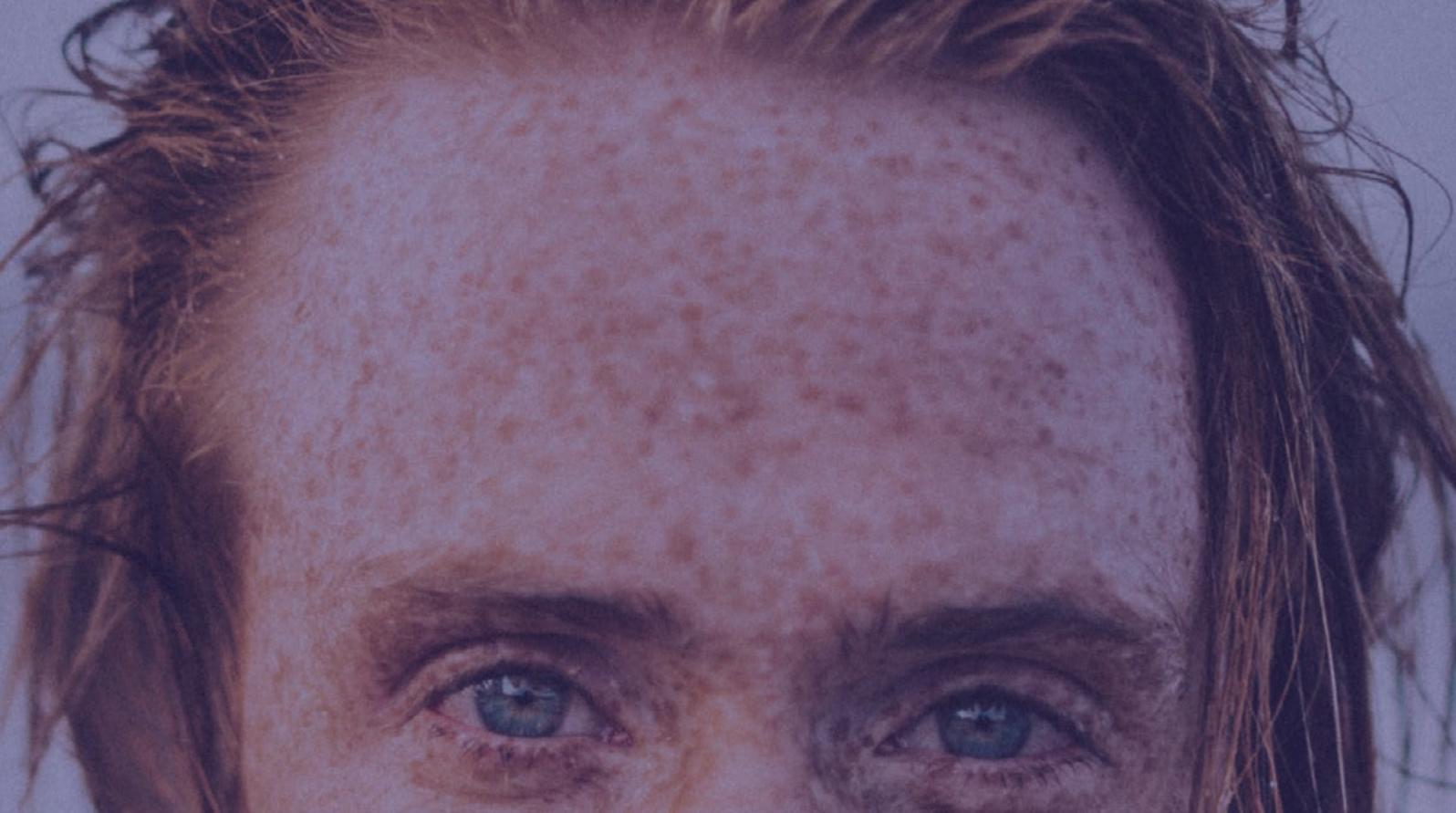




WE
SAY
HI!





- ... **Drones** fly safely.
- ... **Drones** fly missions automatically and out of sight.
- ... **Drones** have a steadily improving technical flight performance.

This is not a news information. A technical innovation brings a lot of fascination. But one question is asked too rarely: What added value does the technology achieve? This also applies to drones.

**We want to change the perspective
and ask the right questions!**

**Therefore the focus of our actions is the development of
a solution that brings added value for human beings and
their surroundings.**

CONNECTING MINDS IN URBAN AIR MOBILITY.

LAKE KIVU CHALLENGE „FIND AND ASSES“

At the African Drone Forum 2020 in Rwanda, the QLEX TEAM introduces itself and presents its solution at the Find and Asses Challenge.

WHO IS THE QLEX TEAM?

The QLEX team is a consortium made up of the partners QLEX, Synergeticon and allDots as well as the supporters Flynex and Zeiss. The partners are complementary and sharing the capability of forming a early stage strategic partnership. But why this partnership?

Solely by bringing together strong partners we're able to see the bigger picture and can start developing all in all solutions. Therefore, the focus of our actions is the development of solutions that brings added value for human beings and their surroundings.

THE SITUATION IN AFRICA.

Today, road accidents are Africa's third-biggest killer. According to World Bank estimates, Africa needs to spend \$38 billion more each year on transport infrastructure, plus a further \$37 billion on operations and maintenance. The continent's infrastructure deficit is more than a mobility issue.

DRONES AS ENABLER.

Drones are the starting point for a radically new model of low-cost, fast and futuristic transportation. Transforming mobility infrastructure can provide rural towns and villages with access to modern services such as emergency aid, commercial goods and medical supplies. Increasing drone use in Africa can not only bring great benefits to business, agriculture and the health sector but quite literally save lives by taking deliveries off the roads and into the sky.

THE FIND AND ASSES CHALLENGE SCENARIO.

The first step of changing the reality is to ask the right questions before developing a solution:

Who wants a solution? Government of Rwanda.

What is the Problem? It was an incident on one of the islands on Lake Kivu. Debris still on the island needs to be identified for collection and clean up. Several individuals on boats believed to be in the area may also need emergency support.

Which solution is needed? The Rwandan rescue teams need information on the GPS coordinates and numbers of debris structures on the island as well as the GPS coordinates and pictures of any boats that remain on the water surrounding the islands.

Our Solution. The focus of our solution is the reliable and fast provision of vital information. This requires an efficient process from data acquisition using a drone to evaluation using geomapping. The process requires the integration of two key solutions: the drone mission and the data evaluation.

The powerful Creo drone from QLEX is used for data acquisition. The artificial intelligence based algorithm from Synergeticon takes over the data evaluation. The integration of the key solutions and the mission organization is guaranteed by allDots. The results are on the one hand the information about the location of the debris is required for planning the recovery. Here it is important to obtain as precise information as possible about the location (pictures) and the location (coordinates). On the other hand, location information about boats that are in the danger zone is required. For both results it is important to gain precise information, because in both cases people are at risk.

AFRICAN DRONE FORUM

LAKE KIVU CHALLENGE

The 2020 African Drone Forum Symposium & Expo is a platform for the drone industry, including global logistics experts, startups, drone pilots, engineers and media, to showcase their innovations and state-of-the-art technology for cargo drone deliveries, and to outline strategies for the future. The Symposium and Expo will be taking place in Kigali from February 5 to 7, 2020. Competitive flights will commence on February 8, 2020.

The Government of Rwanda, in partnership with the World Bank, the World Economic Forum and others will host the 2020 African Drone Forum.



QLEX
Drone manufacturer | Germany

COMPANY PROFILE

QLEX is an innovative start-up with the mission to develop the world's most efficient, all-electric drone. The result of this development is the Creo, a VTOL (Vertical Take Off and Landing) drone with large ranges and impressive flight performance.



PRODUCT „CREO“

The QLEX Creo drone serves as a technology base focused on enabling a broad spectrum of aerial solution.

The QLEX Creo can take-off and land like a helicopter. You can fly missions in any environment. There is no need for a runway or a parachute. Once up in the air the to be patented propulsion system switches towards horizontal windbound flight.

 **5**
hours
flight duration

 **300**
km
range

 **60**
km/h
speed

 **7**
kg
Max. take-off weight

Performance

The main performance gain is due to the innovative design of the propulsion system. The UAV was uncompromisingly designed for winged flight. With this approach, we were able to take further performance improving steps almost like a domino effect. Moreover, many aerodynamic details and an affection for light weight design helped to reach this outstanding performance. In many fields of development (aerodynamics, structure, propulsion, electronics and battery), we were able to get close to the optimum. With persistency and a little luck, we were able to form an outstanding team of industry experts.

Application

The QLEX Creo is designed for universal payloads. Primarily for cameras like the MicaSense multispectral sensors for agricultural use or a Sony Alpha for photogrammetric mapping. Therefore, the system is mainly for systematic image capturing of areas or networks. Applications can be precision farming, inspection and geology. In the end, you will probably know best how to use the outstanding performance of our VTOL drone. Transmission of live images is in an early stage of development and will be available in the future.

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COMPANY PROFILE

Synergeticon was founded in 2015 as a GmbH in Hamburg and is known as a partner for aviation in the field of cutting edge technologies. The mission is to get rapid prototypes from the idea and to implement the best solution for the demanding customer until it is ready for the market. The business areas are in the sectors of unmanned aerial solutions, smart robotics, smart vision and smart data.



SOLUTION GEOMAPPING

For the solution scenario of the Team QLEX at the African Drone Forum, Synergeticon provides the intelligence for data evaluation. For this purpose, an interactive software is used, which enables the user to evaluate georeferenced image data. The evaluation is carried out using a trained algorithm. The user can create with the software a map from the image data (2D and 3D depending on the data quality) and identify objects on this map. The identification of objects is simple: the user can use a pre-selection to decide which objects e.g. streets, houses, markers, boats, etc. the software should highlight. In addition, any meta information about the objects, such as the location, can be determined on the map and exported in any kind of reports.

BASE PRODUCTS OF SYNERGETICON

SYNBot

A self-configuring mobile automation platform based on a robotic system for challenging machining tasks in aircraft production

SYNCam

Production monitoring for the detection of process steps, material flows and DSGVO-compliant monitoring of human activities in workshops.

SYNGraph

Automated processing from countless heterogeneous and unstructured data for knowledge generation

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allDots

connecting minds in urban air mobility.

allDots

supplier-independent integrator

IN SHORT, WHAT'S ALLDOTS ALL ABOUT?

We are operating as a truly supplier-independent integrator, aiming to develop collaborative all in all solutions in the field of Urban Air Mobility. We strongly believe: Solely by bringing together strong partners we're able to see the bigger picture and can start developing all in all solutions.

allDots is an integrator with focus on a new, connected mindset for Urban Air Mobility.

allDots and his partners are complementary and sharing the capability of forming a early stage strategic partnership.

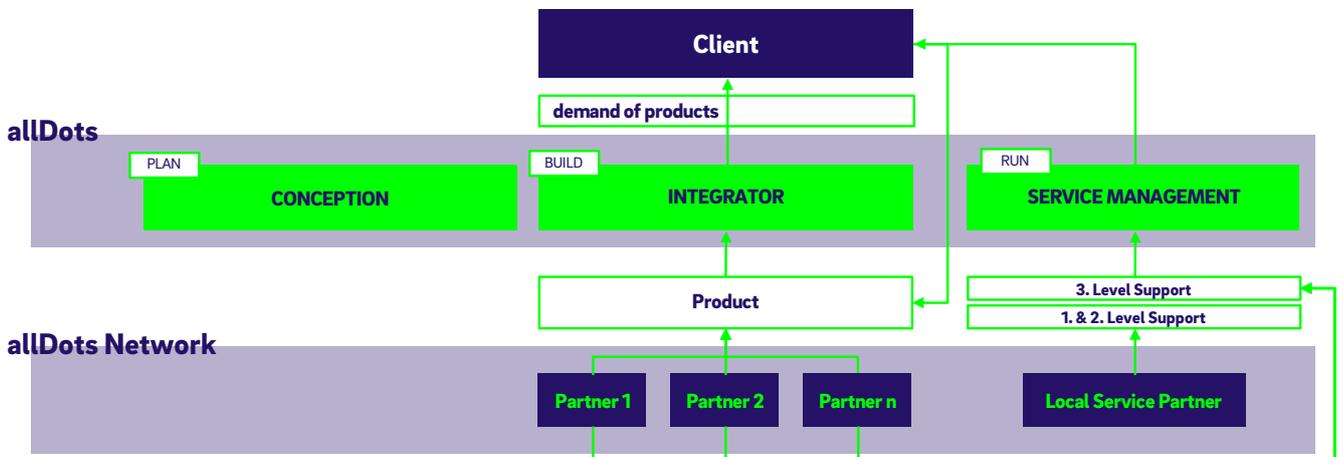
allDots concentrates their workforce around activities bearing the opportunity to deliver its partners the room for collaboration.

SOLUTION ONE-STOP-SHOP

allDots functions as a flexible, supplier-independent integrator and works collaboratively together with the his partners.

allDots assembles the suitable partner and team set-up according to the clients requirements.

allDots appears as a One-Stop-Shop for the client regarding the planning, development and operation of Urban Air Mobility solutions.



allDots NETWORK (SELECTION)



FLYNEK



exabotix



SPLEENLAB



wehyve

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OUR SUPPORTERS

FLYNEX



Founded in 2015, FlyNex believes in a significant added value across all industries through the use of drones. For that, we developed a cloud-based software solution for workflow and drone operations management as we are confident that drones will revolutionize our view of the world. We enable companies to quickly, securely and profitably integrate drone technology into their workflow with our software. Our know-how is based on more than ten years of operational experience in worldwide drone missions. FlyNex is headquartered in Leipzig, while the technical development is located in Hamburg.

As the pioneer of scientific optics, we continue to challenge the limits of human imagination. With our passion for excellence, we create value for our customers and inspire the world in new ways. ZEISS is an internationally leading technology enterprise operating in the fields of optics and optoelectronics. In the previous fiscal year, the ZEISS Group generated annual revenue totaling more than 6.4 billion euros in its four segments Semiconductor Manufacturing Technology, Industrial Quality & Research, Medical Technology and Consumer Markets (status: 30 September 2019).



TEAM QLEX

∇ Δ AFRICAN DRONE FORUM
≡ LAKE KIVU CHALLENGE



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