

The South Australian Bike Economy



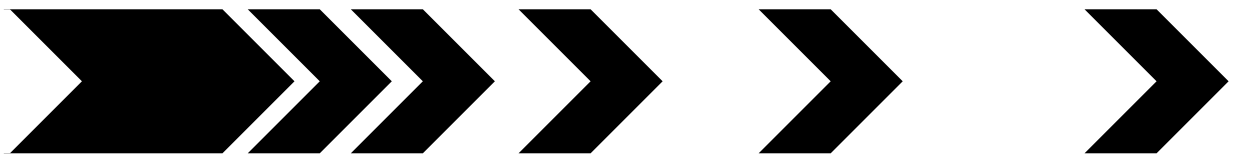


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Preface



“We are still underestimating the potential of cycling on growth, innovation and competitiveness” Violeta Bulc, EU Commissioner for Mobility and Transport

The South Australian Bike Economy report has been prepared for the Department of State Development.

In 2015, a two-day workshop ‘Create SA’s Future’, organised by Josie Gibson, co-founder of The Catalyst Network, explored potential drivers for South Australia’s economic growth. One idea that emerged was that SA had a range of assets around cycling that might form the basis of a ‘bike economy’.

This led to some informal conversations with those in the cycling sector around SA’s bike related assets. There are far more than was expected. There is also a growing base of bike entrepreneurs, operating largely under the radar, even in isolation of each other.

At the same time a range of factors is sparking a global cycling boom. As cities continue to grow they are making cycling central to mobility and so are investing in high quality bike infrastructure. More people are attracted to cycling for environmental and health reasons, and because in many cities it can be the fastest travel option.

Bikes are also inspiring innovation. There are many ways to create value around bikes – through components, accessories and experiences. Innovation is being driven by passionate cyclists who identify gaps and opportunities in the market. New materials, technology and production processes – as well as a growing range of accessories, infrastructure, smart applications and e-bikes - are opening up opportunities for bike entrepreneurs.

Adelaide and SA has powerful bike related assets. Events, trails, and an engaged community are key. Policies around climate change, tourism, regional development and being ‘smart’ provide the context and drivers for innovation.

But these assets need to be better connected if the state is to realise its potential as a centre for the bike economy.

This report broadly outlines the factors for growth. It makes the case that the bike economy is a serious area of economic opportunity and can be a smart specialisation for the state with economic, social and environmental benefits.

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About the Author

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Executive Summary



A global cycling boom is underway. This is leading to high growth around the sales of bikes, bike accessories and bike experiences.

“Renowned for its wine-country biking routes, as well as its more strenuous cycling trails, South Australia may be due for an update from its old nickname ‘The Festival State’ to a more active moniker such as ‘The Free-Wheeling State’ or the ‘The Cyclists’ State’. Angela Smith, Roy Morgan Research

SA is well positioned to benefit from the global cycling boom. The key assets to build on include:

- **The SA Tour Down Under is the first event each year on the UCI world cycling calendar. All up more than 795,000 people attend stages of the race. It contributed more than \$49m to the state economy in 2016.¹ It’s considered one of the top bike business events in Australia, with major brands meeting at the TDU Village.**
- **Adelaide is the home of Cycling Australia’s High Performance Unit that trains cyclists for the Olympics and other world titles.²**
- **SA has 5 of the top 9 cycling destinations for cycle tourists in Australia, according to a 2015 Roy Morgan survey.³**
- **Melrose is the location for two of the top mountain biking events in Australia⁴. The Mt Lofty Ranges is being developed as an international mountain bike destination.⁵**
- **Attendance and participation in a wide range of cycling events across the state – from the Tour Down Under, Bike SA events, to the Pedal Prix - indicate that the SA community is engaged in cycling.**
- **The city is flat, surrounded by hills, close to the sea and to wine and food regions, providing varied terrains for cycling and making it one of the best cycling cities for road and mountain cycling in Australia.**
- **A growing base of bike entrepreneurs creating bike components, accessories and experiences here.**

These assets form the basis of a comparative advantage that could be leveraged to grow the SA bike economy. But the fragmented SA bike ecosystem needs to be connected and supported by a vision for growth.

The growth of cycling is a long-term trend. Future focused cities are making cycling key to mobility. New materials, technology and production processes are stimulating innovation. E-bikes are a game changer. The industry is changing rapidly and accessible to new entrants.

Bike design attracts creative people across all sectors - designers, artists, makers, scientists, planners, and engineers. They are a great catalyst for cross-sector innovation, as much about design and story telling as they are about engineering and science.

SA is already innovating around bikes. Local companies Finch Composites and EcoCaddy have collaborated with universities to refine their products. The University of Adelaide helped develop the ‘world’s most aerodynamic’ bike helmet for a Swiss company that debuted at the Tour de France⁶.

Local company Hey Reflect'o helped a local printing company to adopt a new printing technique for its distinctive fluro printed bike jackets.

One area of opportunity is around product, brand design and development. A number of local entrepreneurs are already in this space. The focus is high value bike components, bike accessories infrastructure are important elements of a smart city. They can be developed and made in SA.

Many are finding ways to reinvent bikes and their components – not all involve technology. The strength of market demand was demonstrated by Melbourne-based company Knog which raised more than \$1million in March, 2016 through a crowd funding campaign to produce a new bike bell 'Oi!'.⁷ The bell is not high tech. Its attraction is its design and sound quality. Darren Baum, in Geelong, produces custom-made bikes for a global market that are high value and highly prized. The bikes are hand-made and draw on sophisticated design and engineering developed through university partnerships.

The bike commuter is a growing market. Levi's is developing smart commuter clothing for cyclists in partnership with Google.⁸

Cities that made cars are making bikes. As an example, Detroit is developing as a bike-making city, its new bike brands leveraging its manufacturing talent. Shinola leverages the Detroit brand to sell its high-value products.⁹ Detroit Bikes is now assembling New York's shared Citi Bikes.¹⁰ And car-makers are making bikes. As one example, Ford is pivoting toward 'mobility', designing smart bikes that integrate with Ford cars.

Adelaide and SA has the knowledge and talent base to develop great bike products for global markets. The \$15.5m spent locally on bike imports creates an opportunity to develop products for the local market. SA companies are producing bike frames, wheels, bike accessories and components. Some are collaborating with universities. But the sector lacks the co-ordination and support that might help it build competitiveness and industry identity.

Another area of opportunity is bike-related experiences. SA is already a bike tourism destination. But international competition is raising the bar on what tourists expect. This year New Zealand started a campaign to attract bike tourists from Australia. Its research has told it that bike tourists are a high spending, high value market. If it is to compete, SA needs to understand what a 21st century bike tourism experience looks like. Some aspects need to be consistent at a state level. This means state level buy-in. Local regions need to create distinctive experiences. But done well it can attract bike tourists to 'out of the way' places across the state, as well as key tourism regions.

SA is developing as a mountain biking destination. Plans for Mount Lofty as an international mountain bike destination are well underway. Melrose is already known as an 'Over the Edge' destination.

The state can attract road racers, mountain bike enthusiasts and tourists who cycle –but these groups have different interests and expectations.

Adelaide aims to be the world's first carbon neutral city.¹¹ Cities around the world face the same challenges as car-dependent Adelaide. Adelaide has recently expressed an ambition to be the top cycling city in Australia, investing \$12m in protected bike lanes.¹² Adelaide can learn from cities such as Calgary and its quick build protected bike lanes that have had a huge take up by cyclists. Smart bikes, new forms of personal transport and smart infrastructure may be key. Adelaide can be a test bed for experimentation while also growing its entrepreneurial base.

The bike economy connects state priorities in tourism to regional development and health. The bike economy fits the Adelaide and SA culture and benefits from our creative strengths. The bike economy can be a 'smart specialisation' for the state.

So what could the next steps be.....?

Growing the SA Bike Economy

What could the ambition be? Some ideas

Make SA the home of both the high performance cyclists' program and state of the art cycling research, innovation and production

Aim for the bike economy to be a \$1b industry for SA within 5 years encompassing events, design, production, tourism and retail

Create (cool) bike products here, a 'Made in Adelaide' brand. Make cycle commuting alluring with safe and smart infrastructure

Make SA the best place to be a bike tourist with great information, trails and services

Start with a bike economy summit.....

A summit and expo can showcase the sector to itself and explore opportunities for industry development. Aim to be open and inclusive of all and draw in the wider ecosystem.

Longer term the bike economy may develop as an industry cluster/ smart specialisation along with the university and research sectors. Flanders in Belgium has created 'Bike Valley' to connect its bike ecosystem.

Then create a bike experimentation and innovation program.....

For Adelaide to be a carbon neutral city it needs a radical shift toward cycling and walking. What might entice people to take up cycling? Great design? Smart bikes and smart infrastructure? The opportunity to try out e-bikes? How could these be designed and made here?

A bike innovation program could focus on collaboration – across business, universities and sectors. Bike freight for last mile delivery could reduce trucks and vans in the city. Initiatives to go 'problem-seeking' with local cyclists can spur ideas to make their cycling experience better. Students across the three universities could collaborate on grand challenges – such as radical uptake of cycling in car dominated cities.

At the same time commit to state of the art bike tourism.....

Europe and New Zealand are models to learn from. State of the art bike tourism involves high quality information, great facilities and bike friendly businesses. Draw on the knowledge of passionate cyclists to help make SA a world-class bike tourism destination. Recognise that bike tourists, mountain bikers and road racers have different priorities. Explore the potential for shared e-bike schemes to enhance local bike tourism

SA in Numbers

GLOBAL

25%
on
2012

\$65B
Bike Sales
by 2019

60%
on
2015

\$24.3B
E-Bike Sales
by 2025

OECD Estimate
Cyclists have
Health Benefits of
€1343pa

700
Cities with
Bike Share
Schemes

AUSTRALIA

\$254M
Benefit
from Bike
Events &
Tourist

10,000
Jobs in Retail
& Sales

5.3%
growth pa
to 2021

\$1B Sales
of Bike Goods
& Services

\$144.3M
Health & Congestion
Benefits from Commuter
Cycling (2008)

More than 2.9M
Visitors to Australia
Cycled in 2014

25% increase
in numbers of
Tourists that
Cycled between
2009 - 2014

38%
More Bikes
Sold pa than
Cars

\$61.9M
Saved for Workplaces
Because Cyclists Take
1 Less Sick Day a Year

SOUTH AUSTRALIA

120+
Bike Related
Businesses

\$49.6M
Tour Down Under
Added to Economy
In 2016

613 full time
Jobs Supported by
Tour Down Under
In 2016

5 of top 9
Bike Tourism
Destinations
In Australia

35,000
Travel to SA for
Tour Down Under

\$2.1M pa
Economic Benefit to
Melrose from Mountain
Bike Tourism

63% of
Executives Surveyed
Think Cycling Culture
Important for
Attracting Employees

7.1%
share of
National
Retail

795,000
Attend Stages of
Tour Down Under

\$12M
Benefit from Mt Lofty
Ranges Mountain Biking

35,000
Attend Final of
The Pedal Prix

400+
Jobs in Bike Retail

The SA Scene

South Australia has bike related strengths that encompass the global, national, state and local. They could, in combination, form the basis of a comparative advantage.

But the state's range of 'bike economy assets' are rarely considered in the round. The focus has not yet been on potential economic benefits.



The SA Bike Economy – a snapshot



Economic regions look to develop their comparative advantages. The Adelaide and SA bike ecosystem has strong elements but it's fragmented.

Policy . The State Strategic Plan commits SA to double cycling in a typical week to 600,000 by 2020. Adelaide aims to be the first Carbon Neutral City by 2020. Adelaide is a Cisco Lighthouse city.

Infrastructure. Cycling infrastructure includes the extensive network of cycle trails and parks. The Adelaide Super-Drome is the home of Cycling SA and Cycling Australia's high performance cycling program. SA is home to the fastest growing trail building company in Australia.

Bike Enterprise. An increasing number of SA businesses are making bikes and bike components or accessories including frame makers, specialist wheels, bike suspension and bike assemblers, lights and clothing. There are bike hire services, bike tourism operators, distributors. Many enterprises are relatively young and under the radar – even to each other.

Bike Retail and Repair. There are around 80 bike retailers and repair services in SA. Most cycle shops offer repair but there are also specialist repair services for carbon fibre bikes and others.

Professional Services. Some planning and health professionals specialise in the cycling sector.

Skills and Education. Cycling Australia's High Performance Unit for elite track, road, BMX and para-cycling, trains cyclists for the Olympics and other world titles. Specialist courses in engineering, automotive, materials, industrial and graphic design, technology and electronics are relevant. Adelaide hosts the annual Australian Walking and Cycling Conference. Community based initiatives include the Adelaide Bike Kitchen.

Tourism and Events. The Tour Down Under is the first event on the UCI World Tour road cycling calendar. A 2015 Roy Morgan Survey found that SA had 5 of the top 9 cycling tourism destinations in Australia. Melrose mountain biking events are rated amongst the best in the country. The Mt Lofty Ranges is being developed as an international mountain biking destination. Tourism SA aims to enhance SA as the cycling state. Bike SA manages a wide range of cycling events with more than 60,000 participants each year.

Innovation and Research. All three local universities are working with bike related innovation. A bike helmet, developed at the University of Adelaide for a Swiss Company, will debut at the 2016 Tour de France. A new bike wheel was developed by Finch Composites with support from Flinders University. EcoCaddy is aiming to create 'cargo bike 3.0' here.

An Engaged Community. More than 795,000 people attend Tour Down Under races, 39,000 people visit from interstate or overseas, 6600 participate in the BUPA Challenge¹³. 500 teams compete in the Pedal Prix. 35,000 spectators watch the final at Murray Bridge. Engaged cyclists are often knowledgeable consumers and may help push innovation.

A Design Ethos. The crafts platform Etsy includes 100 bike related products shipped from Adelaide. Hey Reflect'o brings a design aesthetic to high visibility jackets. Local designers are crafting arts and craft products by upcycling used bike parts.

Environment. Adelaide and SA's natural environment- its climate, parks and landscapes; proximity of hills and sea to the city; wine regions and remote areas; the relatively flat city– are an important part of the bike ecosystem

The Bike Economy Ecosystem



Bike production, accessories and services are at the centre of the bike ecosystem.

'...employment growth [in SA] is occurring in generally small and very specialised of adaptive firms flying below the usual analytical radar and servicing other growth sectors...'

South Australian Centre for Economic Studies, 2015

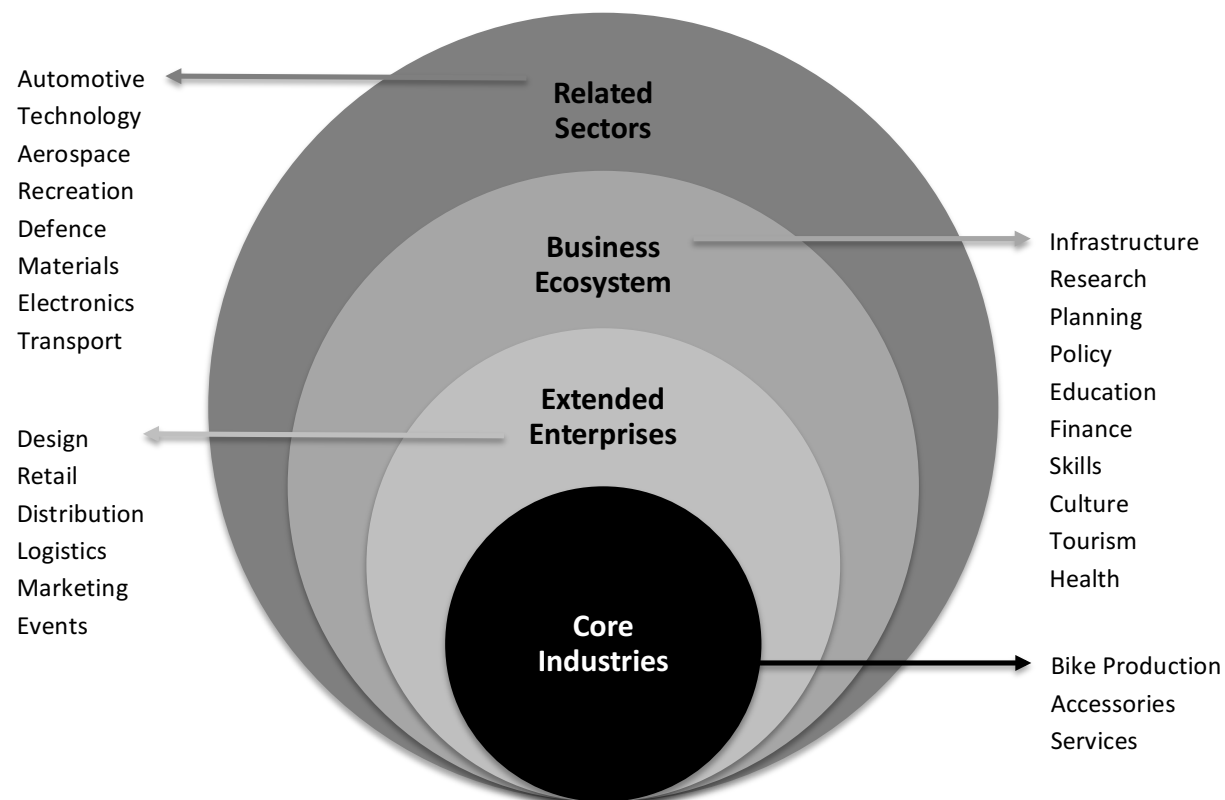
Core Industries. At the core of the bike sector is bike design and making; bike accessories design and making; and bike services including tourism.

Just as with other sectors the greatest value associated with a product can be at the input stage – design and branding - and at the end of the process in marketing.

Extended Enterprises. These are the enterprises that are directly connected to bikes, accessories and services, supply to the sector or help the core products and services enter the market. They include design, marketing, logistics, events, distribution and the retail sector.

Business Ecosystem. This represents the business and policy context and extended connections. A flourishing innovation ecosystem will have great connections between enterprises and specialist research and knowledge. There will be effective education and skills systems. For bikes the tourism sector has particular significance. Knowing the market is important. Infrastructure and connectivity may provide an advantage.

Related Sectors. Cross sectoral connections are increasingly where innovation happens. High value bike companies actively connect with experts in the automotive, defence, aerospace and materials sectors to understand the latest science and innovation. Innovations can flow both ways.



The Cool Factor



A snapshot of (a few of the) bike related enterprises in SA (see attachment 1 for more).

“Businesses can’t just be one thing. I’ve never done business before but I do know I can’t just be a bike shop. I’ve got to do other things as well to survive, incorporating music, literature, culture and events”

Mel Waters, Honeybee Cycles in The Adelaide Review, May 6, 2015

Hey Reflect’o. Lisa Penney is an Adelaide designer and passionate cyclist. She created the concept for Hey Reflect’o, brightly coloured reflective jackets for bikes, and took it to market over the course of two months. She then spent a year refining the product. Wanting to print directly to fabric she discovered a technique being used in Melbourne and then encouraged a local printer to adopt it. It took the factory 6 months to set up and 6 months to perfect it. Now they are able to apply it to other products. Lisa continues to refine and develop her product so that it’s cost effective for Australian and retailers overseas to stock her jackets.

Astir Frames. Astir Frames hand makes, made-to-measure titanium frames then combines them with off the shelf components, tailored for each bike. Its founder, James Moros, applies engineering skills from his background in the automotive sector. The resulting bikes are elegant, beautiful and robust. As each bike is handmade, volumes are relatively low. He made 32 in 2015. In 2016 he hopes to make between 40-50 and has the capacity to build 90 each year¹⁴. Each bike sells for between \$5000 and \$10,000. He is now working on an electric model.

Bouwmeester Composites. Mello Bouwmeester the CEO of Bouwmeester Composites exports around 50% of his high performance carbon fibre wheels for off-road racing bikes. His company was established in 2014 with wheels now made in Australia after manufacturing them overseas. Like others in South Australia, he designs and manufactures locally because he wants to control quality and protect his intellectual property.

“Manufacturing in SA allows for us to speed up our R&D cycle and also maintain strict quality control practices”¹⁵

Finch Composites. Ben Tripodi, of Finch Composites, worked with materials and engineering experts at Flinders University to simulate the performance of carbon wheels equipped with disc brakes and create a robust wheel frame that doesn’t wear down.

“Our target market really is professionals like lawyers and accountants who like to ride on the weekend but have the money to spend and demand the highest quality and professional racers. We believe the majority of them we can sell in Australia, however we do really want to target the American market.”¹⁶

EcoCaddy. EcoCaddy has been operating 7 electric-assisted pedicabs in the city for the last 18 months. The founder Daniels Langeberg worked with a local engineer and designer to develop a robust electric bike, which he sourced in China. These bikes have now travelled over 26,000 kms and the team can see how they need to be improved to better withstand the day-to-day tasks of a taxi service. Langeberg wants to develop the next generation of cargo bike – Cargo Bike 3.0 – here in Adelaide. He then hopes to scale up to other Australian cities and springboard into the huge growth markets of south-east Asia and Africa. He is also looking to offer zero emissions deliveries and has made a series

of upgrades to better accommodate passengers and cargo simultaneously. Cargo bikes will be key elements in a smart city and can integrate with other elements in the city's mobility system.

Treadly. Treadly is a bike restoration and retail store specialising in urban commuter bikes and accessories. Sam, the owner, has a background in architecture and urban design. His focus is creating a community around the bike shop – cycling is his passion too. He organises the annual Boucle de Burbs a leisurely bike 'race' through suburban Adelaide where people compete to find hidden treasures. He also organises a 'camp out' ride to Mannum. During the 2016 Tour Down Under he arranged 'Maker' at Ebenezer Place to showcase Australian made bikes. He is developing a new tourism service around shared foldable bikes.

Honeybee. Honeybee bike shop started at Port Adelaide, but is moving closer to the city. It 'focuses on accessories and bikes likely to inspire people to ride, like practical shopping baskets or bright and fun frames with colourful pedals or funky handmade tape.'¹⁷ It also offers bike repairs. The aim is also to create a community around bikes, combining the bike shop with a pop-up cinema or community bike rides.

Over the Edge. Melrose, in the Southern Flinders ranges, has a population of 500. And while other towns in regional South Australia are struggling, Melrose has new businesses, new houses and thousands of tourists and visitors. The reason is that it has become a mountain biking destination, part of the international 'Over the Edge' group. Melrose holds two mountain bike events each year that attract thousands of visitors to the town – the Fat Tyre Festival (June) and the 6/18 Hours in Melrose (September).

"I think it's now a \$2 million annual industry for this community and I think that's being conservative"

¹⁸ Richard Bruce, Over the Edge

Scott Cadence Plus. The University of Adelaide [recently announced](#) that they have come up with the most aerodynamic road cycling helmet on the market. The Scott Cadence Plus has been designed in partnership with the Swiss sports company Scott Sports. The helmet has been tested by professional cyclists from the Orica GreenEdge team. It reduces drag, it has good cooling properties and helps teams to be much faster in sprints. It was expected that a number of cyclists competing in the Rio Olympics would use the new design.

Trailsclapes. [Trailsclapes](#) is a specialised bike trail design and builder, and the fastest growing trail building company in Australia. They have worked in Australia and overseas and delivered over 170kms of new trail including International Standard Mountain Bike Parks, Competition and Recreational Mountain Bike trails, Recreational Walking and Horse-riding trails, BMX, Dirt-jump and Pump tracks, and Shared-Used trails that benefit all kinds of users. In addition, they offer comprehensive trail auditing services including feasibility reports, signage consulting and risk management audits. They've also created and sell a special trail-making tool.

INDIGO. Indigo is a design driven manufacturer of bike lights and accessories. They make bright 1850 Lumen bike lights. Both directors of INDIGO are product designers/cyclists. They offer a Cradle to Grave program for recycling or refreshing their lights with the latest technology.

The Bike Economy as a 'Smart Specialisation'



Economic regions need to play to their strengths. As regions across the world have discovered a 'smart specialisation' strategy can be an effective way to grow a regional economy¹⁹. The aim is to create a virtuous relationship between policy priorities, existing strengths and assets, entrepreneurs and their interests, global trends and opportunities, and knowledge and innovation.

SA can develop a critical mass of firms and expertise that compete globally. A growing base is likely to be magnetic. More will be attracted to create here, stimulated by an engaged group of enthusiasts.

The 'bike economy' is experiencing a wave of growth internationally. As this report describes, this wave of growth is set to continue through the multiple efforts of cities and entrepreneurs.

The Tour Down Under and Cycling Australia's elite training program connect the state to world leading competitors and through them, the best racing bikes and equipment. The TDU is also one of the most significant bike business events annually, attracting the major racing bike brands to the TDU Village.

Stretch goals, such as Adelaide as the world's first carbon neutral city, can help spark innovation. To achieve the goal SA needs a radical shift from carbon intense to carbon neutral transport – most likely walking, cycling and electric vehicles.

Cycling is the most practical in the immediate term. Around 25% of traffic to the city travels less than 5km – where bike travel can be faster. Over 50% travels around 12km where electric bikes could halve travel times to the city. A radical shift to cycling, if aligned to market transformation, can spark bike enterprise. Smart measures around cycling and walking can also grow a healthier population.

A major shift to cycling in Adelaide would change the look and feel of the city. Great bike infrastructure, particularly separated bike lanes, increasingly symbolise a future-thinking city. Data sourced from Strava demonstrates that the most intense cycling routes in Adelaide are those separated from traffic – along the tramline and the Torrens Linear park.

As a designated Cisco Lighthouse city, Adelaide is experimenting with embedded sensors in city infrastructure and everyday objects. This experimental approach could also include smart mobility systems to preference cycling and walking. Bikes offer many opportunities to demonstrate smart city thinking – with smart bikes, technology and accessories.

The SA public sector is well positioned to support innovation and has done so with innovative products such as its 'Cycle Instead Journey Planner'²⁰ and its predictive traffic app AddInsight²¹.

Local entrepreneurs are creating bike products and services that compete with the best in the world. Some are working with local researchers to develop and test their products. There is something about bikes and bike related products and services that engage people across sectors, ages and cultures. Designers, scientists, engineers and artists can be passionate about bikes.

The bike economy connects well to other sector strengths in SA. A number of people in the SA bike sector previously worked in the automotive sector. The 'maker end' of the bike sector relies on engineering, design and production skills. The new Innovyze supported company Titomic has patented processes for additive printing that can 'print' a titanium bike frame in only 20 minutes. A defence company with its research base in Adelaide, has a patented process for creating very light and strong carbon fibre products. Innovations in one sector can add great value to another.

Innovations often occurs across boundaries and disciplines. There are areas of joint interest between aerospace (aerodynamics and materials), automotive (design and processing) and defence sectors (materials and innovation) with the bike sector. But connections are unlikely to happen without some form of 'orchestration' and co-ordination. Hence the importance of government policy and investment.

The city is a platform for innovation. Adelaide developing as an entrepreneurial city and a leading city in Australia for co-working. Its arts, cultural and design sectors are sources of inspiration and innovation.

The 'bike economy' fits the SA and Adelaide culture well. It plays to strengths in arts and design, engineering, manufacturing and tourism. But the sector lacks an industry identity. It needs better co-ordination and information sharing. Many of the local assets are intangible – associated with local culture and passionate individuals. The bike sector is changing rapidly.

Case Study: Flanders 'Bike Valley'

Flanders' Bike Valley ("The Global Cycling Centre") was established in 2013 in Flanders, Belgium as one of the first 'bottom-up' bike clusters. Its founding members were four local SMEs- BioRacer (a cycling clothes manufacturer), Lazer Sport (helmets), Ridley Race Productions, and Voxdale (a specialist in aerodynamics which engineered and designed for Indycar) and Flanders' Drive (a knowledge center for the Automotive Industry).

It brings together actors in the field of bike & cycling science and technologies: public research organisations, private companies, specialized service providers and strategic stakeholders.

Its focus is to build a successful ecosystem to attract and retain companies, stimulate research in bikes & cycling, and boost innovation, economic performance and employment. R & D connects to innovative quick response manufacturing and smart specialisations.

There are 6 major areas of focus: mobility, sports (with the Belgian Cycling Foundation and Belgian Olympic Committee), safety and healthcare, science & technology, industry & government and tourism.

Membership grew to more than 53 within 6 months. There are now 67 members. More than 50% of members are SMEs from a diversity of sectors (not only the cycling sector) like electronics, design, ICT, and healthcare.

Every year there is a 'roadmap' meeting to explore the priorities for the next 3-5 years. The cluster helps the members tackle the challenges they face. Often this is through a semi- open innovation process. The cluster helps co-ordination and communication between members. It facilitates international trade show participation. It organises partner matching events (often together with other clusters/valleys).

It has helped develop a specialist bike wind tunnel. Flanders' Bike Valley is seen as a smart specialisation for the Flemish Region building on the strong Flemish culture for cycling, as early adopters for new cycling technologies and Flemish SMEs as leading innovators in the cycling world.

Link: <http://www.flandersbikevalley.be/about-us/>

The Global Scene

Bikes play into global megatrends. A major factor is urbanisation and the growth of cities. Cities are designing infrastructure to preference cycling. As well as making cycling an easier choice, it's also opening opportunities for smart infrastructure and new professional jobs associated with cycling.

SA could benefit from these changes and capture more of the economic opportunities from these global trends.



Bikes Play into Global Megatrends



Global megatrends are creating new markets, platforms and business models for bike-related goods, services and experiences.

Urbanisation and Congestion. By 2050, 9 billion people will live on the planet. 70% will live in cities. The world is urbanising at the rate of a city the size of greater Adelaide every week. Cities contribute 70% of world GDP but also 70% of carbon emissions. Congestion is a huge problem. Urban cycling builds mobility back into the city fabric. Cities are investing in protected bike lanes, cycle superhighways, shared bike schemes and, as they do so, they reap multiple benefits. People that cycle are healthier (cost the health system less), cycling reduces carbon emissions and pollution. Cycling makes cities safer. As more people embrace cycling for recreation, commuting, tourism and sport, the market for bikes, bike accessories and bike related experiences is growing.

Climate Change. Transport is one of the biggest emitters of carbon emissions globally. The EU estimates around 24% of emissions are from transport with 20% from road transport²². In Adelaide 35% of carbon emissions are from transport and of these 91% result from private vehicles, mostly cars. Cities are setting tough targets around climate change. At the same time more individuals want to limit their carbon footprints and use environmentally friendly transport. People are choosing to cycle more and cities are making it easier to make that choice.

Mobility. Cities are moving to 'mobility as a service' (MaaS) where transport is oriented around individual travel preferences and across transport modes. MaaS aims to remove the need for private ownership of cars. Urban cycling is integrated in city mobility systems. Car-makers are responding. Mark Fields, Ford's CEO, is transitioning Ford to 'mobility' as he believes that the company's major rivals in the future will be Google and Apple²³. Ford has designed smart, electric bikes to showcase this commitment. Carmakers developing e-bike prototypes include Audi, Honda, Lexus, Mercedes and Porsche.

Creative Entrepreneurs. As certainty around employment is eroded, and platforms make it easier to do so, more people are drawn to create their own 'passion' driven business. Some passionate cyclists channel their interests in bikes and technology by creating highly engineered or high-tech products. Others focus on the vintage and hand-made. Passionate cyclists are far more likely to cycle on holiday. Enthusiasts participate in group cycling events, wear cycling related clothing and cycle to 'bike + coffee shops' or 'bike + artisan beer' purveyors.

The Makers Movement. Makers are a wide group of people from artists, to skilled trades, to engineers, scientists, inventors and hobbyists. Small manufacturers can now economically create high value and customised products in small batches within cities. This means there are advantages to a close relationship between design and production. The movement embraces technology but also the importance of meaningful work. A key idea is engaging the population to solve the problems of the city itself. The makers movement is rising in prominence in the US where the White House declared a 'National Week of Making' in June 2016.

The E-bike and Smart Technology. Just as electric cars are undergoing a renaissance, so is the electric bike. E-bikes are increasingly smart and designed to be desirable to the urban executive. They are more than machines for mobility. They monitor health. They're designed for safety. The e-bike is fun. Pedelecs at 25km per hour take the range for the 30 minute commute (Marchetti's Constant¹) from 7km to 13km. Bike travel is now a choice for people that lack fitness, a licence, or dislike hills. Europeans bought 1.1 million e-bikes in 2014, a 25% rise in year on year sales. 25% of bikes sold in the Netherlands are now e-bikes. In 2015 sales grew 24% from those in 2014. The global e-bike market is expected to be worth \$24.3 billion by 2024.²⁴

¹ https://en.wikipedia.org/wiki/Marchetti%27s_constant

Cities are Competing to be Great Cycling Cities



The Copenhagenize Index measures bike friendly cities across the world. In 2015 the top city was Copenhagen, followed by Amsterdam, Utrecht, Strasbourg and Eindhoven.

Of the top 20 cities, 17 are in Europe. But surprisingly the top 20 includes Buenos Aires (14), Minneapolis (18) and Montreal (20).

Despite its strength as a cycling city, Copenhagen is ambitious for more. Between 2012 and 2014 the bike share mode jumped from 36% to 45%. From the Danish Royal family and millionaires to students and small children, cycling is popular across all ages and positions.

When people in Copenhagen were asked why they chose to cycle rather than drive or take public transport they answered 'because it's the fastest way of getting around in the city.' In the city centre of Copenhagen 63% of people commute by bike – only 10% use a car.

The city continues to invest in infrastructure from elevated ramps and bike bridges to cycle superhighways. There are plans to synchronise traffic lights around bike travel times, rather than car travel.

A total of 28 cycle superhighways are planned involving a total of 467 kilometres. Eleven of these will be open by 2018.

Seville is well known for increasing the cycling share of transport from 0.2% to 7% in just a few years. Buenos Aires has created 140km of bicycle paths in 3 years, many of the lanes are protected.

By scale of bike share of transport, the top cycling city would be Groningen in the Netherlands where up to 55% of travel is by bike. It's investing in smart infrastructure to increase the share even more. According to a report which examined 700 cities across the world, more than 80 have a bike share of 15% or higher. Almost all these cities are in Europe.

In 2015, the Mayor of Paris announced the intention for Paris to be the best cycling city in the world by 2020. At 17 in the Index, bikes have a modal share of 8% inside the city ring road. With 20,000 bikes, the city has the most shared bikes in the world, outside China. However, Paris lacks great bike infrastructure.

Parisians can get reimbursed for 33% of the cost of an electric bike. The aim is that 15% of Parisians commute by bike by 2020, still far below that of other more bike friendly European cities such as Amsterdam and Copenhagen.

The Index is pessimistic about Australian cities. 'Australian and New Zealand cities, along with most British cities, are the ones not to watch for any reason regarding bicycle urbanism.'

Cities are Making Cycling Central to Mobility



Future thinking cities have low carbon mobility as a key priority. Helsinki aims to eliminate the need to own a car by 2025. Oslo will eliminate fossil fuel cars from the city by 2025. Modern cities are competing with each other to be the best at supporting pedestrians and cyclists.

"Sharing is the new paradigm of urban mobility. Tomorrow, you will judge a city according to what it is adding to sharing. The more that we have people sharing transportation modes, public space, information and new services, the more attractive the city will be." Gilles Vesco

Quick Build Connected Systems of Protected Bike Lanes. The biggest barrier to increasing cycling is how safe people feel when they cycle. The cyclist needs to feel safe, whilst also being kept safe. Systems of protected bike lanes enable this. Under its then Transport Commissioner, Janette Sadik-Khan, New York created a network of protected lanes within 3 years. More recently, the US and Canada are pioneering fast tracked bike lane systems²⁵. Systems mean cyclists can ride a protected route (not just individual streets). Calgary created a network of low cost protected bike lanes in 12 months. It came in \$1.35m under budget. The results were almost immediate. Weekday cyclist counts rose 95% within 3 months. Female riders jumped from 20% to 27%.

Large Scale Bike Sharing Schemes. According to Allianz, over 700 cities across the world offer bike-sharing schemes²⁶. The largest, in Hangzhou, has 78,000 bikes. Paris has 20,000 share bikes. London has 10,000. Smart card enabled, large scale shared bike schemes have become common in major European and US cities over the last 10 years. Schemes continue to evolve. 'Dockless' bike schemes operate in cities like Berlin, where bikes are found by mobile phone. Cities, such as Leicester, are piloting the use of shared electric bike schemes. Bike share schemes benefit the economy of parts of cities that are not connected well to public transport routes, but have a docking station close by²⁷. Bikes used by bike share schemes are now specially designed. They need to be robust and easy to maintain.

Smart Bike Infrastructure. Groningen is creating heated bike lanes. Sensors also prioritise bikes on wet days. Paris aims to prioritise cyclists at all intersections and create 7000 new alternative corner crossings that allow cyclists to turn without waiting for lights to turn green. In Copenhagen, LED lights embedded in the bike path help cyclists time their ride with traffic signals. Signals stay green longer when groups of cyclists approach. Tokyo now offers automated, secure bike storage underground. A smart card system recognises the bike, stores it securely and retrieves it automatically. The Van Gogh Bike Path in Eindhoven is an art and infrastructure project where paint absorbs energy during the day and emits it as light during the night²⁸. As cities take cycling seriously, smart infrastructure is designed around the cyclist.

Bike Superhighways and Autobahns. On bike superhighways and autobahns cyclists don't share the road with cars. Cyclists experience the same safe, smooth, 'interruption free' travel as cars do on highways. The aim is to provide for mass bike travel. The Dutch launched the first cycle 'superhighway' in 2004. The Danes launched a 17km superhighway in 2012. London opened its first separated 'cycle superhighway' in 2016. Copenhagen is planning 28 superhighways from the suburbs to the city all on separated infrastructure. Germany is introducing bike autobahns. Norway is investing \$1b to develop a series of bike superhighways.

Smart Cities and the Internet of Things. According to Cisco, the 'internet of things', is a \$19 trillion economic opportunity. Cities across the world, including Adelaide, are experimenting with intelligent infrastructure and embedded sensors. It is still at an early stage. Apps such as Strava can provide real

time knowledge of bike travel patterns across the city. Smart Bikes will communicate with the objects around them. Some researchers are investigating the potential of 'swarm' technology to enable transport systems to communicate, adjust and avoid collisions.

Sunday Streets. Started in Bogota, as Ciclovía, Sunday Streets opens city streets to cyclists and pedestrians creating safe recreation options for people of all ages. Sunday Streets are now held all over the world. Mexico City closes its eight-lane highway every Sunday. Opening the streets to cyclists invites families into the city, creating opportunities for city retailers, restaurants and coffee shops. An economic impact study of the scheme in San Francisco found that 44% of businesses in the city reported an increase in customer activities and sales.²⁹

Car Free Days. Bogota held the first city-wide car free day in 2000 and it became institutionalised through a public referendum. In March, 2015, Paris was briefly the most polluted city in the world while looking forward to hosting COP 21. Smog obscured even the Eiffel Tower. In September, 2015, the city held its first car free day. Parts of the city were completely given over to pedestrians and cyclists between 11am and 6pm. In other parts of the city, cars were strongly discouraged and confined to travelling up to 20km per hour. The city had a one third reduction in nitrogen oxide that day. One of the consequences appears to have been an outbreak of happiness!³⁰ Now on the first Sunday of the month Paris will hold car-free Sundays, emulating Sunday Streets.³¹

Case Study: Detroit is a bike maker

"We know there's not just history in Detroit, there is a future. It's why we are here. Making an investment in skill, at scale. Creating a community that will thrive through excellence of craft and pride of work. Where we will reclaim the making of things that are made well. And define American luxury through American quality." [Shinola Website](#)

Before the Model T, Henry Ford made his original prototype car using bike wheels and a bike chain. These days Detroit is growing as a bike-making city. In the last few years at least 7 bike makers have set up in Detroit. Workers from the big car-makers are now applying their skills to bikes.

Bike-making has been spurred by young entrepreneurs attracted to the city. These entrepreneurs have benefitted from the presence of equipment, factories and workers skilled in automotive and manufacturing.

Detroit has also become less car dominated since the decline of the city. Group bike rides, such as 'Slow Roll' organised by Detroit Bike City, Inc has built a community for all cyclists. It attracts thousands of cyclists each week for its 'slow cycling' ride around the city.³² Bike riding is affordable. Whilst travel by car has fallen by 20%, travel by bike has increased by 43%.

New companies design and make high value, custom made bikes that retail from \$7000- \$10,000. A well-known example in the US is Shinola, established in 2011. It is based in the former GM Innovation centre. It produces high value watches, classic bikes and leather goods. Its bike frames are made in Wisconsin and assembled in Detroit. Its research showed that people wanted to buy products made locally, and that Detroit was a strong brand.

Bike sharing schemes are growing quickly in the US. The New York Citi Bike scheme is expected to double by 2017. Other city schemes such as Chicago, Washington and San Francisco are expanding and smaller cities are adding bike share programs.

The company responsible for New York Citi Bikes, Motivate, wanted tighter quality control of their bike design and production. Shared bikes need to be built to last despite intense use and extreme weather conditions. The bikes may be ridden by more than 15 different riders in one day.

Custom bike designer, Ben Serotta, examined the wear and tear associated with the shared bikes and developed a shared bike design. The bikes are robust, easily maintained – designed to be fixed on the street.

The company is working with [Detroit Bikes](#), the only large-scale bike maker in the US, founded in 2011. Detroit Bikes' goal has been to leverage Detroit's manufacturing skills, use US Steel and double the number of bikes made in the US (from 50,000). Detroit Bikes makes bike frames and assembles bikes from sourced components. It has the capability to make 100 bikes a day. In addition to making its own branded bike, Detroit Bikes is assembling the Citi Bikes.

The brand association with Detroit makes a difference. The shared bikes built in Detroit are more popular with users in New York – and tend to be chosen over the older Citi Bikes.

Reference: <http://fortune.com/2014/10/09/detroit-bicycle-manufacturing/>

Reference: <http://www.fastcoexist.com/3059319/the-countrys-largest-bike-share-operator-is-now-making-its-bikes-in-detroit>



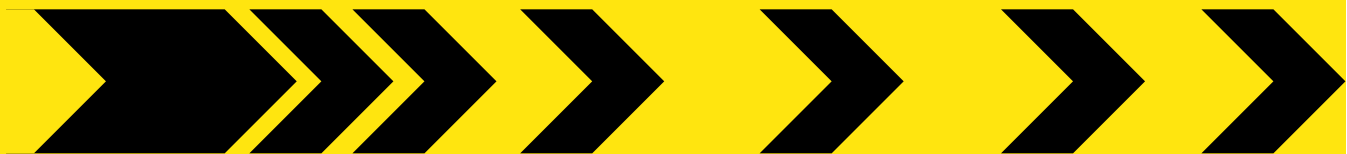
Design and Innovation

There is a blossoming of innovation around bikes, bike components and services. There is something about bikes that attracts people across sectors – from artists and designers to scientists and engineers. They appeal to back-yard hobbyists and big business.

Bikes are attracting the attention of major car-makers like Ford as well as micro entrepreneurs. E-bikes and smart bikes are likely to be a game changer. They are beginning to find their market as people discover how fun the new generation of e-bikes are to ride.

Around the blossoming of bikes and cycling are emerging products for the passionate cyclists. From smart tech to furniture that doubles as bike storage to jewellery and clothing. Bikes are inspiring a wide range of creative people.

Smart SA entrepreneurs can find a niche in this sector. What would it take increase their number by a factor of ten?



Bikes Inspire Creativity and Innovation



Bikes attract artists and designers and scientists and engineers. A huge amount of innovation and research is going into bikes, bike accessories and bike infrastructure.

"Bicycles are amazing because they are one of those things that every designer would like to have a go at designing, a bit like chairs or corkscrews. They're one of those things which is apparently perfect but always being refined and improved and tweaked. They are of course beautiful objects, they're also about ways of life." London Design Museum Director Deyan Sudjic³³

"A little over a century ago the US patent office estimated that around two thirds of patent applications were cycling related. While that figure is not quite so high bikes continue to inspire inventors in a way few other devices do" GizMag, 2015³⁴

"Designing a Cervelo takes a whole team of engineers, from materials specialists and designers to production engineers and aerodynamicists" Wall Street Journal, 21 Aug 2014

"I can't afford the nicest car or the nicest house says 51-year-old Ted Perry of Dublin, California. But he is willing to splurge \$21,500 on a custom built bike from Baum of Australia" Wall Street Journal, 21 Aug 2014

Bikes inspire designers. They also inspire scientists and engineers. They can also be highly engineered, involve sophisticated materials and production techniques. Advances in processes like 3D printing, electric bikes, aerodynamic design, integration of sensors and technology are stimulating innovation in bikes and bike components. High value bikes can also be the handmade and made to measure. There are markets for classic bikes just as there are markets for classic cars.

In 1999, renowned Australian designer Marc Newson designed a bike for Danish bike company Biomega which aims to design the 'perfect urban bicycle'.³⁵ He created a futuristic commuter bike. Beatrice Santiccioli, then Apple's colour expert, selected the original colours for Biomega's bicycle collection.

It's hard to imagine that the humble bike bell might inspire designers. But in March, 2016 Australian company Knog raised more than \$1million via 20,000 supporters through a Kickstarter campaign to create Oi! The bike bell is designed to integrate with the aesthetics of a high value bike.

In Australia, Darren Baum has created a global brand in Baum Cycles out of Geelong. His story is not just about the bike itself. Baum has created a very strong brand identity. He has worked closely with local universities to develop and refine his designs.

As people move to the inner city they live in smaller spaces. Storing a valuable and loved bike can present a challenge. Companies are now creating furniture where every piece doubles as a bike stand.

Bike related design encompasses fashion, jewellery, furniture, bags, sculpture and art. More than 100 items related to bikes – from clothes to stationery to jewellery – are created in Adelaide and sold through the crafts platform Etsy.

BuckiTBelts, created in Adelaide, upcycles used bike tyres as watch bands, belts and wallets. Scott Maney Metalworks upcycles bikes and bike components into arts, sculptures and functional objects.

Bike Trends

E-Bikes. Electric bikes are the smartphone of the transport network. They're developing fast. They're fun to ride. They take out the pain of cycling, while offering independence, convenience and health benefits. As design and function gel and as city infrastructure improves, they will be increasingly desirable objects. As a bike-riding nation, the Dutch are early adopters. Sales there grew 24% in 2015.

Wearables and Commuter Clothing. There are well over 70 types of wearables currently available for cycling. From smart watches and fitness trackers, to smart glasses, helmets and clothing. Some alert cyclists to hazards or encroaching vehicles. Some signal other road users, making cyclists more visible. Levi's has a line in commuter clothing for urban cyclists. It has now teamed up with Google to develop a jacket for the 'urban commuter'³⁶.

Bike Apps, Tech and Platforms. Wayfinding and fitness apps include Strava and Naviki. Smart apps help the smartphone control the bike. Ford's Mode:Link app adjusts Ford's e-bike's power in line with the rider's fitness goals. Apps unlock e-bikes and make sure they are secure. They track bikes if they are stolen. Austin Bike Police are trialling electronic monitors that sit on the bike handlebar and monitor when cars come within one metre of the bike. Australian start-up CycleLifeHQ is creating a global platform for bike tourism.

Materials and Making. Tannus, a small company in Taiwan with a background in shoe manufacturing, has developed technology to solve the problems of punctures in tyres, with a new 'solid' material made up of many small 'bubbles'. Mokomuku in Amsterdam is prototyping the development of a bike using automotive methods, using robots. Local company Titomic recently demonstrated its patented additive manufacturing process using titanium powder, by printing a titanium bike frame in only 20 minutes. Bikes are being developed using bamboo, grown into the shape of a frame, that are extremely strong, light and cheap. There are almost endless opportunities to innovate around the bike using advanced engineering, materials and technology.

Case Study: Knog and Oi

[Knog](#), based in Melbourne, makes '...interesting things, mostly for bikes like locks, lights and now bells'. Knog launched in Australia in 2003 as a lighting and cycling accessories brand. With its creative designers and engineers, Knog now exports to 46 countries. For Knog great design only makes up to 10% - 20% of a great brand. The other 80 - 90% is marketing, sales, logistics, shipping, public relations, point of sales, quality assurance and customer service.

In March, 2016 Knog created a [Kickstarter campaign](#) to fund the development of a new bike bell, 'Oi'. The tagline was 'a bike bell that doesn't look like a bike bell.' In less than 24 hours they'd passed their \$20,000 goal with nearly 3000 backers. Two weeks later they'd raised nearly \$500,000. By the end of March they'd raised over \$1million with more than 20,000 backers. The Kickstarter campaign not only financed the project, it gauged and amplified market interest.

Case Study: Baum Cycles

The question comes up from time to time. With a grab-bag of skills that include precision fabrication, low tolerance titanium welding and boutique paint-working – skills valued in industries better funded than cycle craft – why build bikes?

Because we love cycling. Because on a project the size of a bicycle we can exert near absolute control over the finished product, and absolute control means absolute responsibility. What we're talking about here is ownership. Building machines as simple as bikes allows us to take a slightly obsessive level of pride in our craft because their scope is limited enough that it permits aiming for perfection. And even if we don't get there, we kinda like that. From [Baum Cycles Website](#)

Based in Geelong, Darren Baum is an aircraft engineer and a stainless steel TIG welder. As an A-grade rider, an accident sparked his interest in biomechanics and how bike design can be used to increase performance. In the early 1990's he started to build bike frames, using stainless steel. In the late 1990's started to sell them under his own name. He now also makes bikes using carbon fibre and titanium. His team includes external experts in design, branding, materials and engineering. His bikes can sell for over \$20,000 and are sold all over the world. Each bike frame is hand made for the individual customer. He makes over 150 frames a year with a reported eight-month waiting period.

Case Study: The Copenhagen Wheel

[The Copenhagen Wheel](#) is an electric bike wheel developed through a collaboration between MIT and the City of Copenhagen. Adding the wheel to an ordinary bike transforms it into a hybrid e-bike that captures the energy used for cycling and returns it as a power boost when cyclists need it. It includes sensors that monitor pollution, traffic congestion and road conditions in real time. Using a smart phone, cyclists can unlock and lock the bike, change gears and select how much the motor assists them. The wheel's sensing unit captures the effort level and information about its surroundings, including road conditions, carbon monoxide, nitrogen oxide emissions, noise, ambient temperature and relative humidity. Riders can access this data through their phone or on the web and use it to plan healthier bike routes. They can also share the data with friends, or with the city -anonymously if they wish – thereby contributing to a fine-grained database of environmental information. Yet the development of the Copenhagen Wheel as not been smooth sailing and new entrants are also entering this market.³⁷

Case Study: Levi's Smart Commuter Clothing

Levi's has been developing clothing for cycling commuters for some years. It recently collaborated with Google through [Project Jacquard](#), to create new materials that weave touch and gesture interactivity into clothing using standard industrial looms. They aim to create 'connected clothing' that can interact with devices, services and the environment. It allows designers to create new materials and options without having to learn about electronics. The materials can be washed and treated just like other normal fabrics. The first product with Levi's is a commuter 'trucker' jacket that allows cyclists to connect to their mobile or other services whilst riding a bike.

The E-bike is a Game Changer



E-bike makers are aspiring to create a bike that matches the desirability of an iPhone.

“Our goal isn’t to create an affordable bike,” says Brent Meyers, Stromer’s national sales manager. “It’s to redefine what people think is possible in an electric bike.”³⁸

Globally, e-bikes outsell electric cars by a large margin³⁹. E-bikes suit an older population but ‘young urbanites’ are increasingly interested in e-bikes with young professionals setting the trend⁴⁰. Sales of e-bikes benefit from the trend away from car travel because they cost less, don’t require a licence and can use existing bike infrastructure.

In 2016, an estimated 35 million e-bikes will be sold, 85% of these in China. According to Navigant Consulting, global sales of e-bikes are likely to grow by 27%, between 2016 and 2025. In Europe sales of e-bikes are expected to triple by 2023. By 2025 global revenue from e-bike sales is expected to be in the order of \$25B.⁴¹

Between 2013 and 2014 sales of e-bikes in Germany alone rose 17%. In the Netherlands 25% of new bikes sold are e-bikes. These countries are the first movers in a huge potential market. The design and production of e-bikes in Europe is growing. In 2015, imports of e-bikes to Europe grew 50% on 2014 figures.⁴²

The most common reason people in Australia state that they choose to not cycle to work is that the distance is too far⁴³. If an ordinary bike is faster over distances up to 5km, e-bikes extend the acceptable commuting distance, 30 minutes each way, to around 12 or 13km.

If 25% of new bikes sold in Australia were e-bikes more than 250,000 e-bikes would be sold each year.

So far sales in Adelaide are small but growing. Customers include travellers who experience them on holiday in Europe; commuters wanting to cycle without needing to shower at their destination; and commuters happy to pedal to work but wanting assistance on the way home.

[Stromer](#), a Swiss brand, entered the bike market in 2009 and is positioning the e-bike as desirable technology. The brand is now entering the US market. In 2014, Stromer released its ‘connected bike’ – it communicates via a smartphone app and can be issued with commands.

The e-bike will also stimulate new products and services. VanMoof, a Dutch brand, has announced a guarantee against theft⁴⁴. A different Dutch company is creating a solar powered e-bike.⁴⁵ The famous UK folding bike brand Brompton is creating a fold up e-bike.⁴⁶ As more and more electric bikes hit the streets they will stimulate innovation around security, planning, accessories and clothing. E-bikes will increase demand for qualified mechanics and workshops.

E-bikes or Pedelects. Whilst most electric bikes are referred to as e-bikes, 95% of those sold are ‘pedelecs’. These are pedal operated bikes with electric motor support that cuts out when the maximum speed of 25km is reached. Other e-bikes have an electric motor operated by a handlebar throttle.

In 2012, Australia introduced legislation to mirror EU requirements. This means that electric bikes with power up to 250 Watts are classified as bicycles. Those with greater power need to operate as motorbikes, with a licensed driver.

As pedelecs rely on pedalling for the motor to work, they are still a good option for aerobic exercise, even when the rider has a low level of fitness.

One cyclist recently tracked the exercise benefits of using an e-bike compared to his normal road bike for travelling to work⁴⁷. He found that despite the need for less exertion, the e-bike was just as good a source of exercise. A study in Colorado found participants riding e-bikes improved their health and fitness and 'had a blast' doing so.⁴⁸

Rainer Brinkmann, Derby Cycles on E-bikes and Adelaide

The European e-bike maker, Derby Cycles, has its Australian office in Port Adelaide. Last year Rainer Brinkmann, Team Leader, Comfort Bikes for Kalkhoff and Raleigh in Europe spoke at its Derby Cycle show.

"People that already have an e-bike say to their friends, 'Just go ride and have fun!' and then everybody comes back with an 'e-bike face' (a wide smile), and say 'Wow! This is fun.'"

"We call it an e-bike face because every time it's the same. This was how we entered the market. We sent out buses with 15 to 20 e-bikes on every bus with a variety of our models. When a dealer was able to order some bikes, we took the bus to his store and he did an open weekend and we just presented the bikes. We just got the people to ride for even one minute and all the people who went on the bike came back with the e-bike face. Then the key to a sale is already unlocked."⁴⁹

"Adelaide is a very, very spread out city," he said. "You might have to ride five or six kilometres or more to work and back or the same kilometres to the supermarket and back, so in everyday use the e-bike could be a big benefit."

"But I saw that not so many bicycle paths in the city of Adelaide. The city should work on bringing people on the bikes and doing bike lanes beside the streets. The streets are wide enough most of the time."

"I think that the level of acceptance of e-bikes in Australia will be totally different in a very short period of time."⁵⁰

Source: [Bicycling Trade 30 September, 2015](#)

'E-Cargo' Bike Services are Growing in Importance



'Last mile delivery' is an expensive, carbon intense problem for cities. In London more than 60% of delivery vans are only a quarter full. More than 60% of deliveries can't be completed because people aren't home to receive them.

In Australia, Domino's Pizza has introduced a fleet of electric bikes for pizza delivery.⁵¹ Australia Post is reported to be the largest single purchaser of electric bikes in the world.⁵²

Last mile delivery makes up about 28% of total distribution costs. London suffers from poor air quality and its distribution related traffic is expected to rise by 20% in the next 20 years. The government and business are looking for alternatives.

Electric vehicles and delivery consolidation services are one response. In the UK, companies like Gnewt operate electric vehicles and consolidate deliveries on behalf of the major freight companies for that last mile.

Another is to make better use of cargo bikes. In the UK, the government funded an electric cargo bike scheme, Outspoken Delivery, to make its bikes available for shared use outside of normal operating hours, as one of its initiatives to encourage the use of electric bikes⁵³.

A European Research project found that using e-bikes for last mile deliveries could save logistics companies 'huge costs' in almost every case. The trial involved 40 businesses, different industrial sectors, 7 countries and 20 cities. 100% of the companies involved from Sweden, Spain and the Netherlands are continuing the program. Across all countries involved 81% opted to continue.⁵⁴ A key conclusion was that entrepreneurs, stakeholders, policy makers and government should work together from the start to maximise the benefits of using cargo bikes for delivery.

The Bike Economy

Bikes already provide many economic benefits to individual, employers and governments. They improve health and reduce workplace absenteeism. They benefit local economies. They reduce congestion and contribute to low carbon cities. Just on these factors alone it makes sense that cities embrace cycling.

Bikes also create jobs in production, accessories and services. Yet the structure of the bike economy is not yet well understood.



Cycling Offers Many Economic Benefits



Cycling is a ‘win, win, win’ for cities. It benefits city economies, cyclists, businesses and government. It increases health, reduces congestion and supports the environment. It’s often faster to cycle than drive or take public transport to work. Here is a snapshot of the wider benefits.

Cyclists spend more overall at local shops

Cyclists visit local shops more regularly, spending less per visit but more over a month, than users of other modes of transport

Adjacent bike lanes bring economic benefits

New York businesses along cycle routes reported a 49% uplift in sales. Cycling infrastructure also can increase property values for adjacent homes.

Cycling infrastructure generates jobs

A US study found that 11.4 jobs were generated per every \$1m invested in cycling facilities and infrastructure compared to 7.8 for road only investments.

Bike industry is labour intensive

The cycling industry is more labour intense than car manufacturing – with 10 jobs per \$1m turnover for cycling compared to 2.5 jobs per \$1m turnover for cars

Benefits of investing in bike Infrastructure are high

Cycling infrastructure has an average 5:1 benefit to cost ratio.

Carbon emissions

35% of CO2 emissions in the city of Adelaide are caused by transport. 91% by private vehicles.

1.5kg of CO2 equivalent emissions are avoided by urban Australians who cycle 5kms rather than drive a car during rush hours⁵⁵

Shifting 5% of car trips to bike trips would reduce CO2 emissions by 8%

Cyclists have better health

Health costs as a proportion of GDP are expected to double over the next 40 years. The cost of obesity for Australia is estimated at \$13.8B per year.

SA has the highest level of obesity in the nation with more than two thirds of people overweight. This translates to around \$623m per annum up to as much as \$4.3 billion when burden of disease costs are included

Cycling has a strong inverse association with obesity. Cycling also reduces the risk of cardiovascular problems and depression

The economic benefit of getting an inactive person to walk or cycle is estimated at between \$5000-\$7000 per year

Cyclists have better health – cont

Regular cyclists take 1 less sick day a year, benefitting themselves and their employers. SA has the highest level of absenteeism in Australia at 10.9 days per annum compared to 8 days nationally.

The OECD report that positive health gains for individuals from switching from a car to a bicycle add up to €1343 a year.

Cyclists experience a net gain when they cycle

Individuals benefit by a net \$2 per week when they choose to bike 9km to work rather than use a car/ bus or train

Cycling can be faster and it relieves congestion

Cyclists are faster than other forms of transport travelling under 5kms. This can be true over 5kms in rush hour.

26% of cars travel less than 5km to the city of Adelaide. More than 50% travel less than 10 kms. Nearly all SA cars journeys to work are single occupancy.

Costs of traffic congestion for Adelaide are expected to double from \$1.1 Billion per annum in 2015 to \$2.3 B per annum by 2030

Jobs in the Bike Economy Increase as Cities Embrace Cycling



Limited data can make the bike economy hard to measure. Studies differ in what is measured. Most include bike production, retail sales and distribution. Some include bike tourism.

“There is no better way to bring sustainable growth than through cycling. We have shown that the European Cycling economy is worth over €200bn per year and 650,000 jobs, bigger than many Member States. These are green, sustainable jobs and they are set to grow to over a million jobs by 2020” Manfred Neun, ECF President

The European Cycling Federation estimates **the economic benefits of cycling in the EU-27 as at least €205bn.**⁵⁶ Nearly three quarters of this is attributed to health, reduced congestion, fuel savings, reduced CO2 emissions, reduced air pollution and noise pollution. Just over a quarter, €62bn is associated with bike tourism (€44bn) and the bicycle industry (€18bn). These figures do not include the benefits from bike-sharing, bike infrastructure, wider social benefits, public realm and local economic vitality. 19,800 people in Europe are employed in bike and accessories production.

France estimates **33,000 jobs are directly associated with its bike economy.** Half of these are in tourism⁵⁷. A further 22% are in retail or wholesale leaving nearly 28% or 13,000 direct jobs in infrastructure, manufacture, services and non-commercial jobs.

A 2009 study in Austria estimated **17,900 direct and indirect jobs in its bike economy.** 42% were associated with cycle tourism and around 4% with manufacture, 2% service, 4% with infrastructure and 7% with retail and wholesale. 41% were indirect jobs.

The 2011 London School of Economics overview of the British Cycling Economy was the first attempt to quantify the contribution of cycling to the UK economy.⁵⁸ The growth in cycling was an ongoing trend with a ‘knock on’ effect on cycling related jobs. It estimated that **cycling contributed £2.9B annually to the UK economy** from a combination of retail, manufacturing and infrastructure development and maintenance as well as broader positive impacts to health, congestion and absenteeism. The increase in the cycling was attributed to the national cycling network; better cycling infrastructure; concern for the environment; health benefits; British success in cycling events such as the Olympics; and an increase in large scale cycling events. It estimated 23,000 people were employed in bike production, sales, distribution and maintenance.

If one main city in each country in the EU-27 achieved the same bike modal share as Copenhagen (at 26%), WHO estimated in its 2014 report on Jobs in Green and Healthy Transport, that an additional **76,000 direct jobs in bike production, wholesale and retail would be created in Europe.** In 21 of the cities more than 1000 jobs would be created. It would also result in 9400 fewer deaths.⁵⁹

A study in Wisconsin found that recreational cycling contributed **\$1.5B to the local economy.** The study included bike manufacturing, sales and services industry.⁶⁰

Demand Will Continue to Grow



World demand for bikes is expected to grow more than 25% between 2012 and 2019 to \$65 billion.⁶¹ E-bikes are the fastest growing segment. More than 1.1 million were sold in Europe in 2014. In places like the Netherlands they represent 25% of new bikes sold. Navigant research predicts that more than 360 million electric bikes will have been sold by 2023 with China as the largest market.⁶²

According to Credit Suisse, bikes are also going upmarket.⁶³ People are prepared to spend more possibly because bikes express their 'individuality'. Yet people may spend more on accessories than the bike itself, according to research from Mintel with 'brand, quality and products features' potentially more significant than price.⁶⁴

In the first half of 2015, the Japanese components maker Shimano recorded a 75.8% growth in net income, outperforming all other transport sector companies in automotive, trucking, aerospace and automotive suppliers.⁶⁵ In 2015, Taiwan makers Merida and Giant had double digit growth in sales.

People ride bikes for recreation, transport, sport and fun. There are racing bikes, BMX bikes, mountain bikes, commuter bikes, fixies, foldup bikes, cargo bikes and shared bikes. Bikes can be designed for off-road or on-road experiences. Increasingly bikes are electric and smart.

A high value racing bike frame can be worth as much as a new car – or even more. Frames are designed with the precision engineering and the contributions of experts from aerospace, materials and automotive sectors.

Whilst most bikes and components are made in Taiwan or China, niche designers and makers are establishing all over the world. Advances in technology, materials science, 3D printing and so on are finding their way into bike design and development. Thousands of companies, including car-makers, are creating new and better products for the discerning bike consumer.

In Australia, People are Turning to Cycling 'In Droves'



According to the 2015 IBIS Industry report bike sales are robust and growing. But the retail scene for bikes is challenging.⁶⁶

Over the last five years the number of regular cyclists in Australia increased from 1.6m in 2007 to 2.4m in 2012. Industry revenue in 2014 was \$729m. The industry's contribution to the broader economy is expected to grow at an annual rate of 5.3% over the ten years through to 2020-21. It's expected to outperform real GDP growth of 2.8% over the same period.

SA has a 7.1% share of bike retail establishments, equivalent to its share of population. Using IBIS figures this would equate to around 105 bike retail and repair businesses in SA. But the Bike Industry Association, using different data, estimate there are around 80 bike retail businesses in SA, with around 482 people employed.

Consumers are increasingly opting for high value or specialised bikes. Around 60% of sales are for bikes and 40% for accessories. People aged 35-54 years old buy 62% of the bikes sold in Australia. This demographic also tends to spend more per bike.

More retailers are specialising in mountain, road, BMX, hybrid and cruiser bikes. The commuter market is not as well served, yet.

Yet the story for retail is not all positive. Some businesses are experiencing robust growth but some are at serious risk. Traditional suburban shops can no longer compete on price. To survive, businesses must be savvy and offer exceptional value – by price or service - in a hugely competitive market.

Stores that are succeeding are doing things differently. They create a community around their shop – arranging regular bike groups or programs. Stores are designed well. They may offer quality coffee. They have a story. They focus on a particular bike 'tribe', with specialist products. They add value to products bought on-line, potentially through relationships with on-line retailers.

People report that 'cool stuff' relevant to cycling in Adelaide can be hard to find. There is interest in the locally made. There is enormous pride in the presentation of a bike. Yet very few locally designed or made goods are sold in bike shops in SA. With more than \$15million spent in SA on bike related imports, there are potential opportunities catering for a local market with 'cool', desirable, locally designed and made products.

One 'underserved' local market is the female, commuter cyclist. Just 15% of staff in the bicycle retail industry are female and the majority of these are employed in administrative roles⁶⁷. An article in Bicycling Trade estimates that these figures mirror those in bike distribution, brand management and sales representatives.

Bike shops can feel intimidating to the novice female rider. Some female riders may end up with a bike not really suited to their needs.

IBIS predicts that headwinds to the sector, principally internet sales, will lead to weaker demand for local retailers. Almost all bikes sold are imported.

Victoria – A Stand Out State. Victoria is the stand out state with 30.6% of Australia's bike retail establishments with 25% of the national population. IBIS accounts for this as combination of Melbourne's flat terrain but also a result of its bicycle paths and bike infrastructure.

Melbourne is one of the top cycling cities in Australia (another is Canberra). The Melbourne City Council recently announced a commitment to 25% of commuting to the city by bike by 2020. It is investing between \$1.5 - \$2 million per annum in bike infrastructure to achieve this. This will be used to fill in the gaps in the cycling network in the city.

Case Study: Bicycle Express

Adelaide's Bicycle Express has a turnover around \$1million per month for some months, making it one of the most successful bike stores in Australia, according to an article in Bicycling Trade.⁶⁸ It's a success story in a competitive industry where some traditional stores are struggling in the face of on-line competition.

According to the owner, Peter Tregoweth, their success is down to a number of factors. They are experienced retailers and manage the business side well. They make service quality a priority – and staff are passionate cyclists. The stores looks good – they invested around \$800,000 on a fit-out for the city store in 2015. Bicycle Express has expanded to Norwood and intends to expand to Glenelg – this gives them access to additional brands as well.

New Types of Jobs are Emerging



Studies of the impact of the bike economy may only include direct jobs in bike production, bike retail and distribution as these are more easily measured. Jobs in bike tourism are sometimes included.

What jobs might be overlooked? A WHO study examined the potential for growth in jobs in green and healthy transport.⁶⁹ Their report considered the breadth of sustainable transport jobs. Of these, bike related jobs could include:

Supporting Active Travel

Bike design, production, retail, accessories, repairs, apparel, infrastructure, urban design, development

Improving Public Transport

Bike hire schemes, pedicabs, integrated transport such as 'bike and ride' systems

Technology

Technology for electric bikes, repair and maintenance, and smart infrastructure and traffic systems

Behaviour Change

Behavioural change programs, lighting programs, cycle training, mobility advice

Mobility Management

Intermodal mobility systems, promoting customer friendly systems, supply chain innovation

Freight

Production and maintenance of cargo bikes and assisted mobility systems, logistics and planning

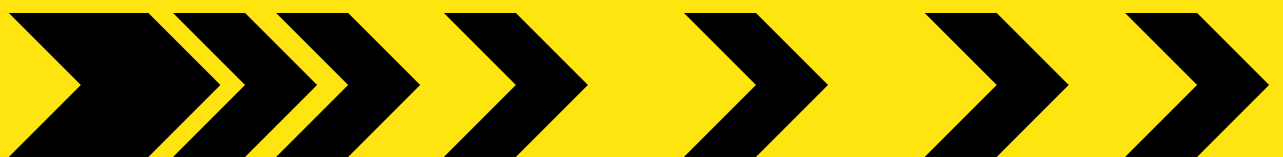
Tourism

Bike hire schemes, information and advice, trail development, route planning, local retailers, local accommodation, community heritage and planning, locally produced food

Bike Tourism

A key area of opportunity is bike tourism. SA is already a destination with plans to grow the opportunity. But we still have much to learn from more successful bike tourism destinations, such as New Zealand.

If we can bring our offer into the 21st century we can improve the fortunes of regional towns and cities. We need to understand that bike tourists have different interests. And they expect quality services, bike friendly businesses and infrastructure – a trail alone is not enough.



Bike Tourism is a Growth Opportunity



In its 2015 survey of cycle tourism, Roy Morgan found that 5 of the top 9 areas for cycle tourism in Australia were in South Australia. These areas include the Adelaide Hills, the Riverland, Flinders Ranges, Clare and the McLaren Vale.⁷⁰

Cycle tourism is growing all over the world. In recognition of its potential many countries are adding to and improving their cycle networks. The US aims to build the largest cycle route network in the world, with more than 50,000 miles of routes.⁷¹ The UK has an extensive system of trails. Countries such as Japan, Taiwan and South Korea are developing extensive cycle trail networks.

A 2012 European study found that cycle tourism generates €44 billion in economic impact annually for the EU⁷². Studies across the world have found that cycle tourism contributes hundreds of millions annually to Scotland and US states like Wisconsin, Oregon and Michigan. In a 2009 survey of tourists 78% reported that Portland's bike friendliness was a factor in them choosing to visit the city⁷³.

New Zealand has made its bike trails core to its tourism and jobs strategy.

Between 2009-2014 the percentage of tourists that cycled in Australia increased by 25% by visitor number and 16% by visitor nights. In 2014, more than 2.9 million tourists in Australia cycled. In 2014, 1.1% of all Australian visitors participated in a cycling activity during their trip, while 5% of international visitors cycled.⁷⁴

Regular cyclists are more likely to be able to name areas they'd like to visit in Australia and are more likely to be active on holiday than others in the population.

It makes sense that as the population of people who cycle regularly grow across the world, they will seek out holiday experiences that include cycling.

SA has 27 different trails identified on its [Trails Website](#). The Mawson Trail, from just outside of Adelaide to Blinman in the Flinders Ranges, is 900km long. The Riesling Trail, along an old rail line through vineyards in Clare, is 27km. There are urban trails and remote trails.

Well-developed cycling trails offer two main advantages for regional towns and cities with an existing tourism offer – they help absorb excess tourism capacity and they diversify a regional tourism offer. Cycling tourism can also attract people to towns off the normal tourist circuit, as the 2011 study of the Lower Flinders Ranges found.⁷⁵ Cycle tourism attracts people to regional areas and can help rejuvenate regional towns.

Melrose in the Lower Flinders Ranges has a population of around 500 people. It is one of the international 'Over the Edge' (OTE) mountain bike destinations. The first was Fruita, Colorado an economically depressed town in 1994 when Troy Rarick set up a bike shop and hand built a mountain bike trail just outside the town. Fruita is now a one of the top ten mountain biking destinations in the world and it's revived the local economy.⁷⁶

The 'Over the Edge' bike shop is the focal point in Melrose for bike hire and off road cycling. The owners organise the annual Fat Tyre Festival and 6/18 hour events. These events attract thousands of people to Melrose. The bike trails are across privately owned land – the hope is to extend the potential experience (and time tourists will stay) with trails through the adjacent national park. It is now estimated that mountain biking contributes around \$2million annually to the local community⁷⁷.

South Australia has an ambition to increase bike related tourism. The Mount Lofty Ranges are being developed as an international mountain bike destination.

But visitors to SA don't have an easy task. The Trails SA website lists 27 different trails, yet the site feels dated and not very user friendly. However, the website is being reviewed and changes are on the horizon.

SA needs to create a connected offer that makes it easy for people to visit the state, access the range of possible experiences, find bike friendly accommodation and services and benefit multiple local businesses along the way.

In this respect New Zealand has set the standard. Its [New Zealand Trails Website](#) provides high quality information and easy links to cycle friendly accommodation, as well as local restaurants, wineries and other potential experiences.

Not all those travelling may cycle. Family or friends need to enjoy the experience too, and have a rich range of alternative options for things to do. A diversity of potential experiences encourages tourists to stay in a region longer and spend more.

Case Study: The New Zealand Trails Economic Strategy

"We really wanted to show the cycling option as an accessible one: the idea that you don't have to be a Tour de France cyclist to enjoy a holiday, in the same way you can do a walking holiday or a winter holiday on the ski slopes even if you aren't a professional athlete" Tourism New Zealand CEO Kevin Bowler

In 2009, at the height of the economic crisis, New Zealand held a summit to explore potential programs for job creation.

Possibly out of left field, it was not on the official agenda, came a proposal to develop a series of bike trails to support bike tourism. Creating a nationwide cycle trail network became a core element of the national economic program. The 23 trails were developed with \$50m of investment from the government and \$30m from local authorities. The plan was to generate employment through construction, tourism and to benefit regional economies.

An initial evaluation study, conducted soon after some of the trails were opened and before all were completed, found observable positive benefits upon host economies particularly for businesses at key junctures of the trail and through construction and observable positive social impacts.⁷⁸

According to the website, 97,000 riders enjoyed the trails in January 2013 alone. More than 1200 jobs have been created.⁷⁹ New Zealand is now one of the best-known cycle tourism destinations in the world.

An easy to navigate [website](#) summarises the trails in New Zealand and grades them on difficulty. A map makes it easy to select a trail and find relevant accommodation, bike hire services, tours, food and beverages, things to do and transport. Around 400 businesses partner with the trails program. To become a partner they have to meet 'cycle trail friendly standards' set by New Zealand Cycle Trails.

In 2015, New Zealand committed a further \$350m to cycling infrastructure.⁸⁰ This includes urban cycleways, and other investments to make cycling safer and an active transport choice – all of which will be delivered in 3 years.

In February 2016, Tourism New Zealand launched a campaign to attract Australian Cyclists during the off-peak spring and autumn periods with Megan Gale as the face of the campaign⁸¹. Their research told them that people who came for 'special interests' like cycling tend to stay longer and spend

more. Nearly a quarter of Australian visitors to New Zealand are open to the idea of cycling. At present around 10% of Australian tourists do so.⁸²

Mount Lofty Ranges International Mountain Bike Destination

In late 2015, we made the short trip to the City of Churches that we should have taken years ago, and we left convinced that the Adelaidian sense of hometown pride isn't misplaced; Adelaide is undeniably Australia's most mountain-bike friendly metropolis, and it's well on the way to cementing itself as a destination of international repute. Flow Mountain Bike Website⁸³

The Mount Lofty Ranges Region, stretching from the Barossa Valley in the north to Cape Jervis at the tip of the Fleurieu Peninsula in the South, is being developed as an international mountain bike destination.

The proximity to the city and sea helps it stand out. The area has great food, wine and options for families. According to a study of its potential, the key to success is creating 'hero rides', as well as promotion among bike networks, and the development of new events including a range of technical and mass participation events suited to different routes.⁸⁴ Even if all of this is achieved, international recognition may take time.

In the mean time, the trail can leverage existing events and visitors to attract 'non-core' riders so that the Mt Lofty trails diversifies potential experiences in the area.

Both the trail and the experience around the trail are key. The trail will bolster a host of local businesses in the Adelaide Hills, the wider region including greater Adelaide.

To that end, building local collaboration and commitment to the trail will be one element of a richer range of interconnected experiences in the area. By 2020 the aim is to have 200kms of mountain bike trails. Modelling indicates it could contribute around \$18m a year to the state by 2020.

Cycle Tourism in the Southern Flinders

A report on Cycling Tourism for the Southern Flinders Ranges (2011) found it was a potentially high yield niche market for the region.⁸⁵ The majority of those that visited the region were attracted to mountain biking at Melrose and Mt Remarkable.

The study estimated that in 2009 around 3000 people went cycling in the area and contributed around \$2.2 million in direct expenditure in the area.

Cycling tourists in the region appear to spend less per visit than those in other states. One of the conclusions was that there weren't enough ways to spend money. It found that cycling tourists would prefer more diversity in accommodation in the area, more quality eating options (including restaurants, cafes and local produce), and additional events and activities (for non-cycling members of the travel party).

A small survey associated with the study found that while most tourists visited Melrose, a high proportion of visitors also travelled to other towns in the Southern Flinders Ranges.

Cycling is not just contributing to the local economy. It is also providing social benefits. Farmers are taking up cycling. School students are becoming more active.

.....it is the combination of trails plus the overall visitor experience at the destination that combine to create a world class destination

The only other study that appears to have addressed cycling tourism in SA was done in 2004 on the Riesling Trail in Clare. It estimated that the Riesling Trail had 12,000 visitors annually and contributed \$1.09m in direct expenditure for the region.

The Experience of Cycling Tourists

Many of the people interviewed for this report shared stories of the pleasures of cycle tourism overseas. It was clear that we have some way to go to compete with the quality of overseas cycling tourism experiences. What were their observations about the best experiences on offer?

- Easy to book cycle holidays that offer small group or independent tours, access to quality cycle friendly accommodation, tips about great places to eat and other attractions en route
- Cycle friendly accommodation was mentioned by many – hotels in countries like Germany can apply for a bike friendly designation that means they welcome people with bikes, have facilities to store and clean bikes, and welcome wet and muddy cyclists
- Japanese trails are very high standard and some have high quality coffee vending machines along the track
- Hire bikes need to be high quality. If people cycle at home they are likely to have a great bike, not a heavy clunker. Some offer different hire costs depending on the bike. Access to electric hire bikes is becoming the norm.
- People don't need to ride to a cycle path – they're happy to be driven and dropped off. They don't want an endurance ride.
- Cafes in Switzerland can swap electric bike batteries
- Access to water, facilities, pumps and repair kits at regular points along the route
- Distinctive, bike related local souvenirs
- Tour operators that understand that the travel tourist doesn't want to ride more than 30km in a day – and many want to do so leisurely

Lessons From Successful Tourism Trails

The 2011 Flinders Ranges Experience Development Strategy identified key lessons of successful tourism trails:

Seamless Experiences. Trail information is well packaged for both independent and guided tours. Comprehensive websites make it easy to find pre-trip information, accommodation, transport and other experiences with on-line booking

Effective Partnerships and Co-ordination. Trail managers and tourism operators work together to provide a seamless experience for visitors.

Funding. There are sufficient funds to maintain the quality of the experience.

Point of Difference. The trail is distinctive to other trails and meets market needs.

Appeal to a Range of Markets and Price Points. There are options from independent walking to guided tours; different types of accommodation, activities and side trips.

Managing Trail and Experience Quality. Infrastructure and facilities meet expectations of a high quality experience

Planning. Management and tourism stakeholders collaborate to plan new trail experiences and improve existing experiences

Case Study: CyclelifeHQ

With a career in management consulting and a life long love of cycling, Canberra entrepreneur Charles Black launched CyclelifeHQ in 2016 as a global platform for bike related experiences. His market is the recreational cyclist. The platform allows small and micro businesses to position themselves in ways that will be easier to tourists and locals alike to be able to track them down.

“CycleLifeHQ is like AirBnB for cyclists. When you’re visiting a new location (and even if your hometown), it can be incredibly difficult and time consuming to put together all of the information you need to create the ideal cycling experience. We make it possible for locations and providers to bring that information together and make planning and booking your adventure super simple and convenient.

“We also love what CycleLifeHQ is able to do for service providers. Not every service provider has a website, and of those that do very few will make it to the top of Google. So how do you find these gems? CycleLifeHQ offers every creator of a cycling experience – no matter how big or small – the opportunity to be found by an audience that truly appreciates their offering.”

Source: <http://the-riotact.com/cyclists-discover-adventure-with-cyclelifehq/178763>

An Engaged Community

Attendance and participation in cycling events shows that SA has an engaged cycling community. But these numbers don't translate into day-to-day commuting by bike. There is an aspiration to double the number of regular cyclists by 2020. Are these aspirations too modest?

A discerning cycling community can help entrepreneurs and businesses test their new products and services.



The most active cyclists in SA are under 9 yrs old



Along with working out at the gym, jogging, swimming and hiking/bushwalking, cycling is one of Australia's key growth sports, gaining 1.6 million additional participants over the last decade. This is almost certainly the result of a number of factors: soaring petrol prices, congested roads, over-crowded public transport and Cadel Evans's 2011 Tour de France victory among them. Norman Morris Roy Morgan Research⁸⁶

South Australia. The National Cycling Participation Survey in 2015 found that 50% of SA households have access to at least one working bike and the average household has two bikes.⁸⁷ 63% of bike owners didn't ride their bike in the previous week.

In SA, 16.6% of the population, or 279,000 residents, ride a bike in a typical week. 88% of these cycle for recreation and 25% for transport. The State Strategic Plan goal is to double regular cyclist numbers to 600,000 by 2020. The most active cyclists are children aged up to 9 with 52% cycling regularly.

7503 people travel to work by bike only. Around 1000 more combine a bike with another mode of transport.

There is an annual count of cyclists to the city each year.⁸⁸ Since the count started in 2009 there has been a 9-10% increase in cycling each year. Overall the numbers of cyclists to and from the city each day is in the order of 10,000 people, double the number in 2003.

End of trip facilities influence whether people will ride a bike to work. Around 118 buildings in the city have secure bicycle parking. 244 buildings provide showers. 69 buildings provide both bicycle parking and shower facilities. The Adelaide City Council is ensuring that new buildings offer bicycle parks.

Case Study: Children and School

One of the most dangerous places to be is the school gate at drop off and pick up times. Parents that drive their children to school are then more likely to drive to work, causing more traffic congestion. It's costing families money to maintain a second car, that may be better spent elsewhere. It's not helping children or their parents build fitness into their daily routines. SA leads the nation in obesity. Children are missing out on that feeling of autonomy and freedom that cycling and walking gives.

If children live within 2 to 3 kms of their local school, it's an easy distance for cycling. Suburban streets may offer safe cycling routes, particularly in areas like Unley with its networks of closed streets. This allows cyclists to benefit from the 'filtered permeability' of safe suburban streets.

There are options to create safe walking and cycling. 'Way to Go' is a resource for teachers, students and parents that helps primary school children develop skills for safe cycling. The Police Road Safety Centre holds education sessions with students and is available for public use.

Options for younger children riding to school include 'bike trains' where parents help children ride to school in a protected convoy. There is also the 'walking school bus'. School physical education programs don't usually offer cycling in SA. Some schools offer informal bike maintenance programs. While SA has a long-standing cycle education program it doesn't certify children as safe riders. In Denmark, children need to pass cycling tests and be certified before they can ride on city streets.

An Engaged Community



An engaged cycling community acts as demanding and knowledgeable customers. It's the 'feeder' for bike entrepreneurs. It's the essential 'soft infrastructure' for the sector.

"Interestingly, cycling is one of the few sports in which participation comes close to TV viewing incidence (especially compared with something like Aussie Rules football, for example). One in five Australians watch cycling on television (up from 8% in 2005), almost identical to the proportion who participate in the sport — good news for SBS, which is currently broadcasting the Giro d'Italia and gearing up for the Tour de France..." Norman Morris, Roy Morgan Research⁸⁹

In January 2015 more than 790,000 people lined the streets to watch stages of the [Santos Tour Down Under](#) (TDU). 6600 people took part in the BUPA Challenge Tour mass-participation ride.

The TDU Village may be the most significant annual bike industry gathering in Australia, with international and national industry represented in the village.

The Tour Down Under is a critical event for SA. It has raised the profile of street racing. It's spurred people on to cycle.

Every June around 1000 people descend on Melrose for the [Fat Tyre Festival](#). There are 400 participants and the rest are friends and relatives of the cyclists and other visitors to the town. In September the town hosts the [6/18 Hours of Melrose](#).

Every year there are around 6 stages of the [Australian International Pedal Prix](#), with heats held across the state. The race culminates in a 24-hour race in Murray Bridge with a crowd of 35,000. 500 teams participate in the 24-hour race. Teams are drawn from local schools and universities across the state.

[Adelaide Cyclists](#) is a community of more than 4500 cyclists who share information via a website and participate in around 91 cycling groups.

The [Adelaide Community Bike Workshops](#) helps people maintain bikes and also supports the Bikes for Refugees program. Around 600 bikes per year are restored and repaired for donation. It's part of the Conservation Council's Joinery Precinct.

[Bike SA](#) is the peak body for recreational and commuter cycling in SA. It has around 6000 members and 18,000 friends. It manages Adelaide's Free Bike Scheme on behalf of the Adelaide City Council. It provides bike maintenance training. It organises a range of bike rides across the state including Amy's Ride, the 16 day Outback Odyssey and Wheels Wine and Whiting from Clare to the Copper Coast. All up it delivers around 2000 free community bike events each year with around 60,000 participants.

[Cycling for Culture](#) has run 3-day cycle tours which aim to connect cyclists to Aboriginal Heritage, in collaboration with the Kaurna Community.

Every week the [Adelaide Bike Kitchen](#) invites people to get together in Brompton to learn about and repair bikes while sharing food. The aim is to get people excited about cycling and create an atmosphere that is welcoming and encouraging for all.

[Boucle de Burbs](#) is a tour of Adelaide's suburbs organised by Sam Neeft from Treadly. It's a relaxed 40km course around the backstreets of Adelaide with participants encouraged to stop off at local

shops and cafes. More bike shops are supporting community cycling – organising group cycle rides and introductions to cycling for the new rider.

The [Bicycle Institute](#) is a voluntary organisation, established in 1974, that advocates for cycling in SA. It has over 300 members.

Every Wednesday morning [Active Adelaide Ambassador Keith Conlon](#) leads a bike tour around the city.

The [Australian Walking and Cycling Conference](#) is held each year in Adelaide. It explores the potential for walking and cycling to not only provide for transport and recreation but solutions to challenges of liveability, health, community building, economic development and sustainability.

Case Study: Executives on Bikes

“Riding gets my creative juices flowing and provides me with the high that sustains me to manage the daily challenges of the current business cycle creates. It is not only an escape but it is keeping me fit and healthy in the process!” Angélique Boileau, *Bicycling Australia*, 26th March, 2016

Some say that cycling is the new golf.

International Cycling Executives (ICE) grew out of an Australian cycling network designed for senior executives. There are now branches in Sydney, Melbourne, Adelaide, Singapore, Hong Kong, London and San Francisco.⁹⁰ Unlike golf, cycling is a more ‘co-operative’ sport. ICE members meet up once a month for a morning ride and then share a networking breakfast.

A 2015 Bicycle SA Business of Cycling Survey found that CEOs cycle more than most other employees. 60% of CEOs surveyed cycle between 5-10 hours a week and 20% ride more than 200kms a week. They cycle as a way to improve their physical and mental health.

More than half cycle while on holiday – whether interstate overseas or locally. 90% cite their main motivation as a way to improve physical and mental health. 63% believe cycling culture is important when attracting prospective employees

Case Study: Attracting Talent

David Morley the chair of Allen and Overy, a major law firm in London, which employs 3000 staff, says that cycling infrastructure helps attract top talent and that a ‘silent majority’ of companies support investment in decent cycling routes.

“We are a people business, all our assets go up and down the lifts every day, so for us it’s about getting the best talent....and cycling...makes the city a more attractive place to live and work”

63% of CEOs surveyed by Bicycle SA in 2015 believed that South Australia’s cycling culture is important when attracting prospective employees. Yet 70% believed that more could be done to improve end of trip facilities within the workplace. This would include bike storage, places to hang clothes and shower facilities.

The indicators are that younger people are less interested in car ownership and value cities that offer walking and cycling infrastructure and amenities. Cities that provide great walking and cycling facilities may be more successful at attracting or retaining talent – as well as the companies that rely on them.

Bike Tribes



The recent London Design Museum Bike exhibition categorises riders as:

High Performers

High speed road racers and speed cyclists

Thrill Seekers

From fat tyres and mountain bikers to BMX bikers

Urban Riders

Commuters and those that cycle in urban areas

Cargo Bikers

Moving children, food, cab rides to delivery

Many people talk about cycling as tribal. Enthusiasts can associate with a type of bike or type of bike experience. In each 'tribe' people seek out specialist equipment and clothing.

SA is attracting 'thrill seekers' with mountain bike experiences, trails and plans to be an international mountain bike destination. A number of businesses that specialise in this space.

SA is also known for 'high performers' with its specialised training for elite athletes and the annual Tour Down Under. Many people who cycle on weekends and competitively might identify with the 'high performer' or road racing set. Many bike shops are well equipped to cater for this group.

What may be underplayed in SA is the road commuter. Organisations such as the Bicycle Institute and the Adelaide Bike Kitchen may be catering more to the daily commuter. The state has a commitment to double cycling commuting by 2020. Most acknowledge we could do better in encouraging commuting by bike. Some retail stores are pitched at the commuter or urban cyclist.

There is a small but growing number of cargo bikers in SA – parents transporting children to school, or businesses offering delivery services or food bikes.

Each of these 'tribes' can be a specialist market. But some believe that thinking around 'tribes' is unhelpful. They argue it continues a sense of competition within the bike community rather than a sense of mutual interest.

There may be specialised opportunities that can be developed for each group. But there may also be great benefit in the 'bike economy' providing a space for connection and sharing across these groups.

Carbon Neutral Adelaide



The SA Government and the Adelaide City Council have a commitment for Adelaide to be the world's first carbon neutral city, likely to be by 2020. The transport sector is the second largest contributor to carbon emissions in Adelaide, contributing 35% of emissions in 2013. Private cars contribute 91% of the transport emissions in Adelaide.

If Adelaide is to achieve its ambitions as a carbon neutral city it needs to accelerate modal shift from cars to cycling and walking.

The Carbon Neutral Adelaide Foundation report recommends a range of measures to make cycling more attractive, involving cycle lanes, better facilities and better lighting.

It also sees the potential of electric bikes. At present they may be seen as expensive (retailing for an average of \$2500). Sales are still slow in Australia, while in some cities in Europe have seen growth of sales of 25% a year. Sales of electric bikes increased tenfold in Europe between 2006 and 2013.

To spark greater growth the report identifies the potential of a 'market transformation' initiative working with local bike shops, manufacturers and distributors. The aim would be to increase sales and reduce prices.

Market transformation is a generic policy design approach which uses strategic interventions (which may include temporary incentives) to engender change in market arrangements which then become permanent and self sustaining, without any need for ongoing incentives of interventions.

What are some ways this could be achieved?

Stimulate Interest in Electric Bikes. Leicester has shared electric bikes for hire. It can help people decide if they could use an electric bike instead to cycle to work.⁹¹ In Paris citizens are reimbursed for up to 33% of the cost of an electric bike, up to €400, as the city aims to be the best cycling city in the world. They aim to get 15% of travellers on to bikes by 2020.⁹²

Incentives to Buy Bikes Locally. The UK 'cycle to work' scheme offers employees the opportunity to salary sacrifice for a bike. Cyclists save between 25% to 42% on the cost of the bike. Bikes are sourced through approved local retailers, supporting local bike stores. The scheme has delivered an estimated £72 million economic benefit.

Visible Recognition of Cycling. Copenhagen's bike barometers measure the number of bikes using city paths. Cyclists feel they are making a contribution when they see the bike count go up as they cycle by.⁹³

Quick Build Protected Cycling Network. Calgary's quick build protected bike network doubled cycling numbers in 3 months.⁹⁴ Cities that have been really successful in attracting large numbers to cycle provide high quality cycling infrastructure, making cycling an easy and safe choice.

Sunday Streets. Many cities around the world have replicated Bogota's program that opens city streets to cycling on Sunday mornings. Thousands of people are attracted to cycle in the city and this benefits local businesses and helps people re-engage with cycling.

Smart City. Challenges can inspire entrepreneurs to make cycling safe and attractive using technology.

How can we develop the potential of the bike economy?



There are many ways to stimulate the local bike economy. A key starting point is to connect people already in the sector and establish an ambition for growth.

As cycling numbers grow globally, so will the market for bikes and bike related products and experiences. The sector is alive with innovation and opportunity as it adapts new materials, technology and production techniques. E-bikes are a clear stand out opportunity. They will stimulate a whole range of relevant accessories and experiences. SA is a 'bike tourism' state but much is needed for it to offer the quality of experience available in other countries.

SA has significant assets and motivated entrepreneurs that make the 'bike economy' a potential area of 'smart specialisation'.

The bike economy is consistent with the SA culture – a culture of small business, environmental awareness, creativity and innovation. State policy priorities include doubling cycling numbers, developing as a low carbon and smart city and increasing bike tourism.

SA business can develop high value goods and services for a growing cycling market. The cycling market is very competitive but it's also based on components, accessories and that lend themselves to innovation and can be accessible to new entrants. SA can grow its own global bike brands.

SA can bring its networks of trails into the 21st century through high quality information, connected experiences, and bike friendly business development. Trails can add value to regional towns and businesses and diversify our existing tourism offer.

Start with a bike economy summit.....A summit and expo can showcase the sector to itself and explore opportunities for industry development. Aim to be open and inclusive of all and draw in the wider ecosystem.

Longer term the bike economy may develop as an industry cluster/ smart specialisation along with the university and research sectors. Flanders in Belgium has created 'bike valley' to connect its bike ecosystem.

Then create a bike experimentation and innovation program.....For Adelaide to be a carbon neutral city it needs a radical shift toward cycling and walking. What might entice people to take up cycling? Great design? Smart bikes and smart infrastructure? The opportunity to try out e-bikes? How could these be designed and made here?

A bike innovation program could focus on collaboration – across business, universities and sectors. Bike freight for last mile delivery could reduce trucks and vans in the city. Initiatives to go 'problem-seeking' with local cyclists can spur ideas to make their cycling experience better. Students across the three universities could collaborate on grand challenges – such as radical uptake of cycling in car-dominated cities.

At the same time commit to state of the art bike tourism.....Europe and New Zealand are models to learn from. State of the art bike tourism involves high quality information, great facilities and bike friendly businesses. Draw on the knowledge of passionate cyclists to help make SA a world-class bike tourism destination. Recognise that bike tourists, mountain bikers and road racers have different priorities. Explore the potential for shared e-bike schemes to enhance local bike tourism

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The original bike workshop group

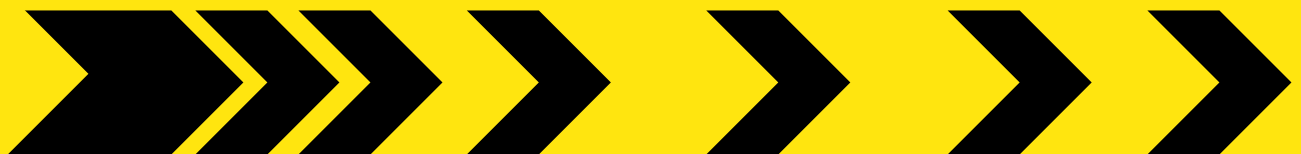
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Attachment 1 – A Few More SA Bike Businesses ...

Willworx:	Patented bike stands exported to 39 countries. Stands are designed for bike storage or retail display.
NiteFlux:	Produces high quality bike lights with a focus on daytime safety lights.
Rogers Bespoke:	Hand makes steel framed bikes using 'traditional methods and new technologies'.
Craftworks Cycles:	Mountain bike frames designed and developed in Adelaide.
Macini Cycles:	Assembles high value carbon fibre bikes for the racing market.
i-Tracks Suspension:	Designs and makes rear suspension systems for mountain bikes.
Gossamer Cycles:	Steel bike repair and modification
Primate Frames:	Designs and makes custom steel framed bikes. Specialist steel fabrication services and specialist bike tools.
Spin Cycle:	Based at Mintaro, creates clothing for the bike racing market to suit Australian conditions.
Fiasco Cyclismo:	Designs colourful and original Lycra racing outfits
Titan Performance Group:	Makes sports clothing including cycling kits
Luft Cycling Apparel:	Creates road cycling kits using modernist designs
Uber Cycle Adventures:	Offers cycling and walking tours around the Barossa Valley
EscapeGoat:	Offers mountain bike tours across the state as well as New Zealand and Queensland. Provides mountain bike training and bike maintenance courses.
Bike About Mountain Bike Tours:	Arranges bike tours and offers bike hire, located in the Adelaide Hills.
Pure SA:	Offers guided bike rides in the city (as well as running and walking tours) and from the city to the sea
Handlebar:	A 16 person pedal powered pub on wheels that cycles around Adelaide
Square Mile Tours:	Cycling and walking tours around Adelaide with a focus on coffee and food.
Bicycle Express:	Largest bike retail shop in Adelaide
BuckiT:	Upcycles bike tyres as belts, bags and wallets
Oxygen:	Bike shop, bike hire and service in McLaren Vale
MiCycles:	Sells and repairs electric bikes
Trendy e-bikes:	A mobile electric bike shop
Adelaide Mobile Bike Service:	Services bikes of all types – from children's bike to high-end sports bikes and attends bike events all over the state
Bio-Mechanics Cycles and Repairs:	Offers bike repairs as their core activity, their workshop is located in the city.
Cracked Carbon:	Repairs cracked and chipped carbon fibre bike frames. It provides a national service, operating out of Adelaide.
Cycle2You Bike Mechanic:	Mobile bike repair service specialising in road bikes
EV Warehouse:	Provides high powered e-bike kits
Electric Bike Superstore:	Specialist electric bike retail in Magill
Bike Bug:	Combines bike shop, workshop and coffee shop, part of a national on-line retailer
The Velo Precinct:	Bike spin classes, restaurant and children's play space
La Musette Siphon Coffee Bar:	Glenelg
Red Berry Espresso, Glenunga:	Bike friendly coffee shop
Pave Café:	Norwood, bike friendly coffee shop
Smooth Revolution:	Pedal powered smoothies
Veggie Velo:	Vegetarian food bike service

.... along with around 80 bike shops



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