ROBOTICS & AUTOMATION PRECINCT IN JOONDALUP

Feasibility study – "Project Joondalup"

Purpose

The City of Joondalup currently has limited population growth and will rely increasingly on public and private sector investment, innovation and entrepreneurship for economic growth to fund the delivery and enhancement of services to the local community.

To increase job opportunities for Joondalup residents; and expand and diversify the City's rates base, it is proposed that innovative economic development opportunities and growth of new industries are considered.

There is the opportunity to support the WA robotics cluster (RoboWest) in the development of a dedicated robotics precinct in the Joondalup CBD area including the development of an autonomous vehicle testing facility. The working title of the initiative is "Project Joondalup".

Project Joondalup proposes to establish a dedicated precinct in Joondalup for the testing and development of robotics and automation technologies. To be successful in attracting industry investment, the precinct would require changes to state government policy to allow for semi-autonomous vehicles (Level 4) to be tested on public roads.

This project has the potential to significantly grow the Gross Value Add of the Joondalup economy over the next decade.

This document provides information on the Project Joondalup feasibility study. Early outcomes of the feasibility study have identified the economic rationale, regulatory changes and advocacy, academic mapping as well as trade and investment facilitation and development opportunities around this initiative.

Once completed, the study will outline a plan for establishing a dedicated precinct for robotics, automation, artificial intelligence (AI), data science and cyber security. This will encompass recommended economic drivers, impact to the community and roles and responsibilities of stakeholders. Economic modelling will also benchmark Joondalup against other localities and highlights the various key drivers of change.

Introduction

Australia's peak body for the Robotics Industry (Robotics Australia Group) promoted the development of a Western Australian based cluster for robotics and automation, to capitalise on the already established remote automation projects within the WA Mining Services sector.

A WA cluster (RoboWest) was formalised in December 2020, incorporating member representatives from Edith Cowan University, Curtin University, University of Western Australia, RCT, Minera, Chironix, Nexxis and the iMOVE Cooperative Research Centre.

Preliminary work completed over the past four years, identified the need for a field robotics (automation of vehicles and platforms operating in harsh, unstructured environments such as underwater, mines, and on farms) facility in Neerabup, with the State Government recently committing $20 million toward the development of this facility.

About Project Joondalup

RoboWest, in conjunction with consultancy firm, Project 412 (a Perth-based consultancy focussed on transformative technology solutions with extensive experience in robotics industry development and investment attraction) are proposing to establish a "Global Centre of Excellence", in Joondalup (Project Joondalup).

Project Joondalup is a blueprint for Joondalup to become a focus centre for urban and service robotics by 2032. This includes creating a world class education hub and an active ecosystem that supports emerging business and global organisations. This project has the potential to significantly grow the Gross Value Add of the Joondalup economy over the next decade.

This study looks at the challenges and opportunities that exist to achieve these goals and lays out a roadmap for the City of Joondalup and various interested parties. Key amongst these challenges is the need to advocate for regulatory reform for autonomous vehicles, build an ecosystem that attracts talent from the education sector into starting businesses locally, and building a closer relationship between the city and the education precinct that develops Joondalup into a true University city. The focus areas include robotics, automation, AI and cyber security in Resources, Medical, Manufacturing and Transport.

Overview

Australian businesses are increasingly applying robotics and automation to remain internationally competitive, increasing their contribution to the economy. A strong domestic supply chain has historically supported these businesses when they add capacity or improve productivity, however, that supply chain is relatively immature in the development and application of robotics and automation when compared with international competitors.

Future of Mobility

To fully realise the value of building a supply chain around robotics and automation in the Resource sector there needs to be a secondary industry to diversify the supply chain. The automotive industry through the Future of Mobility (FOM) is now the driving force in robotic mobility. Large companies are more likely to locate, invest and have presence in Western Australia if they can service both the resource sector and the FOM. The value of the FOM sector in terms of autonomous and robotic input is around $3 billion in Australia today, growing to $20 billion by 2030 in Australia alone.

Accenture have forecasted that rapid acceleration of the supply chain's capability and capacity to support demand as they harness robotics and automation technologies in the energy resources and mining sectors alone, could add over $70 billion of gross value to the Australian economy by 2030 and create over 80,000 jobs, and more if the supply chain's export potential is realised. $30 billion of this would be in Western Australia.

Project Joondalup will bring together key global suppliers, researchers and regulators of autonomy and robotic products, services and systems, with focus on delivering a ubiquitous operating layer for end customers. Project Joondalup is intended to become an urban robotic 'Living Lab'.

By creating a collaborative robotics precinct in Joondalup, this will provide a more attractive environment to attract large firms who also have a focus on urban robotics. Urban robotics is a natural fit for one of WA's dominant industries, the resources sector as the base technology is largely compatible and interchangeable. This brings greater opportunities connected to the resources sector into Joondalup and makes the step change from firms applying technology locally to the resource sector to building technology locally for multiple sectors.

This will encourage the diversification of opportunities for the establishment and growth of businesses, suppliers, services, research, education and training organisations in Joondalup.

Roles and Responsibilities

It is envisaged that the project will include representation from government, the community, researchers, private sector and industry. The aim is to trial and test robotic equipment in the defined area, operating in conjunction with the relevant government agencies.

To implement outcomes of the feasibility study, it is proposed an independent organisation – Project Joondalup (working title) will be established. This is similar to how other similar initiatives have been developed. Project Joondalup will be the principal operating entity responsible for coordinating, managing the delivery and reporting the progress of the operations, budgets and finances of the programs and activities related to:

- Research, Projects & programs
- Infrastructure layer development,
- Regulation, compliance, safety and testing,
- Collaboration, Partnerships & Alliances,
- Community engagement,
- Education, training and skills.

Project Joondalup's core program revolves around creating a large-scale 'Living Lab' for the development of technology opportunities and commercialisation. It is proposed to:

- Establish a controlled area for the testing of urban robotics within a defined area through regulatory reform in the City of Joondalup with the education precinct as its hub. This also includes the creation of association to manage the permits over the city location;
- Develop an entrepreneurial eco-system where there is access to funding, availability of skills, places to work, locations to innovate and an ability to reach potential customers easily;
- Build a skills and research & development matrix that connects to industry needs. Working with educational, research and development institutions along with industry to improve short and long term skills and incentivize key research and development activities to create an education precinct; an
- Create an Robotics and Automation dedicated precinct within the City of Joondalup that strengths collaboration between primary firms, supply chain firms and educational and research institutions.

Project Joondalup will provide information and opportunities that encompass the needs of the community, suppliers, service providers, indigenous groups, and educational establishments. The vision is to create a global centre of research that will accelerate knowledge transfer with local businesses, schools, and universities.

City's role

In principle support for this initiative from the City of Joondalup will be significant to the success of this initiative in facilitating the formation of an automotive and robotics cluster.

It is proposed that the City would build on its existing advocacy efforts with state and federal government, to support proposals for regulatory changes, and leverage investment potential of state and federal government-supported activities in this area.

It is proposed that the City would facilitate private sector investment opportunities through its existing investment concierge program to attract startups, scaleups, businesses and investment into Joondalup. This would include using the existing resourcing and capabilities of the Economic Development & Advocacy function at the City to identify investment gaps, how to attract talent, and consider possible incentives to facilitate the growth of an industry cluster in Joondalup.

The City's role related to this initiative would be to:

- Provide in principle support for initiatives to attract national and global businesses to invest in robotics, automation and artificial intelligence, Joondalup and the region
- Provide in principle support for collaborative initiatives to develop a robotics and automation precinct in Joondalup
- Provide in principle support for advocacy activities to state and federal government to enable the required regulatory and policy reform.

Following completion of the feasibility study, a report will be provided to Council for consideration.

Key Issues

Allocation of suitable area

An area approximately 6.5 square kilometres encompassing the train station, commercial areas, shopping centre, high density living, Edith Cowan University, the Police Academy, the hospital, Joondalup sporting centre and neighbouring suburbs has been identified as an ideal location to establish a testing facility for autonomous vehicles which can access the largest range of urban settings in the one location.

The trial and testing of robotic equipment in the defined area would be done with the permission of, and in close cooperation with, relevant government agencies.

There are notable examples of globally successful projects of this nature at the City level, such as Columbus and Pittsburgh in the USA, Cambridge in the UK, and Singapore.

Stakeholder and Community engagement

It is envisaged that Project Joondalup will include representation from government, the community, researchers and industry. A Living Lab approach is a likely successful tool that can be used to attract high profile partners. Living Labs are user-centred, open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real life communities and settings.

Project Joondalup would provide information and opportunities that encompass the needs of the community, suppliers, service providers, indigenous groups, and educational establishments.

Project Joondalup's vision is to create a global centre of research that will provide an accelerated knowledge transfer opportunity for local businesses, schools, and universities. This human capital and social infrastructure would in turn create a highly integrated ecosystem and provide the foundations for a vibrant future in the City of Joondalup.

Community consultation may be undertaken if the feasibility study identifies initiatives which could affect residents.

Skills and Education

This study includes a high level assessment of education needs and processes for robotics and its associated streams such as Artificial Intelligence and automation. To support this, this the study has formed a working group from universities (Edith Cowan University in Joondalup and University of WA), North Metropolitan TAFE in Joondalup, local industry, and Greenwood Senior High School. The intention is to provide a snapshot of the current pathways into the industry, possible ways to streamline this process and some consolidation of education in Joondalup with the long term objective to attract and retain talent in the region.

Feasibility Study

Economic Value Add

The economic value add to the City of Joondalup and residents would be significant, as this growth sector will attract emerging industries, international investors, international talent and provide upskilling opportunities for all education networks in the Joondalup region. It will also support catalytic growth of the economy which is currently limited in growth.

As part of the feasibility study, Project 412 has undertaken comprehensive modelling of this economic value add. Preliminary modelling suggests that over the next ten years, Project Joondalup has the potential to add $1.5 to $7.5 billion and 3,600 to 20,000 jobs to the Joondalup economy. This includes net jobs directly to AI and Robotics as well as flow on effects in relation to the growth of this sector.

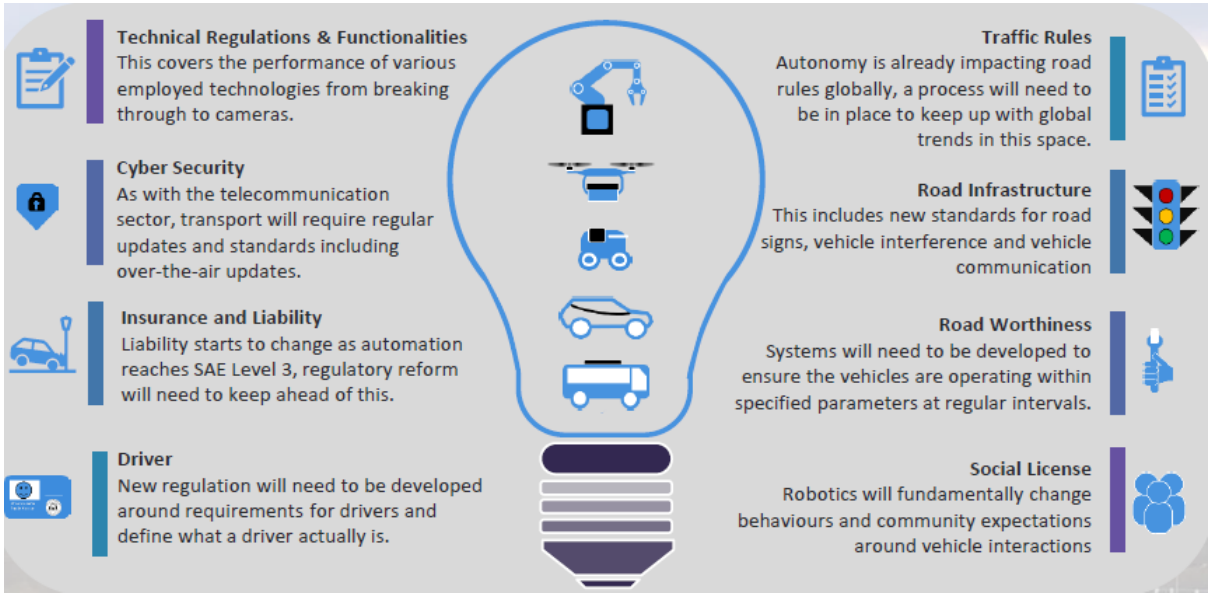
Incentives and creating the right environment

Whilst education may be an important catalyst for Joondalup, it requires both incentives to attract business to the region and opportunities for talent to remain in Joondalup. This can be achieved by creating an ecosystem that brings business to Joondalup that require talent and to create businesses from talent developed locally.

Advocacy

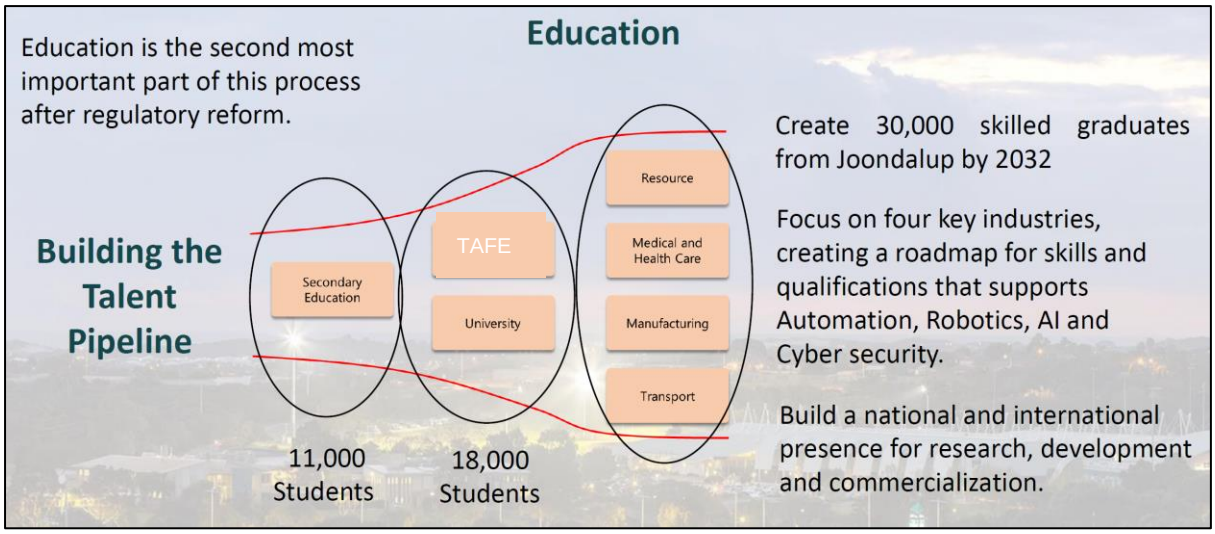
70% of the potential value in Project Joondalup relies on the approval process for unlocking autonomous vehicles. The key is to get permission to have a level 4 autonomous vehicle on the road in traffic and able to travel through controlled intersections. This requires advocacy at both state and federal level for the relevant regulatory change. It does not need a change in legislation.

With in-principle support from the City of Joondalup, Project Joondalup representatives will be able to work with relevant state and federal government agencies to progress the initiative. The model below outlines the regulatory issues that will need to be addressed by the project's proponents in due course.



Education Roadmap

Considerable progress has already been made in bringing together key education providers to create a roadmap around robotics, automation, artificial intelligence and cyber security. Continuing this work will secure Joondalup's position as a key education precinct for not only WA but nationally and internationally. The City will continue to work closely with Edith Cowan University and North Metro TAFE to attract students to live in Joondalup and encourage graduates to create businesses locally or launch a career in Joondalup.



Next Steps

Once completed, the study will outline a plan for establishing a dedicated precinct for robotics and automation, artificial intelligence, data science and cyber security. The final report will include:

- Economic modelling on the impact of establishing a robotics and automation precinct in Joondalup.
- Roadmap of regulation changes required to enable the establishment of this precinct.
- Roadmap of education and curriculum mapping to build a talent pipeline which will support the skill and jobs demand of this emerging industry.
- Findings from stakeholder engagement (education, government and industry) as well as benchmarking with local, national and international cities.
- Parameters of the proposed precinct.

The feasibility study is expected to be completed by the second quarter of the 2021/22 financial year and will be presented to Council before the end of the 2021/22 financial year.

5 August 2021