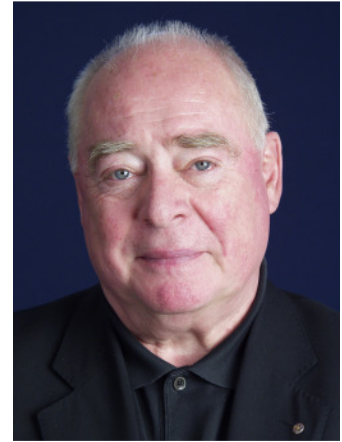


## **“The hawk in the air can spot the small mouse in the field“**

A discussion with Hartmut Euer on the civilian uses of the LUNA and ALADIN drones

Hartmut Euer, born in 1936 in Mettmann (near Düsseldorf), graduate engineer and owner of the company EMT in Penzberg in Bavaria, develops and manufactures drones for reconnaissance missions for the German military. What started as a small team of highly qualified engineers in 1978 has become a booming enterprise with 140 employees.



In the following discussion, Mr. Euer describes why the drones should be even more useful in civilian applications than their classical military crisis-region deployment.

*The astronautic pioneer Wernher von Braun once said: “I looked up at the stars with wonder and awe, and it was my most eager wish to be able to reach them.”  
Did you also have such romantic dreams of flying in your youth?*

Actually, I never had any ‘dreams of flying’. Even in my youth I was much more drawn to the idea of studying engineering in the university. I was simply fascinated by anything high-tech. It’s therefore hardly a surprise that I eventually was attracted to aviation.

*When you began your engineering studies was it already clear which direction it would ultimately take?*

Oh, I don’t think anyone really knows such things in advance. I certainly couldn’t have predicted that I would eventually develop and manufacture drones. But air and space transportation was always my theme. I stayed with it, and thus found my professional fulfilment.

*Your company EMT has been delivering aeronautical equipment to the German military for almost thirty years, and recently has begun doing business with foreign allies. Your specialty has meanwhile become drones, unmanned aircraft for reconnaissance and target acquisition missions.*

*To what extent can such drones perform peacekeeping or peace restoring activities?*

We produce pure reconnaissance drones, not drones that are capable of carrying weapons. They are employed in crisis areas such as Kosovo and Afghanistan – other areas are also in discussion – to provide intelligence for the regions where our

soldiers must go. They serve therefore as protection for our soldiers, as well as the new democratic governments that are being formed. To that extent, I consider them an important contribution to peacekeeping.

*The number of armed conflicts have increased worldwide since the collapse of the Soviet Union and the break up of the Warsaw Pact, that is, since the end of the so-called cold war. What must be done – politically and possibly also militarily – to counteract and preclude this trend?*

One must first and foremost provide support for new democracies. It has been shown that dictatorships and similar governments ultimately have led to great economic instability. The people in these regimes have always been stuck at the lower end of the growth scale. That was clearly shown in the collapse of the Soviet Union. Seventy years of communism brought neither advancements for human rights nor economic prosperity. The transition to democracy was not appealing to the authorities. They wanted to maintain their sinecures and used every possibility to hinder attempts to institute democracy. That ultimately even led to attacks from terrorist extremists. Therefore I wish to once more emphasize: the new democracies need our support.

*When did the LUNA and ALADIN drones begin serial production?*

We first delivered LUNA to the military for operations in Kosovo in 2000. ALADIN came afterwards. The German armed forces will have 115 of these systems in service by the end of 2008. These systems are perfectly suited to the newest requirements of the German military for technical expertise as well as cost-efficiency.

*What are the distinctive features of LUNA and ALADIN? How will they be employed?*

The two drone types have different ranges: LUNA about 80 km, ALADIN over 5 km. Both devices are fitted with the most modern daylight and infrared sensors. LUNA and ALADIN are optimally suited for the requirements in Kosovo and Afghanistan with regard to airspeed, duration of deployment, and sensor technology. In addition to image acquisition, the target can be physically located with the help of GPS (Global Positioning System). Up to now, LUNA has flown about 2000 missions, ALADIN approximately 700.

*It is becoming more common that guerilla warfare is replacing classical military conflicts in struggles between legitimate military forces and terrorist groups. Examples are Afghanistan, Iraq, and various African conflicts. To what extent can drones be used in these circumstances?*

Let me put it this way: the hawk in the air can spot the small mouse in the field. That is, the application is obvious in that one can much better observe an area from a given height. A drone has an unbelievable panoramic view from an altitude of 200 to 600 meters. Especially important is that the drone is unmanned, and thus no human is endangered in the reconnaissance flight.

*And what happens when the drone is fired upon?*

So far not a single one of our drones has been shot down. Due to the real-time transfer of information to the ground station, the drone could instantly provide the coordinates of the attacking station if it were fired upon...

*Reconnaissance and surveillance are the strengths of your systems. One must automatically ask why drones only have military applications.*

That is precisely the crucial question. The EMT Company has long known that there are many civilian applications for reconnaissance. The reason that there are no such drones in service is a result of the fact that civilian aircraft are under the control of the aviation laws. The German Federal Aviation Authority (Luftfahrt-Bundesamt - LBA), makes the decisions here. Until now there has been no basis for certification, but the LBA and industry are now making the effort to cooperate. And of course one can't forget that all of the EU countries have to agree to the certification regulations.

*Considering all of that, it seems like there is still a very long way to go...*

I don't think it's quite that dramatic. I believe that it can be accomplished within the next three to five years.

*What could be done next if the aviation authorities were to give the green light for service in the civilian area?*

There are truly many possibilities. And 'possibilities' is not at all the right word - they are real necessities. For instance: the security of major installations such as power plants, industrial complexes, and military bases. But there are many others as well, such as protection of waterways, national border and energy conduit surveillance: consider oil and gas pipelines and electricity networks. Our drones would be a great help for the monitoring of water pollution and the measurement of local radioactivity after reactor accidents.

*All the scenarios that the general public would prefer not to think about.*

But we all still remember the terrible train catastrophe in Eschede. The drones would be a great help in reconnaissance of similar major accidents. Not to mention the application of forest fire discovery and observation, and the search for emergency transmitters activated by avalanche victims. And, a bit less dramatic but nevertheless most necessary: the generation of aerial maps for major forest areas.

*You mention applications in environmental protection, catastrophes, and national security. Wouldn't these require the availability of huge numbers of drones in all of Germany?*

I think each task requires its own solution. For instance, a certain number of ambulances and helicopters have been made available in Germany for the rescue of accident victims. It wouldn't be any different in the case of drones. Only now, the various German states would have to decide which particular solution must be

implemented. Are there power conduits to keep under surveillance, or coastal waters, or national borders? Also, how many major objects should be placed under observation?

*That would mean that many different groups, such as police, technical assistance, emergency management, perhaps fire brigades, etc. would also be working with drones.*

That's exactly what it would mean. After about a four week training period conducted by us, the relevant people would be prepared to effectively utilize the drones. We also offer continuing follow-up basic training to keep the operating personnel up-to-date with the latest information.

*What about the acquisition costs? Would the use by the general public amortise the costs?*

Many drone assignments could of course be handled by helicopters, no question. But the costs would be about ten times higher, and there would always be an associated danger for the pilot! So when it comes to amortising costs, I can only say that the exceptionally good price/performance factor is a key strength of drones.

*But we now have the concern that many people in our country are beginning to feel 'over-monitored'. Cameras on every corner, 'Big Brother is watching you', and the scenario of the 'transparent human' is no longer science-fiction horror. What would you tell the sceptics?*

I'll say it in no uncertain terms: it's all about something useful for mankind - the surveillance of power lines, the discovery and containment of forest fires and crop damage, or the detection of water pollution. All of these are important and useful for the general public.

*A personal question: the drones give the impression of oversized model airplanes. Was model airplane construction one of your earlier hobbies?*

I've always thought of myself as a businessman for high-tech products. Certainly, I'm proud of the fact that my company EMT has accomplished ground-breaking technical developments. But I was never really a hobbyist.

*Technical development at EMT did not stop after LUNA and ALADIN. What new developments will be next in service – military or civilian?*

The latest development is the so-called FANCOPTER for the urban market. FANCOPTER is as well a fully autonomous, flight-capable system: thanks to a diameter of 50 centimeters, and a height of about 60 centimeters, it can even fly into buildings. You don't need a situation as bad as 11 September 2001 – just think of the possibilities of a rapid surveillance and situation analysis of a fire in a high-rise building.

*In other words, drones would be every bit as important in civilian as in military applications.*

Absolutely correct.

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