

Two steps forward and one step back: Progress towards innovation platforms for Agricultural Workforce development in Australia

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Abstract: The challenges in attracting, retaining and developing an agricultural workforce is emerging as an important area of policy interest and practical concern for farming systems. This is particularly pertinent in Australia whereby increasing farm size and production in response to post-drought climatic conditions and low levels of unemployment from the mining boom has contributed to chronic workforce shortages. This paper reports on empirical research conducted in the Australian dairy and cotton sectors into agricultural workforce issues as a systemic problem. Drawing on concepts of innovation platforms for making progress in agricultural workforce development, the aim of the paper is to explore the pre-conditions for the formation of an innovation platform as a response to systemic challenges like agricultural workforce development. What is the process by which innovation platforms emerge and are sustained? Focusing specifically on the institutional arrangements that are supporting or hindering farming systems transformation related to workforce issues, this paper compares and contrasts the projects and approaches to workforce development underway in the dairy and cotton sectors drawn from documents and previous research. Further, results from interviews with industry leaders and stakeholders regarding the institutional arrangements hindering or enabling progress in workforce development were analysed. In the dairy sector we found the emergence of an innovation platform involving different stakeholders acting collectively across national and local scales and across farming, employment, community, training and industry scales. In the cotton sector we found the complex industry governance arrangements and uncertainty in taking action to address workforce issues as a systemic concern hindered collective action. We conclude that whereas innovation platforms may be considered a means by which complex systemic issues are addressed, more emphasis on supporting the preconditions for emergence of such platforms is required, such as a commitment of key institutions to sustain the approach.

Keywords: agricultural workforce; social learning; workforce development systems

Introduction

Agricultural workforce development is an emerging domain for multi-stakeholder, multi-level, systemic innovation. Broadly, agricultural workforce development is defined as the process by which people are attracted, retained and developed in agriculture (Green, 2007; Nettle, et al, 2008). Workforce development can be operationalised at the farm scale, however many farms are unable to maintain an internal labour market because of their size and scale, relying on local labour markets or other farms for replacing staff, or the training and education system for providing the skills required. Further, most employees develop their careers by moving between farms rather than moving up a 'career ladder' on one farm. This introduces the systemic nature of workforce development in which there are multiple influences that combine to make up the workforce development system, including: the relative attractiveness of jobs and work to participants; the way people enter and move through a sector; how skills are formed and reproduced; the impact of policies on training and employment services; the business reality and market context; and importantly, the capacity to influence the system and not focus on one element, such as training.

Many actors contribute and have an interest in agricultural workforce development but no one organisation has a single mandate for workforce development, particularly at an industry level. Hence, attracting, retaining and developing an agricultural workforce require coordinated and co-operative action between farmers, education providers, industry bodies, and community and local labour market actors.

The issue of workforce development in agriculture has become an important issue, particularly in Australia due to labour shortages fuelled by increasing farm size and production and low levels of unemployment from the mining boom in some areas and is exacerbated by the well-documented trends of an ageing population, low levels of interest of young people taking on the family farm or entering farming and broader rural restructuring (Santhanam-Martin and Nettle, 2014). The challenges in attracting, retaining and developing a workforce is emerging as a practical concern for farming systems and an important area of Australian policy interest, demonstrated by recent government inquiries into farm workforce capacity and agricultural education and training (Victorian Government, 2012; RRC, 2012; SSC on EEWR, 2012). The interest of government is pertinent given that Australia is recognised as being on a neo-liberal trajectory for at least 30 years (Santhanam-Martin and Nettle, 2014) and where sectors like agriculture are expected to ‘look after themselves’. In essence then, making progress on issues of agricultural workforce development requires firstly that farmers and agricultural industries recognise the importance of workforce development and then secondly, that they can organise, collaborate and coordinate with other actors (which may include government) to progress issues.

Agricultural workforce development has been conceived as a terrain which can accommodate particular types of action on the part of collective actors in agricultural industries, communities and governments (Santhanam-Martin and Nettle, 2014). However, capitalising on this scope requires new mechanisms whereby farmers and workforce actors can explore and act on their entwined interests. Three current models of workforce development co-exist in Australia: a) region-led approaches (actors co-operate at a local scale to develop cross-industry responses to retain people and provide training and career opportunities); b) state-led approaches (government stimulates skills formation in specific industries or sectors); and c) industry-led approaches (agricultural industries develop strategies for attracting, retaining and developing people for their sector). This paper focuses on the third approach given the importance placed by government on agricultural sectors to address their own needs and because this is a relatively new area of strategy and action.

The next section outlines a conceptual framework for examining industry engagement in workforce development followed by the research approach and an introduction to the workforce issues facing both sectors.

Conceptual framework

Innovation systems thinking has been influential in agricultural development by advancing the concepts of innovation platforms as a mechanism by which different actors come together to develop knowledge and understanding of a domain, and through communication and learning cycles to progress or deliver desired change (Roling and Wagemakers, 1998). Innovation platforms have been defined as:

- a mechanism to stimulate and support multi-stakeholder collaboration that cannot be sustained within a single institutional arrangement (Nederlof and Pyburn, 2012);
- a mechanism to enhance communication and innovation capacity among mutually dependent actors (Roling and Wagemakers, 1998);

- a structural and processual means by which systemic issues can be progressed (Coudel, et al., 2013);
- a post-productivist platform that includes agricultural and non-agricultural interests and government as well as non-government stakeholders across various levels of social and economic integration (Boxelaar, 2004); and
- a negotiation and/or decision-making body (voluntary or statutory) comprising different stakeholders who perceive the same resource management problem, realise their interdependence in solving it, and come together to agree on action strategies for solving the problem (Steins and Edwards, 1999:244).

The mechanism of an innovation platform then, is a set of institutional arrangements or management structures that are able to bring together a diversity of stakeholders across multiple levels of decision making in order to address issues. The arrangements are considered to improve interactions, coordination and coherence among actors that facilitates learning and the production and use of knowledge. Innovation platforms represent the enabling environment (i.e. supportive institutions and policy) for the achievement of economic, social or environmental goals. The concept has been most widely applied to natural resource management issues however, given the systemic challenges of agricultural workforce development, it provides a potentially useful conceptual framework for examining the processes involved in agricultural sectors engaging in the ownership and leadership of their workforce development and progressing issues with other actors. The institutional arrangements supporting the formation of innovation platforms has also become an important area of research with interest in the influence of governance arrangements supportive of emergent practice and collaboration (Hall, 2005; Røling and Wagemakers, 1998; Paine and Nettle, 2008); how the capacity to innovate is built (Nettle, et al., 2013); and, the relative importance of facilitative and transformational leadership styles in the formation and functioning of innovation platforms (Bossink, 2007).

Whereas much literature describes innovation platforms and the features of effective platforms (Boxelaar, 2004), little emphasis has been placed on the preconditions for the formation of an innovation platform. There is broad recognition amongst authors that innovation platforms are emergent (Aarts and van Woerkum, 2002), however, it is also important to define the conditions that foster such emergence. One implicit pre-condition is the recognition by different stakeholders of the importance of the domain (e.g. workforce development) or an imperative to collaborate with others to address crises or concerns that cannot be addressed through a single institution. This is referred to as the need to establish the *legitimacy* and *mandate* for the platform (Røling, 2002:41). With respect to agricultural workforce development then, critical questions are therefore: How do farmers and their agricultural industries engage in workforce development as a legitimate issue of concern? and How do institutional arrangements support or hinder this engagement and formation of a mandate?

These questions informed the research described here. Following is an introduction to the workforce context of the two sectors and an introduction to the current institutional arrangements within industries for workforce development.

Case studies of agricultural workforce development

Australian dairy sector workforce

The Australian dairy industry is the third largest agricultural industry in Australia generating AU\$3bn in pre farm-gate income and ranks third in world dairy trade (Dairy Australia, 2011). Currently there are 7,400 dairy farms around Australia (Dairy Australia, 2011), representing a

40% decline in national farm numbers since 2000. The average herd size is 298, with 74% of Australia's dairy farms milking over 150 cows and 10% of dairy herds are larger than 550 cows (Dairy Australia, 2010, 2011, 2012). Only 2% of farms are corporatised however, share-farming makes up 15% of business models. Family farms predominate with an increasing reliance on a non-family workforce. Currently 66% of farms have paid employees, up from 33% in 2003. Approximately 20,000 people in total work on Australian dairy farms (Dairy Australia, 2011) with a 17% increase since 2007 and estimated 12,000 paid employees. There is increasing interest in overseas workers and migration to meet demand for farm workforce shortages together with the use of casual employees and backpackers.

Institutional arrangements and interventions in workforce development–dairy

Since 2006, the Australian dairy sector has invested through research and development to address the workforce issues in the industry. The focus has been towards linking on-farm change around employment practice with attracting and retaining a future workforce and formation of a process of workforce planning and action at regional and national scales through the development of a national workforce development plan. In 2010, a peak governing body, the Industry People Development Council (IPDC), was formed by Dairy Australia which involves farmers, industry groups and workforce stakeholders (including government) deciding on strategies and interventions to support workforce development. The importance of industry working closely with workforce agencies and policy groups, and keeping external stakeholders informed of dairy needs led to an emphasis on obtaining better data concerning people resulting in 'The People Factfinder' – a consolidation of people-related data from national and industry sources which includes farm business data, demographics, workforce and labour market information. This informs the workforce strategy and the National Workforce Development Plan involving activities to secure a dairy industry workforce in farm services, manufacturing and on-farm. Two pilot regional groups were formed to build capacity and operationalise a farm-level workforce planning and action approach (Nettle and Oliver, 2009) in Victoria and Tasmania (Dairy Australia, 2012) (Figure 1). The approach was also applied in the 'In2Dairy' project in establishing an entry-level pathway for people into farm work resulting in 18 job outcomes for employers and employees. Other activities included in-school programs across Australia aligned with the curriculum to enhance the dairy sector as a career option, 'Cows Create Careers' (see Klerkx and Nettle, 2012).

Australian cotton sector workforce

Australia is the world's fourth largest exporter of cotton, now generating more than AU\$2.5b in export revenue annually due in part to Australia's reputation for high quality cotton which attracts a premium price (Cotton Australia, 2013). The number of hectares of cotton planted increased dramatically as a result of water availability following a decade-long drought. In the lowest production year during the drought (2007–8) 68,585 hectares were planted to cotton, contrasting with the first post-drought year (2011) when 8 times the number of hectares were planted – 599,630 (Cotton Australia, 2013). Cotton, predominantly irrigated, is grown in the states of New South Wales and Queensland (Figure 1). While in 2011 there were reportedly 1,760 growers and 586 involved in processing (ginners) because many also produce other crops and/or livestock, the total workforce is estimated to be greater.

While the sector has a number of large corporately owned farms, family farming is still a major contributor to total cotton production. As a seasonal crop, the industry is heavily reliant on seasonal workers and casual labour with increasing reliance on overseas backpackers. Since 2006, mining expansion has increased the share of employment in mining by 1.2% while agriculture has decreased by 2.7%. Although regions differ in their drivers of labour markets, technology such as 'round bale pickers' and other GPS guided machinery has resulted in fewer staff being required but they now need higher skill levels. This reduction was outweighed by increases in labour demand from record production post drought. In responding to labour shortages in grower

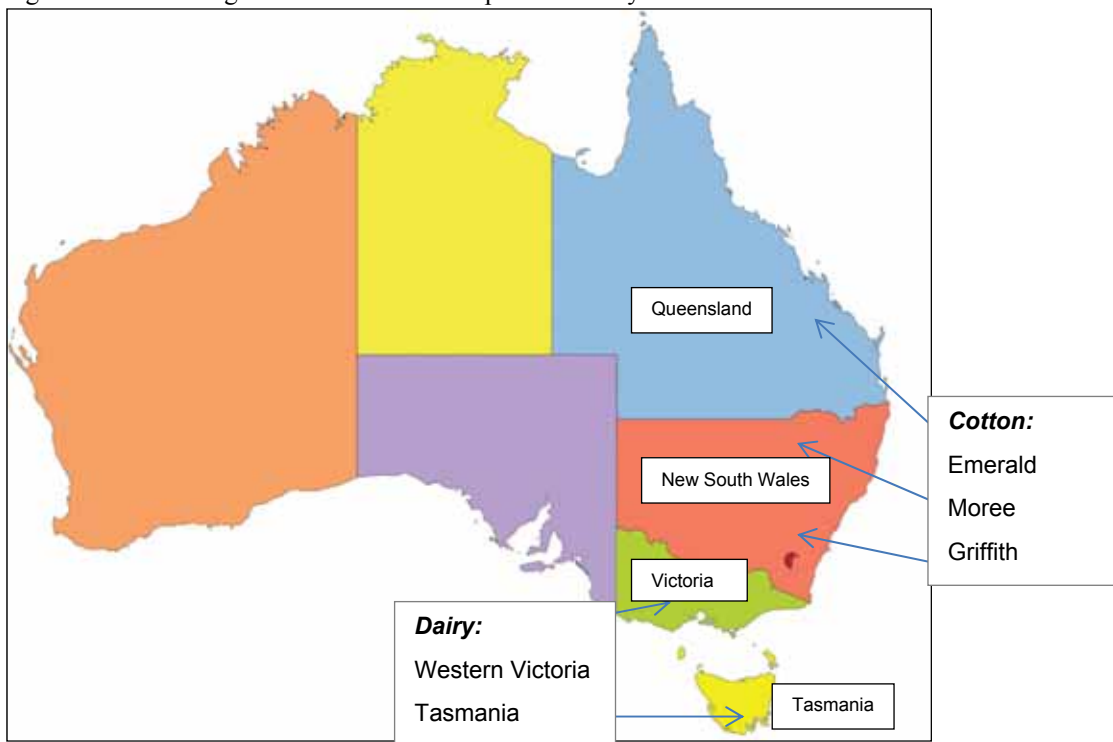
surveys, participants reported working longer days and more days per week (Moffatt, et al., 2013).

Institutional arrangements and interventions in workforce development—cotton

Although the cotton sector has invested in capability building over a number of industry strategic plans, it is only since 2010 that it has focused on workforce issues primarily a result of severe labour shortages in some regions, particularly those with a strong mining presence, coupled with significant production. Traditionally the sector has invested in schools and university programs to attract people into cotton or agricultural careers but had not previously considered workforce development as a strategy.

The first and major current investment in workforce development is research conducted by this paper's authors which aims to assist the industry to develop a more sustainable approach to workforce development. While one key sector institution funds the research the other key sector institution has taken a keen interest and supported the work at regional and national levels. This workforce development intervention employs a participatory methodology at multiple scales, engaging with multiple stakeholders, both within and outside the cotton and agriculture sectors to understand and diagnose workforce issues and co-develop suitable actions. Also funded by the same institution is research into agribusiness workforce needs, the value of learning on-farm and Aboriginal workforce initiatives.

Figure 1: Sites for regional workforce development in dairy and cotton in Australia



Research approach and role of researchers

The Australian dairy and cotton sectors have embarked on generating knowledge about their industries' workforce development system through research conducted by the authors. This research examines the system by which the agricultural workforce is currently attracted, retained and developed at a regional scale through farmer surveys and interviews with employers and employees, and interviews with stakeholders playing a role in the workforce development system,

such as labour hire groups, education providers, farm advisers/consultants, agribusiness firms and regional or community development groups. Combined with national-level data, the picture of the issues and challenges for the workforce development system at the regional scale is fed back to regional groups for discussion and as a form of triangulation of data (Heron and Reason, 2006). Then options for taking collective action to progress the situation are canvassed. The research findings from this process in both the dairy and cotton sectors can be found in research reports (Nettle and Oliver, 2008; Nettle, et al., 2009; Moffatt, et al., 2013).

This paper focuses on the trajectory of institutional engagement by the two agricultural industries in workforce development. Each sector represents a case study of engagement in workforce development contributing to understanding the emergence, or potential for emergence, of innovation platforms. Dairy sector data includes published documents about the dairy sector investments in workforce development (e.g. Santhanam-Martin and Nettle, 2013; Nettle and Oliver, 2008; Nettle, et al., 2009); and industry strategy documents and meeting records from the national workforce development leadership and design team (in which the main author is a member) between 2010 and 2012. Cotton sector data includes interviews with the cotton sector leaders and a government agency involved in supporting skills formation and workforce development in agriculture conducted in early 2013; results from workshops and teleconferences related to deliberations on making progress in workforce development conducted in 2012–13 and industry strategy documents.

Data analysis involved qualitative coding and identification of themes associated with the process of engagement of sectors in workforce development followed by a cross-sector analysis to compare industry leadership groups, in particular the perspective of institutional actors on: a) framing of the workforce development system; b) the identification of roles of key actors; and c) the issues and challenges of coordination and collaboration.

Results

Dairy sector

Framing of the workforce development system

In 2006, the dairy sector invested in understanding its system of workforce development with a national approach to education, skills and training, and in 2007, by launching the ‘People in Dairy’ program. A dairy leader at this time said: *If we take workforce development as ways of attracting and retaining and developing people, the industry [had] been doing things in that space for a very long time, but usually quite small things, or disconnected things, or things at an individual farm level, and probably the beginnings of actually doing something more cohesive, something that might be described as a program of work that might have an investment case, started in 2005/2006.* The initial investment framed around a long-term strategy for ‘people capability’ but changed in response to membership concerns about increasing herd sizes and drought to focus on ‘looking after our people’. This commitment created the need for a strategy and from this, research to investigate how the system by which people capability was built for the sector. Prioritising the area as critical to industry sustainability and productivity, and the commitment of a now considerable level of investment, was a significant turning point in the sector (Dairy Australia, 2007), by reflecting the desire of the main research and development organisation to own and provide leadership in this area. The appointment of a program leader and development team to co-design and guide activities was another sign of a substantive effort (Nettle, et al., 2013).

The program leader sums up the need to work collectively: *...with the people [workforce area], we might be doing all sorts of things really right [on an individual farm], but if the industry as a whole has a poor image, or if there are poor outcomes for employees on other farms in our region, then that's actually going to impact...there are some things that really probably need to be done at a state or federal level...there has to be a collective - there are many layers of agency across it. (Dairy sector #1)*

'Workforce development' became formalised as a program of work in 2010 with the establishment of a 'People Development Council' involving dairy, education and workforce development expertise and investment in a National Workforce Development Plan and piloting two regional trials for workforce development. The role of the people development council was described by the program leader: *Their job is to take responsibility for the workforce planning and action strategy, and basically to identify and prosper the research development and extension priorities. So they should be able to identify what needs to happen over say a three year period, and then engage the likely stakeholders in investment. (Dairy sector#1)*

Figure 2 represents the nature of workforce governance operating currently in the dairy sector with an indication of where innovation platforms can be identified, based on definitions in the literature.

Identifying roles for key actors

In one particular workforce project ('In2Dairy'), the national dairy leadership worked with government, employment and training services and welfare groups (focused on employees) to build regional capacity to act in workforce development. A local 'action coalition' led the initiative, with national-level support in partnership with the welfare organisation. The capacity to bring partners together at the local level largely rested in the national partner organisations – both operationally independent of government (Nettle, et al., 2009; Santhanam-Martin and Nettle, 2013). The large investment of leadership, networking, time, persistence and commitment, and the link between national and local level stakeholders reflected elements of an innovation platform whereby organisations could individually perform their traditional roles but in collaboration, achieve more outcomes than was possible independently. This two-year initiative, delivered over 20 new positions for farmers and employees and was considered highly successful by all stakeholders involved, including government. The initiative has now ended and the governance arrangements dissolved. Remaining are national-regional *dairy industry* only arrangements that are nevertheless considered to work effectively but could not be described as an innovation platform involving agricultural and non-agricultural interests. The current situation is described by the current coordinator: *You have a central [dairy] group that is all about enabling, and a regional presence [dairy] which is all about delivering. The enabling ones guide how the development of the appropriate interventions might take place. We're not about rolling over the top of the regions. (Dairy sector #3)*

In the dairy sector there have, therefore, been times when innovation platforms (as defined in the literature) have formed and dissolved and also different levels at which innovation platforms have operated (national and regional).

Issues and challenges of coordination and collaboration.

The sector possesses the institutional capacity to engage in complex collaboration for innovation with the leadership group positioned between government, private industry and individual farm businesses. This positioning has enabled it to develop practices that access these groups to respond practically to issues (Nettle et al., 2013). While the industry has a long history of working cooperatively and is relatively well-resourced, the work to collaborate and co-ordinate activities with stakeholders outside the sector to seek mutual goals is an ongoing process. A dairy sector leader suggests in progressing workforce issues it is about finding suitable collaborations: *The*

process is always one of finding ...the right...[collaborative relationships], how to collaborate well,. Workforce development in particular gets caught into these sort of things. But if you've got a partner organisation are you employing somebody to sit alongside them? Are you resourcing them? How much control and agency do you want to keep? How much do they want to have? (Dairy sector 2)

Cotton sector

Framing of the workforce development system

Since 2010, the leadership groups in the cotton sector have been forming a view of workforce development and their role in it however, industry leaders expressed uncertainty about how to make progress and were looking for a legitimate role for their organisations: *It's just such a huge wide area and you can be working on little pieces but it's pulling it all together.... that's where we're at, just trying to sort of weed our way through that to understand where we're needed. (Cotton #2)*

However, the wide scope of workforce development was proving a challenge in terms of the boundaries and roles for different groups in the industry: *Basically we're still learning about what workforce development's about. We have a part to play in it and we're still in the process of defining that part ... (Cotton #1)*

Over time there is clear evidence of an emerging understanding of workforce development, such as responses at a workshop in early 2013, when participants were asked to identify how national/regional workforce development capacity could be developed:

- Look across sector at successful model and best practice (#1)
- Establish/maintain critical relationships with stakeholders and service providers (#2)
- Expand business management and development skills and overall industry – grower (#3)

This demonstrates an understanding of the need for a systemic approach and the importance of building relationships outside the industry and framed as an aspect of business management.

A clear movement towards increased understanding of workforce development was demonstrated in 2013 by the mapping of initiatives and contributions in the human capacity spectrum by the cotton sector leaders. While short of a workforce development system it is evidence that human capacity had become an identifiable entity within each organisation. Following a workshop with industry leaders in late 2013, responses from a survey demonstrated an understanding that workforce operated at the systems level. For example, how key short-term solutions, such as the use of back-packers, actually contributed to longer term problems such as failing to develop a domestic workforce.

Although leaders identified their own progress in understanding of workforce development, after two years the focus for their efforts remained on defining or identifying roles: *... our previous strategic plan in our human capacity area ... had a series of sub-programs but they weren't very well linked ... in the current plan at least we've put workforce plan/development planning on the agenda... (Cotton #1)*

Our little role there is to provide some funds to assist that but not to run itThese things need to be done jointly but in saying that someone has to take responsibility for certain things. ... I don't know if anyone has primary responsibility you've just got to have a plan that everyone's bought into ... I don't know that we want to take sole responsibility for that, I think we want to

take some sort of leadership role but whether primary responsibility I don't know who has that. (Cotton #2)

Figure 2 represents the nature of workforce governance operating currently in the cotton sector with an indication of where innovation platforms can be identified based on definitions in the literature.

Identifying roles for key actors

Part of what industry leaders were contemplating was the need to work with other parts of the industry, training and semi-government groups. Leaders were seeking synergies with government: *We do need to understand what government's trying to achieve and whether those sorts of things we could apply to moving some of the things we want to do forward a bit faster. (Cotton #1)*

One leader suggested maintaining coordination roles was outside their role but acknowledged this as an important aspect for progressing in workforce development: *We see our role as having more of a developing capability and understanding than we do in maintaining coordination roles ... (Cotton #1)*

The agriculture sector interviewee saw a key role as leadership, as illustrated here: *... you need a change in the culture... that starts from the top. ... it's the systems and the culture that you lead and demonstrate in the organisation that can make such a difference. (Agriculture #1)*

Other roles for sector leadership were considered to be helping link the formal (off-farm) with the informal (on-farm) training systems and improving on-farm human resource practices to improve employee experience and retention.

Overall, industry leaders came back to the development of a joint industry strategy, long-term planning in workforce development and identifying specific roles as the primary leadership task: *...the role for us is around leadership and development of a plan and facilitation to make sure that we've got this co-ordination at a high level ... (Cotton #2)*

There was limited consideration of the need to build internal capacity to act in workforce development. However at a meeting in late 2013, the cotton industry leaders were receptive to the idea of a national strategy with regional trials. Following this, during two teleconferences with cotton industry leaders, the lack of clarity around roles and key actors illustrated in the cotton sector leader interviews remained. However, the parties agreed that workforce development was an important area for the industry and to meet to develop a strategy around having a workforce development officer. The industry leaders supported the idea of conducting regional trials with one proposed trial already under discussion.

Two teleconferences were conducted regarding a regional trial and while most at the first teleconference expressed a keenness to take action, hesitation was also expressed about making progress prior to governance for the trial being finalised, again reflecting concerns around roles and responsibilities. The identification of roles for key actors appears to present a barrier for the industry to progress towards a workforce development strategy.

The issues and challenges of coordination and collaboration

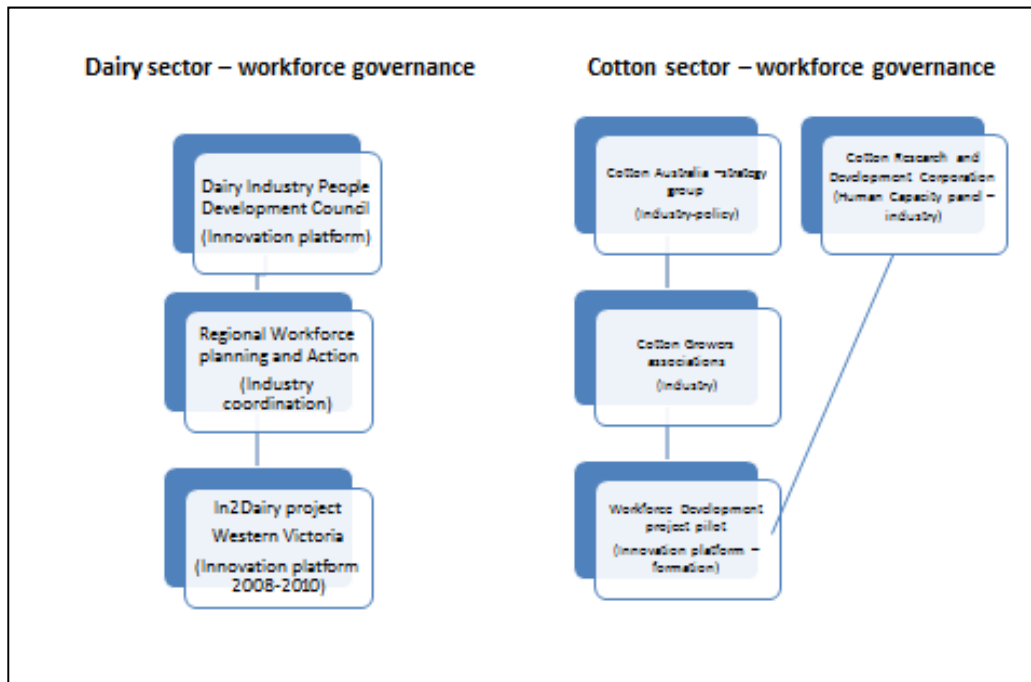
Industry leaders recognised the difficulty in maintaining effort in complex collaborations at an institutional level: *You need a reasonable capacity within the business too, to maintain relationships and if you're just trying to maintain the basic lot of investments then some of the relationships you had with some institutions go out the window. (Cotton #1)*

Although there was an expressed need for strategy and leadership, they were constrained by a focus on tight specification of roles and responsibilities even though they spoke of shared respon-

sibility: It's a shared thing. The industries themselves have to be a lot more organised and strategic about what they're doing for their industry. ... Who's most responsible for it? We're responsible for helping to develop things that the industry can use. I do see it as a shared responsibility and we need to be clear about how that sharing should work-that can obviously involve other organisations who have a role in looking after their workforces. (Cotton #1)

This suggests some reticence to own and lead the sectors workforce development. Yet the cotton sector identified the imperative to work in this area – explicitly linking productivity and sustainability of the sector to making progress in workforce development: One of the key benefits of having a good workforce development strategy system is there has to be benefits in productivity. (Cotton #1) However, the focus on identifying parts of the system to invest in and the reticence to take a leading role in bringing actors together was preventing such a legacy platform emerging.

Figure 2: Representation of current status of innovation platform formation for workforce development in the dairy and cotton sectors.



Discussion

Both the dairy and cotton sectors' leadership groups have identified the importance of workforce development in the sustainability and productivity of their sectors. Further, both have developed an understanding of how workforce issues differed at local and regional scales. In dairy, innovation platforms were evident for workforce development at different times and scales, whereas in the cotton sector the focus remains on role identification and struggling with the boundaries and scale of workforce development in general. Some of the differences between the sectors can be attributed to the longer time the dairy sector has been working actively in workforce (seven years compared to cotton's three); the strong collaborative culture of the dairy sector compared to other sectors; the geographic differences whereby collective action in workforce can be easier in regions with a larger number of farms in a given geographic area, such as dairying. Of significance is that the dairy sector approach is also led by one lead organisation, while in cotton there are two. However, the results reported above also indicate different social processes involved in the trajectories of these sectors towards innovation platforms for workforce development.

Three interrelated processes are identified. Firstly, differences in the formation of ownership of workforce issues at a national scale and the nature and extent of leadership in workforce devel-

opment on behalf of the sector. Secondly, differences in understanding of workforce issues and workforce development as ‘systemic’ and requiring engagement with non-agricultural actors and in systemic learning and inquiry. This impacted the intent and capacity to work both on and in the workforce development system concurrently. And thirdly, differences in the capacity to establish and sustain independent relationships with other stakeholders in workforce development through collaboration. This third area was critical for realising the potential of synergies in the workforce development system.

Ultimately, these processes constitute the pre-conditions influencing the formation of an innovation platform for agricultural workforce development. In dairy, the strong ownership of workforce issues, active leadership in engagement with external stakeholders and a strong ‘learning through doing’ collaborative culture underpinned the formation of an innovation platform for the life of a project (In2Dairy) and currently sustains a national level governing body (the people development council). However, other national-regional initiatives have lost their non-dairy industry partners, arguably through the loss of a mandate to keep working together and the dairy sector considering it can address most issues alone. In cotton, the uncertainty of ownership and leadership in workforce issues, a focus on roles and responsibilities and less capacity to sustain relationships with stakeholders at a national level have worked against the formation of an innovation platform, although some regional-level initiatives forming now represent some movement towards an innovation platform. Further, it is interesting to note that both sectors had been developing an understanding of the workforce development system through research however on its own, this was not enough for progressing workforce issues in a systemic way. Finally, the institutional arrangements hindering the formation of innovation platforms emerge from this analysis as mainly associated with the sectors’ capacity to form models of collaboration that could leverage workforce development initiatives of other actors in the system (like training, community or welfare initiatives). This means that rather than trying to stimulate the formation of innovation platforms for agricultural workforce development per se, it may be easier and more meaningful for different potential collaborators to come together in time-bound innovation platforms to seek to gain synergies from areas of mutual interest such as economic development, employment outcomes or skill formation that progress agricultural sectors needs in workforce development.

Overall though, given the importance of innovation platforms for complex systemic issues, our analysis suggests that in the absence of support to build the required collaborative capacity it is unlikely innovation platforms will form to progress workforce development as they have in the natural resource management sector. Government actors could play an important role in supporting the necessary capacity however, in Australia it appears agricultural sectors are largely left on their own in building capacity to collaborate in this domain. Given the pre-conditions for the formation of innovation platforms are heavily dependent on an industry’s own learning and development culture, this leaves agricultural industries to bear most of the risks and transaction costs in learning their way through acting in workforce development. In well-established knowledge areas, organisations may be well-placed in terms of capacity to collaborate, in new areas, like agricultural workforce development, this approach leaves the formation of innovation platforms in a precarious position.

As researchers we have endeavored to support mutual reflexivity amongst agricultural industry leaders in building their capacity to act systemically. This has assisted in elevating the importance of workforce development and understanding of workforce development systems within the sectors. Given the likelihood of other agricultural industries in Australia seeking to address their workforce issues, we developed ‘Readiness indicators’ (pre-conditions) for the formation of innovation platforms within agricultural industries and in potential platform partners:

- The region, group or organisations have focused on workforce issues or have identified and stated people and workforce as a priority.

- There is commitment by member/boards in time and money: to sharing experiences and interest in the sustainability of action/legacy.
- There is current capacity in workforce development skills and understanding.
- There is some connectedness: with farmers and non-agricultural stakeholders about workforce issues.
- There is a capacity for systems thinking and understanding: reflexivity and a culture of learning around the workforce development system.

It was conceived that some of the indicators could be used to build capacity to engage in workforce development.

Conclusion

This paper has described research into the extent to which Innovation platforms are emerging for addressing agricultural workforce issues and to answer the question: What is the process by which innovation platforms emerge and are sustained? We found that the dairy and cotton sectors differ in the extent to which an innovation platform for workforce development is emerging, and that innovation platforms have formed at specific times and scales, but are not necessarily sustained. Three processes were described that supported or hindered the formation of an innovation platform. Processes that supported emergence were increasing national-level ownership and strong leadership concerning the importance of agricultural workforce issues for the sector and as requiring systemic solutions; seeking connections and engagement with non-agricultural organisations to progress the situation; and looking to sustain collaborative relationships and seeking synergies in partnerships. Given that innovation platforms are considered a response to institutional arrangements that act as a barrier to innovation, the authors conclude that there are pre-conditions to the formation of innovation platforms that reside in individual organisations, and particularly lead organisations, for key workforce problems and this explains the potential for innovation platforms to form and be sustained. The authors have therefore proposed ‘readiness indicators’ as a way for leading organisations to critically examine the starting conditions for emergence of effective innovation platforms or in identifying potential stumbling blocks to be addressed. From this study, the capacity of individual organisations to collaborate appears as important as the institutional arrangements to form a platform. More research into the pre-conditions and capacities within organisations to participate effectively in innovation platforms is recommended.

From observations and analysis, the authors consider the formation of innovation platforms in agricultural workforce development as precarious. This is mainly associated with the impetus for change being so heavily reliant on agricultural sectors building their own capacity to take action in workforce development with others. This appears unrealistic, and also time consuming, when strengthening institutions and stimulating innovation are a key role for the State. Without a single institution (e.g. government) or collective agreement between key institutions (e.g. government, industry, education) to form innovation platforms for agricultural workforce development, the establishment of such platforms as a response to the current challenges will be limited.

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