final report

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Transport Business Model Validation

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Executive summary

Problem and purpose

The transport of meat and livestock within Australia is a complex process – it involves the management and collaboration of numerous stakeholders in the supply chain between the producer and the end consumer. In today's supply chain, much of this process is still dependent on manual procedures that are outdated and work independently of each other. Complexities and inefficiencies in this part of the meat industry mean that in its current state, there's an opportunity to disrupt the process through the implementation of new technologies.

Spotting the deficiencies in the market and the emergence of new entrants looking to shake up the industry, Lion Twin conceived the idea of a digital platform that aims to connect key people and organisations in the livestock supply chain by facilitating and enabling efficient transport logistics. To validate the business model and market appetite, digital agency Isobar was contracted to carry out a series of research tasks that would stress test the idea and its potential value in the market.

The research approach

Working collaboratively, Lion Twin and Isobar looked to validate a lean business model that facilitates efficient livestock transportation through a series of research. Within this, Isobar carried out a number of activities that stress-tested a viable digital platform:

- **The Environment Map:** The Environment Map looks to understand the context in which the model would operate. It seeks to do this by understanding the environment through both a macro lens (Macro-economic forces, Key trends) and a micro lens (Market forces and Industry forces).
- **The Business Model canvas:** The completed Business Model Canvas promises an actionable and entrepreneur-focused business plan. It's a visual chart with elements describing the models value proposition, infrastructure, customers and finances. It assists in aligning their activities by illustrating potential trade-offs.
- **Value Proposition Framework:** Using the Business Model Canvas as the basis, the Value Proposition Canvas is used to determine how the model creates value for their end customers. It involves using two key tools; The Value Proposition and Customer Segment framework.
- **Assumption validation:** A process which takes a number of assumptions based on the value propositions of the identified customer segments and looks to validate them through interviews with real people. In this case, much of the model’s validation process was done through consultations with a number of producers, agents and transporters in the Yass area of NSW.

Results and output

Based on the balance of the research presented, the current business model has not been validated in the farm to saleyard transport market where transactions are predominantly dominated by stock agents. Although Isobar did not meet with corporate producers or larger transporters, investigations indicate the assumptions are not valid, meaning the value proposition(s) do not hold up.

Given the outcome of this validation, Lion Twin and Isobar have looked to explore other avenues of progression where the model could provide value to the industry. Some of these alternatives look at validating in other parts of the agricultural market, different business verticals altogether or exploring its value further up the supply chain as a virtual Agent (see Discussion section of the report for more detail and alternatives).

Industry benefits

The research that Lion Twin has commissioned have uncovered numerous insights that shed light on the issues that producers, agents and transporters encounter in the transport of livestock in Australia. It has identified deficiencies in the supply chain that are ripe for technological intervention through the integration of more enabling and facilitative tools that would streamline the process.

Whilst validation of potential variations of the model is still in progress, there remains significant opportunity to disrupt and create efficiencies in the logistics sector of the meat and livestock industry.

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1 Background

1.1 Industry significance

The transport of livestock within Australia is a fundamental part of the meat industry. Livestock transport involves several key players in the supply chain, operating within a legislative framework at state and national level to protect the animals and transport operators.

In arranging for the transport of livestock, producers, agents, transport operators, feedlots, ports and abattoirs must collaborate to enable the safe and timely transport of animals. Much of the logistics still depend on manual processes, paperwork, telephone communication, and independently operated systems. Lack of connectivity and efficiency in remote areas of Australia adds complexity to the difficulty in managing transport operations.

1.2 Why this research was undertaken

In response to these industry wide complexities surrounding the management of livestock, the idea of a digital model was born. The proposed model is a platform idea that aims to connect key people and organisations in the livestock supply chain by facilitating efficient transport logistics. Isobar was engaged by Lion Twin to carry out a series of both macro and micro research in order to validate a business model.

1.3 Previous research available

Given this research aims to validate a platform idea not yet in existence, there has been no previous research completed to date. All research in this document has either been carried out by Isobar and Lion Twin collaboratively or is based on available industry-wide data.

2 Project Objectives

2.1 Project goals

Overall project goal: Connect key people and organisations in the livestock supply chain to facilitate efficient transport logistics.

End user goal: Bring transparency to the supply chain so users can identify and rate competition within the industry.

Sustainability goal: Reduce impact on the environment by finding and creating efficiencies in the livestock supply chain.

3 Methodology

3.1 Approach

Lion Twin engaged Isobar to develop and validate a lean business model that facilitates efficient livestock transportation. Within this Isobar carried out a number of activities that stress-tested a viable digital platform (See Fig.1):

- The Environment Map (further detail in Appendix A)
- The needs and demands of logistics actors
- Business Model Canvas and Value Propositions
- Assumption validation
- Solution options

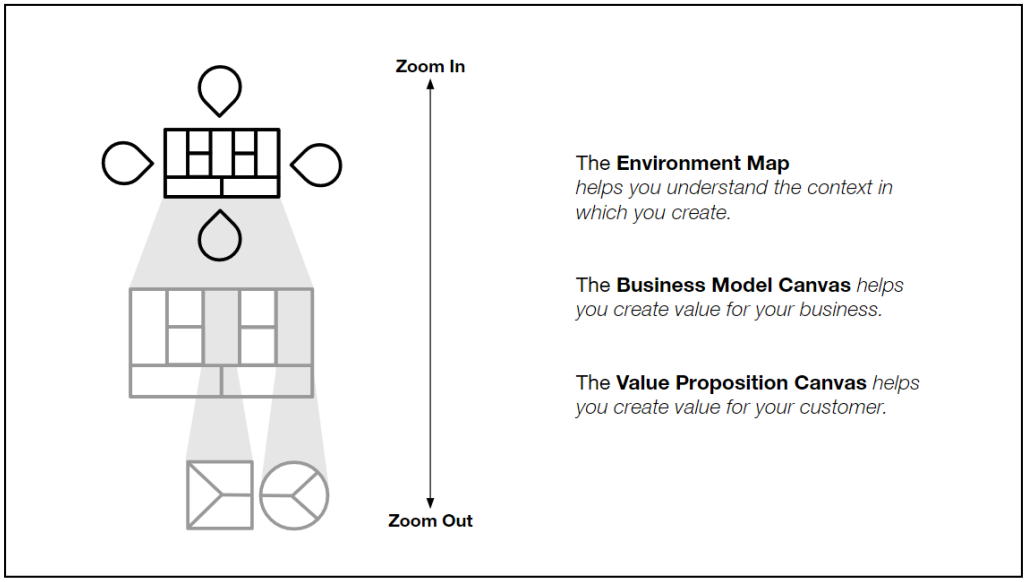

Figure 1.

3.2 The Environment Map

3.2.1 Summary

The Environment Map (Fig. 2) looks to understand the context in which the model would operate. It seeks to do this by understanding the environment through both a macro lens (Macro-economic forces, Key trends) and a micro lens (Market forces and Industry forces).

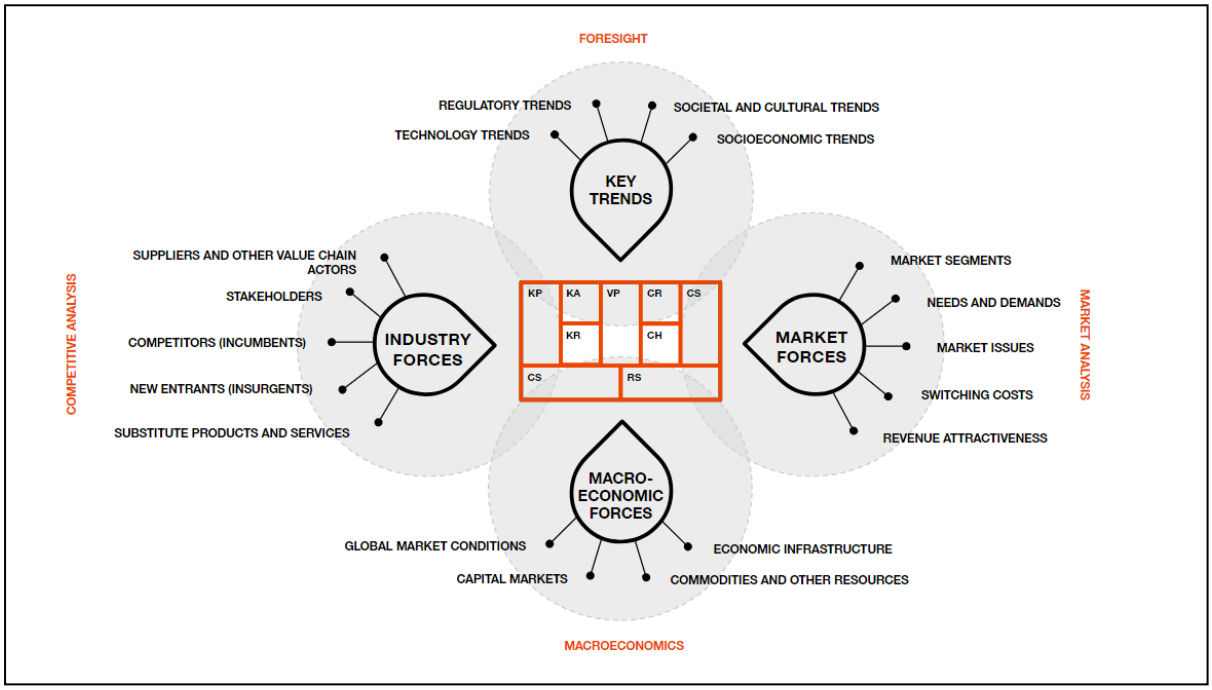

Figure 2.

3.2.2 Macro-economic forces

Experts say Australia should redirect its economy from selling commodities to "entrepreneurial profit" (Varoufakis, 2015) in the form of greater innovation; and venture capital firms are ready to invest.

- Economy instability: Speculations about a coming global crisis, China's economy sharply slowing (McKenna, 2016) and the end of the mining boom is creating a sense of uncertainty.
- Capital markets: There are several government grants, however, these are for on-farm projects mostly. Private venture capital firms are really interested in overall agricultural innovations. For example, Finistere Ventures established a US $150 million specialist 'Agtech' fund. (Neales, 2016)
- Commodities and resources: Cattle numbers are in decline (MLA, 2016) which is set to stimulate strong competition between restockers, feedlots and processors for the limited availability.
- Economic infrastructure: Australia's vast distances and inadequate roads are a real problem, however, the livestock supply chain infrastructure is well fit for export.

3.2.3 Key trends

The rise of precision farming, the demand for ethical and clean produce and the shifting attitude towards healthy eating is creating an environment where the 'farm-to-plate' traceability will become the norm.

- Technology: Precision farming (AgroTech) is on the rise. 40-60% of farmers have a smart device (Roberts and McIntosh, 2012). Rural connectivity is getting better with the The Sky Muster satellite (NBN)

- Regulatory: There is Government 'red tape' across the supply chain as well as new regulations due to consumer demand. Regulation costs are around 10-15% of the revenue (Proand, 2016) and some of these are seen as unnecessary.
- Cultural: There's an increasing appetite for natural and healthy food as well as greater demand for ethical and sustainable farm practices. Among meat products, poultry is the commodity of choice.
- Socio-economic: The number of farmers in Australia is in decline and ageing. 72% are men (ABS 2011 Census), however, women are increasingly taking an important role in technology adoption.

3.2.4 Industry forces

A lack of integration and communication of requirements along the supply chain, coupled with excessive regulation, have created a dynamic where agents 'own' the post farm-gate logistics. Some players (e.g. AgriShares) in the supply chain have noticed inefficiencies and are looking for ways to make things better.

Key highlights:

- Potential competitors:
    - AuctionsPlus: Accommodates for commodity transactions, reserve price setting and legal changes of asset ownership.
    - TruckIt: A platform for transport providers, carriers, couriers and truckies to quote on any transport job.
- New entrants:
    - "AirBnB" for farms: AgriShares and MachineryLink.
    - The Digital Homestead: A research project in NT that aggregates farm data and external data into a live dashboard.
    - Farm-to-plate: Companies offering consumers to directly purchase from farmers.
    - Blockchain technology applied to whole of supply chain managing traceability and transactions.
- Substitute services:
    - MLA is already looking into data collection and flow along the livestock supply chain, and could possibly leapfrog advancements by facilitating integration with their NLIS database with other regulations or accreditations.

3.2.5 Market forces

While commodity prices are trending downwards (Goldcore, 2016), increasing costs are putting more pressure on profit margins. However, it's the cost escalation post-farm gate that continues to put most pressure on all actors across the supply chain.

Key highlights:

- Post farmgate costs:
    - Agent's commission (3-5% of purchase price).
    - Transportation costs (e.g. $1.50/deck/km $100/head per 1000km).
    - Excessive regulation/compliance (cost 10-15% of the revenue).

- Lack of understanding: There is disparate information which is not centralised and not fully understood across the supply chain.
- Real and perceived lack of consumer feedback: Information flows from producer to processing facilities but not the other way around.
- Producers, the end consumer and other stakeholders are demanding greater transparency on many issues including animal and environmental management, resource use and food safety.

3.3 Needs and demands

3.3.1 Producer

- Escalating post-farm gate cost (ABS Census 2011):
    - Agent's commission and transaction costs.
    - Transport, labour and other costs.
    - Regulation/compliance.
- Quality feedback:
    - Opportunities with MSA/other feedback to better meet increasing customer demand or transparency and assurance in the supply chains.
    - Disparate information.
- Less farmers: The number of farmers in Australia has been declining for many decades (ABS Census 2011) as small farmers sell up to large-scale farming operations. New entrants more likely to leverage technology.

3.3.2 Agents

- Payment collection: Agents are responsible for paying producers even if the buyer doesn't pay.
- Market data: It is unclear if agents are interested in real time market data. MLA does provide market data but it is unclear if there is any other data agents require.
- Isobar also found via interviews: The Agent-Producer-Transporter relationship is critical in the transport logistics space and has the potential to be disrupted.

3.3.3 Transport

- Regulation compliance: Transporters need to comply with the driver fatigue regulations, livestock transport and welfare regulations, livestock movement across states, loading and unloading.
- Road infrastructure: The CSIRO have completed modelling to show opportunities to improve road conditions to save on transport costs and reduce emissions.
- Backloading: Livestock transport trucks are empty up to 50% of time, providing opportunities for increased efficiency.

3.3.4 Consumer

- Favour ethical and clean produce: Higher demand and favourability for animal welfare and sustainably sourced food.

- Peace of Mind: Consumers want transparency around the origin of their food. Traceability in this area is trending e.g. Grass/grain fed, organic etc.

3.3.5 Switching costs

- Producer: They are aware of the regulation costs and transportation inefficiencies but their appetite for owning the post farm gate process is unclear.
- Agents: There is an opportunity to empower them and make them more efficient, do more jobs at once and even have their own team working in parallel. Currently agent's commission is up to 5% of sale price.
- Buyer: They are responsible for the correct flow of information when taking on ownership (sometimes with the help of agents).
- Insurance/financial: The model may have the potential to alleviate insurance costs. Currently transport insurance sits at 0.2% of purchase price.

3.3.6 Revenue attractiveness

- Hypothesis 1: the model centralises regulation data and eases the data flow along the livestock supply chain, both domestic and export.
- Hypothesis 2: the model bridges the gap between the pre and post farm gate processes, e.g. integrates NLIS, MSA and other systems.
- Hypothesis 3: the model does H1 or H2 and collects vast amounts of customer data. By owning this data it can then better identify needs/wants and look for ways to monetise or sell.

3.4 Business Model Canvas & value propositions

Following the completion of the Environment Map, Isobar used a Business Model Canvas (Fig. 3) to define the business and customer value of the model.

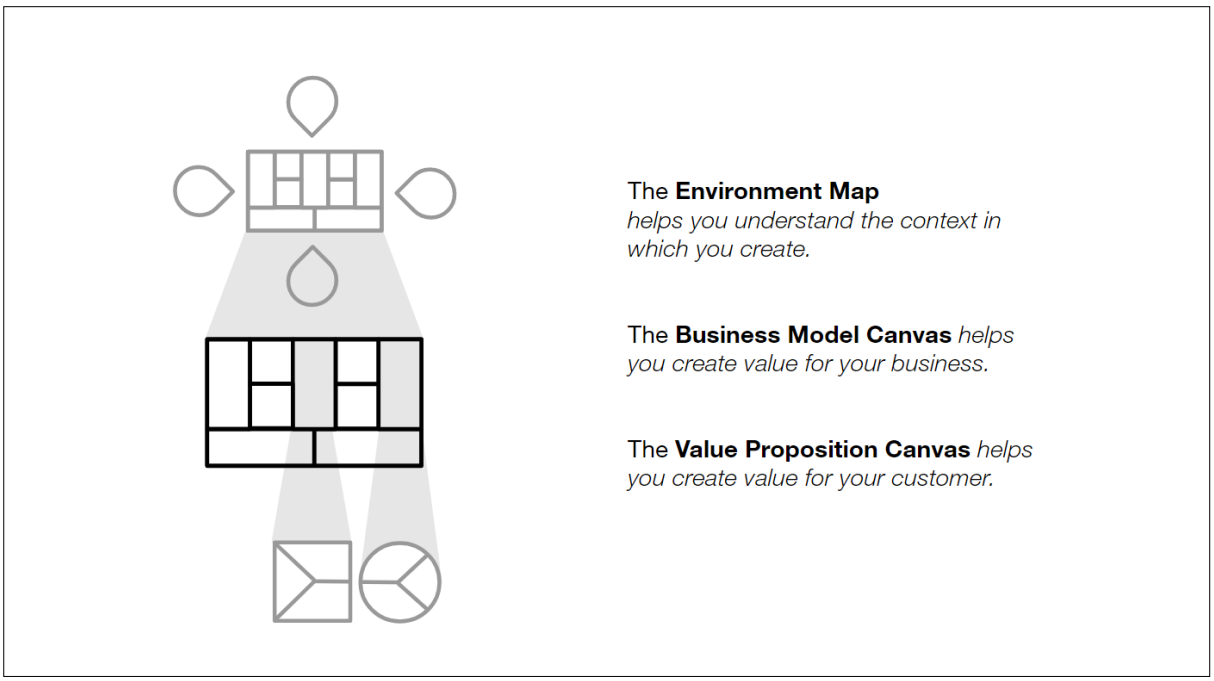

Figure 3.

3.4.1 Completed Business Model Canvas

The completed Business Model Canvas (Fig. 4) provided an actionable and entrepreneur-focused business plan. It's a visual chart with elements describing the model's value proposition, infrastructure, customers and finances. It assists in aligning their activities by illustrating potential trade-offs.

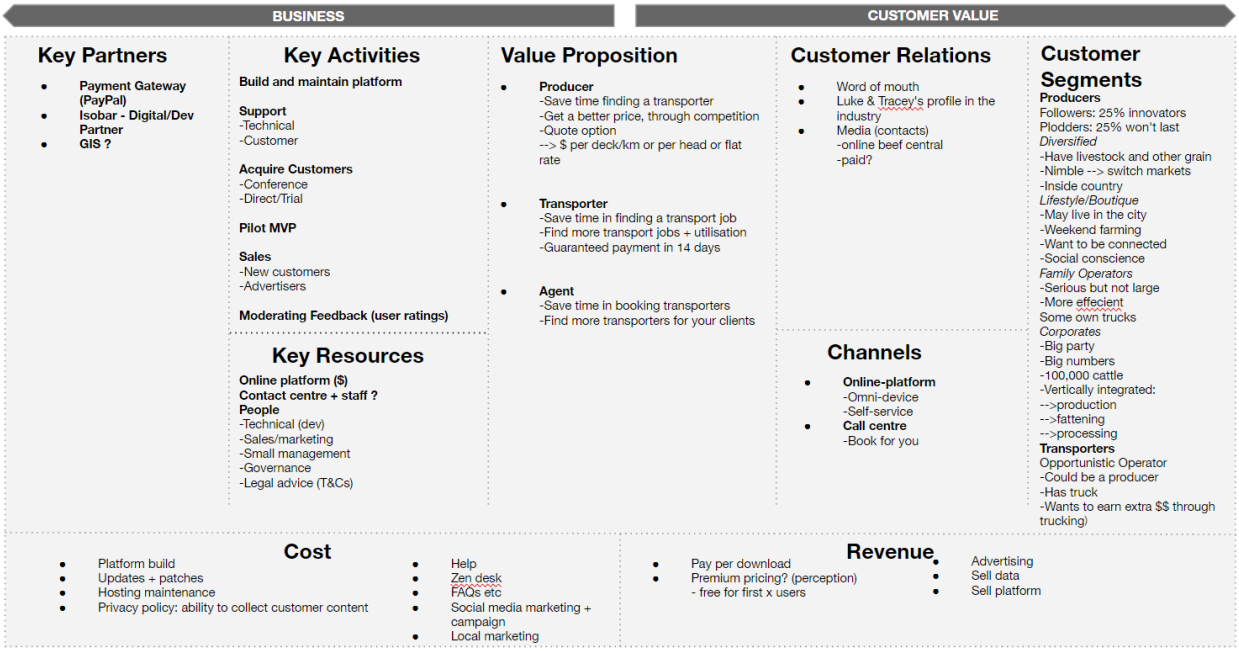

Figure 4.

3.5 The Value Proposition Canvas

Using the Business Model Canvas as their basis, Isobar then proceeded to develop the Value Proposition Canvas (Fig. 5) to determine how the model creates value for their end customers. It involves using two key tools; The Value Proposition and Customer Segment framework:

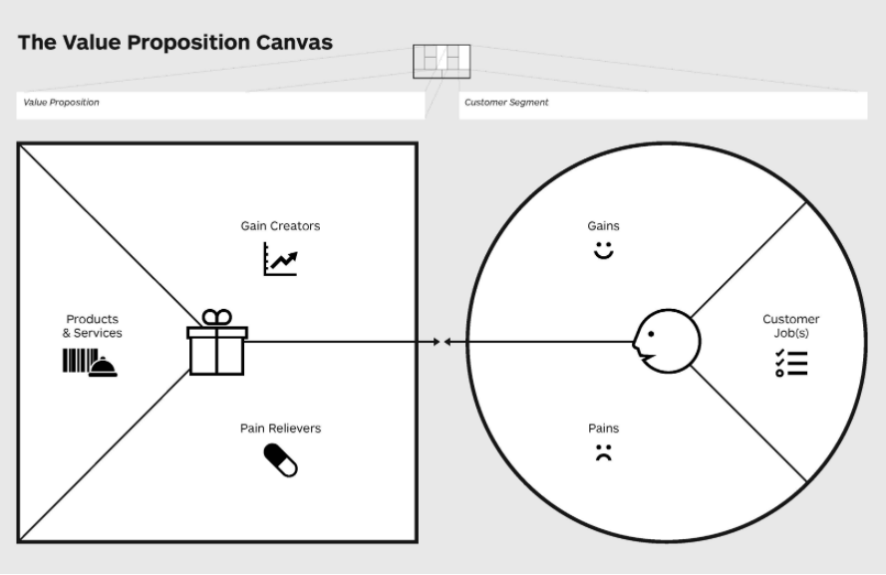

Figure 5.

3.5.1 Customer Segment Framework

Isobar looked at who the various players (potential customers) are in the livestock transport environment and considered their characteristics (Fig. 6). They then picked out the key customers for the model – Transporters, Producers and Agents. Following this they identified problems each group faced in the domestic livestock transport.

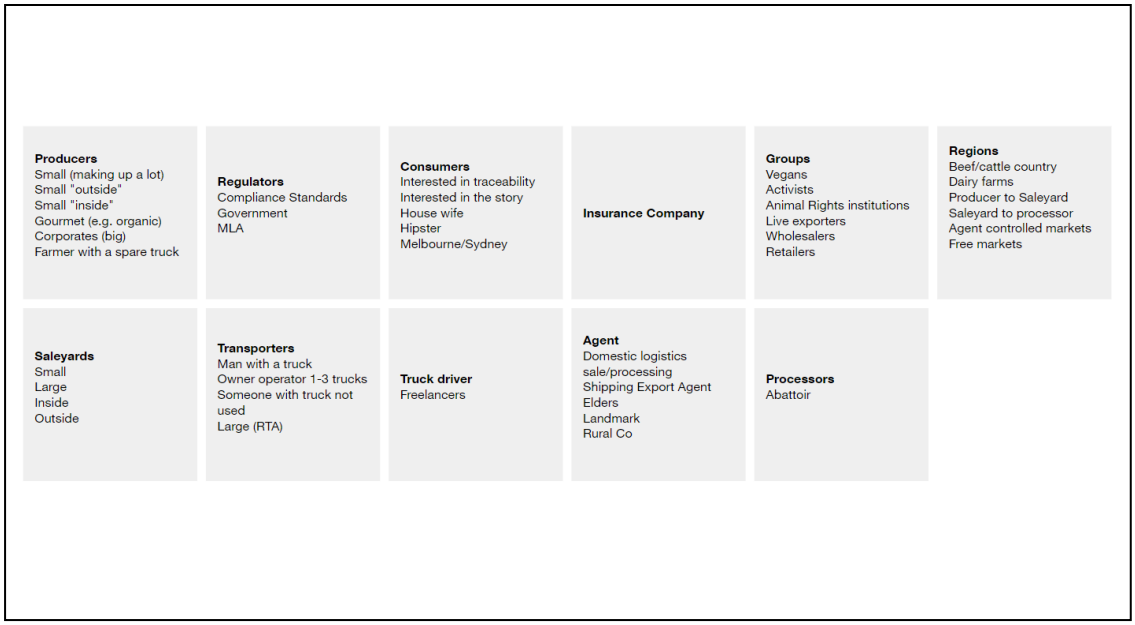

Figure 6.

3.5.2 Value Propositions for each customer segment

Producers

Profile • (PRIMARY) Save time, reduce costs, increase your (transport options) and get a competitive price, and greater transparency, ease regulatory burden • (SECONDARY) Create an additional revenue stream through better utilising your available assets	Jobs • Place a transport job • Receive quotes in your format • Assess transporters (reviews) • Find transport jobs without relying on an Agent
Pains • Too few options for transport • At the mercy of their schedules • New drivers a risk • Difficult to negotiate	Gains • Broaden your options for transport • Benefit from competition and choice • Review potential transporters

Transporters

Profile • Increase your access to customers (growth) and increase your asset utilisation (efficiency)	Jobs • Have all the info to quote • Assess the Producer (reviews) • Find backloads more easily
Pains • Limited customer base • Reliance on agent to find work • Paying commission to agents • Unknown customers and locations (access issues)	Gains • Broaden customer base (producers) • Increase efficiency with backloads • Online payment processing

Agents

Profile • Increase your access to transporters, save your time, save costs, increase professionalism	Jobs • Find a transporter • Pay the transporter
Pains • Transporters I trust not available • Late calls from producers to transport livestock (e.g. 2 days from a sale)	Gains • Keep track of who is transporting for which client • Assess unknown transporters (reviews)

4 Results

4.1 Assumption validation

4.1.1 Consultations with stakeholders

Isobar met with various producers, transport operators and livestock agents to better understand their transport logistics processes, issues and opportunities.

4.1.2 Testing the assumptions

Isobar tested a number of assumptions through consultations. The key highlights can be found below and details in Fig. 7.

Logistics actor and assumptions	Possible Tests	Status	Comments	Validated or invalidated?
Producers **- Producers are not sure if they are getting the best rates / deals (from Agents and transporters)** - Corporate and Family producers feel they aren't getting the best price for transport - Producers expect long settlement terms - Corporates prolong payments (when buying) - Corporates don't have an efficient way to find transporters **- Compliance process is a burden for those arranging transport** - Producers want quotes in various formats, e.g.: $/deck/km, flat rate, per head	Consultations in Yass NSW	Completed	Yass consultations with 4 producers Small to medium operations Mostly sheep and cattle with one wool producer	**Invalidated - producers know they pay a premium for Agents' services but wouldn't save any money by taking on the transport logistics** Invalidated - in Yass region, transport costs aren't large ($100s to low $1,000s) and doesn't feel like a lot of variance Unsure - commercial terms and settlements unclear - seems like a monthly settlement suits Not tested - we did not meet with corporate producers Not tested - we did not meet with corporate producers **Invalidated - in Yass region, producers pass on the compliance burden to Agents and transporters** Not validated - producers aren't seeking transport quotes only sale pricing which is set at $/head for sheep and c/kg for cattle (saleyard)
Transporters - Owner operator transporters find invoicing a chore - Transporters will accept the $$ terms (of customer) - Providing scanners (hardware) to automate compliance is a value add **- Scheduling jobs / drivers, is a major problem for transporters**	Consultations in Yass and Cowra NSW	Completed	Yass consultations with 2 transporters (7 and 18 trucks)	Uncertain - only met one owner operator (7 trucks) who does monthly invoicing and has back office support (wife) Invalidated - rates are known (or set) and use a distance based rate card Not validated - in this region most trips to sale yard where livestock is scanned on unloading **Not validated - in this region larger operator uses available solutions (myTrucking, ezy2c, google maps, rms.gov.nsw. Small operator manages while out driving, keeping a book and whiteboard. Unlikely to pay for an app**
Agents - MooBaa is a threat to Agents **- Agents waste time finding and arranging transport** - Agents are time poor - Agents would pay for someone to find buyers or sellers	Consultations in Yass NSW	Completed	Yass consultations with 3 agents (small and large)	Not invalidated - potentially, but concern is who will pay for the service - Elders would pass on the cost **Invalidated - agents suggest they've pushed the logistics burden on to transport operators, so are not now spending time on this** Not tested Not tested
Other **- Booking transport is really hard** - Industry is ready for MooBaa - Transport customers are using credit card for payment to collect reward points - A (solution) pilot is required - A customer will try MooBaa once, then move on if not right - We need someone for customers to call if they are having problems using MooBaa (support) - GIS would assist working in remote areas **- Solution needed for inside and outside country (may not be the same)** - "Standard" is better than what currently exists in the market - Must have flexible payment conditions - Payment is a mandatory feature of the solution - How many customers do we need to create a fair price transport market? - Cattle and sheep is where the $ is (what about poultry?)	Consultations in Yass NSW	Completed	Focus on cattle and sheep at this stage (larger animals) for volume	**Invalidated - in this region it's a single phone call with established relationships** Invalidated - not in this region Not tested Not tested Not tested Not tested Validated - google maps isn't accurate enough for property access, value in providing the detail **Not yet validated - still believe this is true** Not yet validated Not tested Not yet validated - still believe this is true Not yet validated Not yet validated - could consider dairy cattle also

Figure 7.

4.1.3 Validation conclusions

Based on the balance of the research presented, the current business model has not been validated in the farm to saleyard transport market where transactions are predominantly dominated by stock agents. Although Isobar did not meet with corporate Producers or larger Transporters, their initial investigations indicate the assumptions are not valid, meaning the value proposition(s) do not hold up.

5 Discussion

5.1 Practical applications for industry

Whilst an amended model will undergo further market validation, the above research can be used to garner further insight as to the relationships between Producers, Transports and Agents and the deficiencies prevalent along the livestock supply chain within Australia. Exploration into this field has also demonstrated the lack of technological adoption across these customer groups and the opportunity to create efficiencies and disruption in this area.

6 Conclusions/Recommendations

6.1 Future R&D implications

Whilst validation of modified models is still in progress, there still lies vast opportunity to disrupt and create efficiencies in the logics sector of the livestock industry. Disruption could see this platform digitally revolutionise the way producers, agents and transporters operate within the supply chain. Further validation still needs to be carried out in order to fully explore its potential and value within the agricultural market as discussed previously.

6.2 Practical application of insights for the industry

The project has uncovered numerous insights that shed light on the issues that that producers, agents and transporters encounter in the transport of livestock in Australia. It has identified deficiencies in the supply chain that are ripe for technological intervention through the integration of more enabling and facilitative tools that would streamline the process.

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