviour change, having received unprecedented research attention.

The figure following shows the stages of change in the model. A person moves from being unaware of the need to change (precontemplation), to a point where awareness of the need for change emerges (and a perception of risk if they don't change), to the point of learning,

preparing and organising change where barriers to change are also eliminated (preparation) and finally to the point where action is taken. The model also warns of backsliding when faced with various challenges and recognises that ongoing reinforcement and maintenance of changed behaviours is needed.

This additional element of maintenance should be considered when formulating the MLA segmentation bases.


**Figure 1. Stages of change model**

This model supports Marshall's work on adaptive capacity in many ways such as the importance of recognising the risks of not changing and adds psychological support for the ideas surrounding adaptive capacity.

Marshall also makes the point that:

*"…despite theoretical advances in resilience thinking… this is one of the few studies providing practical knowledge of individual adaptive capacity."* (2013, p. 40)

Knowing how to trigger graziers who are at different stages of change the perception of the risks of inaction, or to enhance their planning, learning and organising skills, or to build their ability to cope or to drive interest in change are challenges that the segmentation study could overcome.

There is little in the literature by way of practical advice on how to influence these factors or in fact how to reach different individuals with a various mixture of these four attributes (segments). This is why this literature review will be supported by 50 interviews with practical marketing managers from various spheres that will capture the day to day methods for deriving these segments and the strategies and approaches to influence them.

### *Scale and its impact on adaptive capacity*

While Iraizoz et al. in *Segmenting farms for analysing agricultural trajectories: a case study in the Navarra region in Spain* (2006) found that being a large producer does not necessarily lead to better financial performance, Marshall et al. (2013) in the paper *Climate change awareness is associated with enhanced adaptive capacity* highlights the need to consider the impact that the 'scale' of farming operations have on the capacity to adapt. Marshall points out that not all primary producers have the same capacity to adopt promoted practices or develop and implement their own actions that can enable successful adaptation. The specific challenge for producers is to build productivity and profitability without depleting the natural resources. Some are likely to do better than others (Adger, 1999; Adger et al., 2009, 2010; Labao & Meyer, 2001). Despite this hypothesis Marshall concludes that there is no

association between business size and adaptive capacity – the same result as was found in Spain fifteen years ago.

In her study with peanut producers in Australia Marshall canvassed the idea that a critical mass of individuals may be needed to allow certain innovation to occur across an industry (citing Howden et al., 2007) and also whether climate change awareness could be a trigger for innovation. The results found that:

*"…peanut producers who had higher levels of climate change awareness also tended to have higher levels of adaptive capacity. Those who had limited climate change awareness appeared to be restricted in their ability to manage risks associated with climate change, plan for change and/or be interested in undertaking change."* (2014, p. 33)

These results suggest that climate change awareness may also be a factor that influences or triggers innovation amongst red meat producers and should factor in the MLA segmentation study.

Marshall's 2014 paper *Influencing adaptation processes on the Australian rangelands for social and ecological resilience* canvasses a range of other characteristics of graziers and identifies the ones positively correlated with adaptive capacity. She found that the components of resource dependency that are positively associated with adaptive capacity include a 1) stronger occupational identity, 2) stronger place attachment, 3) higher employability, 4) more effective networks, 5) a higher strategic approach, 6) higher environmental awareness, 7) dynamic use of the resource and 8) of technology.

Marshall's results show:

- Occupational attachment is connected to 1) perceptions of risk and 2) need and preparedness to plan. Motivation to stay a grazier drives them.
- Those who are younger, have transferable skills, and/or have a positive attitude to working elsewhere are more likely to have the capacity to cope and adapt to change.
- A strategic business approach was significantly and positively associated with adaptive capacity – those who have a strategic approach to their business and are driven by economic incentives to harvest the resource are more likely to adapt, motivate, plan, organise and act.
- Producers with a financial buffer are significantly and positively associated with financial and emotional coping, which is a key ingredient of adaptive capacity.
- Environmental awareness was associated with three key ingredients of adaptive capacity (perception of risk, ability to plan and interest in changing).
- Those producers who were better networked were much more likely to be able to plan for change and to be interested in changing.
- Use of technology was linked to making better decisions about change, and with enhanced resilience.

Marshall's results debunked some characteristics that might have been thought to be important; the results showed there was no relationship between the number of dependents and adaptive capacity. Nor was there any association between business size and adaptive capacity. Neither was there a relationship between income diversity and adaptive capacity.

This piece of works suggests some key characteristics of red meat producers that should be measured in any MLA segmentation study. Namely: age, occupational attachment, transferable skills, financial buffer, environmental awareness and the degree of connectedness of farmers to relevant others.

Marshall reanalysed the data from *Influencing adaptation processes on the Australian rangelands for social and ecological resilience* where she had measured 10 characteristics of graziers and four dimensions of adaptive capacity to prepare a market segmentation of 240 cattle graziers. Marshall found that there were four cattle producer segments. Namely:

- Type 1: 43% of cattle producers were vulnerable because they had low strategic skills and low interest in changing. Their mean age was 59 years.
- Type 2: 41% had low strategic skills, and poorly managed risk and uncertainty. Their mean age was 51 years.
- Type 3: 13% had a stronger psychological and financial buffer, were well-networked and had larger operations. Their mean age was 52 years.
- Type 4: 3% managed risk well, liked to experiment and were interested in change. Their mean age was 41 years.

# 4. Where does innovation occur?

It will be important to define where innovation actually occurs before the MLA will be in a position to influence it occurring at all.

The literature covers three areas: agricultural systems, farming and rural (Gleeson, 2000).

Gleeson suggests that agricultural systems are all the economic, social and physical activities involved in the marketing, handling, processing and production of food, fibre and related products such as plant and animal-based pharmaceuticals and floriculture. Farming is the term used to describe activities which occur solely or principally on farms, including, for instance, agricultural activities, off-reserve conservation, management of investments which might be on or off-farm, and farm tourism. The term 'farming systems' is the purposeful management of farming including the economic, social and cultural determinants of this behaviour (after McCown, unpublished). By using the latter definition it extends the activities encompassed by farming beyond agriculture and enables integrated development of potentially synergistic agricultural and non-agricultural farming pursuits. Rural includes the wider social rural community and the networks of distribution, marketing and organisation of the industry across the country.

MLA would do well to incorporate a wider definition of where innovation occurs because of the greater impact that could be had on innovation uptake and consequent productivity enhancement, by leveraging the entire farming system and the social and economic networks that underpin it – as suggested by Gleeson in the next section.

### *Characteristics of the existing agricultural innovation system*

The 'innovation system' is likely to be broader than any individual farmer for innovation to have greatest effect**.** Gleeson argues that the agricultural sector as a whole has not adjusted well to changing commercial and environmental circumstances. He suggests the first point of call to understand why is to look at the innovation system. This makes sense because all the innovation theory suggests that innovation itself is a process of diffusion and imitation of 'best practice/new practice'. Clearly the methods and approaches for innovation can be magnified in their effect if all producers, influencers and other players are made aware of 'best practice/new practice' and are facilitated to make the relevant changes. In effect all those involved in livestock production working together rather than as individuals will likely produce better outcomes in terms of productivity improvement. Benchmarking is critical and important because when farmers do benchmarking they learn where their money is going, leakage and areas for improvement. Furthermore working in groups of farmers allows them to see where the top and bottom range is. If farmers get to see that their neighbour, with very similar conditions, can be much more profitable than they are they are much more likely to see the need for change and the risk of not acting. Encouraging red meat producers to focus on the figures, then adjusting the farming system and animal management and husbandry systems is critical

In a recent interview I conducted with apple growers in New Zealand I explored the reasons why New Zealand had access to over 140 export markets for its apples (while Australia has very few). The explanation proffered by NZ farmers and agri influencers was that NZ farmers cooperate – not only with each other but with government. The specific example given was that the equivalent of the Department of Primary Industry (DPI) nominates the ideal day to spray for coddling moth early in the season and all farmers in NZ and many householders all spray on that nominated day resulting in there being no need to spray again for the rest of the season, making the eventual apple crop almost residue free. The main point is that innovation is not necessarily an individual activity but involves all producers, wholesalers,

government agencies and everyday citizens. Cooperation between all parties involved in the economic, social and cultural determinants of the innovation behaviour needs to be encouraged.

Gleeson went on to explain that the structured agricultural innovation in Australia is dominated by the formal public agricultural R&D and Extension (RD&E) effort. This agricultural RD&E effort was substantial with expenditure in the order of $1 billion per year (2000). At that time Australian agricultural RD&E represented about 10 percent of all Australian R&D and public funding provided 85 percent of formal agricultural RD&E expenditure (half of the assistance provided to the agricultural sector in total). The execution of agricultural R&D was principally confined to the public sector.

Gleeson's summary was that support for innovation in Australia has been tightly focused on optimising the profitability and environmental sustainability of existing farm-based agricultural enterprises and this has led to a lack of business diversity in farming and in rural Australia generally. In turn this has created an increasingly risk adverse environment (and set of behaviours) that limits innovation.

In addition, Gleeson suggests ignoring the innovation systems will also limit creativity.

An innovation based segmentation solution needs to incorporate the farming system (not just individual producers) and it needs to look more broadly than just livestock production. This is probably taking the review beyond the brief but it depends on whether we are focused on the MLA members or on livestock production per se.

### *Grower groups*

Gianatti and Carmody (2007) point out that farmer-led farming systems groups are actively forming partnerships with other grower groups, researchers and private industry. He claims this is an organisational form that is designed to work with complexity and they are able to achieve outcomes where there are no readily available solutions by creating environments where shared understanding or collective action is used to achieve these outcomes. These grower groups have multiplier effects on an innovation through their connections.

MLA needs to consider which of the existing farmer groups exist and whether membership of them creates a special category of producers that could act as a multiplier for livestock producer innovation. There may also be an opportunity for MLA to work with red meat producers and other leading stakeholders/groups to set up new groups or leverage from existing groups.

### *Managing Complexity*

Mugnier et al. (2011) point out that farm management is increasingly complex with the need to encompass economic, technical, ethical, environmental and social aspects and to manage their business in places such as Australia where great risks exist due to prices and climate conditions. Farmers are increasingly knowledgeable, and increasingly are confronted with an abundance of information from many sources. Mugnier's study looked at how management strategies aligned with particular information seeking approaches. The study showed that different management strategies (primarily determined by type of livestock produced) did have different information search strategies associated with it.

MLA needs to further explore the management priorities that farmers have and ensure a variety of advice sources and information styles are provided that accommodate a variety of producer information-acquisition strategies.

In his report *Characterisation of extensive beef cattle systems*, Morgan-Davies concluded that:

*"There is considerable diversity within extensive systems of cattle production but that a typology-based characterisation is a valuable method to reduce or refine large and diverse forms of farm system data to a core set of variables useful to identify the farm groups most likely to benefit from targeted policies thus supporting the development of more cost effective farm management strategies that must find balance between multiple land use scenarios."* (2014, p.716)

Maybery et al. categorised farming values as economic, conservation or lifestyle, and reported that, "farmer's values can be classified into three distinct groups that might potentially be used to formulate more effective land conservation policies" (2004, p. 59). He found this in a survey of 1166 landholders in the catchment of the Murray River from the NSW side, Maybery.

# 5. How do livestock producers learn?

Many commentators (including Barr) are saying that adoption of new practices on farms is a continuous rather than a discrete process.

The innovation process is ongoing and frequently reassessed but farmers operate as individual agents, mindful mainly of their own interests, and as social agents within the social and economic constraints of local communities and the broader structural constraints of Australian agriculture (Barr & Cary, 2000).

Barr claims that the diffusion model of adoption—with its categories of innovators, early adopters and laggards—has fallen into disfavour as a model of how adoption activities ought to be practised, due to its inherent value judgements and assumptions of the 'generalised good'. However, commercial marketing practice and R&D funding and policy guidelines reflect continued acceptance of important elements of the model.

Barr goes on to state what is clearly true – that the farming community is not homogenous. An understanding of the diversity within rural communities and landholders in regard to social and economic factors is necessary before attempting to change behaviour. This is, of course, what MLA is attempting to get right in its innovation segmentation project.

### *Barriers to change*

Barr explains that recent research suggests that barriers to change in farming practices are overwhelmingly structural. The long-term nature and pattern of production by each producer limits their ability to change what they do.

This suggests that one innovation segmentation factor will be how entrenched is each producer in the current way of doing things.

Barr provides as examples the rangelands and pastoral uplands of the Murray-Darling Basin that have shown strong links between the need for structural change and the capacity to implement alternative management strategies. There is the issue of inter-generational transfer or farm succession, which is a major contributing factor determining the adoption of new practices or investment. This is typified by landholders who are older and deferring farm exit, who have an increased dependence on off-farm income and do not expect to transfer the farm to another generation. There is also significant potential for goal conflict because of different risk taking profiles. Family and financial security are often the highest priority goals for Australian farm families, while change often involves increased management complexity and financial risk.

Barr cites research that suggests, for example, that where environmental innovations have been profitable, or believed to be profitable, usually they have been readily adopted. Such innovations are usually referred to as having a relative, or financial, advantage.

Barriers to innovation include structural handcuffs, risk aversion, lack of knowledge or confidence about the profitability of the innovation, along with its complexity, trialability, compatibility, and the observability of outcomes. As well, the financial costs, the landholder's beliefs and opinions towards the new practice, the landholder's level of motivation and perception of the relevance of the practice and the landholder's attitudes to risk and change are also key factors.

### *Triggers for change*

Barr claims that changed farming practices are most likely to be achieved by promoting changes that provide private benefits to the landholder. Landholder surveys indicate greater concern about economic impacts.

Barr also says there is evidence to support the assumption that improved education is related to the capacity to adapt farming systems, and some recent research has shown increasing education levels of Australian landholders.

Understanding the education levels of livestock producers and their influencers will be critical in any innovation segmentation.

Barr also notes that current adjustment patterns are resulting in a decreasing numbers of agriculture graduates in the broad acre industries and instead the well-educated are choosing careers in those industries with sounder financial prospects.

MLA's innovation segmentation will need to work to make livestock producers more profitable so that the talented remain.

An understanding of the decision processes of landholders is necessary to influence change in the area of natural resource management. Barr says research has identified eight stages of decision making. I have reframed these to relate to innovation receptivity in general as it provides a useful framework:

1. Anticipation of a need for productivity gains
2. Experiencing declining profitability
3. Seeking information on innovation
4. Weighing the alternatives and risks of innovating
5. Making a decision about innovating
6. Undertaking a trial innovation
7. Making a change in production
8. Reaffirming the decision based on the feedback loop that productivity has been enhanced.

MLA's innovation segmentation will need to work to encourage a range of elements in the process of innovation, and the process will need to be fully mapped.

### *Diffusion of innovation*

What can we learn from the literature surrounding diffusion of innovation, which dominates the literature on innovation adoption?

Tonts, Yarwood and Jones (2009) point out that the adoption of new technologies and practices in agricultural industries has long been of interest to geographers, sociologists and economists (e.g. Ryan & Gross, 1943; Hagerstrand, 1967; Brown, 1981; Ison & Russell, 2000; Vanclay, 2004). While there is considerable debate regarding the processes that lead to adoption, there is a general consensus that the application of new technologies and practices is largely based on the desire of farmers to maximise economic returns (Birkhaeser et al., 1991; Black, 2000; Huffman & Evenson, 2006). Under normal circumstances, new technologies and farming practices are adopted within particular environmental contexts to increase productivity, reduce costs, or both (Leeuwis & Van den Ban, 2004).

They also point out that the adoption of new technologies and practices can result in significant transformations in farming systems and agricultural landscapes. This is particularly apparent in the production of grains, where the use of new technologies, such as

larger seeding and harvesting equipment, disease and drought resistant crops, and minimum-till techniques have increased production and decreased costs (Gardner, 2002; Henzell, 2007). At the same time, they have contributed to an extensification of grain farming through which processes of farm amalgamation and expansion are seeing smaller producers replaced by much larger operators (Brasier, 2005; Lawrence, 2005). Such transformations are also common to livestock production, largely through the introduction or development of new breeds. This process normally occurs in one of two ways. First, livestock breeds are 'migrated' from one place to another. Indeed, there is considerable evidence of livestock migrations across a range of geographical scales as a means of improving the productivity and profitability of farming (Jordan, 1969, 1972; Walton, 1999). In the USA, for example, the introduction of the heat and parasite tolerant Zebu (humped) cattle from India during the second half of the 1800s contributed to a marked increase in beef production in the country's hotter and more humid regions (Sanders, 1980). A second mechanism for introducing new varieties of livestock is through crossbreeding programs. These programs enable the development of cattle suited to specific environmental conditions or market requirements.

The migration of cattle to new locations, and the development and spread of new breeds are, in effect, forms of innovation and diffusion (Rogers, 2003; Leeuwis & Van den Ban, 2004; Abdulai & Huffman, 2005). At the heart of much of the literature on innovation and diffusion is the work of Schumpeter (1934) who defined three phases of technological change: invention, innovation and the dispersal of innovation.

Angus Australia have been developing a program where Angus cattle (predominately located in the Southern states of Australia are now been recommended to cattle producers in Queensland and in some instances northern Australia. Please refer to the following website for more details: http://www.angusaustralia.com.au/breeding-90709/118-angus-in-northern-australia.html.

While Schumpeter saw invention as something quite rare that leads to the creation of entirely new knowledge or technologies, he regarded innovation as a more widespread phenomenon that involves a process of transformation (Schumpeter, 1934, 1947). In essence, he argued that innovation involves taking pre-existing technologies or practices and adapting them to improve productivity and profitability (Carter, 2007). In Schumpeterian terms, the central agent in the process of change is the innovator (Schumpeter, 1947). In his view, the innovator is responsible for transforming the process of production by displacing redundant technologies and/or practices in favour of new, more creative and profitable alternatives: a process he described as 'creative destruction' (Schumpeter, 1934).

However, and in contrast to the view of Schumpeter (1947), there is a growing consensus in the literature on the geography of innovations that the innovator is not necessarily an individual but an agency. In an agricultural context, government agencies (e.g. government departments of agriculture), breed societies (Anderson, 2003; Yarwood & Evans, 2006), and, increasingly, private firms (Lundvall, 2001; Gertler & Wolfe, 2002; Polenske, 2007) are key innovators of new technologies and practices (Brown, 1981; Wolf & Zilberman, 2001).

While innovations are indeed important in the process of economic transformation, what is equally significant is their diffusion across geographic space. This spatiality of innovation and diffusion is particularly evident in the context of agriculture (Ilbery, 1985).

The most widely cited work is that of Hagerstrand (1967), which emphasised the role of communication and learning processes.

Diffusion is a geographically uneven process reflecting both the nature of networks and the characteristics of particular places. While Hagerstrand's ideas were developed largely in relation to the diffusion of innovation amongst Swedish farmers, there is no reason why such general processes might not operate at wider geographic scales. For example, a study of the

migration of Aberdeen Angus cattle into Argentina points to the role of communication networks stretching across the Atlantic between Britain and Argentina, and a willingness of local farmers to adopt the breed (Winsberg, 1970). The work of Hagerstrand inspired a rich body of research in agricultural geography that focussed on the geographical spread of ideas through farming systems and landscapes (e.g. Bowden, 1965; Johansen, 1971).

The MLA needs to consider the nature of networks and characteristics of geography in its innovation segmentation.

Areas of exploration need to explore the role of both the information networks and decision-making processes of individual farmers, but also encompass the role of public and private institutions including government agencies, non-government organisations, breed societies, and private firms. By doing so, the roles of infrastructure, promotional communication, price signals and market selection can be incorporated into shaping the innovation segmentation. By doing this it begins to address the limitations of the behavioural approach by considering some of the structural drivers of innovation. When considering this alongside the behavioural approach of Hagerstrand, it is possible to conceive of innovation as being driven by a blend of individual decisions, spatially uneven flows of information, socio-cultural traits, political and institutional dynamics, and economic considerations (Grigg, 1984; Ilbery, 1985; Black, 2000; Vanclay, 2004).

Tonts, Yarwood and Jones (2009) claim that in the case of livestock, both new breeds and existing breeds in alternative locations might face a range of barriers to geographic diffusion and adoption. These include local knowledge about and attitudes towards breeds, locally and regionally accepted farming styles, and economic determinants, including the cost of local production, market demand, and the price received for the commodity (Black, 2000). In these contexts, breed societies play a key role in promoting particular breeds (Yarwood & Evans, 2006) and, by implication, particular farming discourses (Anderson, 2003). Moreover, the extent to which breeds are suited to local and regional ecological conditions is a key determinant in the spatially uneven process of innovation diffusion.

Given the economic, social and environmental importance of the spatial diffusion of innovations, surprisingly little research has considered how these processes have shaped the imperial and global geographies of agriculture. Much of the research that has been conducted in this area has focused on the diffusion of agricultural innovations at local scales (Black, 2000) or, in some cases, within particular nation states (Jordan, 1972; Walton, 1984; Abdulai & Huffman, 2005). However, it is also apparent that these processes operate at much wider global scales.

### *Who says all innovation is good?*

In his research on the *Adoption of Innovation in the North Queensland Beef industry*, Frank concluded:

*"Relatively low rates of innovation adoption are likely to reflect limited perceptions of scientists, rather than negative attributes of potential adopters. Cattlemen in this study showed a logical, rational response to innovations in order to maintain harmony with their environment. Their expressed freedom of choice reflected their modernity: in contrast to the implicit assumption that innovation adoption was desirable and failure to adopt was an undesirable trait which could be described by a set of adopter categories. Cattlemen (and other farmers) manage agro-ecological systems and appreciate interactions between a dynamic range of elements."* (1997, p. 356)

Frank makes the point that all innovation is not inherently good but needs to fit within a range of other contexts. This is an important point and underlines the approach the MLA is seeking to take: to better understand red meat producers through a segmentation approach and then deliver innovation adoption that works for each individual producer

The point that not all innovation is good was raised at the NT cattleman's conference two years ago. Please refer to the following website: http://www.beefcentral.com/production/research-puts-northern-valuations-in-spotlight/.

### *Imitation*

We know from a number of studies that many farmers learn by watching other farmers and this is why field days and trial sites have had impact on innovation in many farming systems. More broadly, imitation as a factor in economic development has received limited attention in the literature.

MLA's role could be central to productivity enhancements through its diffusion of ideas and assistance around innovation to livestock producers.

### *Other innovation based theories/methodologies (Q-methodology, Ethnographic decision trees)*

Pereira's recent work in 2011 with Brazilian farmers employed some innovative methodologies to understand why some innovations were adopted and others were not. Pereira used Ethnographic Decision Tree Modelling, Q-Methodology and Personal Construct Theory, as well as elements of Soft Systems Thinking and Grounded Theory. These are worth reviewing.

Pereira's four main sets of goals and values were identified amongst the farmers through the sorting of 49 statements (Q-methodology). They produced four farmer types, labelled the Professional Farmer (PF), the Committed Environmentalist (CE), the Profit Maximiser (PM) and the Aspirant Top Farmer (ATF). Q factor analysis reduces the many individual viewpoints of the subjects down to a few 'factors', which represent shared ways of thinking.

From the MLA's perspective this methodology may have great value in uncovering relevant 'mind sets' towards innovation in livestock production.

Pereira found the PF aimed to run the farm in a professional way, based on sound technical and managerial practices. The CE put emphasis on the long-term sustainability of his farming system. The PM focused on technical issues to pursue his economic and lifestyle objectives. The ATF was seeking excellence and sought recognition for this.

Although Pereira (with the small sample size) claimed no relationship between the farmer types and the use of innovations, results suggested that the farmers' goals (i.e., represented by the farmer types) tended to generally orientate towards technology adoption. Farmer types who were production oriented (PF, PM and ATF) adopted more production technologies than the environmentally driven type (CE). This CE type, in turn, had the highest adoption rates of environmental technologies of all farmer types. Although important for adoption behaviour, the farmers' goals were insufficient by themselves to determine their technology adoption behaviours, with multiple influencing additional factors identified.

Among these additional factors were the five technology attributes proposed by Rogers's (2003) adoption of innovations theory: compatibility, complexity, relative advantages, observability and trialability. Compatibility and the relative advantages of technologies were the most important attributes while observability and trialability were relevant, but of secondary importance. Complexity seemed to be considered alongside other aspects of technologies (e.g., cash returns) that define their relative advantages, rather than an attribute in itself. This study, therefore, expands Rogers' (ibid) propositions by identifying a hierarchy among the innovation attributes.

As found elsewhere, factors external to the livestock producer themselves will influence uptake. The MLA seeks in its segmentation study to learn how to deliver more of the right innovations in the right way to the right livestock producer mind set.

Pereira also found other evidence to support MLA's desire to use a farmer-based segmentation around which to build its adoption work to drive productivity improvements. Pereira used ethnographic decision tree models on a dry season supplementation for rearing cattle ('hard' production technology) and on beef cost analysis ('soft' managerial technology) and found that farmers construed these technologies differently, using multiple criteria, both economic and non-economic. They also demonstrated that both adoption and non-adoption resulted from elaborate decision processes and were rational given the farmers' understanding of these technologies and their current resource set. Both adoption and non-adoption occurred for diverse reasons. Reasons for non-adoption included the technology incompatibility with the farmers' goals and values or with their farming systems, constraints to adoption or because the technology was perceived as less advantageous than other alternatives.

These findings contribute to decision making and technology adoption theories, drawing attention to the need of a 'farmer-centric 'approach in the development and diffusion of technologies. Under a 'farmer-centric' approach, it is acknowledged that farmers are unique, have diverse goals and farming systems and these impact on how they perceive technologies. Pereira argues that by better understanding the decision frameworks of farmers, research institutions can design more effective research and adoption strategies.

### *Cognitive mapping and graph theory indicators*

Farmers' practices are complex at the farm scale and the regional scale. Vanwinkdekens (2013) proposed a systematic approach for comparing and classifying farming systems. This may have application to assist in segmenting red meat producers. Vanwinkdekens says:

*"CMASOP [cognitive mapping approach for analysing systems of practice] is a cognitive mapping approach used to analyse systems of practice. At its core there are four steps: 1) surveying the systems of practice; 2) coding the transcribed open-ended interviews; 3) creating individual cognitive maps and 4) creating social cognitive maps. We added two steps to this (between steps 2 and 4) categorising or clustering the individual cognitive maps and 5 conducting a statistical comparison of the social cognitive maps. This was used as inputs in the comparative analysis."* (p.2)

Vanwinkdekens's results showed that the method was suitable for revealing significant differences between systems of practice used by farmers categorised according to various descriptive factors. When applied to clusters the results showed significant differences in practice related to the studied issue.

This is a potentially highly sensitive methodology for exposing genuine differences towards innovation although it is also a highly technical approach.

### *Knowledge and its exchange*

So while Pereira confirms the value of livestock producer segmentation for the MLA, other research is suggesting a focus on how knowledge is exchanged. Manning (2013) outlines in a knowledge exchange and diffusion of innovation (KEDI) study that knowledge can be defined as "information combined with experience, context, interpretation and reflection" and is a highly valuable personal and business asset. Organisations that understand their end customers and can effectively focus this capability into producing quality products and value-added services have a significant advantage in the marketplace (Harris, 2008).

Manning explains that there are two processes of gaining knowledge (and this is true for innovation knowledge and any other form of knowledge), namely knowledge transfer (KT) and knowledge exchange (KE).

KT relies on there being a knowledge seeker and a knowledge provider, i.e. that the process is unidirectional.

In contrast, KE is the multidirectional exchange of ideas, information and expertise among a range of stakeholders where no stakeholder is seen to be the holder of all knowledge assets. De Long et al. (1997) defined seven elements of KT and the outputs from the KT process (Figure 2). These outputs included more effective use of time and resources, reducing costs, increasing organisational adaptability and the value of existing products/services.

MLA needs to consider how innovation knowledge is gained – whether it be by KE or KT?

Levin and Cross (2004) identified that the 'knowledge seeker' can feel reputationally vulnerable in this relationship with the 'knowledge provider', because it requires the knowledge seeker to identify and communicate weaknesses or shortcomings either personally or in their business. They must therefore trust the integrity and the competence of the knowledge provider. Levin and Cross argued that an inter-personal framework was required to enable KT activities.

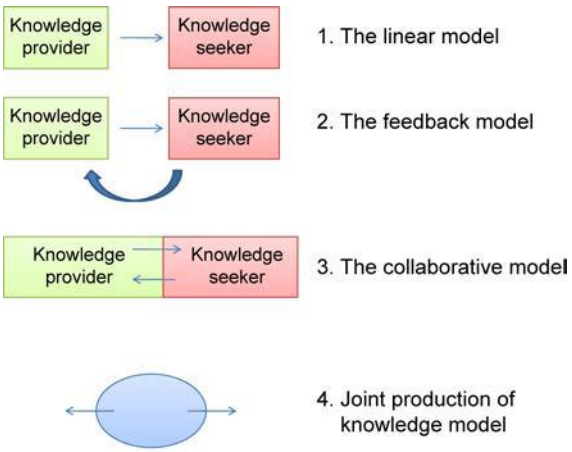
MLA should explore the relevant interpersonal connections that livestock producers use for KT activities.

There are many drivers of knowledge seeking which motivate the individual or the organisation to engage in the process.

MLA should explore the drivers of knowledge seeking by livestock producers.

RELU (2007) (the *Rural economy and land use program* briefing) proposed four KE models (Figure 2 below) and determined that "It is via networks that ideas, information and innovation flow", i.e. that social networks are an important driver of the KE process. The four models were:

1. Linear model: unidirectional where knowledge seeker takes a passive role (often referred to as KT)
2. Feedback model: where feedback enhances KE activity in the future
3. Collaborative model: where there is bi-directional KE between knowledge providers and seekers
4. Joint production of knowledge model: in which the contribution of the knowledge provider and the knowledge seeker is equally valued – indeed, an individual actor can have both a knowledge provider and a knowledge seeker role.

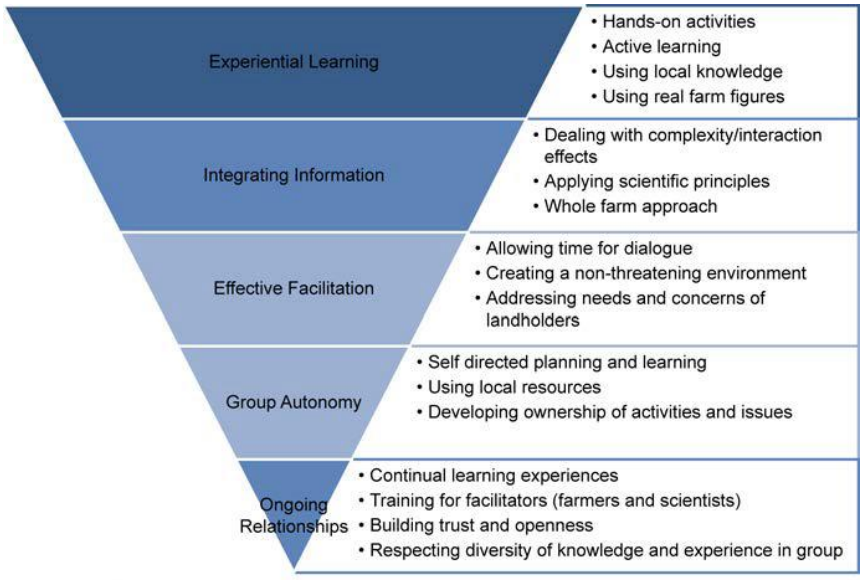



**Source:** Adapted from RELU (2007)

**Figure 2. The elements and outputs of knowledge transfer**

MLA should explore which elements and outputs of knowledge transfer livestock producers are involved with.

Millar and Curtis (1997) determined that there was a gradual transition from passive to active learning by farmers as the KE process developed (Figure 3). Millar and Curtis built on the experiential learning model and identified the importance of integrating information, effective facilitation and developing both group autonomy and inter-personal relationships and trust.




**Source:** Millar and Curtis (1997)

**Figure 3: Experiential Learning Model**

This thinking allows the wider learning environment to be considered and could be used in segmentation exploration. The thinking is that more collaborative or joint knowledge production creates local knowledge. The MLA segmentation should look at how it can help 'global' knowledge become local knowledge. Knowledge networks should be identified and farmer connections to these networks measured. These may include farm employees, financial advisers, suppliers and the markets themselves. Change agents who enable change are central to delivering KE and need to be identified.

Manning has created a complex model (see below) that builds on these fundamental building blocks. This is valuable conceptually. It is likely that the MLA segmentation study could get overwhelmed by this model if attempts were made to make it the fundamental segmentation base. However, this model could inform a discrete choice model design that explores how livestock producers want to learn about innovations and could anchor the segmentation in a predictive and interactive model.

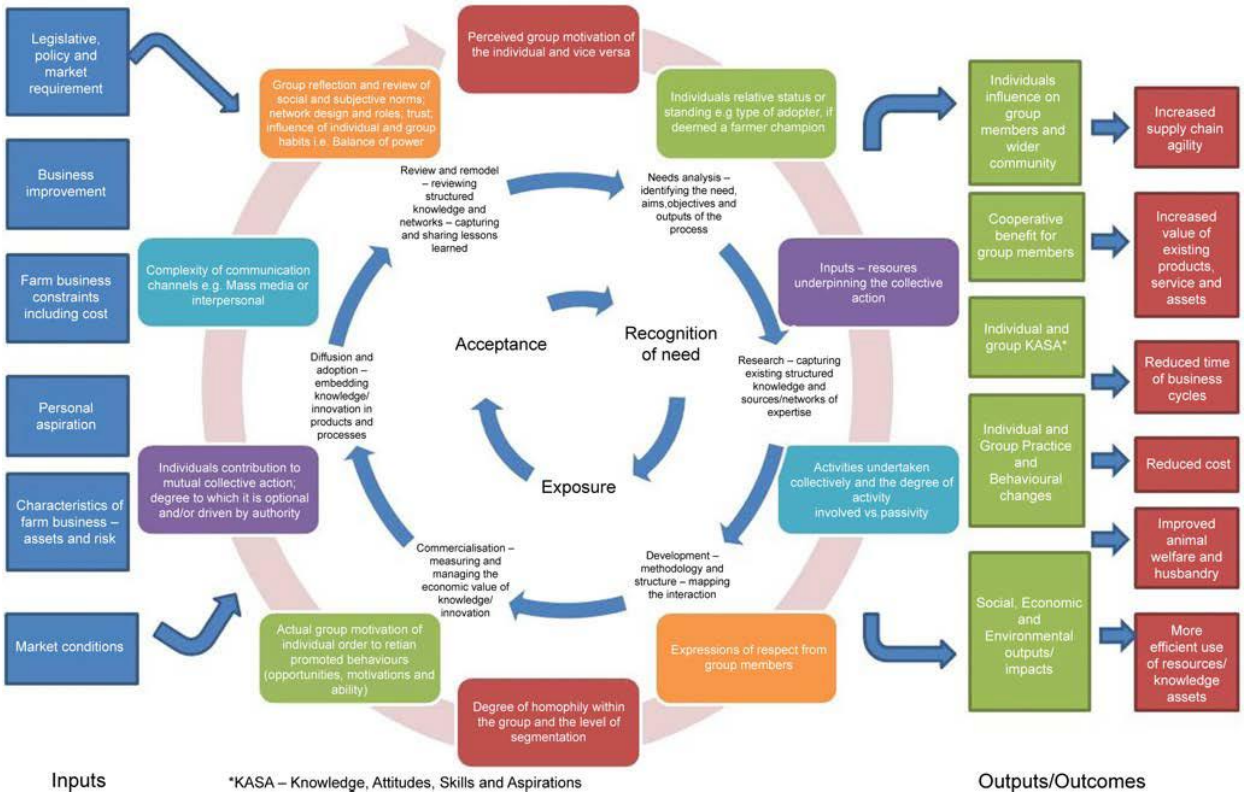



**Figure 4: The KE Whirlpool model**

### *Improvements drive productivity growth*

Grossman and Helpman (1994) hold the view, as indeed did Schumpeter (1934), Solow (1970), and countless others, that improvements in technology have been the real force behind perpetually rising standards of living. They believe that most technological progress requires, at least at some stage, an intentional investment of resources by profit-seeking firms or entrepreneurs. This perspective led Grossman and Helpman to join Romer (1990), Aghion and Howitt (1992), and others in developing formal models that cast industrial innovation as the engine of growth. With the aid of these models, one can now investigate whether a decentralised market economy provides adequate incentives for rapid

accumulation of commercial technology, and one can examine how variations in economic structures, institutions, and policies translate into different rates of productivity gain.

MLA is facing the difficult question of how best to promote rapid, sustainable economic growth in the face of depletable stocks of natural resources and seasonal variability. Grossman and Helpman conclude that improvements in technology are the best chance to overcome the apparent 'limits to growth'. But if mankind continues to discover ways to produce more output (or better output) while conserving on those inputs that cannot be accumulated or regenerated, then there seems no reason why productivity cannot continue to rise.

### *Framework*

Ronny Adhikarya in his paper on Strategic Extension Campaigns summarises a wide range of aspects that may be relevant to a successful strategic extension campaign, which is essentially what the MLA wants to achieve. He believes that the approach advocated is useful and important because of the following:

1. It advocates a participatory planning approach
2. Is needs based and demand driven
3. Uses a planning and integrated systems approach
4. Considers the human and behavioural responses
5. Has a problem solving orientation
6. Employs a cost effective multi-media approach
7. Provides specific extension support materials and training
8. Has built in process documentation evaluation procedures
9. Is applicable across a wide range of extension projects, initiatives and activities.

We think it has value as a checklist for a marketing segmentation brief.

### *How do livestock producers get information?*

As agricultural production systems get more complex the demand for acquiring, evaluating and processing information will also rise. Studies suggest farmers are rapidly adopting emerging information and communication technologies and in doing so have better access to information (Batte, Gloy & Akridge, 2000).

Based on a survey of 3000 farmers in the USA, Diekmann, Loibl and Battle found that:

*"Different types of information have different economic value to farmers but to be used information must demonstrate that it is relevant and meaningful which includes that it is packaged and delivered in a way most desired by users."* (2014, p. 854)

Diekmann et al. identified 4 different search typologies amongst farmers which differed with respect to information source preference and frequency of its use:

- Low-search (32.5%)
- Moderate-search (27.1%)
- Online-search (19.4%)
- High-search (21%)

Diekmann also did a cluster analysis on attitudes to get a farmer type segmentation. It was found that farm revenues, years farming, Internet access and farm types were good predictors of search strategies. Interest in information and attitudes were more specific on cluster membership.

### *Information quality*

In the paper *Information quality and effectiveness for more rapid adoption decisions by farmers*, Llewellyn found that “adoption and the adoption decision consume two limited on farm resources: time and the capacity to integrate new information. Readily available quality information with high reliability and relevance to the decision maker reduces these information and learning costs” (2007, p148).

# 6. What are the necessary pre-requisites for innovation?

From the literature we found that the following factors have a significant impact on farmers' intention to change their farming practices concerning the impact of increasing climate variability.

### *Demographic and psychological differences*

As part of the National Land and Water Resources Audit, a review titled *Human and social aspects of capacity to change to sustainable management practices* (Cary, Barr, Aslin, Webb & Kelson, 2001) identified the most commonly found, albeit few characteristics, that influence attitudes and the adoption of sustainable management practices by framers. If we draw a parallel between sustainable management practices and changing farming practices to counter climate change it is possible to say that the major factors are:

**Age & Succession:** mixed evidence suggests that there is a linear relationship between the average age of farmers and the implementation of innovating and different sustainable practices. However where there was an increase in age, and of migration away from rural areas, it suggests a reduction in family farm succession leading to a reduction in the investment in sustainable management techniques, training and education. The report notes that, "In localities with an increasingly aged farmer population and low rates of inter-generational transfer, adoption of changed management practices that require increased capital and labour commitment is likely to be lower". These findings are likely to also be true for innovation more generally and are two variables to collect in any segmentation data set.

**Farm income and farm characteristics:** Low farm income or high debt was believed to be a major barrier to adopting sustainable farm management practices and will in like manner affect investments in innovation more generally.

**Participation in Landcare and property management planning:** Those farmers and farming families who are exposed to sustainable management practices amongst their social and peer groups are more likely to adopt those practices themselves. This provides a clue for ways to conduct adoption work, and speaks to the latter evidence about influencing more than the individual farmer but also the wider farming system. Learning and seeing what other producers are doing is likely to be a key factor in imitation and in the innovation adoption that follows.

**Farm size:** The evidence suggest that the larger a farm the more likely the farmer is to adopt new and more sustainable farm management practices, in part explained by the greater economies of scale associated with larger farms. This will likely be a factor in the adoption of a range of innovations and needs to be included in any segmentation data set.

If one of the above factors was to be given prominence over the others, then perceived financial situation was found to be a better predictor of adoption behaviour. The above study found that farmers' expectations of future financial situation was a better predictor of the adoption of sustainable management practices, as is regularly found in other industrial sectors. The study reports that, "Feeling financially secure is an outcome not just of current financial circumstances, but of future expectations and psychological disposition".

Innovation may be motivated by a clearer perception and understanding of increased climate variability. It is clear that Australian farmers' attitudes towards climate change are becoming clearer in recent years. As the Australian Research Group Study (ARG) found, "It also appears this strength of feeling [about climate change] is a relatively recent phenomenon, with some people saying they had changed their attitude towards climate change over the past few years" (2006).

This relative importance was also highlighted in the Bureau of Rural Science survey in 2008 which found that 81% of farmers consider that changes in weather patterns are a part of a natural cycle, and that 79% felt that this was a combination of both man-made and natural influences.

### *Psychographic segmentation*

The literature review revealed attitudinal and behavioural segmentations of farmer groups. We thought it important to mention a few.

Waters W, Thomson and Nettle (2011) undertook a literature review of segmentation approaches and concluded that an attitudinal farmer segmentation (DAFS) using 35 statements that capture farmers' perceptions about a range of aspects of farming revealed groups of farmers that are quite likely to be stable. The 35 attitudinal statements were collated and tested by Thompson (2001a) from Australian and international research.

This DAFS segmentation delivered 6 attitudinal segments and was further described by their situational (farming systems) context, their demographic characteristics and their past and intended future behaviours.

**Table 1: Overview of attitudinal characteristics of each DAFS group**

| Table 1: DAFS | Group 1 5.5% | Group 2 3.6% | Group 3 17% | Groups 4 24.9% | Group 5 21.5% | Group 6 27.4% |
|---|---|---|---|---|---|---|
| Business orientation | Low | Low | average | Average | High | High |
| Aversion to risk | High | High | Low | High | Low | Average |
| Sustainable improvement | Low | Low | Average | Average | High | Average |
| Knowledge and self reliance | Low | Low | Low | Average | High | High |
| Intergenerational orientation | High | Low | High | Low | Low | High |
| The Dairy way of life | Average | Low | Low | High | Low | High |
| Financial pressure | High | Low | Low | High | Low | High |
| Farming tradition | Low | Average | High | Average | Low | High |

Source: Waters 2011, p. 50

### *Role of risk and uncertainty*

Farming by its inherent nature is subject to risk; however increases in climate variability have elevated the relative measure of risk and uncertainty. Whilst many farmers acknowledge that climate variability is occurring more now and impacting their holding, they are uncertain about the effect that it will have on their holding and their future financial viability.

"*One key reason why some farmers fear climate change is that it will lead to unpredictable changes to the weather. This lack of predictability undermines their ability to adapt to the new conditions. As a result they fear losing the ability to control the outcome of their farming practices. This loss of control strikes at the heart of what it is to be a farmer."* (ARG Study 2006)

Whilst the profit motive in relation to risk is as strong in farmers as it is with business people in general, Fenton, MacGregor & Cary (1999) note in their research that:

*"The motivation behind human behaviour is more complex than a simple drive for financial profit. While considerable research demonstrates relationships between beliefs about*

*profitability and adoption behaviour this is mediated by a great variation in attitudes towards business profit and a consideration of the risks that characterise Australian agriculture."*

As Emtage et al. report, in their review of *Landholder Typologies used in the development of natural resource management programs in Australia*:

*"Landholder types have been defined according to physically identified characteristics: psychographic or attitudinal data; or a combination of both biophysical and social criteria collected in surveys. Several Australian and international studies have sought to combine the insights concerning the characteristics of landholders developed over a number of studies to create their typologies."* (2006, p.80)

**Table 2: A classification of typologies used to assist rural and NRM development programs**

| Basis of typology | Criteria used | Common techniques for collecting information & classifying respondents | Example authors |
|---|---|---|---|
| Anthropological | Socio-political & cultural structures & practices, land use practices | Participant observation, qualitative analysis | Conkin 1957;Ooi 1987; Jocumo 1998 |
| Farming scale and operation | Scale of operation, ownership, management intensity | Structured questionnaires and cluster analysis | Johnson 2002; AAFC 2002; Solutions 2003 |
| Wealth ranking | Socio-economic factors defined by community involved | Focus group discussions, participatory methods, community immersion | Belsky 1984; Balbarino 2001 |
| Livelihood strategies | Factors affecting the livelihood of households | Focus group discussions, structured questionnaires , factor and cluster analysis | Bourgeois 1999; Darward 2002 |
| Farming systems | Elements of production system used and management objectives | structured questionnaires & expert interpretation | Kostruwicki 1977; Kaine and Lee 1994; Landais 1998; Caldwell eta l. 2002; |
| Farming style | Farm management style | Participant observation, qualitative analysis | ven der Ploeg 1993; Busek 2002; Howden et al, 1998 |
| Attitudinal | Attitudes to NRM | structured questionnaires, cluster analysis | Barr 1996;; Specht and Entage 1998; Emtage et al. 2001; Boon et al, 2004; Emtage 2004b |

(Source: Emtage 2001, p. 81)

Emtage also summarises the methods and applications and study areas using segmentation or typologies, in Table 3 below.

**Table 3: Methods, applications and study areas of research using market segmentation**

| Study authors | Area studied | Basis for segmentation | Application |
|---|---|---|---|
| Laine & Lee 1994; Kaine & Beswell 2002; Linehan and Kaine 2003 | Victoria | 'Farming context' and industry specific practices | Facilitation of farm enterprise development |
| Emtage 1995 | Richmond River Catchment (NENSW) | Ratings of importance for reasons for planting trees on private land holdings | Development of farm forestry extension and assistance programs and public policies |
| Rogers 2003 | International | Propensity to adopt new practices | Development of any or all extension and assistance programs |
| Barr 1996 | Victoria | Pasture management attitudes and practices | Development of perennial pasture management and extension and assistance programs |
| Howden at al. 1998 | North-East Victoria. (South-west NSW) | 'Farming style' | Development of rural extension and assistance programs |
| Specht and Emtage 1998 | Northern Rivers (North-east NSW) | Ratings of importance for various reasons for planting trees on private land holdings | Development of farm forestry extension and assistance programs and public policies |
| Fulton and Race 1998 | Australia-wide | Type (size, location) of farm enterprise and landholder characteristics | Development of farm forestry extension and assistance programs and public policies |
| Emtage at al. 2001 | Far North Queensland | Ratings of importance for various reasons for, and restrictions to, planting trees on private land holdings | Development of farm forestry extension and assistance programs and public policies |
| Solutions 2003 | Australia-wide | Attitudes to industry, willingness to seek new information/approaches, planning practices, current family debt, reliance on off-farm income | Assessment of the impact of government and rural industries policies and programs |
| Bohnet 2004 | Far North Queensland | Attitudes towards land use and land management | Development of the future visions for agro landscapes in FNQ to assist local government planning and policy development |

(Source: Emtage 2001, p. 82)

Emtage goes on to describe all these approaches in his review paper. He concludes by outlining a 'master typology':

*"The concept is based on a series of multi-dimensional landholder profiles. These could act as functional management units, providing a framework for the integration of indicators of capacity to inform management and policy decisions at multiple scales. Given that typologies and the surveys on which they are based provide only a snap shot of landholder socio-economic circumstances and values, the work needs to be undertaken at regular intervals in time to provide understanding of the process of change and restructuring in rural areas."* (p. 90)

This paper by Emtage should be essential reading provided in the MLA segmentation project brief. Moreover, the point about ongoing measurement speaks strongly to the need for a dynamic MLA database that collects information from the livestock producer and updates their segment classification.

### *Drivers and barriers to change*

An examination of the significant barriers and drivers to changing farmers' practices in response to climate change undertaken in the Natural Resource Management study conducted by the ABS during 2006–07 found nationally, 71.0% of agricultural businesses reported barriers to the improvement of their NRM practices (including the management of weeds, pests, land and soil, water and native vegetation). Of the agricultural businesses reporting barriers, the most common reasons given were lack of financial resources (78.9%), lack of time (63.1%) and lack of government incentives (40.0%). Age and/or ill health were given as a reason by 22.2% of agricultural businesses nationally.

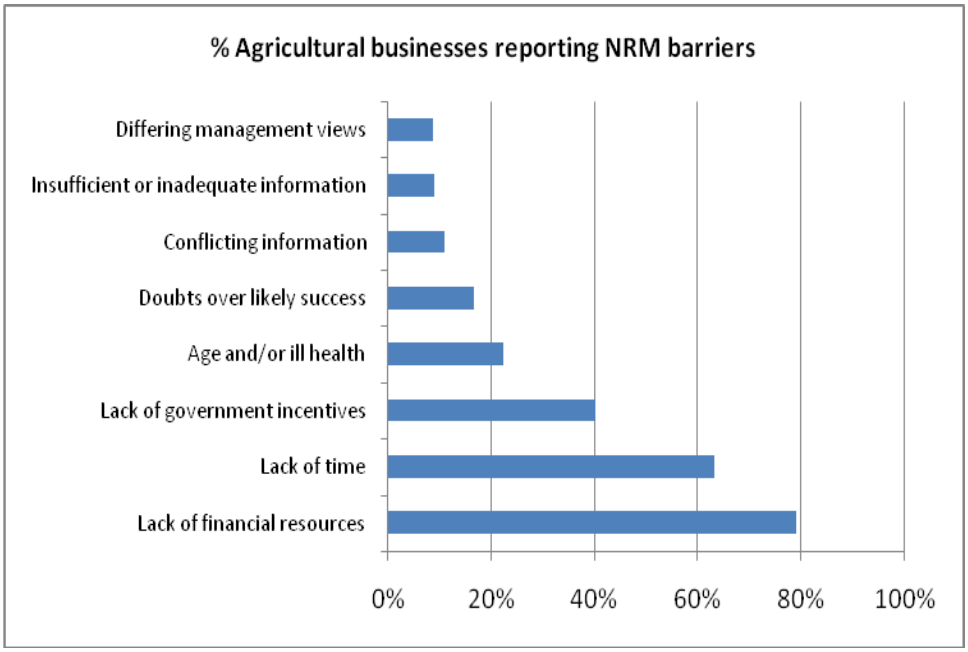



**Figure 5: NRM Study**

(Source: ABS 2007)

### *Values to influence action*

A deeper insight into the values that might influence farmers to adopt new practices was developed in a study for the Climate Institute on the Attitudes towards climate change in rural and regional Australia. The qualitative portion of the study workshopped a number of value statements for interviewees to respond to, and their findings provide some valuable concepts for developing a communications campaign with farmers:

**Science:** People polarise on the question of scientific facts. Some considered that their grasp of detailed technical facts is part of their identity. However these people were in a minority. Most people were happy to know as much technical detail as they need to know about the topic and not much more.

**Human action:** There was an underlying feeling of concern for how humans are adversely affecting the environment for the future. While farmers believe they are good custodians of the land today, they recognise that their predecessors did a lot of damage through land clearing and other practices that we must now deal with.

**Helping others:** Pragmatism rather than altruism appeared to be the dominant view in the discussions. This was partly influenced by the fear that their own personal and economic survival was at stake because of the continuing drought.

**Protecting the planet:** For farmers the planet was seen as an admirable cause, but principally as long as it was associated with maintaining the productivity of the land. Linking this to Gaia-like thinking did not appear to be a strong motivator.

**Responsibility:** Rural and regional people are more than happy to take responsibility for their own practices and their own future – as long as they are able to. They are unlikely to look for someone else to blame, even though they are inclined to look to the rest of society to help them out when times get tough. This is why climate change is such a concern – because it threatens to take from them the ability to take responsibility.

**Waste:** There is some receptivity to an argument about waste, but overall it is seen as a nimby issue. That is, I don't think I am wasteful myself, but there are reasons to believe that others are.

**Future generations:** This gained unanimous support. There is a strong feeling that climate change means we can't have everything we might want and that the time has come for mankind as a whole to exercise discipline for the sake of the future.

### *Community based action*

In a number of the studies that examined ways in which to manage challenges and adopt strategies to encourage changes in farming practices, the importance of including the community was stressed regularly. Many farmers have a strong affiliation to community and feel a part of their local community, and that people in their local area helped each other out.

*"There is a long tradition of research that shows how individual personality traits and psychological resources have a significant influence on determining response to risk. Recent research in Queensland suggests farmers are more likely to have a personality style adapted to perseverance, autonomy, solitude and a capacity to cope with adversity. Of 14 general personality styles expected in the wider community, farmers were found to generally fall into a limited suite of five styles. These five styles have a common tendency to experience discomfort in group situations. Whilst this work is formative, it provides an indication of why membership of Landcare groups is unlikely to cover the whole of the farm population or why Landcare is not necessarily the most effective means to inform or influence land managers or why group extension is, at best, one tool for delivering training on new farming techniques."* (Fenton, MacGregor & Cary, 1999)

Strategies and communication that focus on the needs and address the community as a whole will be better received and provide more incentive and influence. It is important that initiatives tap into existing social networks and coordination mechanisms rather than creating new ones.

### *Government assistance to manage impacts of climate change*

In the Bureau of Rural Science survey of 2008 respondents assessed ways in which government might assist them to manage the impacts of climate or weather. The majority of respondents were interested in financial assistance for current problems and future investments, receiving support to invest in fuel-efficient machinery and develop more sustainable management practices, and for access to training and education. In the same study it was found that the majority of respondents (75%) did not trust the government and only (23%) of respondents believe that experts can be relied upon to tell the truth, highlighting a potential credibility issue.

However, to address this, key insights and recommendations from the IPSOS on Environmental Stewardship Program made the following findings:

**Removing the uncertainty and risk of a new program requires good planning and a strong communications strategy.** In particular the program must be designed to overcome the barriers of uncertainty in the environmental efficacy of management actions, the risk that the government will change or not commit to obligations, and uncertainty in the cost of participating in the long term. Respondents felt the program must offer a true incentive, ensure that the cost of participation is kept to a minimum by reducing bureaucracy, develop a strong communications strategy through education and compliance, be clearly understood, be open and transparent, have clear objectives, empower landholders, and ensure flexibility to the needs of different landholders.

**Understanding the market is critical to attracting large numbers of quality participants.** By understanding their characteristics, values, aspirations and

communications channels, this will ensure that participation rates are balanced and programmes are able to cater for the differences in landholder types.

**The financial incentive is a major driver and barrier to participation.** This view was strongly supported, especially when taken in the context of activities with a public benefit. However there was also a concern over high opportunity costs impacting on participation rates, in relation to funds not covering on-going costs throughout the duration of the programme, expectations for payments that compensate for lost opportunities, not wanting to restrict access to future opportunities, and the perceived high cost of covenanting land.

**Allowing the landholder the flexibility to match management actions to their own goals.** This means having the ability to decide on the actions to take, which in turn provides landholders with 'autonomy and greater sense of ownership' on the management of the program.

**Duration and type of commitment is a driver and barrier to participation.** This is influenced by the specific situation and attitude of the landholder; in some respects long-term commitments were a deterrent because of a loss of control, missing out on future opportunities and uncertainty with achieving the outcomes in time. Desire for long-term programs was driven by an alignment with 'farm planning, seasonal variation and commitments to bio-diversity.'

**Reluctance to enter into covenants.** This was due to perceived loss of rights, concern over how it might affect the price of their property, concern over longevity of support in relation to the length of the covenant, fear of the consequences involved in not meeting the obligations and unwillingness to commit their children or future owners to the covenant.

### *Adaptability and flexibility*

Adopting an approach that takes into consideration the different styles, knowledge levels and needs of farmers is an important consideration to address in any campaign.

As Kilpatrick and John found,

*"Farmers do not all learn about sustainable practices in the same manner. Styles of farmer learning vary from reliance on a few key informants to styles that are based on extensive networks of sources and informants. No one delivery system will be appropriate for all farmers."* (1999)

Moreover, the *National Land and Water Resources Audit* goes on to explain that,

*"Dissemination of local knowledge will remain a key feature of any successful training program. The adoption of more complex management practices into existing farming systems often involves a higher level of risk with less certain outcomes. Learning how to master this complexity and accommodate the technical and financial uncertainty will often require locally adapted knowledge and the need for local networks or local professional sources of knowledge support."* (Commonwealth of Australia 2002)

### *Communicating to agricultural business*

A study by the Rural Media Monitors in November 2004 found 96% of farmers read some publication on a regular basis, with Rural Press publications dominating producers' readership habits, whilst radio was significantly listened to more on weekdays (91%) rather than weekends (68%). Similarly, most producers (95%) view some form of television, including ABC TV (89%), Commercial TV (87%) and Pay TV (13%).

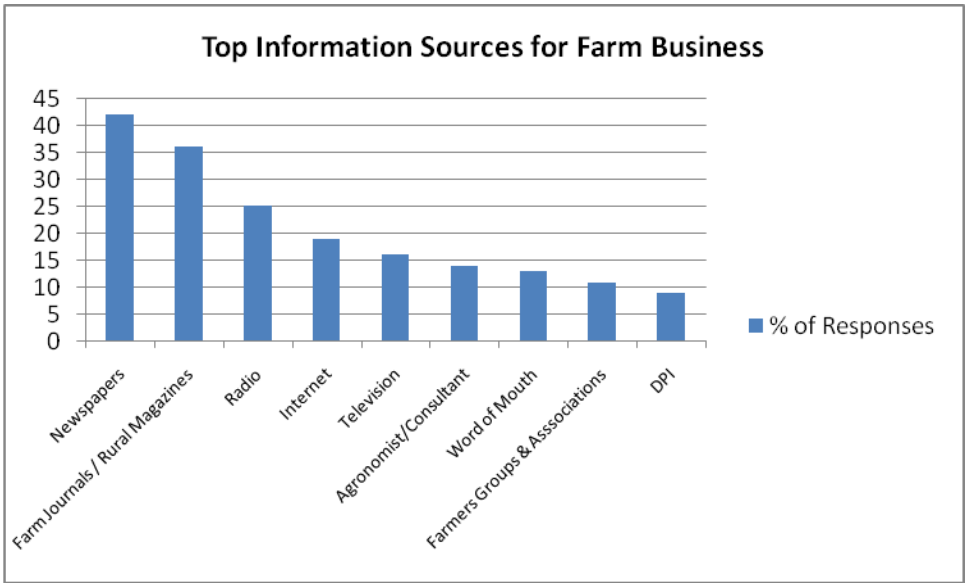


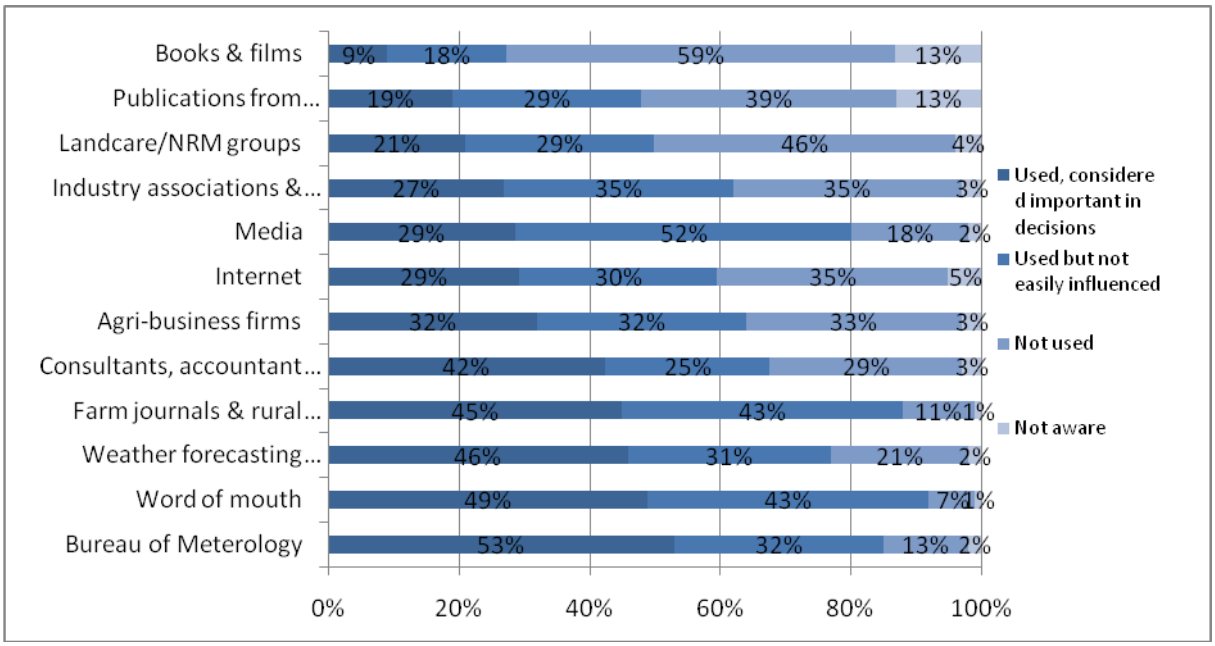

**Figure 6: Top Information Sources for Farm Business**

(Source: Farmer Profiling and Adjustment Study, DAFF July 2005.)

Whereas the *Farmer Profiling and Adjustment Study* (DAFF, 2005) found that when farmers seek advice and assistance they will use:

- A successful farmer in the industry or region
- Social meetings and gatherings
- Consultants, district agronomists, farm management consultants
- Accountants and financial planners
- Family members
- State Government Departments and Primary Industries
- Professional for advice on rules and regulations
- Printed materials – newspapers, journals, product magazines
- Internet
- Field days

**Table 4: Information sources used to make decisions regarding climate**




(Source: Bureau of Rural Science, 2008)

In the Bureau of Rural Science survey respondents were asked what information sources they have used to make decisions concerning climate or weather and the extent to which it influenced their decision making. The findings were grouped into two themes: objective sources (such as the Bureau of Meteorology) and trusted local sources (particularly word of mouth).

### *What would be the basis of effective adoption programs?*

Extension in Australia has undergone considerable change over the last decade. It has moved from a largely government funded one-on-one technical advisory service, to a combination of public and private agencies focused on group extension approaches (Coutts, 1997). But a significant proportion of funding for public and private extension comes from centrally administered funds originating from the federal government and from farmer levies. The emphasis is on large extension programs delivering benefits to a broad cross-section of producer clients. Group extension was seen as an effective mechanism for extension delivery within this framework.

Extension using mass or group methods has been used as part of extension programs over long period (Woods et al., 1993). These methods (field days, demonstrations, seminars, workshops, farmer discussion groups and farm walks) were chiefly aimed at providing a group audience for delivering research results or expert recommendations for farming activities. What has changed is the setting up of groups to permit greater farmer involvement in setting the agenda and in meeting the needs of participants – or in other words, to facilitate farmer learning (Clark et al., 1999). Extension and farmer experience has resulted in a variety of approaches to the new, group-based methods. These groups have different structures, different agendas, different life spans and different ways of operating. This study draws on the collective experience of those working with groups in extension to capture some of those factors that assist in choosing the appropriate group type for a given context, and to look at the factors influencing the effectiveness of such groups. The typology developed by Johnson and Johnson (1997) has been used as a framework for understanding the different extension groups that have developed and are in use, and in studying their appropriateness and effectiveness.

Clark et al. (1999) investigated the influence of group process on achieving outcomes in extension programs. Data were collected from project leaders and extension practitioners who were using groups in their extension projects or programs. The data were collected and analysed around a framework developed by Clark et al. (1997) which included categories such as context (of the project), purpose (of the extension), processes and techniques used and the assumptions.

Their paper aims to show that group type influences group function because of the processes used within them. As a result, the desired outcome is also influenced. Data from Clark's project (1999) are reanalysed, using his framework (1997) but from a perspective of group type rather than group process. Groups selected for this analysis were limited to those that explicitly stated farmer learning as a group objective and had an expectation of being ongoing. First, the theoretical perspective about learning within which group extension operates is explained. Second, Clark's framework is explained. Third, group types are examined and finally an analysis of extension practitioners' comments is carried out looking for consistencies and anomalies. Permission to reuse the data was given by the Rural Industries Development Corporation that funded the study by Clark et al. (1999).

Adult learning is learning that centres on the learner as opposed to learning that centres on a teacher. It builds on previous knowledge and experience. There is an expectation of respect for the learner and their right to set their own goals and outcomes (Knowles, 1990; Burns, 1995; Kolb, 1984). Burns compiled a useful set of principles from the works of previous authors.

These are:

- Mutuality of responsibility in defining goals, planning and conducting activities that are based on the real needs of the participants
- Participation in decision-making
- Self-direction
- Teacher's role as resource and facilitator
- Use of learners' experiences as a basis for learning
- An open, democratic environment
- A concern for the worth of the individual and their self-concept (Burns 1995, p. 253).

Action learning is a clear and definite process that uses a cycle of action, observation, reflection and change to analyse activities (Kemmis and McTaggart, 1988). The first cycle leads to subsequent cycles of analysis and gradually activities are modified to achieve the most appropriate outcome. Action learning is analysis done by individuals who examine and analyse activities for themselves. Action research is the analysis done as a group (Perry & Zuber-Skerritt, 1992).

Some additional principles are that:

- Reflection is a key to learning from experience
- No one is more expert than the presenter on her/his issue
- Empathy is at the centre of the process
- It is easily accessible to most people – it is not a mysterious process
- Action learning requires commitment.

The development of the individual is the most important outcome, not just more effective action. The aim of this paper was to show that what extension practitioners and members regard as success or hindrances may well be misplaced when they examine the intentions and limitations of the group process they have adopted. There are currently a number of different, identifiable structures for groups, some of which are more suitable for providing a learning environment than others. Group-based extension in Australia is moving towards

learning activities that use action learning as a process. Action-learning groups are more suited for learning because of the skills they develop in the participants to produce independent learning. However, learning can be accomplished to some degree using any of the group types.

MLA should consider all these learning factors when designing desirable adoption initiatives and be aware of the universal success and hindrance factors in the designs.

Knowledge of the attributes and requirements of the different processes in the different groups by extension practitioners is important so that the function of the group and its members is not impeded. For example, what may appear to be hindrances to groups achieving their outcomes quickly may be because the group type chosen necessarily demands a long process of consultation and discussion. Therefore, a different type of group should be chosen or the capabilities and limitations of that group type accepted. It is important that extension practitioners, for their own well-being, do not attribute failure when in fact there is success.

| Universal success factors | Universal hindrance factors |
|---|---|
| Local, skills & knowledge development. | Weather affecting trials |
| Understanding key principles. | Low commodity prices. |
| On-farm action, observation & objective measurement. | Poor quality audio-usual aids. |
| Timing to fit with graziers timetable. | Unsuitable venues (lighting, seating, etcetera). |
| Graziers keen to work on an issue | Lack of finance. |

Roberts, K. 2007.; 'An analysis of group processes in farmer learning: the Australian experience', Journal of Agriculture Education and Extension.

**Figure 7: Success and hindrance factors in group learning in extension work**

# 8. Summary

### *Initial ideas*

There is extensive support in the literature that innovation based segmentation would be a competitive advantage for the MLA and its adoption activities would be much more effective if the segmentation challenge could be solved and then successfully implemented.

We strongly believe that a powerful segmentation in conjunction with emerging digital marketing tools would make this MLA innovation segmentation work well.

There is extensive evidence that each livestock producer is likely to differ in their approach to innovating in their business of producing livestock (beef, cattle, sheep meat and goats). This will result in different behaviours on farm with regard to innovation.

All livestock producers innovate. But they do it with very different 'mind sets', at various speeds, in many different ways, as individuals and as communities, as farms and as farming systems and they are all influenced extensively by situational factors such as geography, history, profitability, experience with change, size of farm, succession planning, and many other factors.

The process of innovation needs an invention, an innovator and imitators.

**Table 5: Impacts on innovation – potential segmentation bases**

| Impacts on innovation (segmentation base) | Differentiator | Should be included in next stage exploration |
|---|---|---|
| What wealth is created on farm (amount, resources, current and past)? | Yes | Yes |
| How innovation occurs on farm (mind sets, values, education, social networks, influencer networks, history of innovation)? | Yes | Yes |
| Is the business growing, being maintained or shrinking & whether producer profitability is on the rise, being maintained or in decline? | Yes | Yes |
| How much investment is made in innovation, priority placed on innovation, history of innovation, and extent that the entity is stuck on what it has done in the past? | Yes | Yes |
| Where and who do livestock producers source their information from to make decisions that aid in innovation? | Yes | Yes |
| How do producers segment themselves based on the activities and programs that organisations like MLA deliver (i.e. how do they determine whether it is good value for money, why they should attend, and what they will get out of it – is it about seeking new or more information about a specific area for improvement or networking with other producers or getting time off the farm)? | No | Yes |
| How do geographic and climatic systems impact on livestock producers? | Yes | Yes |
| How do domestic and international commodity prices impact on the producer through decreased profitability? | No | Yes |
| How do the existing education, skills and expertise of the livestock producer impact on their desire and level of innovation? | Yes | Yes |
| How does age and succession planning (or lack of) impact on innovation? | Yes | Yes |

In addition to the segmentation bases identified, other factors that should be included are:

- Attitudes to change (position in the stages of change model)
- Attitudes to climate change (perceived climate change risk may trigger innovation action)
- Attitudes and behaviours towards technology
- The presence of transferable skills
- The connectedness of the producer to other producers
- The preparedness to look at innovative and entrepreneurial marketing opportunities.

### *2. It is critical to be able to identify every individual producer and assign them to a segment*

We believe this is the most critical factor in the success of the MLA innovation segmentation project because it will create a direct communication channel and an understanding of the livestock producer market segments.

We found extensive literature that discusses the problems of segmentation for the 'manager' which is a lack of guidance on how to do it and how to implement it. We support this view and have found this in most cases in our direct experience with over 200 segmentation studies we have undertaken. Many fail because the insightful segmentation solutions are not able to be tied to individual customers leading to generic responses from organisations to the segments.

Where clients have 'tagged' all customers with the segmentation and are able to direct market to them the segmentation works. Where organisations know what drives human decisions to act and how to influence those choices then segmentations perform well.

Where choice based insights are embedded in predictive decision making tools that are used in adoption 'briefs' so that O&E approaches are developed for a specific 'mind set' and demographic / geographic / financial profile, then segmentations flourish because they are embedded in the organisation's everyday activities.

Most segmentation solutions lack the core ingredient of accessibility. MLA should not proceed with this project unless it decides to capture the data needed on its 49,000 members to allow each producer to be tagged to the final segment solutions. There are many ways to do this and any segmentation solution must allow for this. We are recommending that measurable data be used to 'profile' each segment in the final solution.

### *3. Knowing the levers for each segment to trigger contemplation of innovation*

As suggested in the previous point each segment must be described in the final segment solution by how it makes choices regarding the adoption of innovation on farm, how action starts on innovation, and how decisions are taken about continued investment in innovation over time This is able to be undertaken through the use of discrete choice methodology which allows the segments to be modelled in the way they make choice about adopting innovation. These models also predict uptake based on how O&E is delivered and this model allows MLA to adapt its O&E development to individual segments because the ingredients for each are known for each segment. Then (with accessibility) direct communications can occur with each segment member. This is essentially the model used by the major big four banks that shows a segmentation still operating after 10 years on a vital business unit (home loans).

### *4. The key enabler is a database holding information that is accessible and contains some key data (e.g. geography, size of farm, stock numbers, growing or shrinking form, use of innovation, profitability on farm)*

We are yet to review the database, but MLA has about half its members on their database. It will be a crucial goal to get this database closer to 80-90% of members. In the process of doing this, critical data will need to be captured and maintained.

This should be an MLA business propriety. We know many efforts are already underway. This database will be the key to making the innovation segmentation succeed more than any other factor.

### *5. Other standard segmentation assessment criteria*

**Table 6: Segmentation Criteria**

| Segmentation Criteria | Details | Assessment on the basis of the literature |
|---|---|---|
| Identifiability: | Extent that distinct groups of livestock producers can be recognised by using specific segmentation bases easily measured. | This is achievable. |
| Substantiality: | Where the segments are large enough to ensure the profitability of targeted activity. | This is achievable – geography may play a crucial role reducing the size of local segments and making O&E challenging, but will work nationally. |
| Accessibility: | The degree to which the target segment can be reached with communications and adoption programs. | Discussed above. |
| Stability: | The degree to which segments will be stable over time. | Even if the goal of heightened innovation was achieved the segments would still be relatively more stable compared to any other market place we have studied. A segmentation life of 5-10 years should be achievable. |
| Responsiveness: | Segments must respond uniquely to marketing efforts targeted directly at them. | This is achievable. |
| Actionability: | Segment responses should provide guidance on effective specification of marketing instruments. | This is achievable – O&E, communications, innovation uptake all point to different patterns of behaviour regarding innovation and demand a segmented approach. |

# 9. List of resources

The following is the list of resources used in this literature review:

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# 10. Areas of investigation

The following areas will be explored in the interviews to be conducted with practical segmentation users.

**Table 7: Segmentation bases**

| Segmentation Bases | Details |
|---|---|
| Geography | State, region, postcode, distance from capital city, region of production |
| Demographics | Age, gender, education |
| Role in decision making | Joint, sole, influencers (type of relationship partner, child, employee etc) |
| Financial situation | Degree of profitability, asset reserves |
| Farm business descriptors | Size of herd, size of farm, number of employees, number of advisers (paid and free), type of meat producer, level of diversification, level of off-farm income; management style, production practices, types of technology employed, level of debt |
| Experience | Length of time farming, on their current property, length of time in this business (attempting to measure resistance to change) |
| Knowledge | Collected collaboratively, jointly or as an individual. Do they get their knowledge through knowledge transfer or knowledge exchange – or both? |
| Values | Science, responsibility, helping others, protecting the planet, responsibility, integrity and ethical stances, waste |
| Goals, attitudes to innovation | Diffusion typology (typically early adopter, early majority, late majority etc); degree of imitation of others innovations, farmer goals – leading to a farmer typology |
| Innovation Behaviours | Behaviours regarding innovation; types of innovation (managerial, technological, farming systems, environmental genetic etc); technologies/innovations analysed, hardware or software, managerial, production technologies, environment, does innovation happen continuously or it spurts, causes of innovation in the past |
| Barriers to innovation adoption | Local knowledge, attitudes, locked in way of thinking about their production. Also acting as barriers are issues such as compatibility, observability, trialability, complexity, relative advantage |
| Motivations for innovation adoption | Anticipation of a need for productivity gains, experiencing declining profitability, seeking information on innovation, weighing the alternatives and risks of innovating, making a decision about innovating, undertaking a trial innovation, making a change in production, reaffirming the decision based on the feedback loop that productivity has been enhanced |
| Succession | Future planning of the business, stage of life and career |
| Risk | Risk taking profile, comfort or otherwise of debt |
| Relationships | Style of relationships producers want with MLA and other innovation influencers, involvement in community based actions |
| Where does innovation occur? | Only on-farm, in the value chain somewhere off-farm, in the community |
| Sources of information | A successful farmer in the industry or region, social meetings and gatherings, consultants, district agronomists, farm management consultants, accountants and financial planners, family members, State Government Departments and Primary Industries, professionals for advice on rules and regulations, printed materials – newspapers, journals, product magazines, Internet, field days & learning from past experiences |

Appendix III

# Glossary of terms

**Accessibility**

one of the four major requirements (with actionability, measurability and substantiality) for useful market segmentation; accessibility expresses the notion that the segment targeted must be able to be reached and served adequately by the organisation's promotion and distribution system.

**Actionability**

one of the major requirements (with accessibility, measurability and substantiality) for useful market segmentation; actionability expresses the notion that the segment targeted must be of an appropriate size for the organisation's resources to handle.

**Adopter category**

the ranking into which adopters of a new product fall according to their willingness and speed to embrace a new product; adopter categories are normally listed as innovators, early adopters, early majority, late majority and laggards.

**Adoption of Innovation Curve**

a normal distribution curve illustrating the fact that customers vary widely in their willingness or readiness to purchase new products.

**Adoption process**

the series of stages, including awareness, interest, evaluation, trial and rejection or adoption, which consumers go through in their decision-making process; also called the Adoption Sequence.

**Artificial neural net**

is a computational model based on the structure and functions of biological neural networks. Information that flows through the network affects the structure of the network because it changes - or learns, in a sense - based on that input and output. Artificial neural nets are considered nonlinear statistical data modeling tools where the complex relationships between inputs and outputs are modeled or patterns are found.

**Behavioural data**

information that describes the needs, urges, drives, desires and impulses which direct a consumer's behaviour.

**Behavioural segmentation**

the division of a market into groups according to their knowledge of, and behaviour towards, a particular product. Behavioural dimensions commonly used to segment markets include benefits sought, user status, usage rate, loyalty status and buyer readiness stage.

**Benefit segmentation**

the division of a market into groups or segments on the basis of the particular benefit sought by each group from a product.

**Business intelligence**

in marketing support systems, any information relevant to the operations of an organisation and the markets it serves.

**CHAID analysis**

is a type of decision tree technique based upon adjusted significance testing and used for prediction as well as classification, and for detecting interaction between variables. In practice, CHAID is often used in the context of direct marketing to select groups of consumers and predict how their responses to some variables affect other variables.

**Choice modelling**

modelling the decision process of an individual or segment in a particular context. Many alternative models exist in econometrics, marketing, sociometrics and other fields, including utility maximization, optimization applied to consumer theory, and a plethora of other identification strategies which may be more or less accurate depending on the data, sample, hypothesis and the particular decision being modelled. In addition Choice Modelling is regarded as the most suitable method for estimating consumers' behaviour in multiple dimensions. The Nobel Prize for economics was awarded to a principal proponent of the Choice Modelling theory, Daniel McFadden.

**Cluster analysis**

Chi-squared Automatic Interaction Detector is a multivariate statistical technique used to identify entities with similar characteristics from those without them.

**Concentrated Segmentation Strategy**

one of four possible segmentation strategies (with market segment expansion strategy, product line expansion strategy and differentiated segmentation strategy); in a concentrated segmentation strategy a company or organisation targets a product/service to one segment of the market.

**Customer database**

an organised collection containing comprehensive information about individual customers and/or potential customers, including such details as geodemographics, lifestyles and preferences, past purchases, product enquiries and satisfaction levels; the database may be used to generate sales leads, promote new products, and foster customer relationships in a finely-targeted way.

**Decision making**

choosing between alternative courses of action using cognitive processes—memory, thinking, evaluation, etc.

**Decision Support System**

any computerised system of changing raw data into information that can be used by management in decision making.

**Demographic characteristics**

variables within a nation's population, such as age, gender, income level, marital status, ethnic origin and education level; demographic characteristics are commonly used as a basis for market segmentation.

**Demographic segmentation**

the division of the heterogeneous population of a country into relatively homogeneous groups on the basis of variables within the population mix.

**Differentiated marketing**

the division of a heterogeneous market into relatively homogeneous segments so that the needs and wants of the different segments may be served more effectively; a segmented approach to marketing.

**Diffusion of Innovation**

the idea that some groups within a market are more ready and willing to adopt a new product than others and that the product is diffused through a society in waves; the groups, in order of their readiness to adopt are innovators (2.5 percent of the population), early adopters (13.5 percent), early majority (34 percent), late majority (34 percent) and laggards (16 percent).

**Discrete choice modelling**

see choice modelling

**Early adopters**

the group in a market second only to innovators in the speed with which they adopt a new product.

**Early majority**

the group in a market who are more deliberate than the innovators and the early adopters in making purchase decisions, but less conservative than the late majority and laggards.

**Ethnography**

a qualitative research design aimed at exploring cultural phenomena. The resulting field study or a case report reflects the knowledge and the system of meanings in the lives of a cultural group.

**Factor analysis**

a statistical procedure for trying to discover the basic factors that may underlie and account for the correlations among a larger number of variables. For example, factor analysis might be used to determine and interpret the basic factors underlying some negative attitudes towards the uptake of technology.

**Gatekeepers**

people within organisations (and families) who can control the flow of information to others.

**Geographic segmentation**

the division of a total, heterogeneous market into relatively homogeneous groups on the basis of area, district, region, state, etc.

**Influencers**

opinion leaders, consultants, experts, etc whose early and enthusiastic endorsement of a new product can influence others.

**Integrated Marketing Communication (IMC)**

a strategic process used to plan, develop, execute and evaluate coordinated, measurable, persuasive brand communication programs to targeted relevant audiences.

**Marketing communications**

the formal and informal messages that sellers transmit to buyers or organisations to their members; the systematic (planned) as well as the unsystematic (unplanned) promotion by a of products or services.

**Measurability/identifiability**

one of the four major requirements (with actionability, accessibility and substantiality) for useful market segmentation; Measurability, sometimes referred to as Identifiability, expresses the notion that the size and power of the segment must be able to be measured.

**Microsegmentation**

the division of a market into smaller groups of customers on the basis of more narrowly defined needs and wants, after having already divided or segmented it on the basis of broadly defined needs and wants.

**Multiple segmentation approach**

targeting a number of distinct segments in the same market and developing a separate marketing mix for each.

**Personal construct theory**

is a theory of personality that extended from psychology to areas including organizational development, education, business and marketing, and cognitive science. Its predominant focus remains on the study of individuals, families, and social groups, with particular emphasis on how people organize and change their views of self and world.

**Personality segmentation**

the division of a heterogeneous market into homogeneous groups on the basis of personality characteristics and enduring patterns of behaviour such as aggressiveness, compliance or compulsiveness.

**PEST theory**

‘political, economic, social and technological analysis' describes a framework of macro-environmental factors used in the environmental scanning component of strategic management. It is a part of the external analysis when conducting a strategic analysis or doing market research, and gives an overview of the different macro-environmental factors that the company has to take into consideration. It is a useful strategic tool for understanding market growth or decline, business position, potential and direction for operations.

**Segmentation bases - the basic dimensions**

geographic, demographic, psychographic and behaviouristic - upon which a heterogeneous market can be divided into relatively homogeneous groups.

**Segmentation strategies**

specific marketing approaches available to, or taken by, an organisation in relation to the market segment or segments it wishes to target; four specific segmentation strategies are available - concentrated segmentation strategy, market segment expansion strategy, product line expansion strategy and differentiated segmentation strategy.

**Substantiality**

one of the four major requirements (with accessibility, actionability and substantiality) for useful market segmentation; substantiality expresses the notion that the segment chosen as the target market must be large enough to be profitable.

**Target marketing**

identifying a target market after detailed research, and developing specific marketing campaigns focused at it.