

**SUBMISSION TO THE SENATE FOREIGN AFFAIRS, DEFENCE AND TRADE
REFERENCES COMMITTEE**

Inquiry into Australian support for Ukraine

10 MAY 2024

Introduction

As a sovereign, medium sized business with over 30 years of corporate history providing design, development, integration and technical solutions to the Department of Defence, SYPAQ Systems (SYPAQ) welcomes the opportunity to make a submission to this inquiry.

SYPAQ is the Australian Original Equipment Manufacturer of the Corvo™ family of uncrewed autonomous systems (UAS), harnessing the capability of Australian industry to be a world leader in small UAS technologies. SYPAQ's Corvo Precision Payload Delivery System (PPDS) or 'cardboard drone', delivered to Ukraine as part of Australian assistance packages over the past 18 months, has served as an important battlefield reconnaissance and logistics tool to the Armed Forces of Ukraine.

This submission briefly outlines three recommendations for the Committee's consideration, which if implemented would support continued Australian assistance to Ukraine's crucial war effort:

1. Continue supporting Ukraine with equipment that addresses the realities of Russia's invasion through close coordination between Ukraine, the Australian government, Defence and industry.
2. Encourage Defence capability development and industry policy leads to remain engaged on the use of Australian equipment in Ukraine, in order to:
 - a. Provide a coherent and integrated strategy that directly aligns the development of defence industrial capacity and capability with support demands into Ukraine and the sovereign defence industrial priorities; and
 - b. factor lessons from the conflict into long-term acquisition and industry development plans – considering both technological innovations, tactics and global supply chain risk.
3. Explore opportunities for improving communication with industry on aid to Ukraine, including through regular classified briefings.

SYPAQ's experience

SYPAQ's Corvo PPDS is a low cost, disposable UAS consisting of wax-coated cardboard, rubber bands, and a modular avionics system. Costing approximately A\$5000 to build, the PPDS is optimised for the covert delivery of small volume payloads, allowing single mission use as required. It is designed to be deployed into theatre in a flat pack configuration, then assembled using minimal tools, programmed to approach a target location, and launched by hand or catapult.

SYPAQ developed the Corvo PPDS in 2019 in partnership with the Australian Army under a A\$1.1 million Defence Innovation Hub contract. A successful demonstration model was developed that year, with the first prototype conceived, built and flown within around a week. Further progress was slowed by Covid-19, but Russia's invasion of Ukraine prompted a return to development.

In early 2022, Army asked SYPAQ to accelerate PPDS development and production, with a view to supporting the defence of Ukraine. SYPAQ delivered an initial batch in six weeks, which the Commonwealth gifted to Ukraine. SYPAQ began engaging with the Ukrainian government and support organisations and ramped up production to around 100 units a month. Lessons learned from UAS operations in Ukraine led to further developments, allowing broader mission functionality to be integrated into the PPDS, allowing greater mission flexibility in challenging environments and enhancing its suitability for intelligence, surveillance and reconnaissance (ISR) missions.

The Australian government has continued to include the PPDS in donation packages to Ukraine. In March 2023, for example, PPDS units were included in a A\$33 million package of uncrewed systems donated to Ukraine by Australia. SYPAQ has since doubled production capacity to allow for future demand, locally, into Ukraine and for other export markets. SYPAQ stands ready to ramp up further production in response to any additional requests from the government for PPDS to support Ukraine.

The collaborative approach, both commercial and technical, in working with Defence to scope, then deliver these support packages to Ukraine are an excellent example of how business can be done efficiently and effectively under very short timelines.

The impact of Australian assistance

Australian military assistance to Ukraine has been valuable for both countries, supporting Ukraine on the battlefield, developing and proving sovereign capabilities for the Australian Defence Force (ADF), and helping industry to scale up and refine its technology. The Corvo PPDS offers a comprehensive case study in how timely Australian assistance has benefitted the Ukrainian and Australian militaries, as well as Australia's industrial base.

Supporting Ukraine's specific needs

With roughly a quarter of Russia's population and a fraction of its economic weight, Ukraine's greatest tool in its defence against Russia's invasion is the ingenuity and flexibility to overcome numerical disadvantages. The past two years have demonstrated Ukraine's remarkable ability to exploit any advantages it has to fend off Russia's advance and pursue counteroffensives. Australia's contributions to Ukraine's defence have recognised the importance of amplifying Ukraine's advantages in the face of a larger force, with the PPDS presenting perhaps the clearest example.

The PPDS is particularly suited to the modern battlefield and Ukraine's situation due to its materials, size and potential applications. Cardboard and rubber bands — however high the quality — are affordable and easily accessible, meaning large quantities of PPDS can be produced at a relatively low cost. This means that even a resource-constrained force can achieve scale and sustain equipment losses; key factors in a war of attrition. The limited weight and size of the PPDS means it can be transported easily — especially when flat packed — and more readily avoid detection in flight. Finally, the PPDS offers flexible logistics, low-cost ISR, and significantly mission flexibility, allowing operators to innovate in the battlespace, coupling rapid mobilisation with a strong understanding of the location of opposing forces, which is crucial for overcoming numerical disadvantages.

By donating equipment such as the PPDS, Australia is demonstrating that it recognises the type of conflict Ukraine is fighting in. In SYPAQ's experience, there is coordination between Ukrainian authorities, the Australian government, Defence and industry on Ukraine's unique advantages and disadvantages, and a unified drive to supply the most appropriate equipment as quickly as possible. This approach should be maintained, while evolving according to the realities of the conflict in Ukraine, reflecting the rapid evolution of technologies and tactics being employed.

Recommendation 1: Continue supporting Ukraine with equipment that addresses the realities of Russia’s invasion through close coordination between Ukraine, the Australian government, Defence and industry.

Developing sovereign technology for the ADF

Ukraine’s innovative use of the PPDS has expanded SYPAQ’s understanding of the capability and driven further development of the underlying technology to reflect the evolving nature of the battlespace and employment of disruptive technologies. As a result, a sovereign Australian company now holds the intellectual property for a proven capability in a technology area that is a stated priority for the Commonwealth.

The PPDS was initially designed primarily as a logistics tool, covertly delivering small packages to difficult-to-reach locations. The Ukrainian military’s use of the PPDS has proven its effectiveness for this mission, while also demonstrating a variety of other uses, including conducting real-time ISR, distracting and confusing adversaries, and slipping past detection systems. Through assessment of operational demands, SYPAQ engineers have continued to evolve the PPDS to improve the value of each batch for Ukraine’s war effort.

This process has resulted in a small UAS capability that is locally-owned and manufactured, and proven in a variety of missions. This is extremely valuable for Australia, as autonomous systems and UAS technology are stated defence technology priorities. This is evident in the inclusion of autonomous systems on the list of Sovereign Defence Industrial Priorities established by the Defence Industry Development Strategy (DIDS), and the decision of the Advanced Strategic Capabilities Accelerator to make sovereign small UAS the focus of its first Innovation Challenge. By providing PPDS units to Ukraine, the Commonwealth has made significant progress on these priorities while supporting an important international cause.

To ensure Australian assistance to Ukraine results in tangible outcomes for the ADF, Defence’s capability development and industry policy leads must be engaged on the use of Australian equipment in Ukraine and related technology advances. This will ensure operational lessons and a realistic understanding of technology are factored into long-term capability and industry development planning, meaning Defence and industry can respond to threats and conflicts with appropriate solutions.

In response to a short notice request from Defence, SYPAQ was able to convert the PPDS from prototype to export-ready within weeks. This was only possible because of previous co-development efforts, SYPAQ’s commitment to investment in its military industrial capability and capacity, and a strong understanding with Defence, which will not always be achievable across the industrial base. With a practical understanding of what Australian companies can produce — including how those products perform in real conflicts — Defence can send the signals and make the investments that ensure industry is ready for future challenges.

Recommendation 2:

Encourage Defence capability development and industry policy leads to remain engaged on the use of Australian equipment in Ukraine, in order to:

- a. Provide a coherent and integrated strategy that directly aligns the development of defence industrial capacity and capability with support demands into Ukraine and the sovereign defence industrial priorities; and
- b. factor lessons from the conflict into long-term acquisition and industry development plans – considering both technological innovations, tactics and global supply chain risk.

Helping Australian industry scale and evolve

Australia's assistance to Ukraine has improved Australia's sovereign industrial capability by providing local companies with the consistency of work to increase production scale and refine technology and processes. Being presented with the clear goal of producing equipment that will support Ukraine and the certainty of Australian government backing, businesses such as SYPAQ have been able to operate at new levels of capability and capacity. This has been critical for building the infrastructure and capacity to operate at scale, while also providing invaluable lessons in what it means to support a large-scale, time-sensitive endeavour with real implications for the lives of people in a warzone.

Further, this has enabled SYPAQ to commence the export journey with other nations, working closely with the Defence Export Control Office.

For SYPAQ, the process of supplying the PPDS to Ukraine has driven a significant shift in the company's production readiness and capacity. Coordination with Defence and the government has been critical in allowing the company to meet Ukraine's urgent requirements while ensuring its growth is sustainable. While the government's leadership has assisted SYPAQ to rise to this challenge, there is always scope to improve communication and coordination. The government has expressed its intention to improve consultation with defence industry, stating in the DIDS that "Defence will communicate its ongoing demand for industrial capability via its Detailed SDIPs and through increased engagement with industry, including at the classified level." SYPAQ looks forward to seeing this vision implemented, and hopes that a similar approach can be applied to military aid programs.

A coherent, coordinated and longer-term plan, aligning military aid, sovereign innovation and ADF acquisition priorities would deliver both economies of scale, reduce development costs and risks, and ensure that the collective investment by the Commonwealth and Industry delivers the maximum capability return.

Recommendation 3: Explore opportunities for improving communication with industry on aid to Ukraine, including through regular classified briefings.

With the rate of change in technologies and tactics observed in Ukraine and other global conflicts at this time, the Australian industrial base would benefit from targeted briefings to ensure that our technology roadmaps remain relevant in the rapidly changing environment.

Conclusion

To assist the Committee, this submission has deliberately been kept brief and at a high level.

Through its military aid to Ukraine, Australia has helped a democratic country defend itself from invasion, proven equipment that may protect ADF personnel in the future, and helped build the industrial capacity to produce that equipment. The Corvo PPDS is a clear example of how Australia's support has been targeted for Ukraine's unique needs, and has contributed to Australia's own long-term security. To maintain effective assistance to Ukraine and realise the long-term benefits for Australia's own sovereign self-defence, the government must engage in close coordination, careful planning and constant communication with Ukraine, Defence and industry.

SYPAQ would welcome the opportunity to respond to any further questions, including hosting a site visit to walk the Committee through the tangible benefits that SYPAQ's participation in the Ukraine support program has delivered across our business, in uplifting our supply chain, in preparing to more effectively deliver to the ADF and contributing to the global industrial base.

About SYPAQ

SYPAQ is a wholly Australian, veteran-owned and operated company which has provided secure, complex technology solutions and services to the Australian Department of Defence since 1992.

Headquartered in Melbourne, SYPAQ is an industry policy success story having been awarded more than A\$25 million in innovation, systems integration, and R&D contracts by Defence since 2017. These innovation programs for Navy, Army and Air Force have principally been to develop autonomous systems, sensor systems, military systems integration, power generation, and artificial intelligence solutions.

In recognition of this success, in 2019 SYPAQ was named the inaugural Australian Association of Unmanned Systems' Industry Champion for Innovation in recognition of its development of the "Corvo" family of Unmanned Aerial Systems, and in 2023, SYPAQ won the prestigious Australian Financial Review Most Innovative Company award, and was also crowned The Most Innovative Technology Company and The Most Innovative Medium Sized Company

SYPAQ is the Australian Original Equipment Manufacturer (OEM) of the Corvo™ family of autonomous systems, harnessing the capability of Australian industry to be a world leader in small UAS technologies. The Corvo product range includes man-portable small UAS platforms, nano platforms, multi-spectral sensor systems, hybrid maritime UAS and disposable UAS — all designed, developed, and manufactured in Australia.

The development evolution SYPAQ has invested in across the Corvo family of UAS continues to build the depth of technical capability, expands the production capability, and enhances the understanding of Defence capability needs across SYPAQ and the broader industry supply chain.