Submission No 33

INQUIRY INTO DEFENCE INDUSTRY IN NEW SOUTH WALES

Organisation: Carbonix

Date received: 15 August 2017

‘CODE’

Centre of Drone Excellence

Cockatoo Island – Sydney, NSW, Australia.

OVERVIEW:

The emerging world of Unmanned Aerial Vehicles (UAV), more commonly called ‘DRONES’ has become the fastest growing area of Aviation in our History. Smart devices, better batteries, brushless electric motors and high powered sensors or miniaturised cameras have all converged to contribute to the rapid acceleration of UAS technology. Drones are more Accessible, Affordable, Adaptable and potentially Anonymous than ever before. Highly intuitive technology is now jammed into low cost consumer drones that can fly over 100 km per hour or rise to an altitude of thousands of feet high with technological advancement at unprecedented rates.

Yet commercial grade Drones are forecast to outstrip consumer models by 2020, which means they are becoming useful in every sector of every industry. From Military to Mining, Infrastructure to the Environment, Construction to Medicine, Logistics to Emergency Services etc.

However, the sector with the greatest ongoing potential for these new unmanned technologies remains solidly the Defence sector. Arguably incorporating Border Surveillance and Protection, along with Strategic Intelligence and Reconnaissance (SIR), and other mission critical activities to support the Military. Enhancing data, supporting field decision making, improving safety, reducing security threats and risk, saving lives and in turn creating new jobs, particularly for our youth.

The PROBLEM:

The Australian Drone industry is still quite immature, although it already competes in the Defence sector. Supplying complex composite design and manufacture, world class engineering and mechanical developments, as well as cutting edge electronics, and world propulsion systems, through to high tech hardware and software development. Indeed, we tend to punch above our weight on a world stage with some great examples of successful high quality UA component exporters, such as Orbital and Currawong engines. Advanced Navigation P/L and UAV Vision to name but a few.

Yet very few wholly Australian owned complete UAV integration solutions companies exist.

Some SME’s are emerging into this space, many from our strong academic institutions, often following highly unique research and development successes. Though leadership of this new global game is presently being hotly contested by obvious nations, such as China (a manufacturing powerhouse), Korea and Japan (High tech focused industries), the USA and Canada are particularly active with the latter producing many unique SME’s emerging from Government programs support. Several major European nations along with several smaller Eastern European countries, including Poland and Lithuania are taking on the big guys.

Australia and in turn NSW is better placed than most, both scientifically and geographically to truly own this space if we want. Perhaps not dissimilar to Swiss renowned time pieces or German leadership in precision machinery, Australia could absolutely lead the Unmanned Systems space, globally.

‘CODE’

Centre of Drone Excellence

Cockatoo Island – Sydney, NSW, Australia.

But, we must establish a co-ordinated approach and move quickly or the window will close, possibly for all time. For just as with any emerging industry, it requires central leadership, vision and co-ordination to help accelerate the commercialisation of our highly sort after knowledge, skills and innovations.

Our NSW institutions are producing world class outcomes from research and PHD students proving theories, concepts and innovative solutions, that are very often as good as any in the world. Yet it’s no surprise they often lack the experience or understanding of exactly how to link up with commercial industry, or indeed launch their ideas into the market. Frustratingly, the industry often struggles to find these individuals, ideas and solutions, to help commercialise them quickly enough to compete on the world stage. Yes, some manage to establish a small business and make it, whereas many more struggle and fold, even before they really get going.

The SOLUTION:

A new Centre of Drone Excellence, (CODE) is a facility that we are proposing be established on Cockatoo Island in the middle of Sydney Harbour, NSW, Australia. (just 8 minutes by ferry ride from Sydney CBD), where unused building space currently sits idle. In a specially preserved highly unique UNESCO World Heritage site. Albeit will need minor/make good repairs and upgrades under a strict Heritage code to allow such a centre to operate. Carbonix has proven it is possible to meet these standards and co-exist with such requirements. At a place where high tech manufacturing previously existed for many decades, where thousands of workers once designed, built and repaired the world’s most modern ships, primarily for the Defence industry. So, it’s a back to the future type initiative.

The creation of specialised centre of excellence with subsidised common user spaces, meeting rooms and networking areas which will serve as an incubator for the most promising candidates. A non-threatening environment for collaboration, networking and engagement, where PHD’s, qualified individuals and start up SME’s can come together in one central place to help further develop ideas, concepts and theories into viable commercial reality. A place where the industry can more easily access, connect and mutually assist the rapid commercialisation of products and services that are strictly linked to this uniquely emerging Defence Aerospace Industry segment in NSW and for Australia.

How it works – (Draft entry process and outputs)

In Phase 1. (2017/18 FY) CODE will house up to 10 PHD students and up to 6 start-up SME businesses (1-3 persons) with a total of around 20 persons. With a target of 60% graduating each year with full time employment or established SME Businesses with sustainable incomes. Entry into CODE will be via a highly-structured application and acceptance process, which measures a set of 3 core criteria; e.g. 1. Individual applicant attributes/capability, 2. Idea/Concept potential, 3. Commercialisation/Market potential.

Candidates will not pay for access to the controlled spaces available, technology and basic administrative support, but will be asked to formally agree to a strict ‘Code of Conduct’ and other operational Polices before entering the Program. Hours of Operation will be 9:00 am – 5:00 pm Mon

'CODE'

Centre of Drone Excellence

Cockatoo Island – Sydney, NSW, Australia.

– Frid (Exc Public Holidays). Tenure in the centre will be limited to a maximum of 12-18 months, with extensions by application and approval.

The underlying objectives of CODE are to **Develop, Encourage and Support** the brightest and best individuals or emerging SME's, to assist them into gainful employment or establish sustainable businesses within this exciting growth industry of Unmanned Aerial Systems.

Strategies

1. **Collaboration –** enable structure sharing, assistance and engagement with other members and the industry in a safe, friendly and supportive environment.
2. **Development –** provide mentoring, business skills training and support to all individuals via several professional development programmes (To be developed)
3. **Connectivity –** introduce individuals, via networking, seminar's/events bringing the industry to CODE.
4. **Promotion -** of CODE individuals & SME's, their ideas, concepts, methods, theories into the commercial world, via Industry Bodies, Publications, and proactive marketing
5. **Celebrate Excellence -** via Member awards for Excellence & small internal Grants

Stake holders

1. Federal Govt – PM's office, Dep Industry, Innovation and Science
2. NSW State Govt – Premiers Office, Dep of Industry, Jobs for NSW, Sydney Ferries, & indirectly sponsored Groups, ICN, SADIG etc.
3. Sydney Harbour Trust – Management of the world heritage listed building's
4. NSW based academic institutions – UNSW, UOS, UTS etc. (most have expressed strong interest)
5. Australian Industry Groups – Australian Association of Unmanned Aerospace (AAUS) Australian Council of Unmanned Operators (ACUO) etc.
6. Australian Chamber of Commerce and Industry – NSW branch
7. Carbonix – Foundation company (anchor tenant) and Administrator of the program
8. Corporate sponsors – TBD
9. Voluntary Board & Patron – TBD

‘CODE’

Centre of Drone Excellence

Cockatoo Island – Sydney, NSW, Australia.

Structure

CODE will initially be established as a subsidiary of Carbonix who will engage resources to operate the secretariat until fully operational, when it will apply to become a separate entity. A voluntary Board could be established with representation from Universities, Corporations, Govt, and ideally an Independent Chairman (potentially as the CODE Patron).

Who is Carbonix?

Carbonix is the first Australian company to deliver locally designed and manufactured and fully integrated, commercially viable carbon composite Unmanned Aerial System (UAS). The company launched the first fully tested and commercially available fixed-wing, vertical take-off & landing (VTOL) hybrid UAS for Australia’s small drone market in Mid-2016. Carbonix employs a small experienced team to deliver unique analysis, design, prototyping and production. With a workshop on Australia’s iconic Cockatoo Island, Carbonix works with leaders in aircraft design and avionics to deliver world-class Unmanned Aerial Systems to Australia’s commercial market.

After developing and exporting Australia’s first carbon fibre fixed-wing small drone in 2015, achieving outstanding durability, flight times, and payload capacity, Carbonix recognised a need in the market to develop a small drone with the long flight and heavy payload capabilities of our fixed-wing, that could also take-off and land vertically. The success of Carbnonix’s UAVs has only been possible as a result of the use of advanced carbon composites, and because of Carbonix’s experienced history in using advanced carbon composites to make complex high-performance structures.

The Carbonix Company Board and Management sees great value in establishing CODE, and as the current anchor tenant in Bldg. 79 on Cockatoo Island is well positioned to provide central co-ordination, for all parties and assist in the strategy development, road map creation and structuring of strict operational/management principals in conjunction with a proposed advisory board. All we need is some resources and funding to make CODE real.

Financial requirement:

Approximately $500k would be required to cover the estimated CODE expenditure over the first 2 years of operations; further details available on request. Additional corporate sponsorship and academic resources support would be highly probable once the centre is established.

Project Co-ordinator
Jeff Eager - Executive General Manager
Carbonix