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## **Unmanned flying machines are on the horizon**

Denel and South Africa gear up to sustain strong position  
in the booming global UAV market

South Africa has what it takes to be a player in the fastest growing sector of the international aerospace industry, Unmanned Aerial Vehicles (UAVs). South Africa's biggest supplier of UAV systems, Denel (the other being ATE) is respected for developing and producing some of the most rugged and reliable tactical UAV surveillance systems in the world. While the US and Israel dominate the global market, there is scope for South Africa to use local skills to create market-leading UAVs to developing nations – a market estimated at R2bn per annum. The RSA UAV industry aims to capture in excess of 20% of this end of the market at an estimated value of R400m a year.

The global increase in operational use of UAVs is a direct result of lessons learnt by allied forces in Iraq & Afghanistan. The surveillance benefits in the defence world of being able to survey borders and enter war zones without a pilot are extensive. Even regular use of UAVs in civilian airspace has captured the world's imagination. The availability of capable and affordable South African UAVs of various sizes will trigger the enhancement of not only national security, but crime fighting, disaster management, election monitoring and search and rescue. UAVs even provide benefits to the agricultural, mining, health and environmental sectors. Within the next five years UAVs will be used by a diversity of industries from policing poachers on coastlines, carrying test specimens from remote clinics to laboratories for analysis, to keeping an eye on livestock on farms, and will prove to be a lucrative parallel market for international UAV players.

With an 18-year head start in designing, developing, manufacturing and deploying advanced UAV technology, South Africa has an enviable edge in comparison to the many international (including European) countries intending to enter the booming world-wide UAV market which is attracting an estimated R50 billion a year. However, time is ticking as technological and operational capabilities in this sector are growing rapidly. South Africa is strengthening its local industry to remain competitive, working against Goliath investors in international UAV development who are catching up fast.

### **The time is right**

“Our country is in a unique historical, geo-political and technological position to tap into the associated lucrative civilian and military markets,” says Denel Dynamics' Tsepo Monaheng, Executive Director UAVs. The local industry is taking the race to sustain its position seriously and experienced South African UAV systems companies like Denel Dynamics (a division within

the Denel Group), and ATE are not competing against one another for a slice of the pie. In collaboration, local UAV specialists created a UAV Forum, now called the Unmanned Aerial Systems (UAS) Forum. It combines the research and development advances of the CSIR and universities - funded by the Department of Science and Technology and supported by the Department of Trade and Industry, to leverage industry and government support for the good of the country. The UAS Forum has taken a careful look at local capabilities in the last two years, and has produced a strategy to create a South African UAV industry aligned with the Department of Defence and National Security Agencies. "It was estimated in 2005 that 200 full-time people employed in the wider South African industry would create a sustainable business turnover of around R200 million per year (2005 SADRI study report)," says Executive Director of the SA Aerospace, Maritime and Defence Industries Association, and Chairman of the UAS Forum Simphiwe Hamilton. "This is considered a reasonable starting point, however the industry has grown so rapidly that this figure is estimated to have doubled to R400m in 2009."

### **SA can't afford to miss the boat**

The civil UAV market is largely untapped because of regulatory constraints. UAVs are not generally allowed to access civilian airspace because current regulations were originally drafted for manned flight. This is changing, with regulatory bodies across the globe, including SA's Civil Aviation Authority driving the process of drafting internationally compliant, UAV friendly regulations. International competition is fierce to master what is termed 'sense and avoid' technology aimed at enhancing the safe use of UAVs in controlled airspace. Once this capability has been perfected, the opportunities will lead to an explosion in UAV demand.

South Africa needs to expand its international markets. "We are ideally positioned to collaborate with certain developing countries, offering first world expertise in UAV and missile capabilities," says Tsepo Monaheng. Denel Dynamics' flagship fifth generation A-Darter missile development programme is a case in point. "Good progress on this bi-national development programme between the South African and Brazilian governments is reported, with much appreciation expressed towards SA for the genuinely inclusive nature of the relationship between the two countries. The knock-on effect is further co-operative work on future projects."

### **Pooling funds, capability and opportunity**

The UAS Forum uses a common pool of funding from various industry and government partners to advance the essential technology requirements of the industry on the whole. "We are optimising expenditure for the collective good which results in growing our capabilities much faster," says Stellenbosch University's Professor Thomas Jones. "Larger groups of researchers are now able to focus on critical technologies, and outcomes are shared between all partners." This Forum of subsystems suppliers, research institutes such as the CSIR's Defence, Peace,

Safety and Security competence, universities and companies is a mature approach to seizing global opportunity. It also addresses the demand for advanced skills in engineering, and is a powerful way to transfer new technologies to industry.

“The South African industry is known for its innovation and sheer determination to compete as a player, the time is now to harness the unique capabilities that are inherent to this country,” says Hamilton.

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### **About the UAS Forum**

The Unmanned Aerial Systems Forum was created in 2007. Experienced UAV systems companies like Denel Dynamics and ATE, and flexible UAV subsystem suppliers such as Tellumat, Aerosud, Carl Zeiss Optronics work together in the Forum. They have joined forces with various academic institutions and draw from the ingenuity of research institutions like the CSIR's Defence, Peace, Safety and Security (DPSS) area of competence, as well as the National Aerospace Centre of Excellence (NACoE). They all work alongside ARMSCOR and the South African Aerospace, Maritime and Defence Industries Association (AMD) to create an authoritative and representative voice of the UAV community in an effort to promote the mutual interests of the industry. As a facilitator, AMD plays an administrative and integrative role in the success of the Forum.

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### **About Denel Dynamics**

Proud Innovators of Competitive Missile and UAV Solutions

Denel Dynamics, a division within the Denel Group, is a leader in systems technology. Its core business covers tactical missiles, precision-guided weapons and unmanned aerial vehicles (UAVs). A wide range of products along with world-class facilities, excellent customer support record and a formalized quality control system (e.g. ISO 9001 and 14000), add up to an impressive capability in the design, development, manufacture, supply and provision of services. When it comes to Unmanned Aerial Systems technology, Denel Dynamics has top engineers producing world-class technology. UAV designs that have come from the company are: Seeker, Seeker II and the new Seeker 400, Skua and Bataleur.

Dynamics is in the final development phase with Seeker 400, which will be test-flown in 2010. The new system offers 16 hours of continuous flight time as well as multiple payloads. An important benefit is that the Seeker II ground control station will be updated to accommodate Seeker 400. “It is a cost-effective client solution to what can be an expensive business when purchasing the complete system for the first time.”

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