



*quantum*  
*systems*



NO  
COMPROMISE.  
JUST FLY.

# YOUR APPLICATION OUR SOLUTION

There are several reasons why land surveyors, farmers, scientists and SAR teams are increasingly adding our our VTOL TRON and TRINITY UAVs to their tool box.

Firstly, using our long range VTOL systems can vastly reduce the time spent collecting accurate survey and mapping data. By acquiring a huge amount of photogrammetric aerial image data - in the form of geo-referenced digital aerial images (RGB & NIR) - the user can easily produce Digital Orthophotos (RGB & multispectral DOPs) and Digital Terrain Models (DTMs) as well as dense 3D point clouds (e.g. LAS-files or XYZ-files).

The TRINITY UAV technology allows GIS professionals and surveyors to work more efficiently. By allowing surveyors to collect accurate spatial data from above, our technology can vastly reduce risk by minimising the time these staff spend on site.

A farmer can capture highly accurate images of his fields, covering up to hundreds of hectares/acres in a single flight with a better ground resolution than satellite imagery provides, even when there is cloud cover. NDVI maps and ISO-XML files for rate controlled applications are the key to boosting yields, cutting costs, and driving the farmer's business forwards. ■



ONE OF THE MOST  
EXCITING ASPECTS OF  
THE UAV BUSINESS IS  
THE FREEDOM THAT NOT  
HAVING PEOPLE ABOARD  
A CRAFT GIVES  
DESIGNERS TO EXPLORE  
UNCONVENTIONAL  
CONFIGURATIONS.



## THE WORK FLOW



MISSION  
PLANNING



PREPARATION  
& TAKE OFF



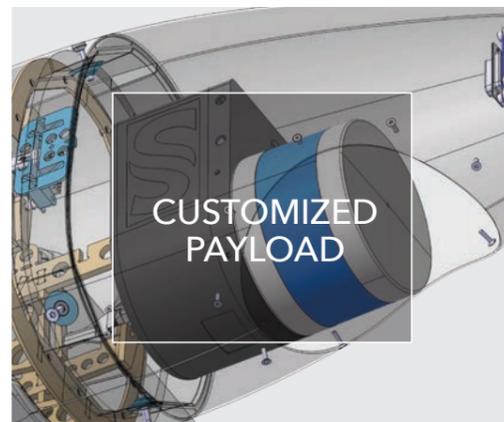
FLIGHT



DATA  
PROCESSING



DATA & IMAGE  
EXPORT &  
ANALYSIS



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# TRINITY



The TRINITY combines high efficiency, flexible mission capabilities, and a small, portable footprint. The result is the world's most compact VTOL fixed-wing drone available today!

We aimed for a product that meets the requirements of professionals. Therefore we started from scratch with a highly integrated industrial product in mind. You can see the result in every detail, whether it is the optimized

electric layout, the efficient cargo container or the clean finish of the outer shell; the TRINITY showcases the best of German engineering, the way it should be.

The three-rotor configuration enables it to achieve perfect VTOL capabilities and a highly-efficient long range flight configuration. The perfect weight balance of the TRINITY keeps the rear rotor in the ideal thrust-to-size ratio in both VTOL and forward flight modes.

**In a nutshell: The TRINITY wastes less energy, achieves long flight times, and is an outstanding value for a professional-grade drone.**

A push of a button is enough and the TRINITY will do its assigned job. The Cockpit has a clean layout without confusing switches and levers. This ensures easy handling without errors due to operating errors. The TRINITY and Cockpit work together seamlessly to just gets your job done. ■

## OPEN SOURCE PAYLOAD COMPARTMENT

The TRINITY is the perfect platform for your applications in the fields of agriculture, forestry, mining and 3D reconstruction.

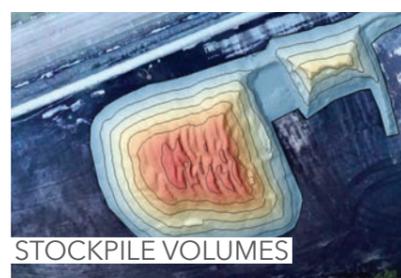
However, if there is a use case we don't cover yet, we welcome your suggestions! In order to support your project, we offer the 3D files of our cargo compartment for free to enable you to adapt it to your mission profile. ■



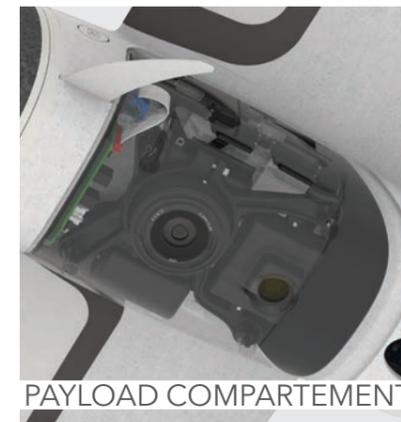
PRECISION FARMING



SURVEY & MAPPING



STOCKPILE VOLUMES



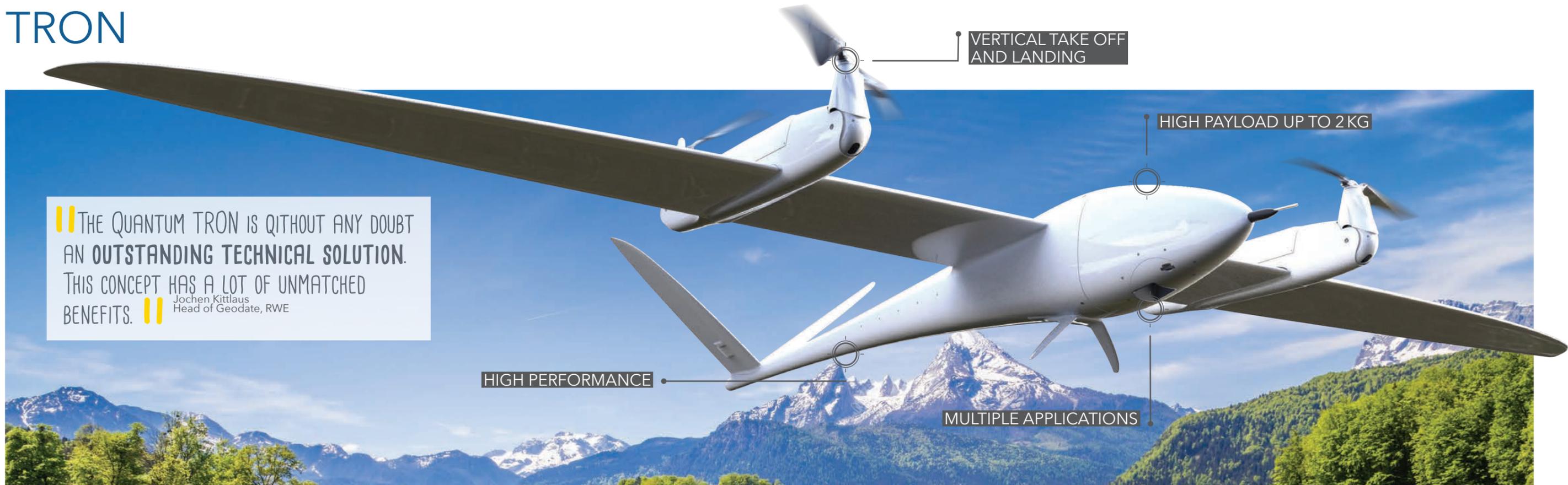
PAYLOAD COMPARTEMENT

## TECHNICAL DATA

MAX. TAKE-OFF WEIGHT	5 kg
MAX. FLIGHT TIME TRINITY60° / TRINITY120	60 min* / 120 min
PAYLOAD (shock resistant)	up to 500 g
CRUISE SPEED	60 - 80 km/h
MAX. RANGE (area)	77 km = 550 ha

\*no export permission required.

# TRON



|| THE QUANTUM TRON IS WITHOUT ANY DOUBT AN **OUTSTANDING TECHNICAL SOLUTION**. THIS CONCEPT HAS A LOT OF UNMATCHED BENEFITS. ||

Jochen Kittlaus  
Head of Geodate, RWE

The TRON is a professional and high-performing UAV offering outstanding efficiency and elegance. The system has been designed to flexibly, **quickly and safely integrate different sensors** in order to meet the needs of a variety of applications.

The **high quality standards** of Quantum-Systems GmbH, combined with the **extremely simple operating concept** and the high aerodynamic efficiency, make the system unique among all other existing drones. To meet these high

demands, the TRON was designed from the outset as a fully electric transition aircraft.

The TRON's **robust and shock-absorbing cargo compartment** is able to securely accommodate even the most fragile payload, up to 4.4 pounds (2kg). Thanks to our sophisticated **vertical take-off and landing** capability, the risk of damage is reduced drastically compared to competing systems.

Combining VTOL and fixed wing capabilities into an easy to use

system gives you flexible operating areas and the **ability to map larger areas than has ever been possible** with conventional multicopters. Blending the best parts of both multicopters and airplanes the two modes into one simple, robust system was our goal from the initial concept to completed design. While the TRINITY fits most use cases, the TRON is our **heavy-payload solution** for special applications.

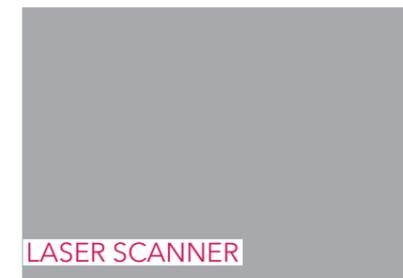
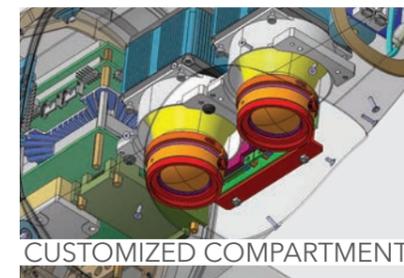
Developed as an autonomous UAV

for professional use, the TRON was built with superior aerodynamics. Our focus on in-house development enables us to be in control of every system and guarantee the highest performance with no drawbacks.

**Combining VTOL and fixed-wing** flight is more efficient and effective than a single system. The specifications of the TRON make it up to 100x more efficient than conventional multicopter systems. The combination of both systems result in less time necessary to complete a mission. ■

TECHNICAL DATA	
MAX. TAKE-OFF WEIGHT:	14 kg
FLIGHT TIME TRON60*/TRON120	60 min/120 min
PAYLOAD	up to 2 kg
CRUISE SPEED	70-90 km/h
MAX. RANGE (Area)	160 km = 550 ha

\*no export permission required.





# QBASE

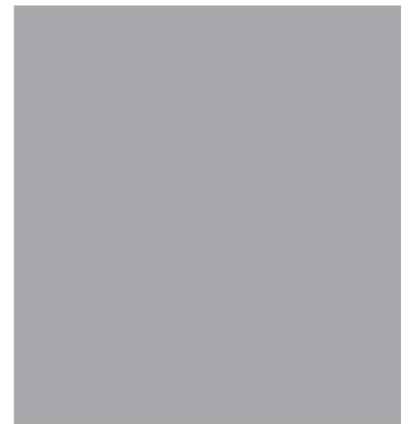
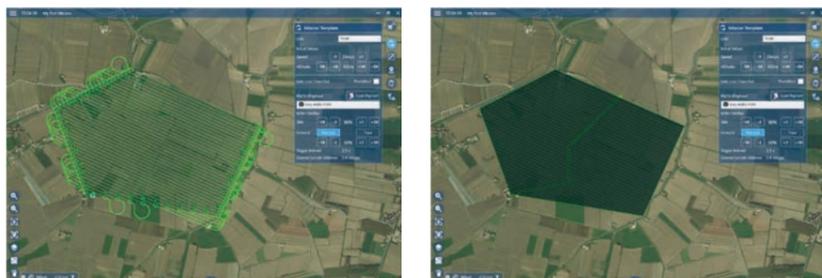
Our self developed flight planning windows software QBase makes it easier to achieve your goals by supporting you in the use of the systems TRON and TRINITY. Cooperating with ESRI gives us the ability to integrate existing ESRI Data and define the flight area with a few clicks, on- and offline.

The intuitive user interface helps you to define your mission parameters in a few minutes. With this information QBase automatically generates an efficient flight path. This puts you in complete control over your photogrammetric aerial survey mission and guarantees full coverage over the area of interest.

An additional feature is the advanced Mission-Check which examines your mission and specified parameters before the transfer of the mission to the UAV.

Besides providing real-time information from your Tron or Trinity, QBase also features an instrument panel that gives you updates on the altitude, attitude, speed, heading and battery health. Through these parameters, you can diagnose your Quantum UAV at any time. Our support keeps you up-to-date if there are any updates of the firmware or new versions of QBase.

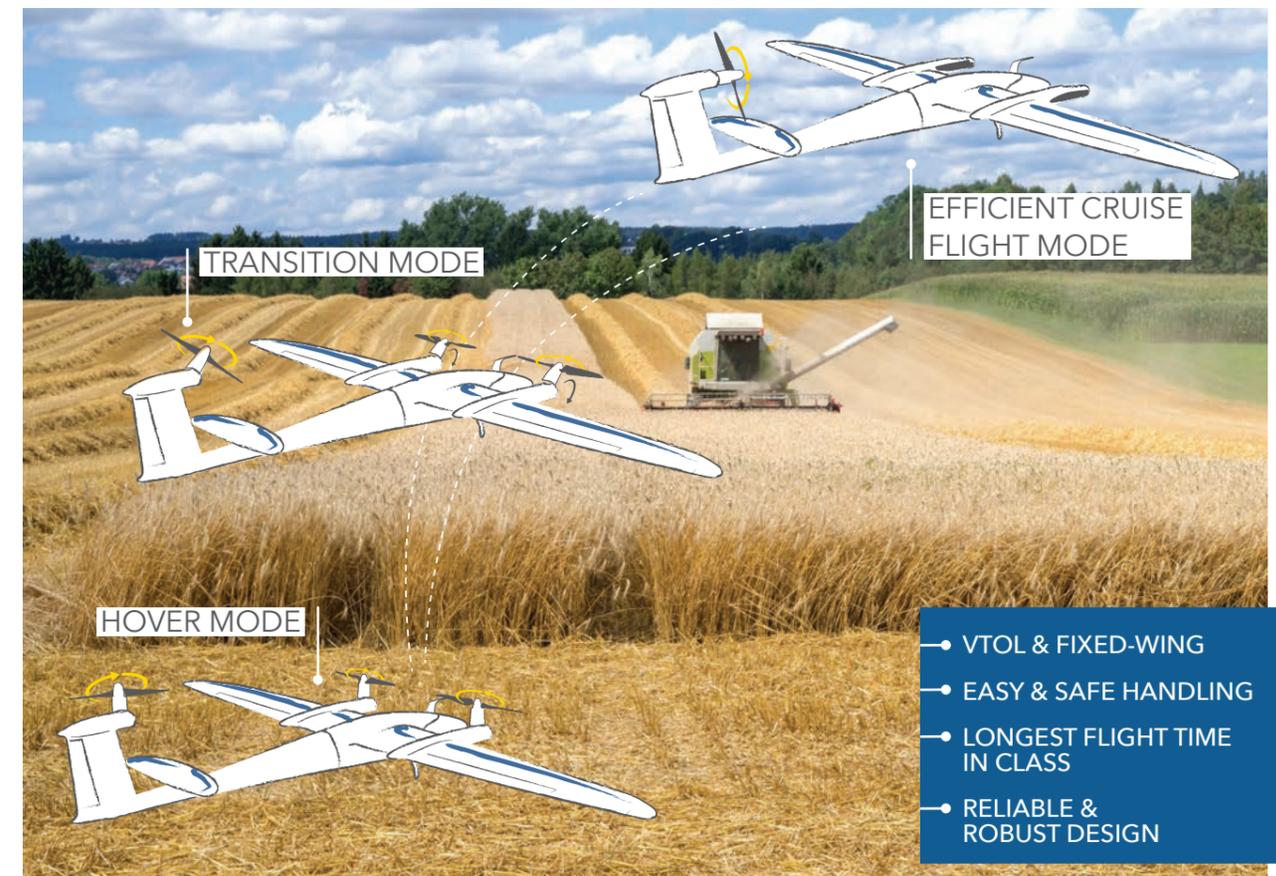
We help Surveyors, Farmers, Scientists, Quarrymen, civil engineers and geologists to focus on their job - just fly! ■



- EASY FLIGHT PLANNING
- FLIGHT SIMULATION
- MISSION SAFETY EVALUATION
- FLIGHT DATA MONITORING
- BATTERY MONITORING
- SELF-DEVELOPED
- ESRI BACKGROUNDS
- SUPPORT FULLY OFFLINE MODE

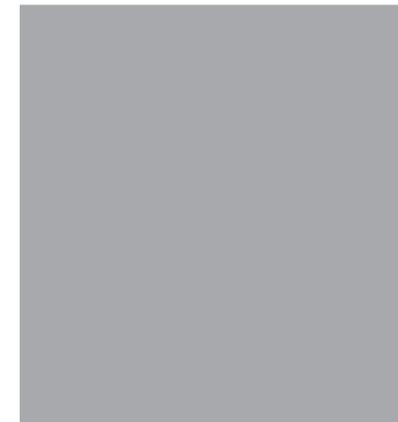
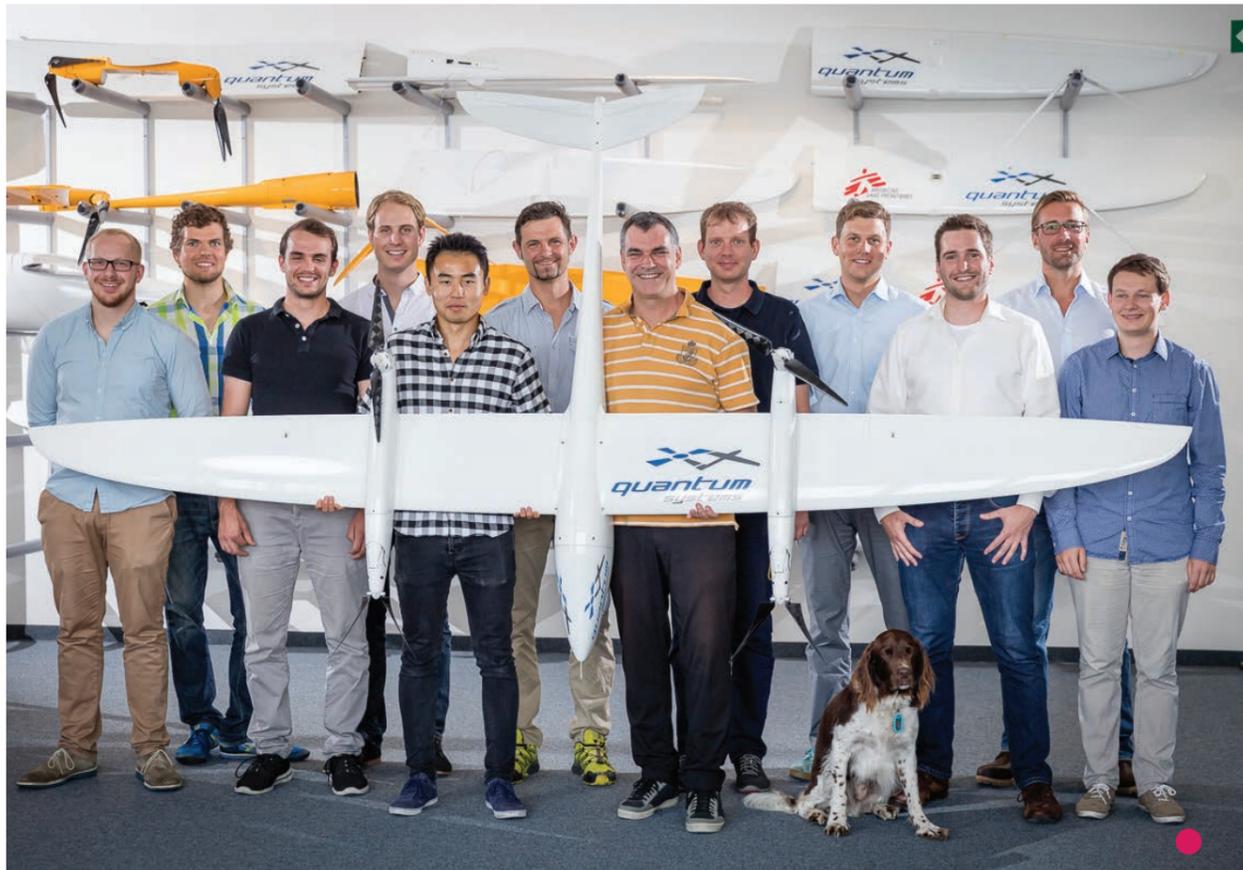
# ONE BUTTON SOLUTION

Our fully automatic UAVs take-off and land vertically like a multicopter, but also fly as efficiently as a plane. No expert training is necessary thanks to the "One-Button-Solution"! ■



- VTOL & FIXED-WING
- EASY & SAFE HANDLING
- LONGEST FLIGHT TIME IN CLASS
- RELIABLE & ROBUST DESIGN

# TEAM QUANTUM



|| ITATUR AUT LIS ATEM QUAM SI QUE PELESTIBEAR OPTA NONSERIT  
OMMO QUAE VOLENIH ILLECTUR. ||

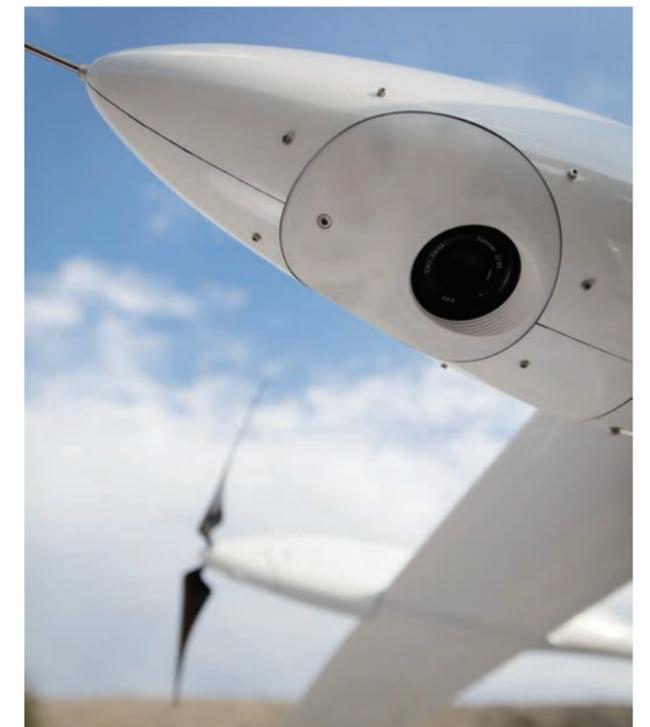
The company Quantum-Systems GmbH was founded in January 2015 and is specialized in the development and production of autonomous transition aircrafts for civilian use.

Our products combine reach and efficiency with the ability to vertically take off and land without additional equipment. By means of the founding team's diversity, Quantum-Systems manages to combine extensive

experience and expertise from all relevant areas of unmanned aerial systems. In 2008 we started to conduct research in the field of autonomous flight systems and already in 2012 successfully completed the first autonomous transition. Combining vtol and fixed wing capabilities into an easy to use system gives the user the freedom of choice regarding the operation area and the ability to map larger areas than with conventional multicopters

possible. Combining the two modes into one simple to use system was our goal at Quantum-Systems!

Quantum-Systems GmbH is self-financed and managed by its owner. Thus, we are completely independent in our decision making. The combination of innovative power and uncompromising focus on quality make us the first choice in the area of transition flight. ■





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Bavaria