



Circular Jobs and Skills: Planning for our Future

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Circular Jobs and Skills: Planning for our Future

Executive summary

Transitioning to a circular economy, where resources are circulated to stay in use, will enable us to meet Victoria's current and future needs. It will allow more value to be created, eliminating waste and pollution and regenerating natural systems, moving away from the linear 'take, make, waste' model.

Moving to a circular economy is included as a priority in the Victorian Government's economic growth statement: [Victoria: Open for Business and the Clean Economy Workforce Development Strategy \(CEWDS\)](#).

Sustainability Victoria's research confirms that a circular economy creates opportunities to increase workforce and materials productivity. This report provides an overview of the sectors, occupations, and capabilities required for our workforce to be effective in a circular economy.

We've mapped the capabilities needed for each element of the circular economy to identify opportunities and critical gaps. Our methodology uses Circle Economy's Key Elements Framework, considered international best practice for identifying circular economic activity, translated to the Australian and New Zealand Standard Industrial Classification (ANZSIC). Our report finds Victoria's current workforce is prepared for some elements of the circular economy.

The research shows our transition to a circular economy is about more than waste reduction: it involves a wide range of activities and sectors, including diverse jobs and capabilities. Through data from the Australian Census and Australian Skills Classification, our work identifies occupation and capability profiles of essential circular jobs, and how they will need to change to progress Victoria's circular economy.

Executive summary

Victoria's workforce is partially prepared for circularity



- Victoria's current workforce, as captured in Figure 1, has the capabilities to be effective in 4 out of the 8 key elements of the circular economy.
- The current workforce has many of the capabilities needed for a circular economy, but they need to be applied to specifically achieve more circular outcomes. For example, an architect may already have the skills to design circular buildings, but they still design non-circular buildings.

Future jobs are circular jobs



- Achieving net-zero emissions requires a circular economy, making circular jobs essential for Victoria's future clean economy.
- Circular jobs won't replace existing jobs. Instead, circular jobs will provide opportunities for economic growth.
- Transitioning to a circular economy will boost materials and labour productivity and increase wages for Victorians.
- The circular economy will reduce supply chain risks for clean economy infrastructure and strengthen Victoria's competitive advantage.
- The circular transition creates opportunities for both highly educated and non-skilled workers.

Circular jobs are diverse, so a holistic approach is needed



- Circularity is poorly understood because it is a new concept that proposes big shifts in the way our economy operates. As a result, our circularity rate is still low, and progress is unlikely without deliberate action, including from governments to support the circular transition.
- The circular economy involves activities as broad and diverse as the rest of the economy, making effective workforce planning and intervention complex.
- **Circular Jobs and Skills: Planning for our Future** provides a framework that categorises all economic activity contributing to circular outcomes, identifying 87 circular industry sectors and capability profiles that enable the monitoring of progress and circular workforce planning.

Figure 1 – Circular economy jobs and skills framework.



Table 1 – Occupational groups that are proportionally in higher demand in Victoria's current circular economy, compared to an ideal, future circular economy.

	Higher in demand in Victoria's <i>current</i> circular economy	Higher in demand in Victoria's <i>future</i> circular economy
Occupational groups	<ul style="list-style-type: none"> › Design, engineering, science and transport professionals › Automotive and engineering trades workers › Education professionals › Legal, social and welfare professionals › Carers and aides › Road and rail drivers 	<ul style="list-style-type: none"> › Design, engineering, science and transport professionals › Automotive and engineering trades workers › Technicians and trades workers › Specialist managers › Electrotechnology and telecommunications trades workers › Business, human resource and marketing professionals





Contents

Executive summary	iii
Introduction	2
Policy context	2
A circular economy jobs and skills framework	4
Key Elements Framework	4
From framework to workforce insights	7
Typical circular occupations	8
Typical and ideal circular occupations	10
Key findings	12
Victoria's workforce is partially prepared for circularity.	12
Circular jobs do not replace other jobs	22
Circularity unlocks significant economic benefits	22
Circular jobs have room to grow	23
Conclusions	24
How this work can be used	25
Future research	26
Limitations	26
Appendices	27
ANZSIC sectors contributing to circularity	28
Typical and ideal occupations driving circularity	31
Occupational intensity	37
References	38

Introduction

Circular Jobs and Skills: Planning for our Future provides a framework that helps define circular jobs and economic sectors, and the occupations, skills and education required to effectively transition Victoria's workforce to a circular economy.

A circular economy describes a system in which we use our resources more sustainably – keeping them in use for longer in a closed-loop system, as visualised in Figure 2. New products are designed for quality and longevity, things are repaired and reused, and materials are recycled at the end of their life. Landfill is considered a last resort.

This type of economic activity enables significant job growth and cost savings for the community.^{1,2} It also minimises the generation of waste and maximises resource efficiency, leading to further cost savings, productivity gains and environmental benefits.

The transition to a circular economy will play an important role in achieving net zero emissions³, managing material scarcity⁴, and even reducing biodiversity loss⁵.

At the same time, the transition to a circular economy represents a significant shift, requiring changes to processes and established ways of working across many, if not all, sectors of the economy. Some of these impacts will be obvious, such as the need for new material sorting and recycling processes, or logistics enabling product reuse.

But many impacts will be less obvious and often unforeseen, such as changes in the legal landscape or the need for transition brokerage and circular education pathways. This wide diversity of impacts is hard to manage under a single policy or initiative. As a result, the circular economy is poorly understood⁶ and Australia's economy is only 4.6% circular⁷.

This suggests we need a holistic overview of how different parts of the economy are affected by the transition to a circular economy. Similarly, understanding what kind of occupations and skills will be needed to bring this transition about is vital to inform deliberate and effective action.

This work aims to support policy development, workforce initiatives, and broader economic development programs with evidence of what is required from an effective circular workforce.

Policy context

SV's **Circular Jobs and Skills: Planning for our Future** provides the baseline needed for future workforce planning, supporting the implementation of the Victorian Government's 10-year **Clean Economy Workforce Development Strategy** (CEWDS)⁸. Circular economy is included as one of 3 pillars of the clean economy, as shown in Figure 3.

The transition to a circular economy aligns with government priorities, both internationally and locally. The number of international circular roadmaps is increasing⁹, with significant progress being made in Europe where circularity is considered one of the main building blocks of the European Green Deal¹⁰.

The Australian Government has committed to a national circular economy transition, launching **Australia's Circular Economy Framework** in December 2024¹¹. This framework identifies Australia's highly skilled workforce as one of the unique advantages that will inform and guide our transition. But success in the framework's priority areas will depend on systems thinking and circular economy skills being integrated into Australia's workforce¹².

This is reiterated by the advice provided by the Circular Economy Ministerial Advisory Group, captured in the final recommendations report¹³. Defining and building circular skills into the existing and emerging workforce is a key recommendation provided by this Advisory Group¹⁴. Victoria targets circularity through its Recycling Victoria policy¹⁵. Furthermore, **circular economy** is included as a priority sector in Victoria's most recent Economic Growth Statement¹⁶, selected in partnership with business. In the Statement, the circular transition is positioned to help Victoria respond to economic challenges by enabling investment and innovation and ensuring our workforce is prepared.

Initiatives proposed as part of the Statement include a mentoring program¹⁷, a training centre of excellence, a digital jobs program, and skills solutions partnerships with industry¹⁸ to ensure Victoria's workforce is ready for clean and circular jobs. **Circular Jobs and Skills: Planning for our Future** aligns with these policies and initiatives by providing the evidence base and framework needed to identify and monitor circular sectors, occupations and capabilities.

Figure 2 – A visual overview of a circular value chain.



Pillars of the clean economy

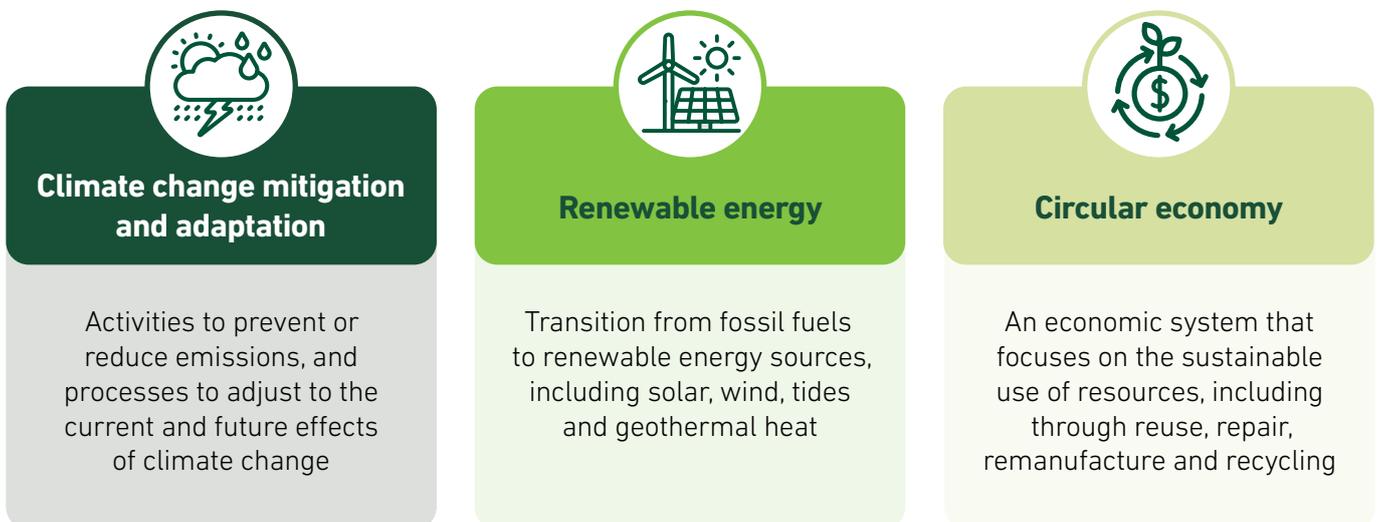


Figure 3 – The pillars of the clean economy, as included in the *Clean Economy Workforce Development Strategy*.

A circular economy jobs and skills framework

Key Elements Framework

Supporting a circular transition is complex because of the diverse nature of circular activity. Closing resource loops can involve activities such as reuse, repair and recycling, but also relies on enabling technology, logistics and collaboration.

Adopting a holistic framework that captures this wide variety of circular economic activity can help ensure all aspects of the transition are considered when informing government action.

Based on a review of literature and international best practice, the most useful and holistic categorisation of circular economic activity comes from the Key Elements Framework by Circle Economy¹⁹. Developed with input from over 20 organisations across government, academia and industry, this framework has proven application across a variety of contexts.

It continues to evolve in line with the growing literature on defining circularity and its enabling conditions, and was found to be the most appropriate framework for use in the Victorian context.

The Key Elements Framework provides 8 distinct categories of circular economic activity – called elements – separated into core, enabling and indirect elements. These reflect the broad scope of how circularity can be supported.

Core circular elements include economic activities that manage resource flows in a circular way by using regenerative materials, keeping things in use, or using waste as a new resource. They form the foundation of the circular economy and align with other common frameworks, including activities commonly applied to supply chains and manufacturing. Table 2 shows the link between these 3 core elements and other common frameworks.

Enabling elements support the core elements by removing barriers to implementation. These enabling elements are unique to the Key Elements Framework and can address obstacles such as a lack of systems to keep track of resources and lack of awareness and knowledge about circularity. Table 3 shows all 5 enabling elements and their descriptions, as well as the barriers they address.

Table 2 – Circle Economy’s core elements and their links to other common frameworks (adapted from Circle Economy).

Circle Economy's core elements	Strategies for resource cycling	R-Ladder framework	Ellen MacArthur Foundation
 <p>Prioritise regenerative resources</p>	<p>Regenerate flows</p>		<p>Regenerate natural systems</p>
	<p>Narrow flows</p>	<p>Refuse</p> <p>Reduce</p> <p>Rethink</p>	<p>Design out waste</p>
 <p>Stretch the lifespan</p>	<p>Slow flows</p>	<p>Reuse</p> <p>Repair</p> <p>Refurbish</p> <p>Remanufacture</p>	<p>Keep products and materials in use</p>
 <p>Use waste as a resource</p>	<p>Close flows</p>	<p>Repurpose</p> <p>Recycle</p> <p>Recover</p>	<p>Design out waste</p>

Table 3 – Circle Economy’s enabling elements and their description (adapted from Circle Economy).

Circle Economy's enabling elements	Description	Barriers addressed
 <p>Design for the future</p>	<p>Activities focused on developing solutions that enable circular outcomes by accounting for a systems perspective during the design process. Primarily includes architecture, engineering and other specialised design services that can develop circular solutions.</p>	<p>Product or material disassembly and reuse made impossible due to design flaws.</p> <p>Value recovery from waste not possible due to contamination, lack of knowledge, or legislation.</p>
 <p>Incorporate digital technology</p>	<p>Activities focused on improving access to and transparency of data across supply chains. This includes the use of digital, online platforms and technologies that strengthen connections between supply chain actors.</p>	<p>Information about asset location and condition or resource use intensity is incomplete, leading to an inability to optimise resource usage.</p>
 <p>Rethink the business model</p>	<p>Activities focused on aligning economic incentives with circular outcomes, primarily by developing business models around the interaction between products and services. Examples are business models that enable renting, leasing, and product-as-a-service arrangements.</p>	<p>Economic incentives are currently misaligned to a regenerative ecosystem and the wellbeing of society.</p>
 <p>Collaborate for joint value</p>	<p>Activities focused on collaboration throughout the supply chain, internally within organisations and with the public sector and communities to increase transparency and create joint value. This includes government administration, stakeholder management and facilitation services.</p>	<p>Conflicting interests and misaligned goals between stakeholders across the value chain prevents progress and generates wasted resources.</p>
 <p>Strengthen and advance knowledge</p>	<p>Activities focused on developing research, structuring knowledge and encouraging innovation that contributes to circular outcomes, primarily through scientific services and education.</p>	<p>The lack of knowledge, information silos and asymmetries, and generally disaggregated and unstructured information prevents circular progress.</p>

Key Elements Framework (continued)

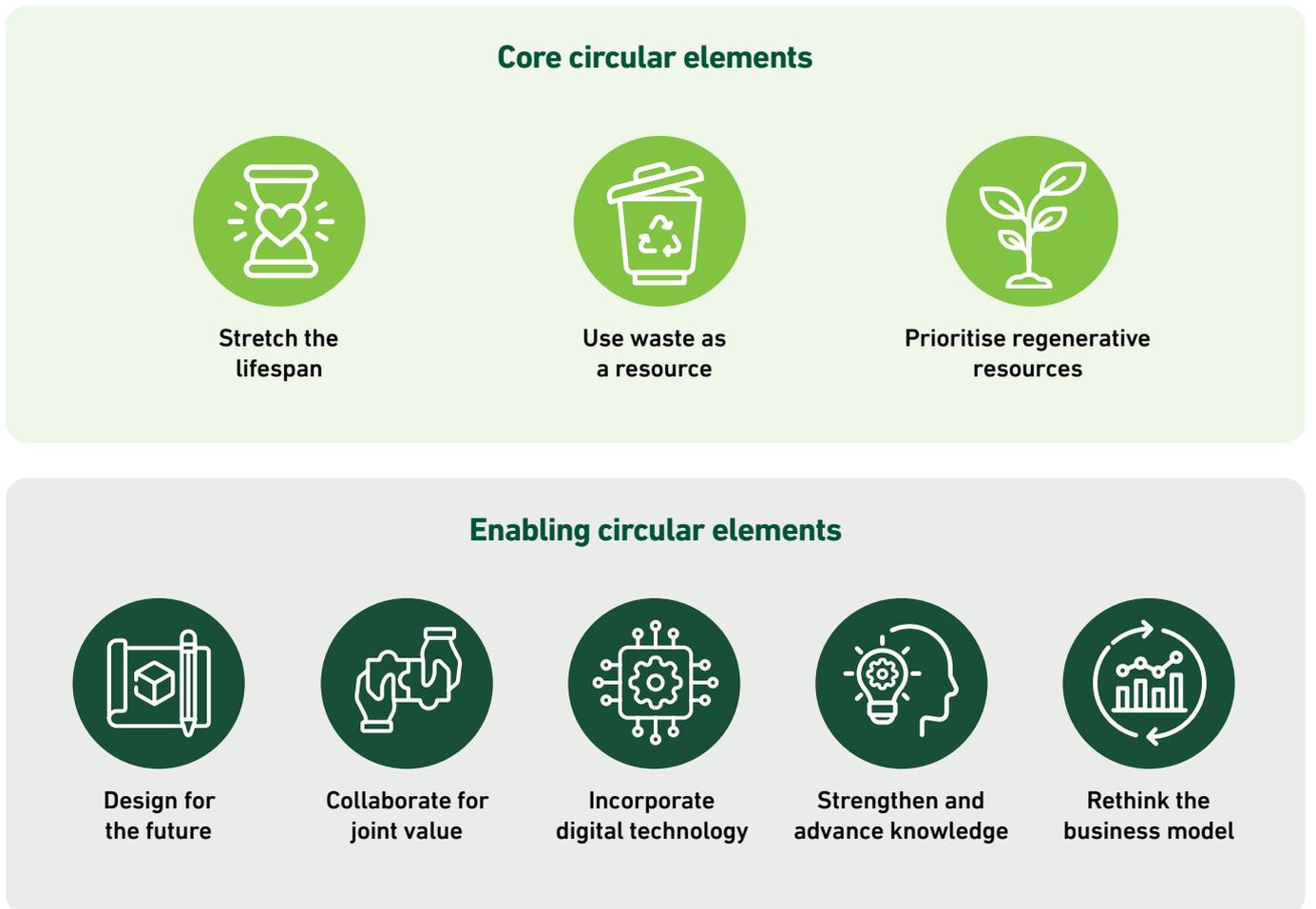
The Key Elements Framework provides a list of industry sectors that contribute to described activities for each of the core and enabling elements. A translation to Australia-specific ANZSIC sectors resulted in identification of 87 sectors that contribute most to our circular economy, forming the basis of our circular economy jobs and skills framework. The full list of these ANZSIC sectors can be found in [Appendix A](#), alongside information on the correspondence and interpretation used.

The resulting framework can be used to track economic activity that contributes to Victoria's circular economy, as well as to help identify strengths and skill gaps in Victoria's workforce. The framework is visualised in Figure 4.

Technically, a third category of circular economic activity exists: indirect circular elements. They describe economic activity that uses goods and services from core or enabling elements but does not play a direct role in progressing the transition. This could include businesses using repair services to maintain their equipment or using second-hand cars in a corporate fleet.

Indirect elements include most other sectors of the economy, with activities that are not unique to the circular economy. The jobs and skills required for the workforce to be effective in these sectors is therefore considered to be captured by non-circular workforce initiatives and has been excluded from our analysis.

Figure 4 – Circular Key Elements Framework.



From framework to workforce insights

Using this framework to identify key strengths and skill gaps in Victoria’s circular workforce requires a link with occupations.

Occupations are a good indicator of the type of work that is required by each sector, as the jobs performed and capabilities in demand are based on what is needed for the objectives of each sector to be achieved.

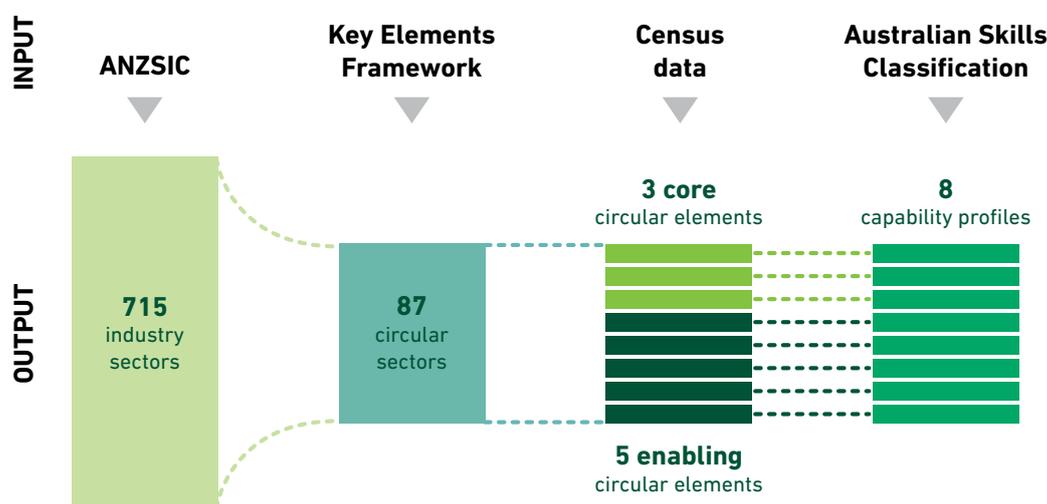
For the 87 ANZSIC sectors identified to contribute most to circularity, information about occupations active in those sectors was obtained through the Australian Census, in the form of ANZSCO occupation codes.

When combined with data from the Australian Skills Classification, we are also able to understand the skills and education required for each occupation.

As visualised in Figure 5 these data points form the building blocks needed to develop a distinct capability profile for each of the 8 circular elements in the Key Elements Framework.

These profiles offer insights into what is required of our workforce to operate in those elements. The remainder of this chapter offers more detail on each of the steps in this methodology.

Figure 5 – A visualisation of the data used and steps taken to produce the circular workforce capability profiles.



Limitations

Note that the insights from the workforce capability profiles are qualitative rather than quantitative. This is because it is difficult to determine exactly how many occupations are circular, as many roles contribute only partially. The enabling elements of the circular economy often support circular outcomes, but they also serve non-circular functions.

For example, a teacher working within the *Strengthen and advance knowledge* element might educate students about circular practices but could equally be teaching unrelated subjects. Enabling elements are therefore only circular to the extent that they support the core circular economy.

In addition, many traditionally non-circular sectors interact with circular ones by supplying or purchasing goods and services that may indirectly contribute to circularity.

These blurred boundaries make it difficult to pinpoint which occupations are directly advancing the circular transition. As a result, the approach taken in this report focuses on qualitative insights rather than quantitative measures.

A common method used in macroeconomics to understand the quantitative relationships between various sectors is input-output analysis, which could technically be applied to the identified circular sectors as well.

However, this requires the use of input-output tables that have been disaggregated to the same ANZSIC classification as the Key Elements Framework. Such tables do not currently exist, and their creation was considered out of scope for this work.



Typical circular occupations

Having 8 distinct capability profiles for each of the circular elements implies that the occupations matching those capabilities are distinct for each profile. However, all industry sectors naturally employ a wide range of different occupations.

To understand which occupations are most relevant for each circular element, an occupational intensity metric was used to determine occupations that can be considered typical for each sector. For example, the Architectural Services sector (ANZSIC code 6921) employs a range of managers, technicians and administrative staff, but Architects (ANZSCO code 232111) can be considered a typical occupation.

By calculating the occupational intensity of all ANZSCO codes across circular sectors and comparing them with the same metric across the entire economy, we were able to identify which occupations are proportionally in higher and lower demand in Victoria's circular economy. The full list of these typical occupations can be found for each element in the second column of [Appendix B](#), and they have been aggregated into their respective occupational groups below in Table 4.

An overview of the occupational intensity of all occupations, aggregated to 2-digit ANZSCO codes, can be found in [Appendix C](#). This overview shows the difference between each occupational group's intensity in Victoria's circular economy compared to the rest of the economy.

By looking at typical occupations for each of the circular elements in more detail, we can find the education and skills needed to do these jobs by using data from the Australian Census²⁰ and the Australian Skills Classification²¹, respectively.

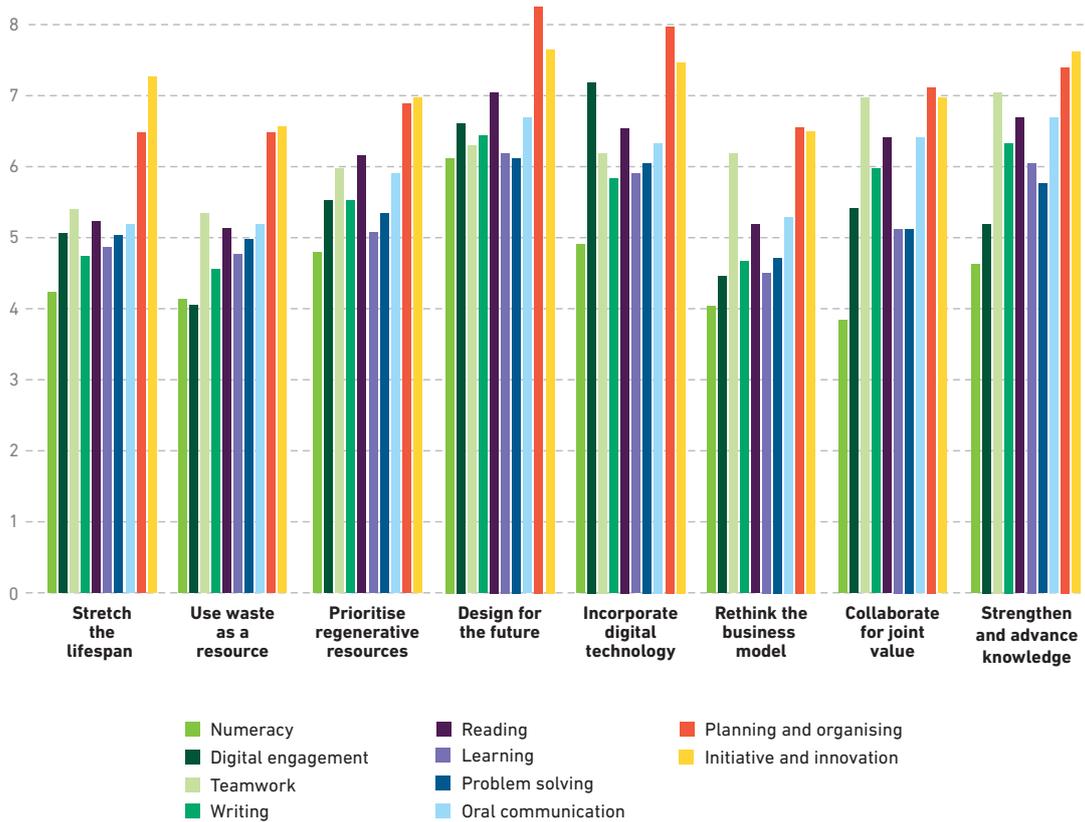
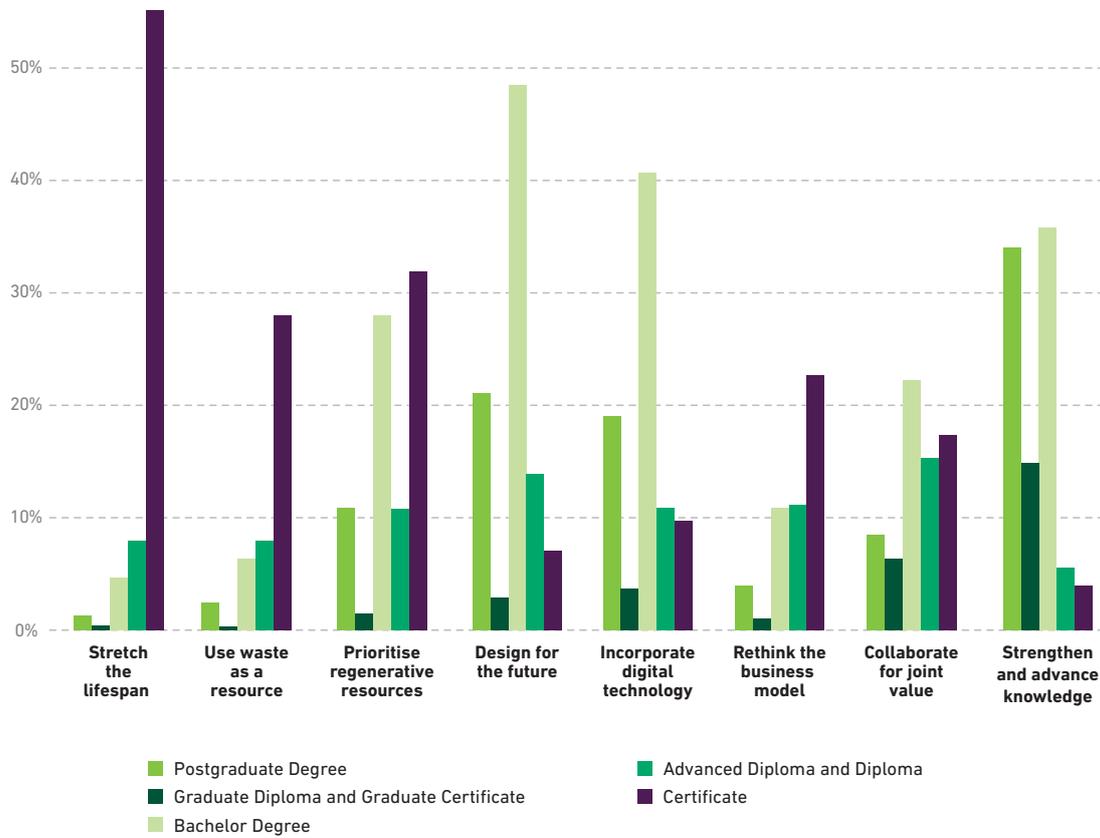
Specific levels of education need to be attained, and core competencies need to be met for workers to be effective in an occupation. This information is therefore useful to build a capability profile for each of the circular elements, based on the typical occupations that have been identified for each of them.

Figure 6 provides an overview of the education and skill requirements for the circular elements.

Table 4 – Occupational groups that are proportionally in higher and lower demand in Victoria's current circular economy, compared to the rest of the economy.

	Higher in demand in Victoria's current circular economy	Lower in demand in Victoria's current circular economy
Occupational groups	<ul style="list-style-type: none"> › Design, engineering, science and transport professionals › Education professionals › Legal, social and welfare professionals › Automotive and engineering trades workers › Carers and aides › Road and rail drivers 	<ul style="list-style-type: none"> › Hospitality, retail and service managers › Health professionals › Construction trades workers › Food trades workers › Hospitality workers › Sales assistants and salespersons › Factory process workers › Food preparation assistants

Figure 6 – The education requirement profiles (top) and skill requirement profiles (bottom) of Victoria's current circular workforce, separated by each key element.





Typical and ideal circular occupations

We now understand the capabilities needed in our workforce to perform in these circular elements, but are we sure they are the right capabilities to really progress our circular transition? Because Victoria's transition to a circular economy is in its infancy, it is possible that these typical occupations will change.

As our circular economy grows, new occupations might emerge. To help inform workforce initiatives under the Circular Economy Workforce Development Strategy, we need to understand how workforce requirements might need to shift. This requires a comparison between the identified 'typical' occupations and another set of 'ideal' occupations, active in Victoria's future, fully circular economy.

Although there is no direct way of knowing what these 'ideal' occupations are, we can make some assumptions based on literature. The Key Elements Framework is the product of a significant volume of international research, some of which also lists ideal occupations expected to contribute most to circular progress^{22, 23, 24}. These theoretical ideal occupations are key to the circular transition.

If Victoria successfully transitions to a circular economy, we can assume these ideal occupations would form part of our future circular workforce. Table 5 shows the difference between typical circular occupations and these future, ideal circular occupations. A full list of the ideal circular occupations, and how they differ from the current list of circular occupations, can be found in [Appendix B](#).

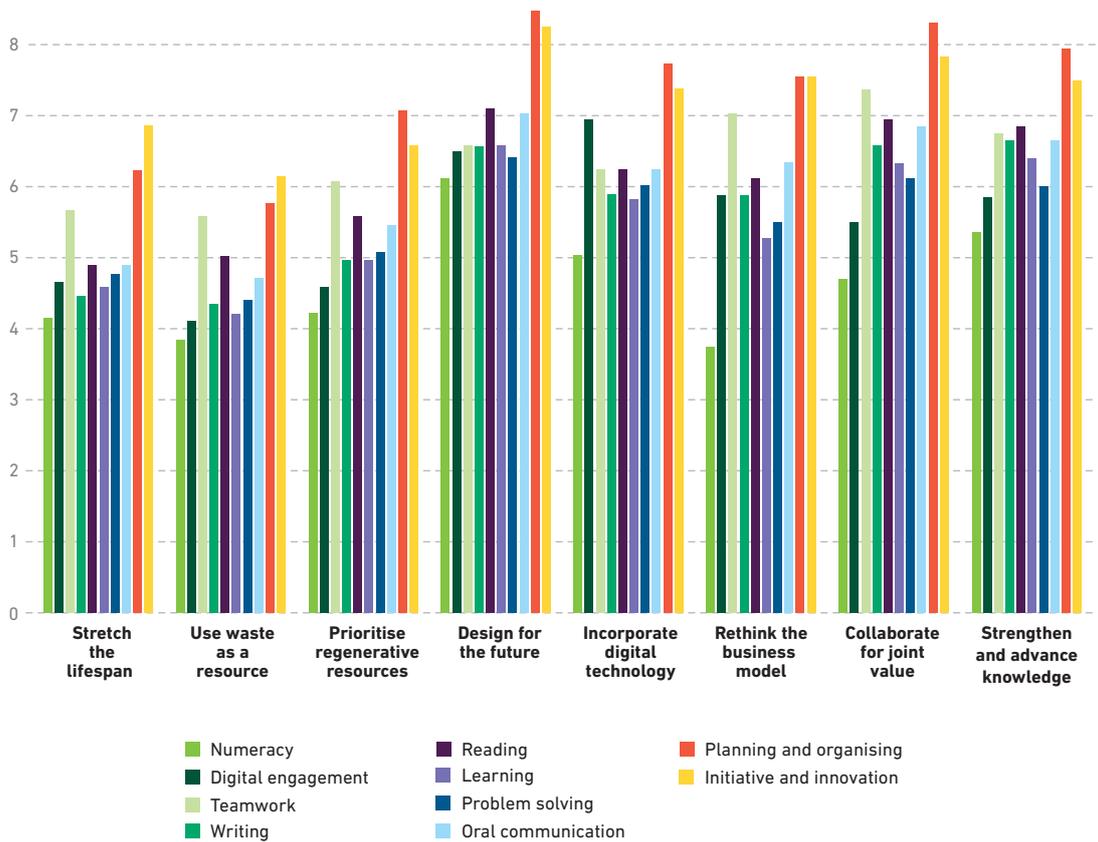
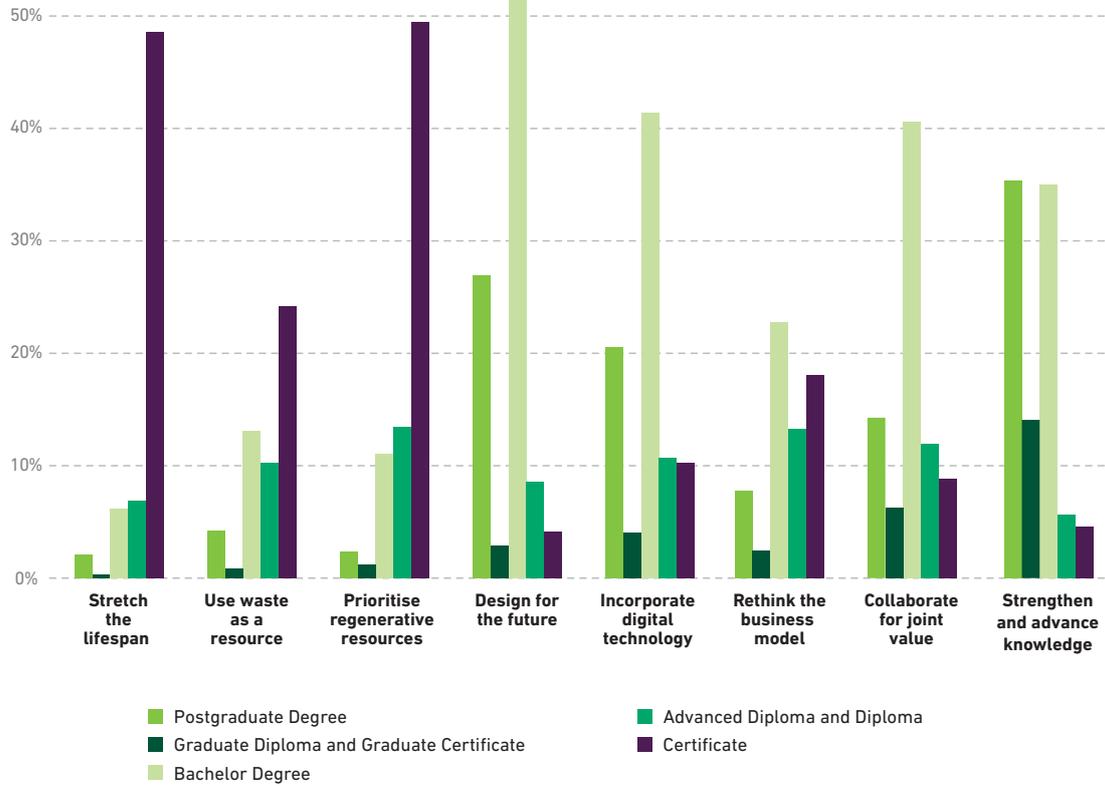
By once again using data from the Australian Census and Skills Classification, we can create capability profiles for these ideal occupations, as shown in Figure 7. These profiles show the transition to a circular economy will rely on a wide variety of occupations, requiring equally non-skilled and highly educated workers, proof of the broad social benefits of a circular transition.

We are now able to compare the capabilities of Victoria's existing circular workforce with those of Victoria's ideal circular workforce. This highlights potential gaps, providing an evidence base for workforce initiatives. The next chapter, [Key findings](#), continues by analysing the differences between these capability profiles.

Table 5 – Occupational groups that are proportionally in higher demand in Victoria's current circular economy, compared to an ideal, future circular economy.

	Higher in demand in Victoria's current circular economy	Higher in demand in Victoria's future circular economy
Occupational groups	<ul style="list-style-type: none"> › Design, engineering, science and transport professionals › Automotive and engineering trades workers › Education professionals › Legal, social and welfare professionals › Carers and aides › Road and rail drivers 	<ul style="list-style-type: none"> › Design, engineering, science and transport professionals › Automotive and engineering trades workers › Technicians and trades workers › Specialist managers › Electrotechnology and telecommunications trades workers › Business, human resource and marketing professionals

Figure 7 – The education requirement profiles (top) and skill requirement profiles (bottom) of Victoria's ideal, future circular workforce, separated by each key element.





Key findings

Victoria's workforce is *partially* prepared for circularity.

When the education and skill profiles of Victoria's current circular workforce are compared with those of the ideal, future circular workforce, it is clear the difference is larger for some circular elements than others.

For some of the circular elements, the current typical occupations align well with the ideal occupations, as shown in [Appendix B](#). This means that for some of the circular elements, Victoria's workforce is already well placed to be effective, as shown in Figure 8.

Figure 8 – An overview of which circular elements align with Victoria’s current workforce capability.



Figures 9 to 16 present detailed capability profiles for each circular economy element, highlighting the varying levels of workforce preparedness across different areas. These comparisons provide insight into why Victoria’s workforce is well equipped for some circular activities but less so for others.

Figure 8 offers a broader overview, identifying current workforce strengths within Victoria’s circular economy. This information can guide future workforce interventions in 2 ways: by addressing capability gaps to build a more balanced skill base, or by leveraging existing strengths as part of a distinct Victorian value proposition.

In selecting the right approach, it is important to recognise that the circular economy operates across state and national borders. Given the global nature of many value chains, a self-contained circular system within Victoria that relies on a workforce balanced across all circular elements, may be neither feasible nor necessary.

Instead, Victoria’s comparative advantages can position it strategically within a broader national and international circular economy.



Stretch the lifespan

Stretch the lifespan is one of the core elements of the circular economy, including activities focused on keeping things in use through repair and maintenance.

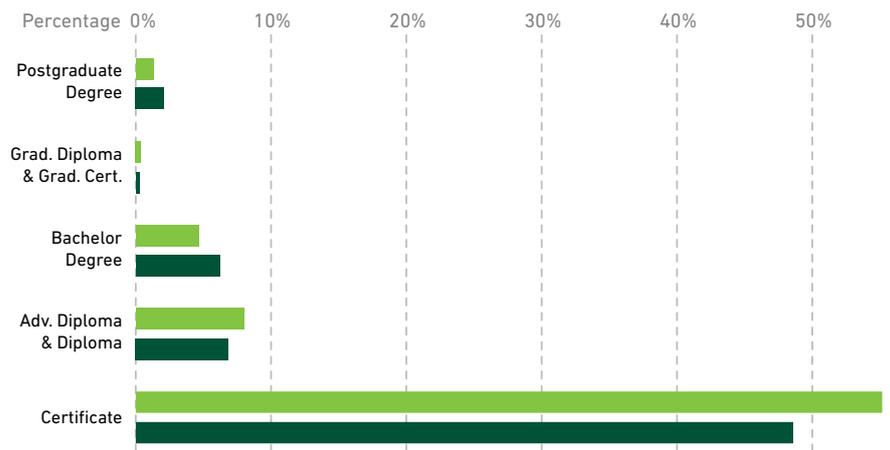
Comparing the capability requirements across Victoria's current and ideal circular workforce shown in Figure 9, the differences are quite marginal. Our current workforce leans more on people with a certificate-level education in this element, which reflects the occupations currently active in this element, shown in [Appendix B](#).

This includes jobs such as mechanics, panel beaters, and detailers. As also shown in [Appendix B](#), the need for more highly educated occupations in Victoria's future, ideal circular economy primarily comes from the inclusion of engineers, specialised mechanics and electricians.

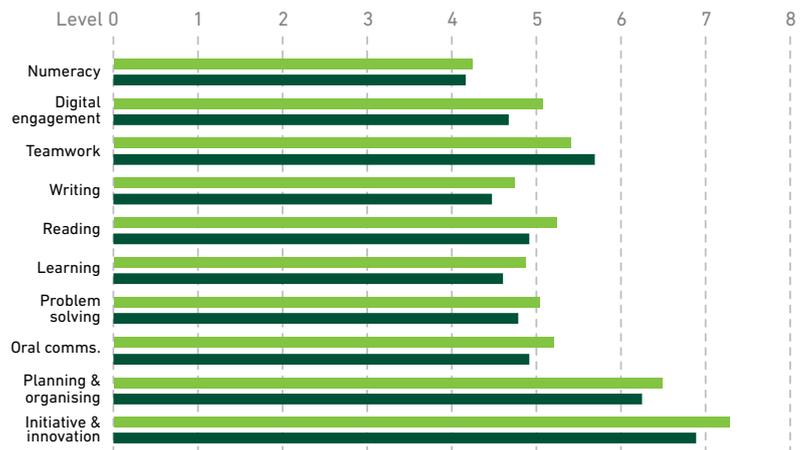
The similarities between the 2 scenarios continue when looking at the skill requirements. For all skills but teamwork, Victoria's current circular workforce is slightly overqualified for what is required for this element.

The similarities between the capability requirements of Victoria's current and ideal circular workforce indicate that our workforce is well prepared to be effective in this element of the circular economy.

Average education level attained across identified occupations (not weighted for occupation size)



Average skill level across identified occupations (not weighted for occupation size)



■ Victoria's current circular workforce
■ Victoria's future, ideal circular workforce

Figure 9 – The education requirements profile (top) and skill requirements profile (bottom) of the *Stretch the lifespan* circular element, comparing Victoria's current and ideal circular workforce.



Use waste as a resource

Use waste as a resource is another core element of the circular economy, including activities that focus on closing material loops through recycling and waste management.

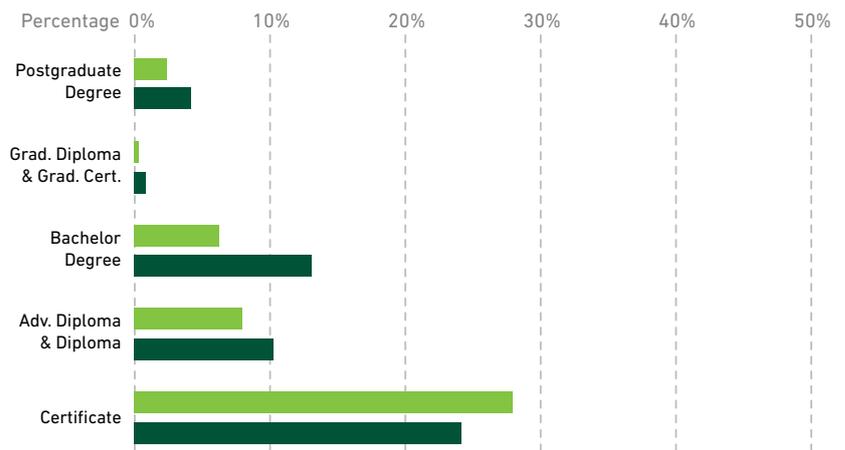
As shown in Figure 10, the differences between the current and ideal circular workforce are a bit more pronounced for this element. There appears to be a need for more highly educated occupations, across all levels of higher education.

The reason for this becomes clear when looking at the list of identified occupations shown in [Appendix B](#). Whereas Victoria's current circular workforce for this element primarily includes waste plant and machinery operators, our ideal workforce would include more assessment and administrative staff, as well as technicians capable of managing specialised recycling equipment.

Looking at the skill requirement comparison, it appears Victoria's current workforce for this element is overqualified. This reflects the difference in occupations that are required to be active in this element. The technical jobs identified in the ideal circular workforce show a lower average skill level being required.

The difference between the capability profiles, combined with a slight mismatch in the types of occupations required, indicate that Victoria's current circular workforce is not well positioned to be effective in this element.

**Average education level attained across identified occupations
(not weighted for occupation size)**



**Average skill level across identified occupations
(not weighted for occupation size)**

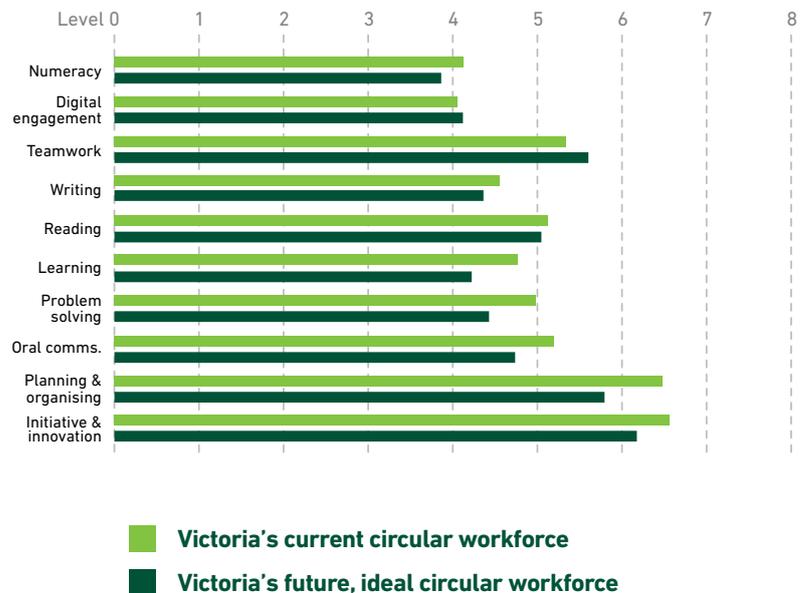


Figure 10 – The education requirements profile (top) and skill requirements profile (bottom) of the *Use waste as a resource* circular element, comparing Victoria's current and ideal circular workforce.



Prioritise regenerative resources

Prioritise regenerative resources is the final core element of the circular economy, including activities focused on the use of renewable resources through regenerative practices, agriculture and renewable energy.

As evident in Figure 11, there is a significant difference between the capability requirements for Victoria's current and ideal circular workforce.

Our current workforce is significantly overqualified, showing much higher levels of education than would be required of the ideal circular workforce.

Similarly, current skill levels generally appear to be higher than what's needed to be effective in this part of the circular economy.

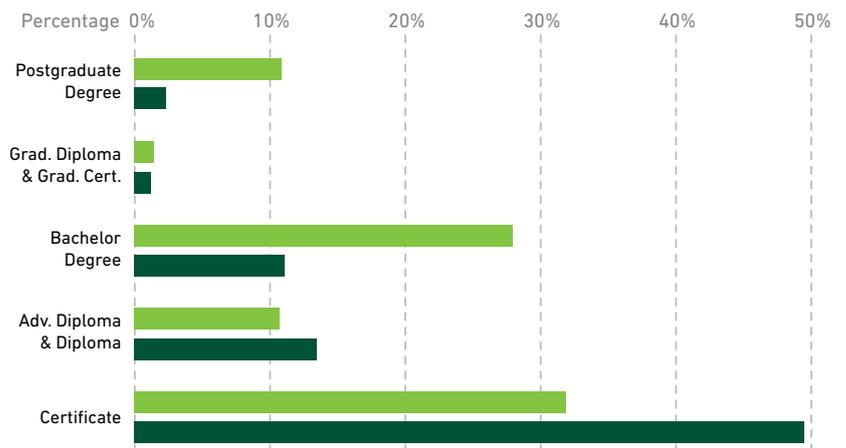
Looking at the current and ideal occupations in this element, shown in [Appendix B](#), Victoria's current workforce relies heavily on specialised technicians and engineers working in the renewable energy sector.

In an ideal circular workforce, we would see a larger number of vocationally trained workers active in infrastructure installation and management, as well as regenerative agriculture.

Although renewable energy is important for this element, a stronger focus on renewable use of other resources is currently a gap.

Based on this, we can conclude that Victoria's circular workforce is currently not well prepared to be effective in this element of the circular economy.

Average education level attained across identified occupations (not weighted for occupation size)



Average skill level across identified occupations (not weighted for occupation size)



Figure 11 – The education requirements profile (top) and skill requirements profile (bottom) of the *Prioritise regenerative resources* circular element, comparing Victoria's current and ideal circular workforce.



Design for the future

Design for the future is one of the enabling elements of the circular economy, including activities that focus on designing circular solutions, accounting for systems thinking, using the right materials and designing for extended use.

These activities can contribute to both circular and non-circular outcomes, but as part of an enabling element they focus on removing barriers for core elements.

Figure 12 shows there are minor differences between the capabilities identified for Victoria's current and ideal circular workforce. The need for a slightly more highly educated workforce is primarily driven by the inclusion of design professionals in the ideal scenario, as detailed in [Appendix B](#).

A similar effect can be seen in the required skill levels in the ideal circular workforce, showing a slightly higher need for advanced skills such as initiative, innovation and learning.

In Victoria's current circular workforce, the occupations present for this element include engineers, draftspeople, and other technical professions. These occupations also appear in the list of the ideal circular workforce.

In general, the similarities between the 2 capability profiles and the occupations listed in [Appendix B](#) indicate Victoria's current circular workforce is well prepared for this element.

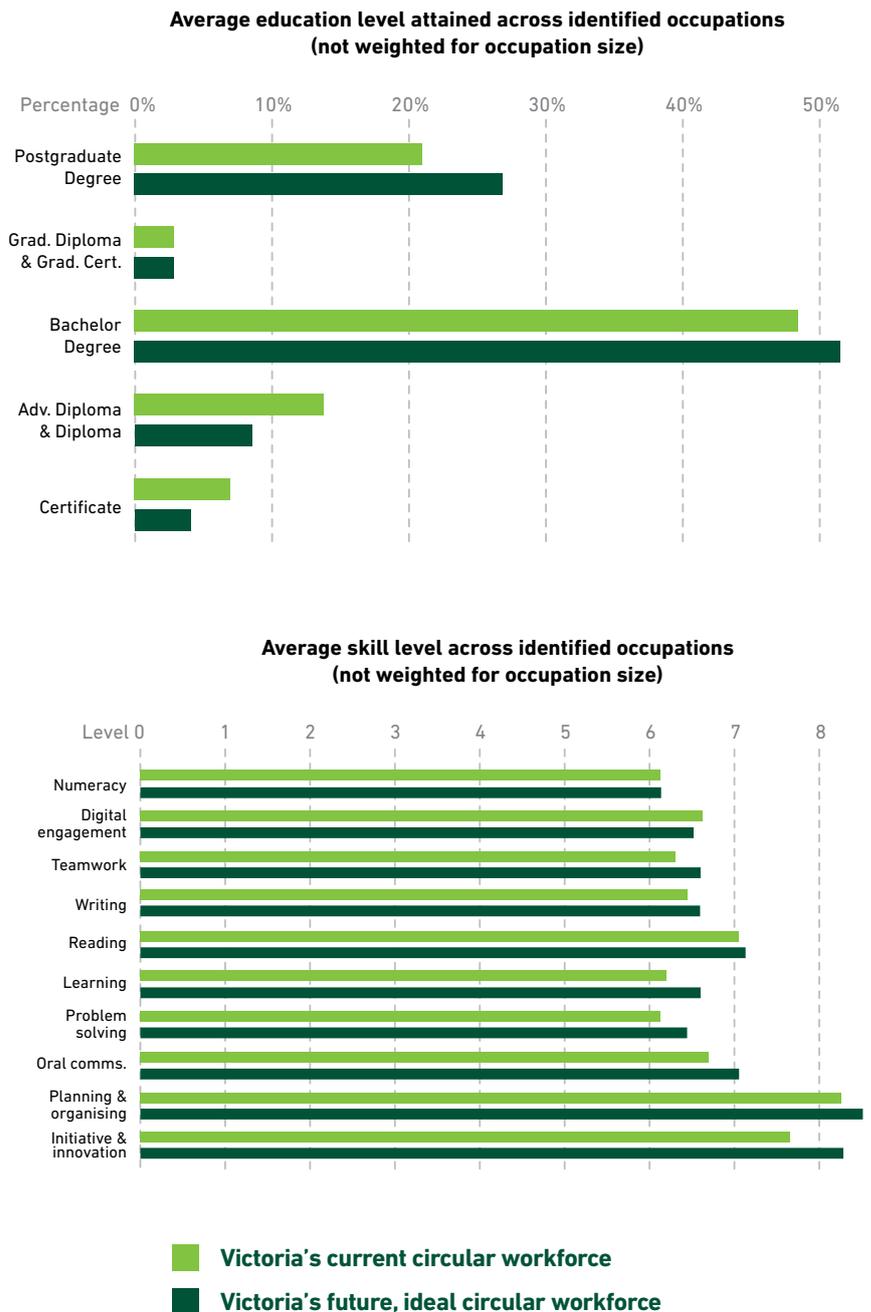


Figure 12 – The education requirements profile (top) and skill requirements profile (bottom) of the *Design for the future* circular element, comparing Victoria's current and ideal circular workforce.



Incorporate digital technology

Incorporate digital technology is another enabling element of the circular economy, focused on activities that improve access to data and transparency of information across supply chains.

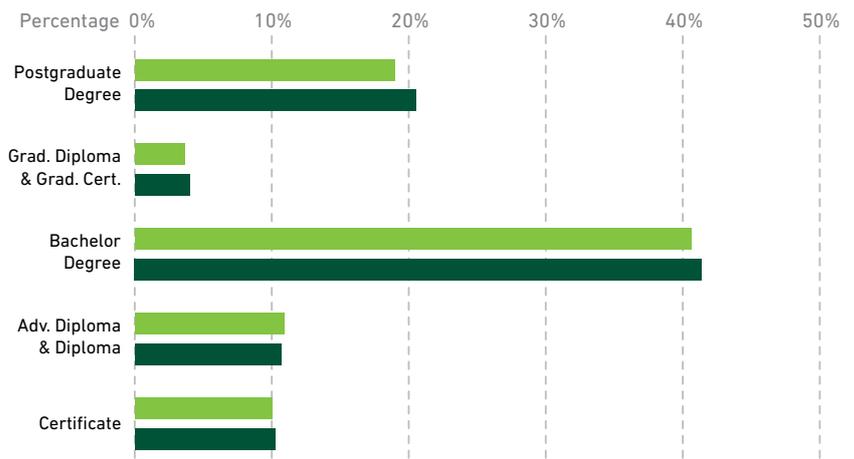
Although not all occupations focused on such activities contribute to circularity, those that do aim to remove barriers for core elements.

As shown in Figure 13, both the education and skill requirements look very similar between Victoria's current and ideal circular workforce. The actual occupations present in both scenarios, shown in [Appendix B](#), are very similar.

ICT professionals and telecommunication technicians dominate the list currently and in the ideal future workforce.

The negligible differences between the requirements of our current and ideal circular workforce are an indication that Victoria is particularly well placed to be effective in this element of the circular economy.

Average education level attained across identified occupations (not weighted for occupation size)



Average skill level across identified occupations (not weighted for occupation size)



Figure 13 – The education requirements profile (top) and skill requirements profile (bottom) of the *Incorporate digital technology* circular element, comparing Victoria's current and ideal circular workforce.



Rethink the business model

Rethink the business model is an enabling element of the circular economy, focused on activities that incentivise the use of alternative business models consistent with circular outcomes. This includes offering solutions as a service model or under a leasing arrangement. As part of an enabling element, not all activities contribute to circularity, but those that do aim to remove barriers for the core elements of the circular economy.

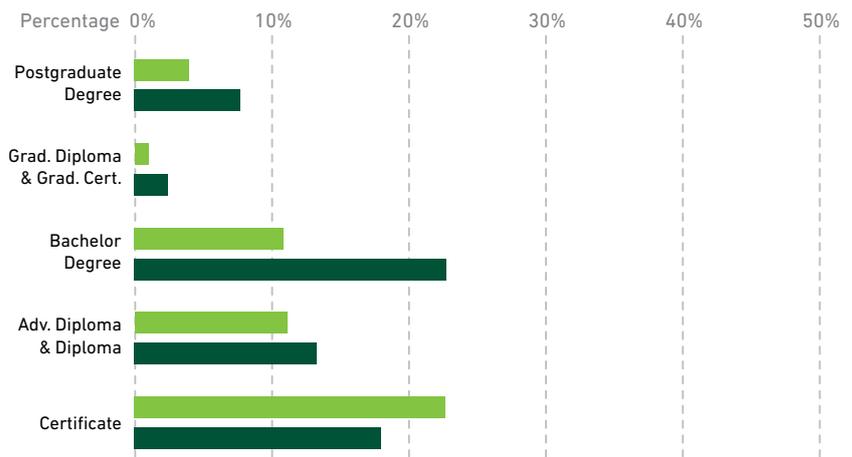
As evident in Figure 14, the difference between capabilities of Victoria's current and ideal circular workforce are quite significant for this element. In particular the skill requirements profile shows a big discrepancy.

Looking at the list of occupations shown in [Appendix B](#), there are obvious similarities between Victoria's current and ideal circular workforce, but the former appears limited to logistics personnel. In an ideal circular workforce, we'd see more administrative staff, supply chain managers and analysts.

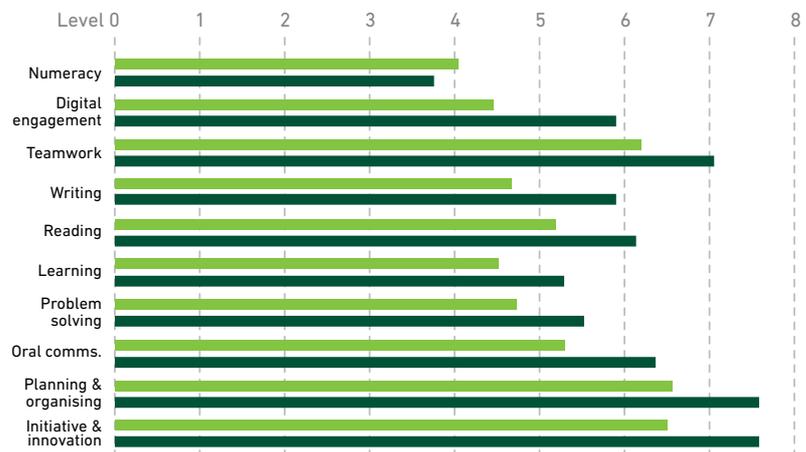
Although most enabling elements are characterised by a requirement for highly educated workers, **Rethink the business model** appears to be an outlier. This can be attributed to the need for a large number of logistics and freight handling personnel, involved in the reverse logistics needed for business models that sell products as a service or subscription.

In conclusion, a more highly educated and skilled workforce is required to be active in this element to make real circular progress. Victoria's current circular workforce is not well prepared to be effective in this part of the circular economy.

Average education level attained across identified occupations (not weighted for occupation size)



Average skill level across identified occupations (not weighted for occupation size)



■ Victoria's current circular workforce
■ Victoria's future, ideal circular workforce

Figure 14 – The education requirements profile (top) and skill requirements profile (bottom) of the Rethink the business model circular element, comparing Victoria's current and ideal circular workforce.



Collaborate for joint value

Collaborate for joint value is an enabling element of the circular economy, including activities that foster collaboration and increase transparency across supply chains. Again, not all activity in enabling sectors contributes to circularity, but when it does it focuses on removing barriers for the core elements.

Figure 15 shows a clear difference in education and skill requirements between Victoria's current and ideal circular workforce. There is a clear need for a more highly educated and skilled workforce to be active in this element of the circular economy.

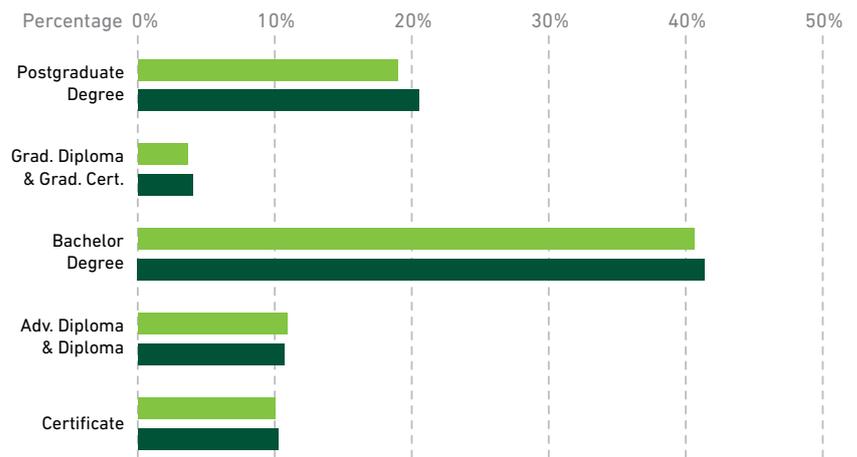
This element stands out because of the types of occupations that should be active in this space. In all other elements of the circular economy, Victoria's current circular workforce shows some commonality with the ideal circular workforce. Here, that is not the case, as shown in Appendix B.

In Victoria's current circular workforce, the list does not appear to match stereotypical activity for this element. For example, the list includes taxation inspectors, immigration officers and crossing supervisors. These are all occupations that appear to have little to do with fostering collaboration across supply chains.

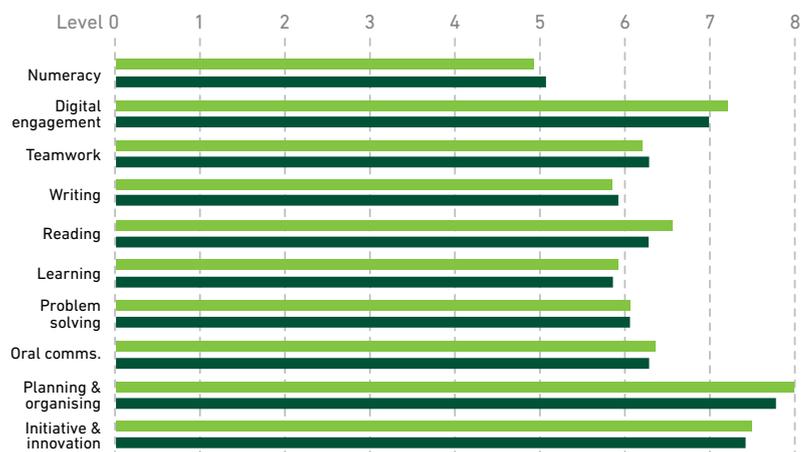
In contrast, the list of ideal circular occupations includes human resource staff, liaison and counselling professionals, as well as procurement specialists. This gap between the current and ideal circular workforce can be attributed to the methodology used to identify typical occupations in our current circular economy.

These occupations are found based on their prevalence in their respective elements. When Victoria's current workforce is not active in an element at all, this method identifies occupations that might be prevalent but not necessarily effective in driving circular progress. In conclusion, Victoria's current circular workforce is not prepared to be effective in this element of the circular economy.

Average education level attained across identified occupations (not weighted for occupation size)



Average skill level across identified occupations (not weighted for occupation size)



■ Victoria's current circular workforce
■ Victoria's future, ideal circular workforce

Figure 15 – The education requirements profile (top) and skill requirements profile (bottom) of the Collaborate for joint value circular element, comparing Victoria's current and ideal circular workforce.



Strengthen and advance knowledge

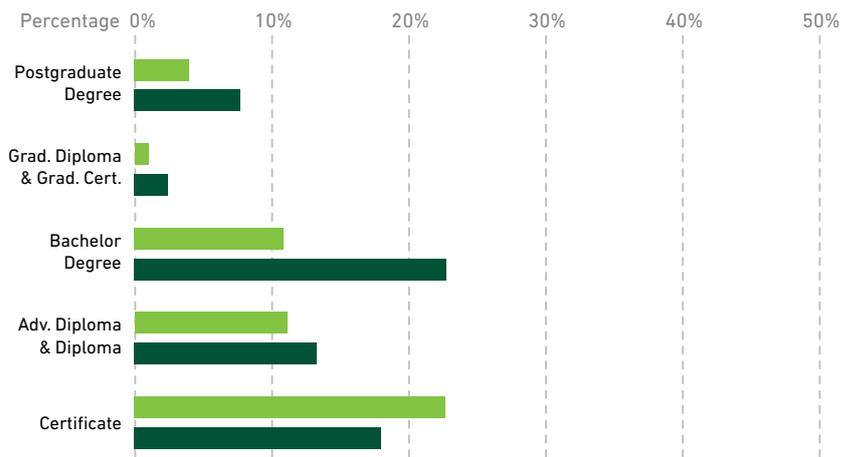
Strengthen and advance knowledge is the final enabling element of the circular economy, including activities focused on developing and sharing knowledge about circularity. This naturally includes education, but also research, tutoring and media activities. As with all enabling elements, these activities do not always contribute to circularity, but when they do they focus on removing barriers for the core elements.

Figure 16 shows the gap in capabilities between Victoria’s current circular workforce and what is required from an ideal circular workforce is quite small. There is a minor need for more highly educated and skilled occupations, which can be explained by looking at the list of occupations in [Appendix B](#).

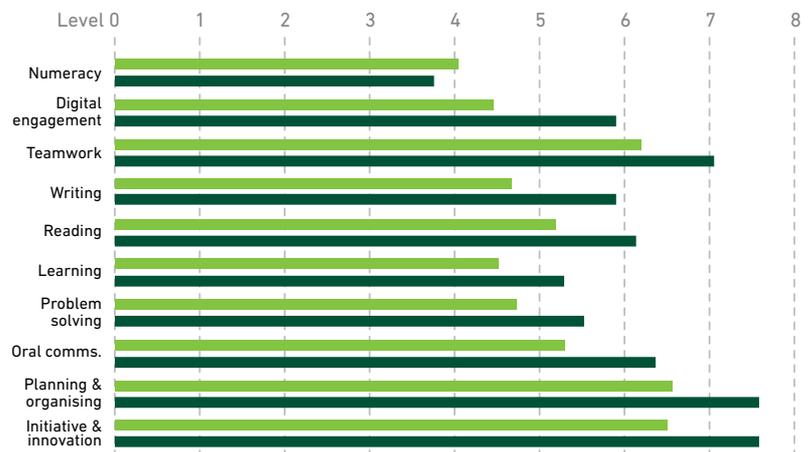
This shows that although Victoria’s current and ideal circular workforce have many listed occupations in common, we currently lack some of the research service professionals captured in the ideal circular workforce.

However, the strong similarities between both profiles as well as the list of identified occupations indicates that Victoria’s current workforce is well positioned to engage effectively in this element of the circular economy.

Average education level attained across identified occupations (not weighted for occupation size)



Average skill level across identified occupations (not weighted for occupation size)



■ Victoria's current circular workforce
■ Victoria's future, ideal circular workforce

Figure 16 – The education requirements profile (top) and skill requirements profile (bottom) of the *Strengthen and advance knowledge* circular element, comparing Victoria’s current and ideal circular workforce.

Circular jobs do not replace other jobs

The comparison between Victoria’s current and ideal circular workforce demonstrates that the capability requirements are driven by the occupations themselves. Any desired changes in education and skill levels should be pursued by incentivising the right occupations to become active in the right circular elements, as shown in the lists in [Appendix B](#).

This is an important distinction because it indicates that a simple education or skills improvement program for each element is unlikely to result in the desired outcome. Instead, the capability profiles should be used as a tool to track workforce changes over time.

As the occupations active in each of the circular elements change, progress towards an effective circular workforce can be tracked by measuring how closely it resembles the capability profiles of the ideal circular workforce.

This also implies that circular jobs do not necessarily compete with jobs in the rest of the economy. There is no evidence in this analysis that suggests that individual occupations will change or disappear. Instead, existing occupations might need to become active in different parts of the economy, to ensure they contribute to circular outcomes.

This is especially true for the enabling elements of the circular economy, as they can contribute to circularity as easily as they can contribute to non-circular solutions. For example, an architect could design a circular building or a non-circular building, an educator could teach about circular solutions or non-circular solutions, and a truck driver could transport circular materials or non-circular materials.

The objective is for existing occupations to work on circular solutions, instead of being replaced by new, circular jobs.

Circularity unlocks significant economic benefits

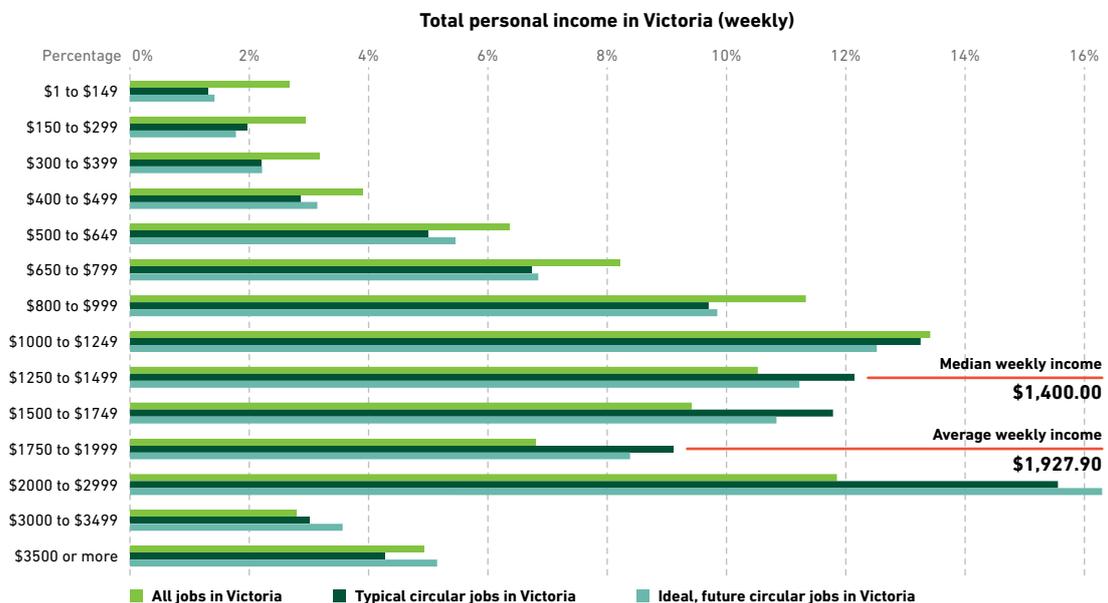
The analysis described in this work makes use of publicly available data from the Australian Census and uses standard industry and occupational classifications. One benefit of this methodology is that other data from the Census can be used to generate additional insights.

For example, Census data includes information about income. With all current typical and future, ideal circular occupations identified, they can be matched with income data to see how they compare to other jobs in Victoria.

As shown in Figure 17, current circular jobs already attract a higher average income than other jobs. And future, ideal circular occupations have an even larger presence in the higher income brackets.

This indicates that the circular transition could result in productivity gains for Victoria. Also shown in Figure 17 are the median and average incomes across all Victorian occupations, highlighting high salaries of many circular jobs.

Figure 17 – Distribution of total personal income (weekly) across Victoria’s total economy, compared to the circular economy.



Circular jobs have room to grow

As discussed in the chapter *From framework to workforce insights*, the accurate quantification of circular jobs in the Victorian economy requires macroeconomic analysis that was out-of-scope for this work. However, a rough quantification is still possible, as long as occupations active in enabling circular sectors are properly flagged as 'potentially' contributing to circular outcomes.

In effect, this provides insight into the circular potential of Victoria's workforce, rather than an accurate quantification of circular jobs. Figure 18 provides an overview of this assessment, for all Australian states and territories.

Looking at Figure 18, it's clear there is plenty of room for circular occupations to grow. In Victoria, just under 3% of occupations are circular, with a further 19% potentially doing circular work.

With 79% of all occupations not contributing to circular outcomes, there is plenty of opportunity for new circular sectors to develop and for existing sectors to shift their focus to circular solutions. This is another indication that the circular transition could result in significant productivity gains.

The differences between the individual states and territories shown in Figure 18 are primarily caused by the types of occupations active in those states.

For example, the ACT shows up as having a disproportionately large group of potentially circular occupations due to the large number of government personnel employed in this area.

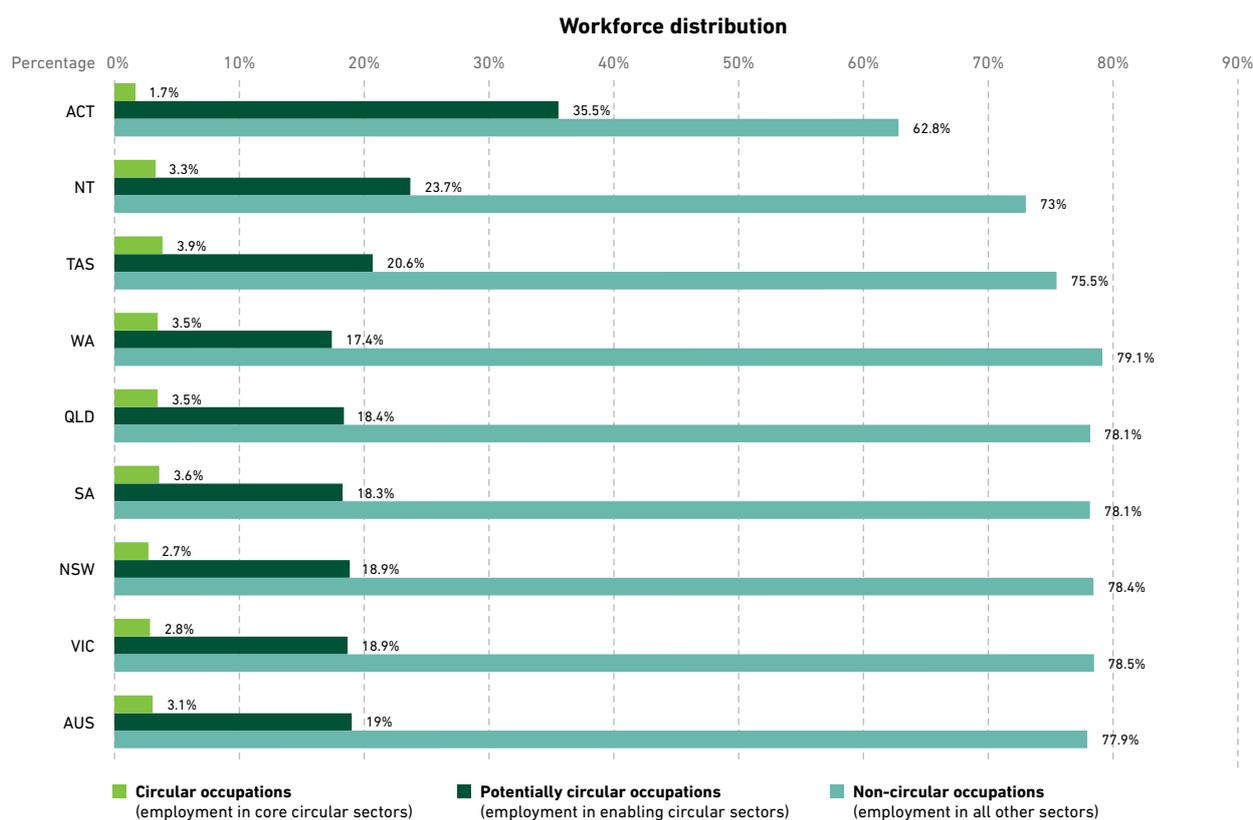


Figure 18 – Overview of how the workforce is distributed across circular and non-circular sectors, for all states and territories.



Conclusions

A circular economy can unlock *significant* benefits, economically as well as environmentally.

However, Victoria's transition to a circular economy is still in its infancy and progress will require deliberate action.

The work described in this report contributes to the evidence base required to make informed decisions about circular workforce initiatives.



How this work can be used

The main challenge in supporting a circular workforce lies in the wide variety of work that takes place in a circular economy. To support action, **Circular Jobs and Skills: Planning for our Future** provides a holistic framework that captures and categorises the areas of our economy that will contribute most to circular outcomes.

Effectively a translation of Circle Economy's Key Elements Framework into the Australian context, this framework can be used as the basis for all circular economy initiatives. The distinction between core and enabling elements offers a clear delineation between foundational and supporting circular activities, each requiring distinct workforce approaches. Core elements generally provide opportunities for a lower-skilled workforce, with less emphasis on highly educated occupations.

As employment within core elements can be considered entirely circular, the provided capability profiles can be used to identify gaps and develop initiatives that target specific skills in core parts of the circular economy.

Victoria's current workforce is shown to be less prepared for **Using waste as a resource** and **Prioritising regenerative resources**, pointing at a clear starting point for circular workforce initiatives. As an example, the latter circular element currently employs a workforce that is significantly overqualified.

The data shows a strong need for more vocationally trained infrastructure installation personnel and activity in regenerative agricultural practices. Initiatives targeting these parts of the economy are likely to have a big impact.

Enabling elements generally rely on a more highly educated workforce. Victoria's current workforce is well prepared for most of these enabling elements. As these elements can also contribute to non-circular outcomes, the capability profiles will be less useful for identifying gaps for intervention. Rather, they can be used as a tool to track the effectiveness of circular workforce initiatives.

The success of such initiatives can be measured by monitoring how workforce capabilities change to match the identified profiles of an ideal circular workforce. For example, the **Collaborate for joint value** element has a strong mismatch between its current and ideal circular workforce, pointing at the need to build this part of Victoria's circular economy from the ground up.

Although specific interventions might vary, the data offers a starting point for occupations to consider, as well as a capability profile to work towards. This framing will simplify future circular workforce initiatives in a space that is new and not yet well-understood.

The primary objective of this work is to support initiatives under the 10-year CEWDS, and in particular those aimed at the circular economy pillar. Through methods such as those described above, this work can support the monitoring of circular workforce information, as well as the identification of alternative pathways for occupational shifts to clean economy roles. At the time of publication, SV is engaging with the Victorian Skills Authority and the Office of TAFE Coordination and Delivery to support their respective initiatives under the CEWDS.

Limitations

As mentioned in the section *From framework to workforce insights*, the outcomes of our work provide a high level, qualitative overview of what is required from Victoria's circular workforce, and is intended as a starting point for more detailed research and policy development.

A limitation of this work is that it does not provide an accurate quantification of the number of circular jobs in the Victorian economy. Although workforce distributions are provided in Figure 18, absolute figures are currently not accurate enough to be used for setting policy or program targets.

This work also does not include data on existing or expected workforce shortages, which should be considered when developing initiatives that push for certain occupations to become active in specific sectors.

A final limitation is that there is currently no holistic data available on the technical skills required in the circular economy. The Australian Skills Classification has been consulted to develop the skill profiles in this report, which is currently limited to generic skills such as numeracy and problem solving. It can be assumed that more detailed technical knowledge and skills will also be required from circular occupations.

This could include capability in systems and design thinking, knowledge about economics and environmental science, or skills in reverse logistics and supply chain management. Developing a comprehensive profile of these more detailed skills will likely require a significant qualitative study, which was considered out of scope for this work.

Future research

Circular Jobs and Skills: Planning for our Future provides an exciting starting point for supporting a workforce that will be capable of engaging with a clean, sustainable, and circular future. The insights discussed in this report are being used to inform several initiatives being implemented under the Circular Economy Workforce Development Strategy, and further research and analysis are currently being explored.

Future research could include a deeper dive into sectors flagged as a priority for the Victorian Government, to better understand where the identified education and skill distributions come from. By limiting the scope to a smaller subset of sectors, a more detailed analysis could consider existing and anticipated workforce shortages, technical skills and knowledge, as well as controlling for occupation size.

This could provide the data needed to identify specific pathways to prepare Victoria's workforce for the circular economy, informing education or transferable skill pathways. The selected priority sectors do not have to be limited to what is described under the ANZSIC classification and could include broader descriptions such as the building and construction industry, or design and manufacturing sectors.



Appendices

Appendix A

ANZSIC sectors contributing to circularity

Table 6 provides an overview of all industry sectors that contribute to the circular economy, using the 4-digit Australian and New Zealand Standard Industrial Classification 2006 rev. 2.0 (ANZSIC).

These sectors have been identified via the appropriate ABS correspondence to translate the ISIC sectors mentioned in the Key Elements Framework to ANZSIC sectors. Additional interpretation was required to correct for correspondence errors.

For example, some sectors exist as separate codes in the ISIC classification but might be aggregated under a single sector in the ANZSIC classification, and vice versa.

To retain consistency with the intent of the Key Elements Framework certain ANZSIC sectors have been included or excluded based on SV's internal expertise in the circular economy. Note that 'n.e.c.' stands for 'not elsewhere classified', capturing certain sub-sectors.

Table 6 – Industry sectors contributing to a circular economy, classified according to 4-digit ANZSIC codes.

Key element	ANZSIC code	Sector name
Stretch the lifespan	2391	Shipbuilding and repair services
	2392	Boatbuilding and repair services
	2393	Railway rolling stock manufacturing and repair services
	2394	Aircraft manufacturing and repair services
	2399	Other transport equipment manufacturing n.e.c.
	3504	Motor vehicle new parts wholesaling
	3505	Motor vehicle dismantling and used parts wholesaling
	3921	Motor vehicle parts retailing
	3922	Tyre retailing
	9411	Automotive electrical services
	9412	Automotive body, paint and interior repair
	9419	Other automotive repair and maintenance
	9421	Domestic appliance repair and maintenance
	9422	Electronic (except domestic appliance) and precision equipment repair
	9429	Other machinery and equipment repair and maintenance
	9491	Clothing and footwear repair
	9499	Other repair and maintenance n.e.c.
Use waste as a resource	1831	Fertiliser manufacturing
	2811	Water supply
	2812	Sewerage and drainage services
	2911	Solid waste collection services
	2919	Other waste collection services
	2921	Waste treatment and disposal services
	2922	Waste remediation and materials recovery services
3212	Site preparation services	

Appendix A

Table 6 continued – Industry sectors contributing to a circular economy, classified according to 4-digit ANZSIC codes.

Key element	ANZSIC code	Sector name
Prioritise regenerative resources	2612	Hydro-electricity generation
	2619	Other electricity generation
	2620	Electricity transmission
	2630	Electricity distribution
Design for the future	6921	Architectural services
	6922	Surveying and mapping services
	6923	Engineering design and engineering consulting services
	6924	Other specialised design services
	6999	Other professional, scientific and technical services n.e.c.
Incorporate digital technology	5420	Software publishing
	5910	Internet service providers and web search portals
	5921	Data processing and web hosting services
	5922	Electronic information storage services
	5801	Wired telecommunications network operation
	5802	Other telecommunications network operation
	5809	Other telecommunications services
Rethink the business model	4610	Road freight transport
	4710	Rail freight transport
	4810	Water freight transport
	5211	Stevedoring services
	5212	Port and water transport terminal operations
	5219	Other water transport support services
	5220	Airport operations and other air transport support services
	5291	Customs agency services
	5292	Freight forwarding services
	5299	Other transport support services n.e.c.
	6611	Passenger car rental and hiring
	6619	Other motor vehicle and transport equipment rental and hiring
	6620	Farm animal and bloodstock leasing
	6631	Heavy machinery and scaffolding rental and hiring
	6632	Video and other electronic media rental and hiring
6639	Other goods and equipment rental and hiring n.e.c.	
9531	Laundry and dry-cleaning services	

Appendix A

Table 6 continued – Industry sectors contributing to a circular economy, classified according to 4-digit ANZSIC codes.

Key element	ANZSIC code	Sector name
Collaborate to create joint value	7211	Employment placement and recruitment services
	7510	Central government administration
	7520	State government administration
	7530	Local government administration
	7720	Regulatory services
	8710	Child care services
	8790	Other social assistance services
	9551	Business and professional association services
	9552	Labour association services
Strengthen and advance knowledge	1611	Printing
	1612	Printing support services
	5411	Newspaper publishing
	5412	Magazine and other periodical publishing
	5413	Book publishing
	5414	Directory and mailing list publishing
	5419	Other publishing (except software, music and internet)
	5700	Internet publishing and broadcasting
	6910	Scientific research services
	6940	Advertising services
	6950	Market research and statistical services
	8022	Secondary education
	8023	Combined primary and secondary education
	8024	Special school education
	8101	Technical and vocational education and training
	8102	Higher education
	8211	Sports and physical recreation instruction
	8212	Arts education
	8219	Adult, community and other education n.e.c.
	8220	Educational support services

Appendix B

Typical and ideal occupations driving circularity

This section identifies both the typical occupations currently driving circular activity in Victoria and the ideal occupations that could support a more advanced circular economy in the future.

Current typical occupations have been identified using a measure of occupational intensity, which assesses the proportion of each occupation's presence within a specific circular economy element.

To ensure meaningful results, occupations representing less than 0.01% of Victoria's total workforce were excluded. This avoids overemphasising niche roles with minimal overall impact.

The selected occupations are those that:

- Appear with a significantly higher intensity in a given circular element compared to the rest of the economy (greater than 10 times higher), and
- Represent more than 10% of the occupations within their broader sub-major group (2-digit ANZSCO codes).

Ideal occupations have been identified through a review of the academic and grey literature^{22,23,24}. Several studies were analysed to compile a set of occupations that are frequently cited as central to the development of a future circular economy.

Tables 7 to 14 present both sets of occupations – those typical of Victoria's current circular economy, and those considered ideal for a future circular economy.

Please note the use of 'n.e.c.' (not elsewhere classified), which refers to sub-sectors not otherwise categorised, and 'n.f.d.' (not further defined), which refers to occupational specialisations without a more specific classification.

Table 7 – Typical and ideal occupations that drive circular activity for the *Stretch the lifespan* element.

Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Stretch the lifespan	<ul style="list-style-type: none"> • Aeronautical Engineer • Automotive Electrician • Motor Mechanic (General) • Diesel Motor Mechanic • Motorcycle Mechanic • Small Engine Mechanic • Metal Fitters and Machinists n.e.c. • Locksmith • Panel beater • Vehicle Body Builder • Vehicle Painter • Airconditioning and Refrigeration Mechanic • Business Machine Mechanic • Dressmaker or Tailor • Boat Builder and Repairer • Sales Representative (Motor Vehicle Parts and Accessories) • Motor Vehicle Parts Interpreter • Materials Recycler • Car Detailer 	<ul style="list-style-type: none"> • Electrician (General) • Electrician (Special Class) • Automotive Electrician • Canvas Goods Fabricator • Shoemaker • Sail Maker • Leather Good Maker • Upholsterer • Watch and Clock Maker and Repairer • Musical Instrument Maker or Repairer • Precision Instrument Maker and Repairer • Saw Doctor • Aircraft Maintenance Engineer (Mechanical) • Motor Mechanic (General) • Diesel Motor Mechanic • Motorcycle Mechanic • Small Engine Mechanic • Airconditioning and Mechanical Services Plumber • Roof Plumber • Plumber (General)

Appendix B

Table 7 continued – Typical and ideal occupations that drive circular activity for the *Stretch the lifespan* element.

Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Stretch the lifespan	<ul style="list-style-type: none"> • Motor Vehicle Parts and Accessories Fitter (General) • Autoglazier • Tyre Fitter • Bicycle Mechanic • Mechanic's Assistant 	<ul style="list-style-type: none"> • Motor Vehicle Parts and Accessories Fitter (General) • Painter • Industrial Spraypainter • Home Improvement Installer • Fencer • Panelbeater • Vehicle Body Builder and Trimmer • Vehicle Painter • Lift Mechanic • Airconditioning and Refrigeration Mechanic • Business Machine Mechanic • Dressmaker or Tailor • Boat Builder and Repairer • Commercial Cleaner • Motor Vehicle Parts Interpreter

Table 8 – Typical and ideal occupations that drive circular activity for the *Use waste as a resource* element.

Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Use waste as a resource	<ul style="list-style-type: none"> • Chemical Engineer • Environmental Engineer • Meter Reader • Materials Recycler • Machine Operators n.e.c. • Waste Water or Water Plant Operator • Earthmoving Plant Operator (General) • Excavator Operator • Grader Operator • Loader Operator • Truck Driver (General) • Drainage, Sewerage and Stormwater Labourer • Earthmoving Labourer • Recycling Worker • Recycling or Rubbish Collector 	<ul style="list-style-type: none"> • Stationary Plant Operators n.e.c. • Science Technicians n.e.c. • Meter Reader • Materials Recycler • Plastics Technician • Waste Water or Water Plant Operator • Concrete Products Machine Operators • Clay, Concrete, Glass and Stone Processing Machine Operators n.e.c. • Cement Production Plant Operator • Concrete Batching Plant Operator • Stock Clerk • Drainage, Sewerage and Stormwater Labourer • Warehouse Administrator • Weighbridge Operator • Building and Plumbing Labourers n.f.d. • Product Assembler • Product Examiner • Cleaners n.e.c. • Recycling Worker • Recycling or Rubbish Collector

Appendix B

Table 9 – Typical and ideal occupations that drive circular activity for the *Prioritise regenerative resources* element.

Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Prioritise regenerative resources	<ul style="list-style-type: none"> • Other Spatial Scientist • Electrical Engineer • Electrical Engineering Draftsperson • Electrical Engineering Technician • Maintenance Planner • Metal Fitters and Machinists n.e.c. • Precision Instrument Maker and Repairer • Electrical Linesworker • Power Generation Plant Operator • Technicians and Trades Workers n.e.c. • Call or Contact Centre Team Leader • Meter Reader • Telemarketer • Electrical or Telecommunications Trades Assistant 	<ul style="list-style-type: none"> • Crane, Hoist or Lift Operator • Building Associate • Building Inspector • Electrical Distribution Trades Workers n.f.d. • Agricultural Technician • Electrical Linesworker • Power Generation Plant Operator • Technicians and Trades Workers n.e.c. • Electrical or Telecommunications Trades Assistant

Table 10 – Typical and ideal occupations that drive circular activity for the *Design for the future* element.

Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Design for the future	<ul style="list-style-type: none"> • Engineering Manager • Migration Agent • Architect • Landscape Architect • Surveyor • Fashion Designer • Graphic Designer • Interior Designer • Urban and Regional Planner • Civil Engineer • Geotechnical Engineer • Quantity Surveyor • Structural Engineer • Transport Engineer • Electrical Engineer • Mechanical Engineer • Environmental Engineer • Engineering Professionals n.e.c. • Environmental Consultant • Environmental Research Scientist • Interpreter • Translator 	<ul style="list-style-type: none"> • Research and Development Manager • Industrial Designer • Architect • Landscape Architect • Fashion Designer • Fashion, Industrial and Jewellery Designers n.f.d. • Interior Designer • Urban and Regional Planner • Civil Engineer • Electrical Engineer • Mechanical Engineer • Environmental Engineer • Interior Decorator

Appendix B

Table 10 continued – Typical and ideal occupations that drive circular activity for the *Design for the future* element.

Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Design for the future	<ul style="list-style-type: none"> • Architectural Draftsperson • Building Inspector • Civil Engineering Draftsperson • Electrical Engineering Draftsperson • Mechanical Engineering Draftsperson • Signwriter • Interior Decorator 	

Table 11 – Typical and ideal occupations that drive circular activity for the *Incorporate digital technology* element.

Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Incorporate digital technology	<ul style="list-style-type: none"> • ICT Project Manager • ICT Account Manager • ICT Business Development Manager • ICT Sales Representative • Multimedia Specialist • Software & Applications Programmers n.e.c. • ICT Security Specialist • Network Administrator • Network Analyst • Telecommunications Engineer • Telecommunications Network Engineer • Cabler (Data and Telecommunications) • Telecommunications Technician • Radio Dispatcher • ICT Sales Assistant 	<ul style="list-style-type: none"> • ICT Project Manager • ICT Account Manager • ICT Business Development Manager • Chief Information Officer • ICT Manager n.e.c. • Hardware Technician • ICT Support Technicians n.e.c. • Telecommunications Linesworker / Line Mechanic • Electronics Engineer • Engineering Technologist • Data Analyst • Cabler (Data and Telecommunications) • Telecommunications Technician • Telecommunications Trades Workers n.f.d. • Data Scientist

Table 12 – Typical and ideal occupations that drive circular activity for the *Rethink the business model* element.

Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Rethink the business model	<ul style="list-style-type: none"> • Supply and Distribution Manager • Transport Company Manager • Equipment Hire Manager • Air Traffic Controller • Despatching and Receiving Clerk • Import-Export Clerk • Motor Vehicle Licence Examiner • Rental Salesperson • Aircraft Baggage Handler and Airline Ground Crew • Mobile Plant Operators n.e.c. • Taxi Driver 	<ul style="list-style-type: none"> • Supply and Distribution Manager • Transport Company Manager • Equipment Hire Manager • Sales Assistants and Salespersons n.e.c. • Cash Van Salesperson • Door-to-door Salesperson • Street Vendor • Other Sales Support Workers n.e.c. • Communications Operator • Rental Salesperson • Transport and Despatch Clerks n.f.d.

Appendix B

Table 12 continued – Typical and ideal occupations that drive circular activity for the *Rethink the business model* element.

Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Rethink the business model	<ul style="list-style-type: none"> • Truck Driver (General) • Furniture Removalist • Tanker Driver • Tow Truck Driver • Laundry Worker (General) • Drycleaner • Carpet Cleaner • Freight Handler (Rail or Road) • Waterside Worker 	<ul style="list-style-type: none"> • Information Officer • Clerical and Office Support Workers n.e.c. • Clerical and Administrative Workers n.e.c. • Technicians and Trades Workers n.e.c. • Agricultural Goods Logistics Manager • Supply Chain Analyst • Management and Organisation Analysts n.f.d.

Table 13 – Typical and ideal occupations that drive circular activity for the *Collaborate to create joint value* element.

Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Collaborate for joint value	<ul style="list-style-type: none"> • Workplace Relations Adviser • Electorate Officer • Family Day Care Worker • Immigration Officer • Social Security Assessor • Taxation Inspector • Crossing Supervisor 	<ul style="list-style-type: none"> • Workplace Relations Adviser • Purchasing officer • Human Resource Adviser • Recruitment Consultant • Careers Counsellor • Copywriter • Liaison Officer • Public Relations Professional • Human Resource Manager • Marketing Specialist • Digital Marketing Analyst • Conservation Officer • Environmental Consultant • Environmental Research Scientist • Environmental Scientists n.e.c. • Other Sports Official • Sports Umpire • Sports Coaches, Instructors and Officials n.f.d. • Lifeguard • Inspectors and Regulatory Officers n.e.c. • Security Officers and Guards n.e.c. • Procurement Manager • Procurement Specialist

Appendix B

Table 14 – Typical and ideal occupations that drive circular activity for the *Strengthen and advance knowledge* element.

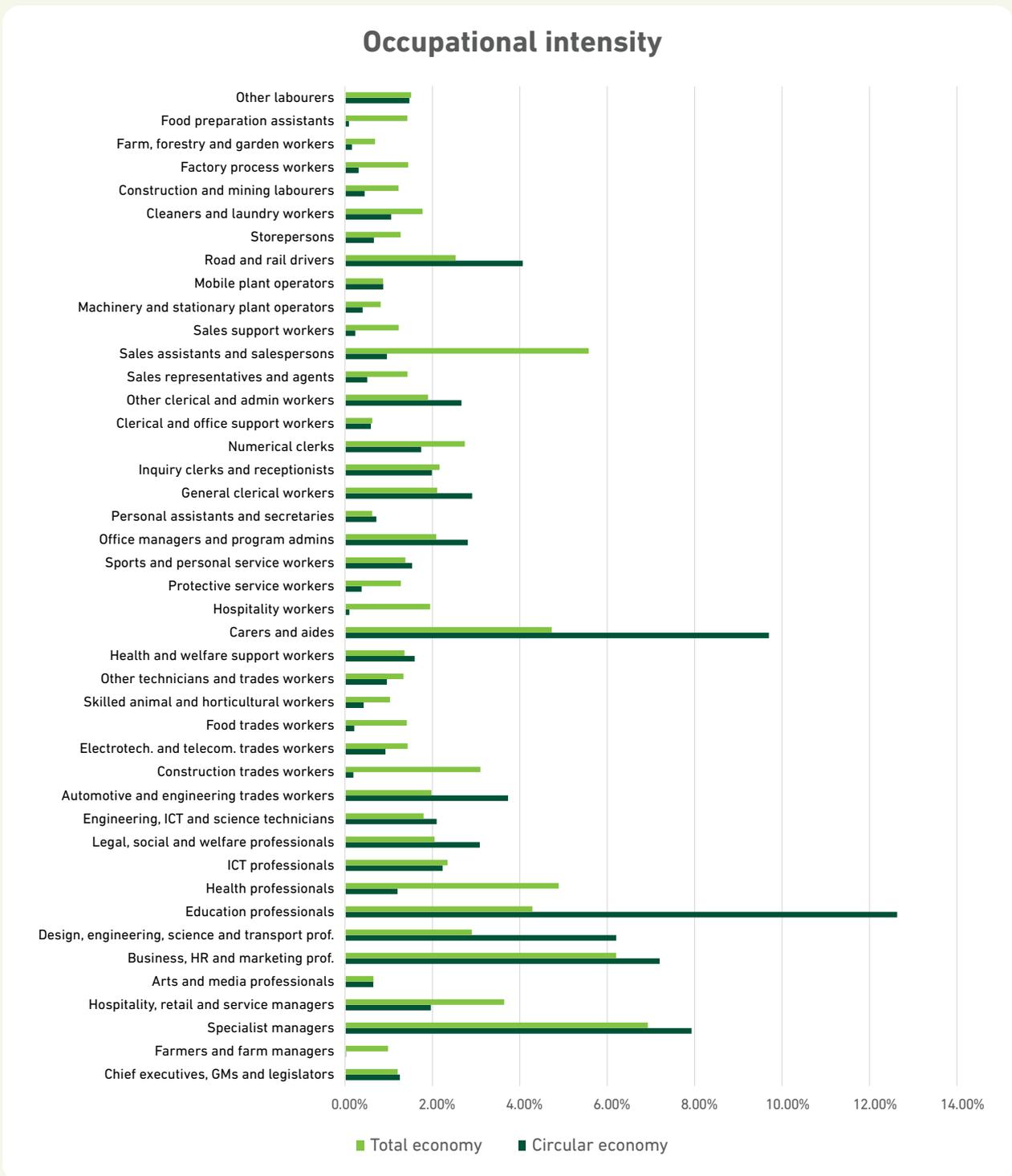
Key element	Typical occupations in Victoria's current circular economy	Ideal occupations in Victoria's future circular economy
Strengthen and advance knowledge	<ul style="list-style-type: none"> • Faculty Head • Secondary School Teacher • Special Needs Teacher • University Lecturer • University Tutor • Vocational Education Teacher • Dance Teacher (Private Tuition) • Music Teacher (Private Tuition) • Private Tutors and Teachers n.e.c. • Teacher of English to Speakers of Other Languages • School Laboratory Technician • Print Finisher • Driving Instructor • Tennis Coach • Survey Interviewer 	<ul style="list-style-type: none"> • Faculty Head • Secondary School Teacher • Education Adviser • University Lecturer • University Tutor • Vocational Education Teacher • Education Reviewer • Education Manager n.e.c. • Private Tutors and Teachers n.e.c. • Regional Education Manager • Training and Development Professional • Printing Table Worker • Printers n.f.d. • Print Finisher • Journalists and Other Writers n.f.d. • Statistician • Statistical Clerk • Market Research Analyst • Research and Development Manager • Data Analyst • Data Scientist • Other Education Managers n.f.d.

Appendix C

Occupational intensity

Figure 19 provides a visual overview of the occupational intensity calculated for all occupations, aggregated to 2-digit ANZSCO codes. The comparison between the Victorian total and circular economy offers an at-a-glance indication of what occupational groups are currently most relevant for circularity.

Figure 19 – Occupational intensity comparison of ANZSIC sub-major groups.



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