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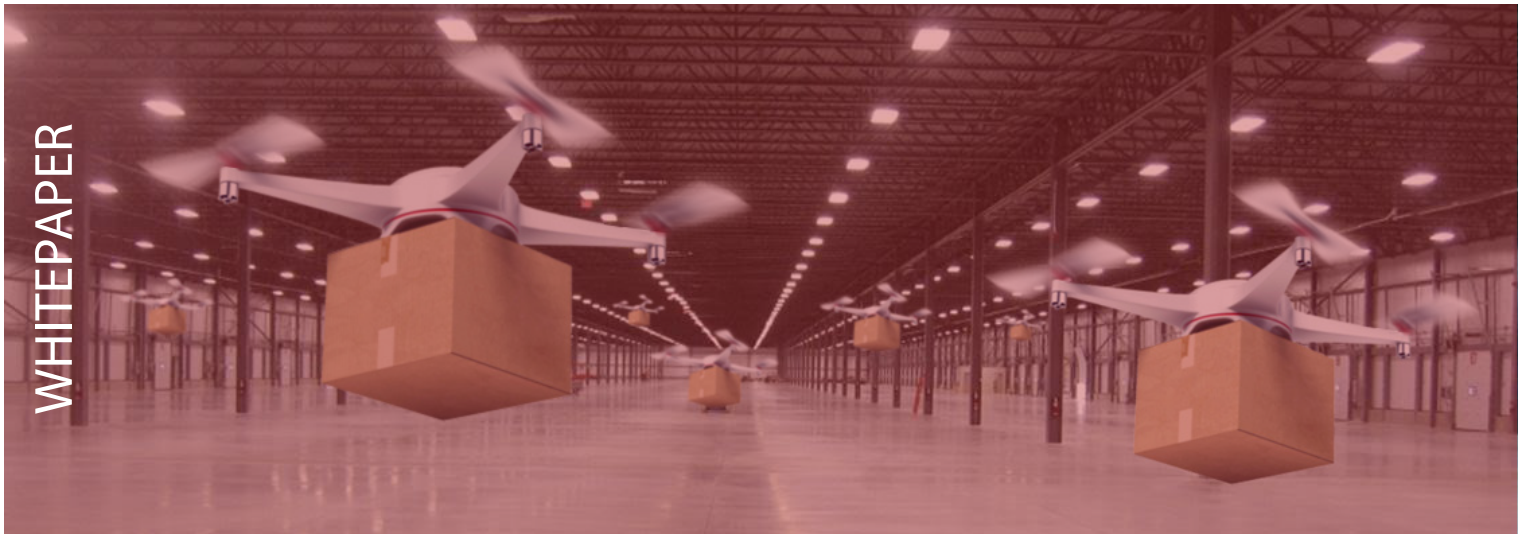

INNOVATION ■ EXPERTISE ■ TECHNOLOGY

Autonomous Sorting

next game changer for posts

THE UTOPIA OF AUTONOMOUS PARCEL SORTING HAS LONG BEEN CONCEPTUALIZED BY A POSTAL INDUSTRY KEEN TO ELIMINATE THE COST, INEFFICIENCIES AND INCONSISTENCIES OF TRADITIONAL SORTING USING POSTAL STAFF. OF COURSE, THE VISION OF ROBOTS AND DRONES WHIZZING AROUND THE SORTING HOUSE IS SOMEWHAT FUTURISTIC, OR AT LEAST IT WAS.

Prime Vision, in partnership with Unmanned Life, developer of the world's first fully cloud based, software-driven platform (ADBS) that facilitates the use of an autonomous fleet of integrated drones and ground vehicles, have announced the co-development of a practical and cost-effective proof-of-concept model for autonomous sorting with a major European post.

Working with relevant technology partners, this new innovation program could be a game-changer for posts and express parcel carriers alike: think sorting without a sorter. So, what light can be shed on this innovative future for parcel sorting?

In the first instance, the project will see Prime Vision research the potential of emerging technologies and look at how needs and capabilities can combine in new ways towards strategies that posts can adopt in their daily operations. Change and innovation is desperately overdue in sorting operations where the paradigm of major capital investment in fixed sorting systems and facilities no longer fits the dynamic e-commerce logistics market of today. The operating principle of

traditional 'heavy metal' sorting systems has changed little over the past 30 years, a time perhaps when it was possible to predict that an investment would still serve well in 5, 10, 15 years' time. Those times have gone. Today, it's arguable that few can predict how the postal market will be in even 2, 3 or 4 years' time.

With this in mind, the future of sorting is all about scalability and flexibility; ensuring that an agile operation is in place which can respond to shifting volumes over the short and long term, and importantly not burden the business with long-term expenditure in areas that no longer fit requirements.

Imagine starting with a blank floor and being operational within days rather than months or years. Well, that's the aim for the proof-of-concept that Prime Vision and Unmanned Life are co-developing. The materials handling and movement role previously performed by conventional sorting machinery will be undertaken by an army of autonomous unmanned vehicles that identify, assess and physically sort the item to its dispatch location. Although the initial concept will focus on ground-based robots, it is conceivable that ultimately airborne drones could form part of future solutions for carrying parcels with limited weight.

"All of the robots will have the ability to communicate with each other and relay immediate information to an integrated database in the cloud," explains Program Manager, Bernd van Dijk. "Of course, robots might occasionally break down or drop a parcel, for example. For reasons such as these the system will use sensors to identity and 'ring fence' temporary no-go areas for the other robots until the issue has been rectified. As a result, sorting can continue as normal."

The autonomous robot vehicles and system will be designed by Unmanned Life with the long-standing knowledge and experience of the postal sector from Prime Vision making this joint venture the perfect match between expertise and technology. Indeed the Autonomous Drone-based Services Platform (ADBS) of Unmanned Life will enable the management of the fleet of autonomous ground vehicles and drones, all this from one device. Replacing heavily human-centric operations at the heart of large industrial sectors such as postal with ADBS is the core business at Unmanned Life: ADBS deployment allows companies to run its operations with significantly increased capacity, while achieving a step-change in efficiency and flexibility at a much lower total cost of ownership.

Swarming algorithms (software that enables vehicles to co-operate in close proximity to each other without collision) are among the technologies being developed by the consortium towards making the autonomous sorting concept a reality. Other innovations include indoor navigation and mapping technology, advanced sorting software, scalable cloud-based software platforms, reliable wide-area data communications and clever battery technology.

Despite the advanced technology however, a founding principle of the autonomous sorting concept is that it should offer low cost of entry and operations compared with conventional sorting machines.

"Importantly, posts will be able to adopt autonomous sorting at their existing operations, simply by removing existing hardware and investing in the appropriate levels of robot technology," says Mr. van Dijk. "Using the new concept will also help reduce overall sorting space."

System flexibility is another project driver, which means adopting a design approach that guarantees open development (non-proprietary) and interoperability, especially regarding independence between hardware and software.

System scalability is also a key differentiator of the system whereby posts do not have to make investment decisions based on what might happen 10 years from now. In fact, Prime Vision ultimately envisages offering 'sorting as a service', where all hardware and software would be supplied and maintained, with the post only paying for the parcels that are sorted.

With these targets set, Prime Vision has established a consortium to act as a hub for posts, logistics companies and technology partners to explore, test and develop relevant technologies for the autonomous sorting program and bring the proof-of-concept to market.