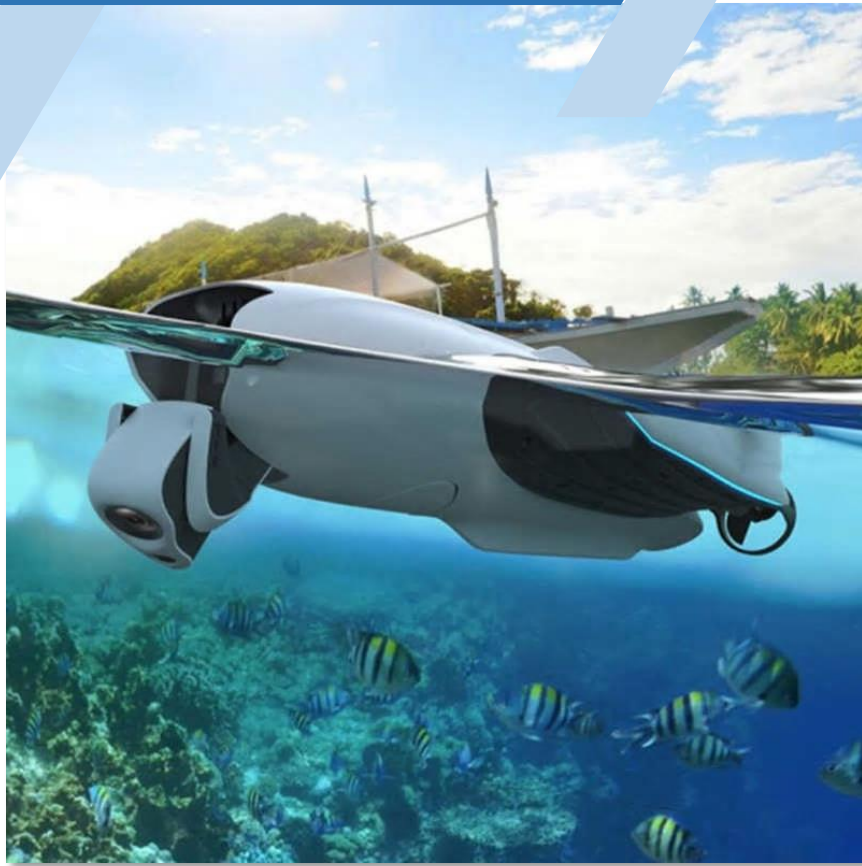


# FACT SHEET

## UNMANNED VEHICLES



# UNMANNED VEHICLES

## EXECUTING HIGH RISK TASKS

**The Essence:** A vehicle without human beings on board.

**Characteristics:** An unmanned vehicle (also called "uncrewed vehicle") is carrying out its functions *without any person* on board. They can be *remote controlled* or *remote guided*, or they can have a higher degree of autonomy where onboard equipment assists in the partial or entire *sensing and navigation*. A complete unmanned vehicle system consists of the vehicle itself, a *ground-based controller*, and a *communications system*. The vehicle is normally controlled remotely by a human operator who uses the mentioned controller and the communications system for this purpose. There are four main categories (with several sub- or special categories): 1) *Unmanned Ground Vehicle* (UGV - autonomous cars, unmanned combat vehicles), 2) *Unmanned Aerial Vehicle* (UAV - unmanned aircraft commonly known as a "drone"), 3) *Unmanned Surface Vehicle* (USV - for the operation on the surface of the water), 4) *Unmanned Underwater Vehicle* (UUV - for the operation underwater, sometimes called "Underwater Drone").

**Business value:** Unmanned Vehicles replace a number of high-risk or other specialized functions which were performed by humans in the past, and/or they assist in reducing risk, cost and time while improving accuracy and quality.

**Concerns:** There are arguments related to the risk of unmanned vehicles being breached and taken control of by cyber criminals, or simply that malicious actors would use the technology directly for their unethical or harmful purposes. Others have raised concerns related to the overall safety and security, but these are commonly not rooted in proper risk assessments. Obviously, criticism has arisen from the fact that these systems do take away human functions which used to be highly remunerated.

**Successful implementations:** UGVs/UAVs/USVs/UUVs have been implemented and have added value over a wide range of industries and applications: defense, emergency response, humanitarian aid and disaster relief, conversation, disease control, healthcare, agriculture, weather forecasting, maritime, waste management, energy, mining, construction planning, infrastructure development, insurance, realty, urban planning, personal transportation, airlines, telecommunications, internet access, advertising, retail, manufacturing, journalism, education, security - and many more.

**Hot tip:** Small investments may bring considerable value - let's brainstorm!

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