



## SOR Defence and Security V-con Presentation

**Innovation Company Strategic Elements Ltd** (ASX:SOR) is pleased to provide a copy of the presentation delivered by the Company's Executive Director, Elliot Nicholls, during V-con Defence and Security 2021.

**A video** of the presentation can be viewed via the link below:

<https://vimeo.com/558779784>

A copy of the presentation is also attached.

### **Strategic Elements Background**

Investors in SOR potentially **pay no tax on capital gains from selling their SOR shares** as the company operates under a Federal Government program to encourage innovation. The company is a 'venture builder' generating high risk-high reward ventures from combining teams of leading scientists or innovators.

Info Charles Murphy, MD: +61 8 9278 2788 [admin@strategicelements.com.au](mailto:admin@strategicelements.com.au)  
[www.strategicelements.com.au](http://www.strategicelements.com.au)

*This announcement was authorised for release by Strategic Elements' Board of Directors.*

For personal use only



**STRATEGIC**  
ELEMENTS

*Autonomous technologies and  
robotics for security and  
defence. V-con presentation.*



Personal use only

## **Forward Looking Statements**

*The document contains background Information about Strategic Elements Ltd (and subsidiaries) current at the date of this presentation. The presentation is in summary form and does not purport to be all inclusive or complete. Recipients should conduct their own investigations and perform their own analysis in order to satisfy themselves as to the accuracy and completeness of the information, statements and opinions contained in this presentation.*

*Neither this presentation nor the information contained in it constitutes an offer, invitation, solicitation or recommendation in relation to the purchase or sale of shares in any jurisdiction. The presentation may not be distributed in any jurisdiction except in accordance with the legal requirements applicable in such jurisdiction. Recipients should inform themselves of the restrictions that apply to their own jurisdiction as a failure to do so may result in a violation of securities laws in such jurisdiction. This presentation does not constitute investment advice and has been prepared without taking into account the recipient's investment objectives, financial circumstances or particular needs and the opinions and recommendations in this presentation are not intended to represent recommendations of particular investments to particular persons. Recipients should seek professional advice when deciding if an investment is appropriate. All securities transactions involve risks, which include (among others) the risk of adverse or unanticipated market, financial or political developments.*

*To the fullest extent of the law, Strategic Elements Ltd (and subsidiaries) , its officers, employees, agents and advisers do not make any representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of any information, statements, opinion, market estimates, forecasts or other representations contained in this presentation. No responsibility for any errors or omissions from the presentation arising out of negligence or otherwise is accepted. This presentation may include forward-looking statements that are only predictions and are subject to risks, uncertainties and assumptions which are outside the control of Strategic Elements Ltd (and subsidiaries) . Actual values, results or events may be materially different to those expressed or implied in this presentation. Given these uncertainties, recipients are cautioned not to place reliance on forward-looking statements in the presentation as they speak only at the date of issue of this presentation. Subject to any continuing obligations under applicable law and ASX Listing Rules, Strategic Elements Ltd (and subsidiaries) does not undertake any obligation to update or revise any information or any of the forward looking statements in this presentation or any changes in events, conditions or circumstances on which any such forward-looking statement is based.*

## Strategic Elements **generates 100% owned ventures** from combining teams of leading scientists or innovators.

### 1. The Australian Federal Government has registered Strategic Elements as a Pooled Development Fund with a mandate to back Australian innovation.

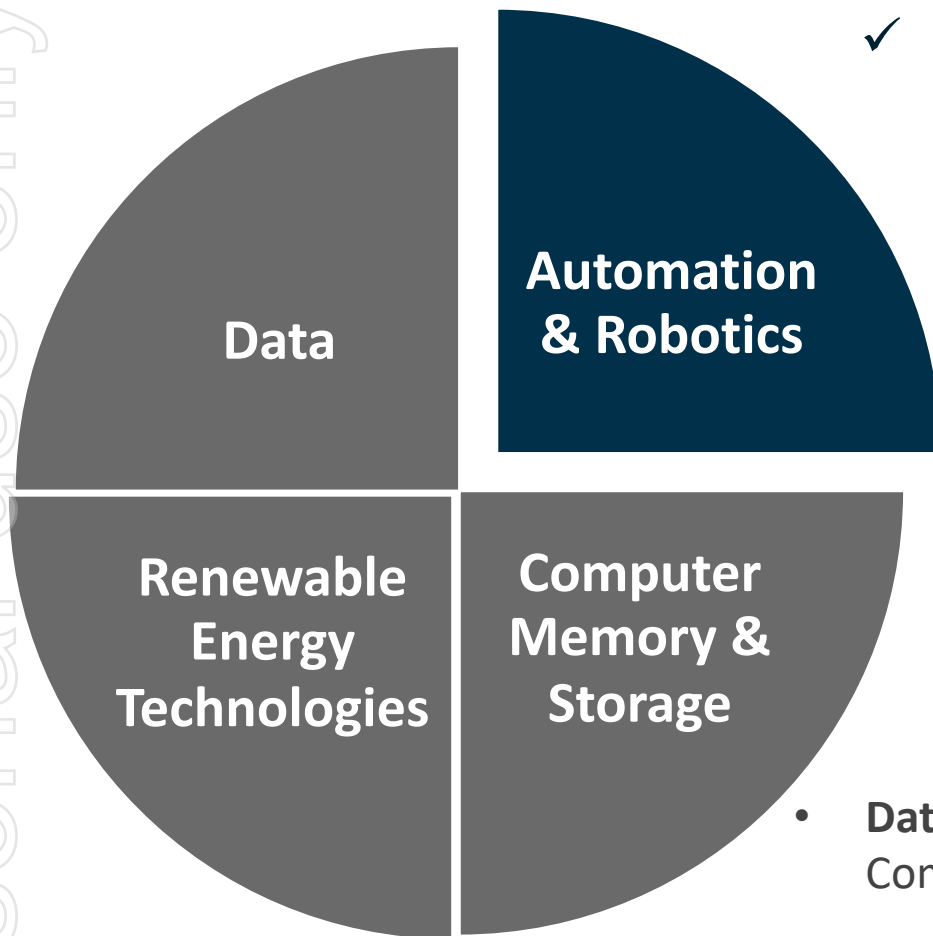
- The aim of the Pooled Development Funds programme is to increase the supply of capital to Australian small and medium-size enterprises (SMEs).
- PDFs are venture capital funds registered under the Pooled Development Funds Act 1992
- **PDFs and their shareholders receive tax benefits on the capital gains and income derived from their investment.** This is to help compensate for the higher risk of investing in SMEs.

### 2. However the Company does not operate like a typical venture fund.

- **The Company doesn't seek a large portfolio of minority 10-20% investments. Instead it seeks to generate 100% owned companies in collaboration with teams of leading scientists or innovators.**
- Access to \$50M+ of institutional technical infrastructure and equipment, government grants and R&D cash back \$\$ significantly reduces up front expenditure.
- SOR seeks returns through a trade sale or listing of a subsidiary, a licensing deal or income generated from a subsidiary.

*High risk – high reward innovation*

## 1. The Company is developing technologies in four of the largest **megatrends**.



- ✓ **Autonomous technologies and robotics for security, defence resources etc. Collaborating with Fortune 100 Company 'Honeywell' for Autonomous Security Vehicles<sup>1</sup>. Further agreements with UWA and CSIRO and USA based partners.**
  - **Self-charging battery** technology in collaboration with the University of New South Wales<sup>2</sup>. Uses humidity in air to generate electricity. Extremely small, thin, light weight flexible battery cells.
  - **Transparent flexible memory** technology working with the UNSW, CSIRO<sup>3</sup> and VTT (Finland). Enabling flexible plastic and glass surfaces to store and process data instead of needing silicon chips.
- **Data related** technology acquisition/development by the Company as its next potential area of venture generation.

## 2. The technologies are held in **100% owned** subsidiary companies.

<sup>1</sup>Announced 16/10/2020

<sup>2</sup>Announced 1/12/2020

<sup>3</sup>Announced 30/07/2020

# Developing the AxV Autonomous Robotics Platform

## STEALTH AUTODRIVE HARDWARE

Autonomous vehicle technology  
scalable to multiple vehicle sizes

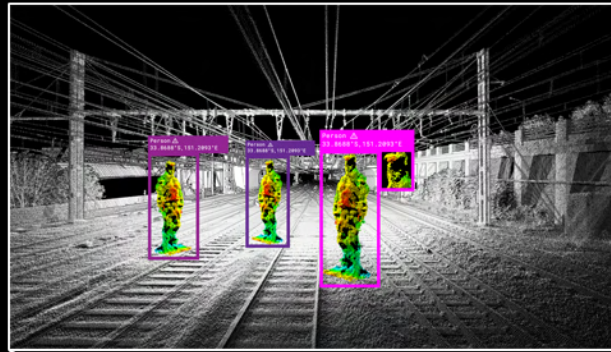
## STEALTH OS SOFTWARE

Sensor Fusion  
Computer Vision  
AI and Neural Networks

## STEALTH CUSTOM ROBOTICS

Purpose built robotics adaptable  
to meet industry specific use  
cases

“Scalable to any size”



“Adaptable to any physical task”



“Purpose built for outdoor environments and all weather conditions”

# The Company has been collaborating with USD 100 Billion Company Honeywell on Autonomous Security Vehicles for prisons.

## ➤ Honeywell Autonomous Security Vehicle Collaboration

Stealth has been collaborating with US giant ‘Honeywell’ to build autonomous security vehicles for the Correctional Justice sector (primarily prisons). Honeywell is a **Fortune 100** technology company.

- Real-time integration has been completed with the Honeywell Enterprise Buildings Integrator software which connects, monitor and manages core building functions. There are thousands of EBI systems deployed globally.
- Honeywell Building Technologies is a global business with more than 23,000 employees and creates products, software and technologies found in more than 10 million buildings worldwide.

## ➤ Autonomous Perimeter Security– Outside Honeywell Collaboration

Under the collaboration Stealth provided Honeywell with exclusivity for the correctional justice sector. However Stealth is free to market independently to sectors such as transport, energy, defence, government and utilities providing critical services.



## Perimeter Intrusion Detection Systems - PIDS

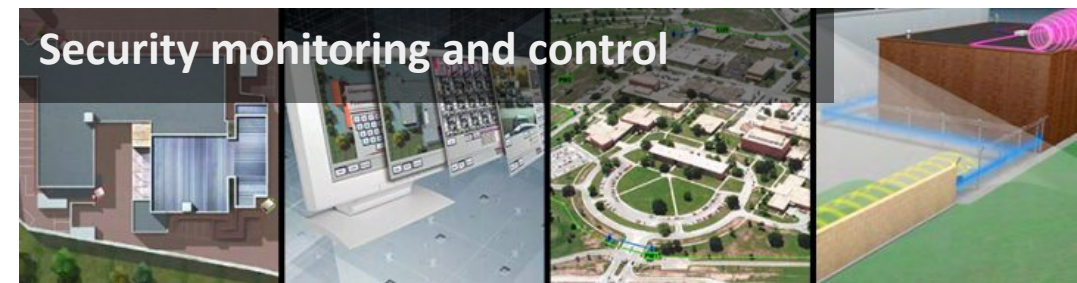
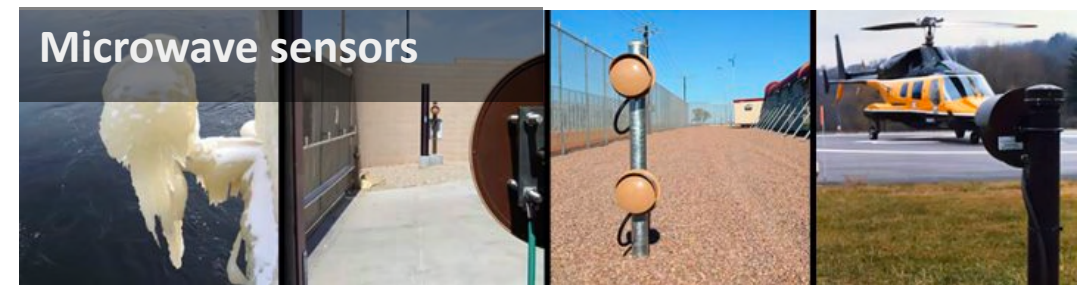
PIDS are used to detect intruders attempting to breach a perimeter. In high security facilities they are physically tested multiple times a day to ensure they are functioning correctly.

### ➤ The Problem in PIDS Testing

- Testing is a costly **manual** process – 2 staff 3 times a day.
- Using skilled staff for routine mundane jobs.
- Manual testing can cause significant damage.
- Generates inconsistent testing accuracy and quality.

### ➤ The Solution – Automated PIDS Testing & Surveillance

- ASV autonomous vehicle with custom robotics enabling fully automated PIDS testing 365 days a year, 24 hours a day.
- Physical testing of sophisticated PIDS with a robotic actuator that simulates cutting or climbing of perimeter fencing.
- Military grade camera that provides 360-degree high definition video surveillance.
- Reporting in real time to the Honeywell Security Manager System.







➤ **Stealth & Honeywell have built and deployed a fully autonomous security vehicle for the WA Department of Justice at the Eastern Goldfields Regional Prison.**

1. Custom robotics built on top of the AxV Platform to develop the first 'automated perimeter security solution' of its kind anywhere in the world.
2. 3x fully autonomous missions a day around the perimeter of the facility. Completes automated testing of the facilities inner and outer perimeter security systems (zone by zone)
  - Microphonics Sensor testing
  - Microwave Beam testing
  - Photo Electric Beam testing (PE)
  - Electro Magnetic Field testing (EM)
3. Recently successfully passed Site Acceptance Testing completing full testing and surveillance missions.



## Fully Electric

- Lithium ion batteries
- 8hrs drive time
- Fast charging

## Outdoor Terrain and Conditions

- IP Rating 67
- Heat - 50 degrees Celsius (ambient)
- Water
- Dust
- Variable Terrain



## 1. Autonomous Perimeter Security Patrol & Surveillance

- 24\*7 365 Day Operational Capability - Day and Night Vision
- Collision Avoidance System
- Autonomous Navigation Between Map Points
- Emergency Braking System
- Imposing Physical Presence

## 2. Autonomous Perimeter Intrusion Detection System Testing

- Perimeter fence sensor testing - Microphonic and Fibre Optic (Purpose Built Robotic Actuators)
- Microwave sensor testing
- Photo electric sensor testing (PE)
- Electro magnetic sensor testing (EM)

## 3. On Board Surveillance Features

- Autonomous Object Tracking System
- Incident Alert Lighting
- Live Military Grade Video Feed
- High Definition 30x Camera Zoom
- Day and Night Vision Surveillance Distance: 400m
- Two-Way Intercom

## 4. System Integration

- Fully Integrated Into Honeywell's EBI Platform (DVM)
- Capable of Operating within Secure Isolated Networks
- Capable of Advanced Computer Vision – Facial and Number Plate Recognition

***“The security industry is ripe for disruption by way of robotics. The industry itself is quite mature yet has remained reliant upon manual efforts. Innovation in the field of robotics is leading the effort to evolve the security industry”***

***– United States Security Industry Association***

***“Government regulations, pandemic and terrorist activities are providing lucrative growth opportunities. Perimeter security is an important part of an overall security solution, especially for critical locations. The Global Perimeter Security Market is forecast to be growing quickly reaching USD 282.26 Billion by 2025<sup>1</sup>”***

***– United States Security Industry Association***

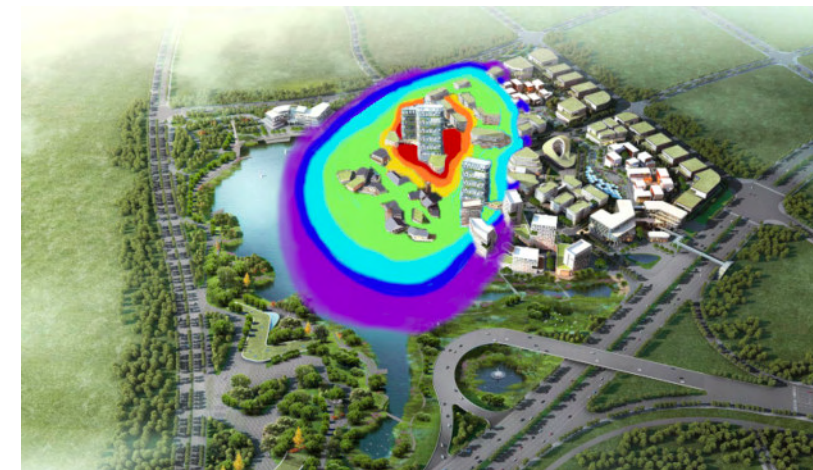


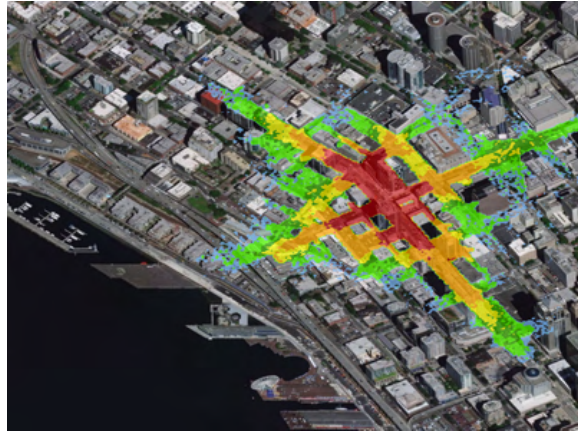
- The threat of Chemical, Biological, Radiological and Nuclear (CBRN) attacks against military forces and civilian populations is growing.
- State and non-state actors are increasingly willing to use these indiscriminate methods, and knowledge of CBRN agent manufacturing processes is proliferating.

***'CBRN defence is undergoing a global transformation as it adapts to the challenge of multi-threat scenarios. Modern forces need to be equipped to operate within chemical, biological, radiological and nuclear and toxic industrial material threat environments.'***

**- Vice Chief of Defence Force Directive 04/2019**

- Autonomous technologies have the capability to:
  - Enable teams to respond faster and more flexibly to CBRN events.
  - Achieve enhanced situational awareness .
  - Enable teams to manoeuvre safely and effectively in complex contaminated environments for prolonged periods of time.





- Conducting a feasibility and scoping study to integrate DST Group developed search algorithms for locating CBRN sources within a geographic area, into a UAV (drone) that is autonomously launched and landed by a Stealth autonomous UGV (ground vehicle)<sup>1</sup>.
- The DST Group is part of the **Australian Department of Defence** dedicated to providing science and technology support to safeguard Australia and its national interests.
- One of the key DST Group priorities is to improve the Australian Defence Forces' CBRN defence capability through the protection of personnel from the strategic, tactical and physiological impacts of exposure to toxic chemicals and materials and CBRN weapons.
- The Stealth autonomous ground vehicle to carry drones and sensors into the target environment keeping humans at a safe distance.
- The autonomous UAV enables rapid traversing of the area using sensors to map and/or monitor the location of CBRN sources.

## ➤ Stealth Collaborations

Along with US Company 'Honeywell' the Company has a number of key technical collaborations.



### ***Planck AeroSystems***

- World leader in autonomous drone launch and land technologies.
- Technology being used by **US DoD, Homeland Security and others.**
- Collaboration to allow Autonomous Drones to launch and land autonomous surveillance flights from a moving ASV platform<sup>1</sup>.



### ***CSIRO (Australian Federal Government Agency for Scientific Research)***

- Wildcat SLAM technology – won DARPA Subterranean Challenge.
- Technology allows robot teaming and autonomy for robotic vehicles in GPS-denied environments.
- Collaboration<sup>2</sup> to enable 'robot perception', allowing the ASV to perceive, comprehend and reason about the surrounding environment.

### ***The University of Western Australia***

- Funded by the Australian Federal Government.
- Professor Thomas Bräunl – automotive and robotics experience (DaimlerChrysler/Mercedes-Benz, BMW and others).
- Collaboration<sup>3</sup> through the Renewable Energy Vehicle Project – Autonomous and Electric Vehicles.

<sup>1</sup>Announced 04/11/2020

<sup>2</sup>Announced 12/11/2020

<sup>3</sup>Announced 29/04/2020

# Developing the AxV Autonomous Robotics Platform

## STEALTH AUTODRIVE HARDWARE

Autonomous vehicle technology  
scalable to multiple vehicle sizes

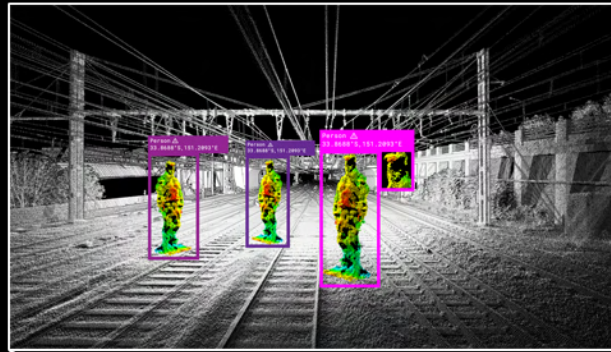
## STEALTH OS SOFTWARE

Sensor Fusion  
Computer Vision  
AI and Neural Networks

## STEALTH CUSTOM ROBOTICS

Purpose built robotics adaptable  
to meet industry specific use  
cases

“Scalable to any size”



“Adaptable to any physical task”



“Purpose built for outdoor environments and all weather conditions”

➤ **AxV Platform and ASV Brief Summary**

**1.** Initial commercialisation is occurring through the the ASV – Autonomous Security Vehicle. We have collaborated with US giant Honeywell to deploy an ASV for the WA Department of Justice at the Eastern Goldfields Regional Prison.

**2.** With the ASV successfully passing Site Acceptance Testing in May 2021, further potential facilities and deployments of the perimeter security testing focused ASV can now be pursued.

**3.** Initial Honeywell collaboration agreement term concluded in April 2021. Discussions on a further agreement with Honeywell are ongoing.

**4.** The company is also currently investigating multiple potential use cases for both the ASV and the AxV Platform with third parties. The company is seeking to work closely with early adopters to deeply understand their use cases and solve their specific problems.

**5.** Feasibility and scoping study with DST Group (a part of the Australian Department of Defence) to integrate their search algorithms into the Stealth autonomous technology stack is currently underway and is scheduled to be completed by June 30<sup>th</sup> 2021.

**6.** Please see the Company's website at [www.strategicelements.com.au](http://www.strategicelements.com.au) for the other activities being pursued in Stealth Technologies, self-charging battery and printable memory technology developments.