Rogue behaviour detection in the drone swarms using digital twins

Our Product: D-RON
Stage: Pre-Seed
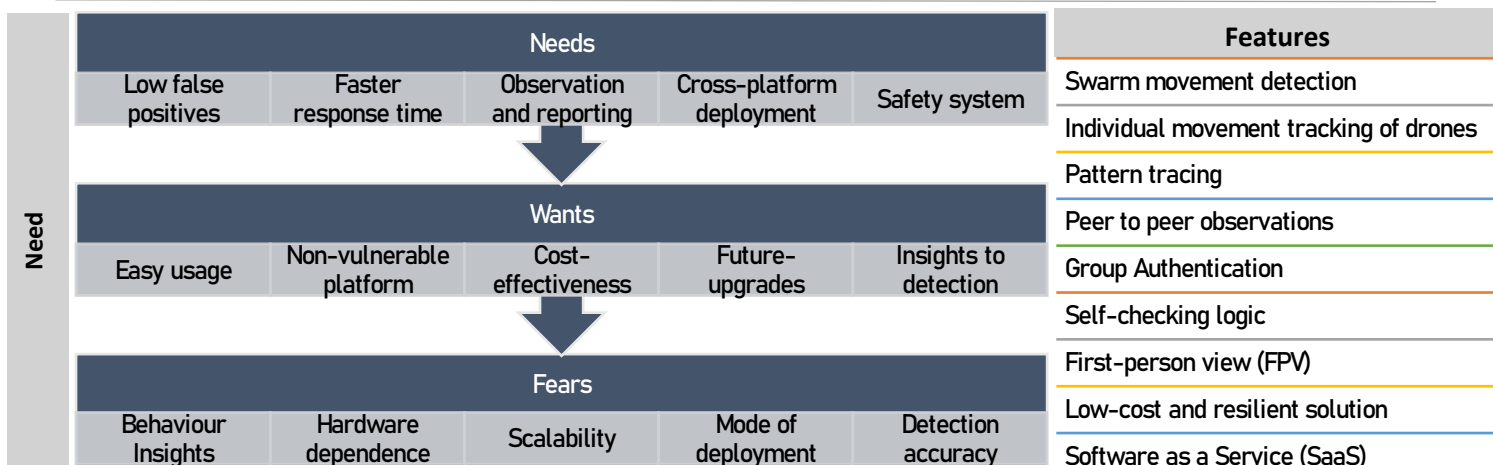
No third parties
Direction: Previous experience in drone security

Industry

TAM: ~ $3.5 Billion (~ £2.7 Billion) based on FY2017 –2021 UK spending (drones)

SAM: 73% Service Market ~ £1.971 Billion [25% Operational Market ~ £675 Million]

SOM: 5% Operational Market ~ £33.75 Million
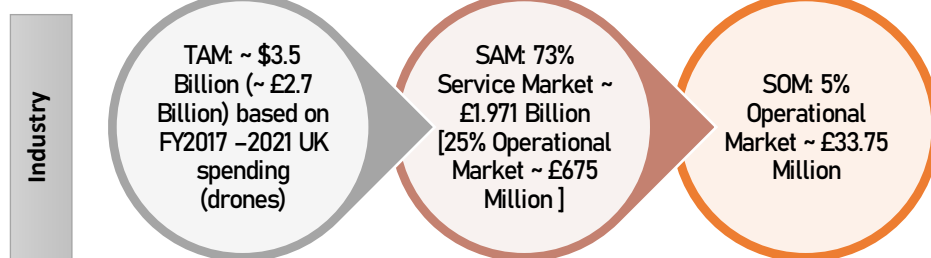
Market Segmentation and sectors

Commercial (13%)
Consumer (17%)
Military (70%)
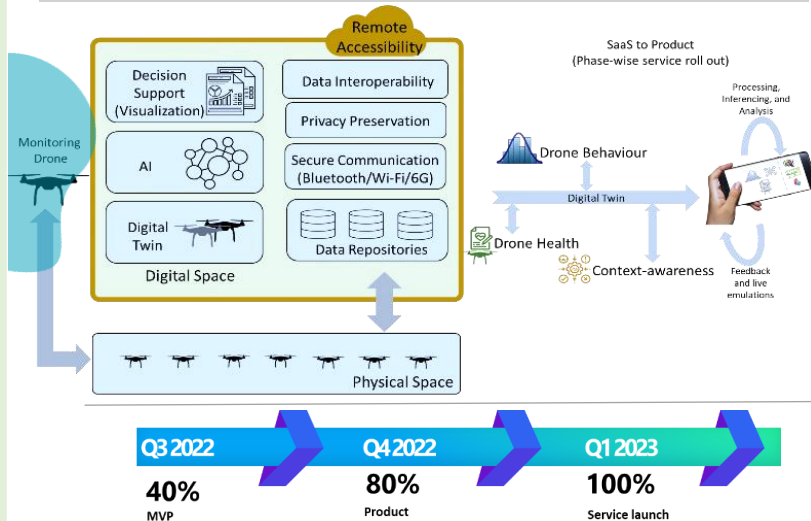
- Military (70%)
- Consumer (17%)
- Commercial (13%)
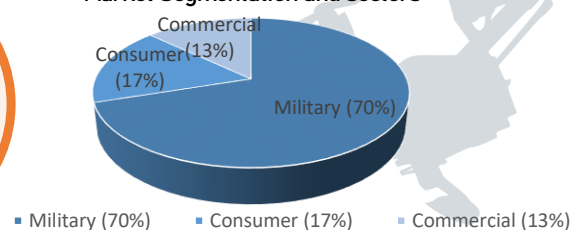
Drone sector is expected to create 628K jobs by 2030 with an impact of 1.89% on the UK's GDP. By 2027, global drone market is expected to reach $40.90 Billion.

Need

Needs				
Low false positives	Faster response time	Observation and reporting	Cross-platform deployment	Safety system

Wants				
Easy usage	Non-vulnerable platform	Cost-effectiveness	Future-upgrades	Insights to detection

Fears				
Behaviour Insights	Hardware dependence	Scalability	Mode of deployment	Detection accuracy

Features

- Swarm movement detection
- Individual movement tracking of drones
- Pattern tracing
- Peer to peer observations
- Group Authentication
- Self-checking logic
- First-person view (FPV)
- Low-cost and resilient solution
- Software as a Service (SaaS)

Solution: SaaS leveraging AI and digital Twin

Q3 2022 — **40%** MVP
Q4 2022 — **80%** Product
Q1 2023 — **100%** Service launch

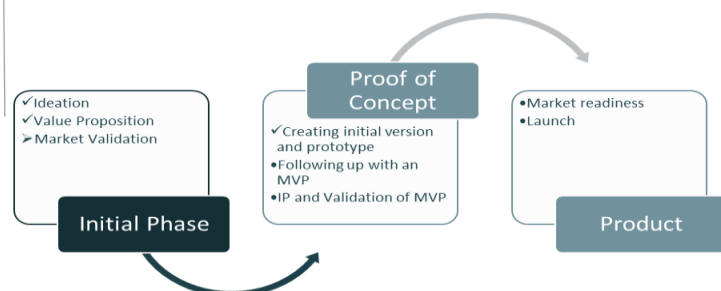## Stage: Product

Ideation → Complete
Value Proposition Phase → April and May 2022
Market Validation Phase → June and July 2022
Initial Version (Baseline) → Ready
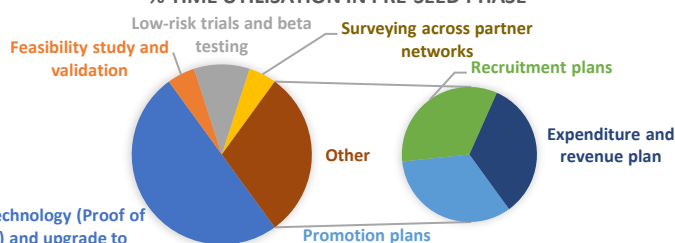R & D → Initial phase complete
Next Phase → MVP

Use of funds and expectations

- Phase: Proof of Concept
- Validation, Low-risk trials, and beta testing
- Feasibility study
- Surveying across partner
- Promotion plans, IPR filling, recruitment plans
- Expenditure and revenue plan

% TIME UTILISATION IN PRE-SEED PHASE

Low-risk trials and beta testing
Feasibility study and validation
Surveying across partner networks
Recruitment plans
Other
Expenditure and revenue plan
Promotion plans
Develop technology (Proof of Concept) and upgrade to SaaS

Dr Vishal Sharma
Lead (PI) || Leading expert in drone and security (Lecturer at QUB)

Prof. Trung Q. Duong
Co-I || World leading expert in drone, digital twin, and physical layer security (Chair Professor of Telecommunication at QUB)

Dr Antonino Masaracchia
Researcher || Experience in drone enabled networks (Research Fellow at QUB)

Queen's University Belfast (QUB)
1st in Entrepreneurial Impact Ranking (UK) and vast experience in commercialisation

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