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AMOS Research Chief Sees Blockchain Potential, But Significant Obstacles

Henry Canaday | Nov 07, 2017

Using blockchain for aircraft parts life-cycle records is a popular topic in some ATA working groups, according to Matthias Wagenmann, vice president of research and development of Swiss-AS, which makes AMOS maintenance software. “The distributed nature of blockchains is technology-wise very interesting,” Wagenmann says. Nevertheless, “it can be a long way until an IT vision meets real life.”

The basic prerequisite for using blockchain for life-cycle records is a defined industry standard. Record formats, communication protocols

and other matters must be specified, possibly by an ATA working group. And even when standards are set, adoption can take a while. Wagenmann points out that the electronic version of the Authorized Release Certificate, the most significant element of a part's lifecycle record, was drafted back in 2009. "But it is only slowly eliminating the printed forms."

"With highly regulated processes, there is a certain natural resistance against disruptive innovations," the Swiss-AS exec summarizes. "It will take a while until we see blockchain-based records become a real game changer."

Nevertheless, Swiss-AS wants to help shape the digital future and is pushing as an ATA member several standards to bridge digital gaps in MRO processes. "Blockchain life-cycle records will not be the next step in digitalizing the MRO industry, but might become another milestone in the future," Wagenmann predicts.

The biggest hurdle to implementation is that all participants in the supply chain over the entire life-cycle of a component would have to support blockchain records. "It requires a high critical mass of market participants to bring this technology to success," Wagenmann says.

Another obstacle is the sheer complexity of protocols, communication, data distribution and record validation. "A secure foundation is required to ensure a blockchain life-cycle record written today will still be invulnerable in 30 years," Wagenmann says. Further, "it needs to be scalable so that even a 30-year history can be validated quickly. And the peer-to-peer protocol needs to be absolutely failsafe and hardened against attacks." Finally, regulators must approve the technology.

On whether AMOS could automatically upload and download data for a blockchain, Wagenmann notes that Swiss-AS is developing AMOScentral, a central message broker supporting end-to-end encryption. "The basic idea is to build a virtual cloud over all AMOS

installations allowing easy, secure and fast data exchange between all connected entities. In terms of cryptology, connectivity and distributed data, this approach uses some basic concepts that are also the foundation of blockchain infrastructure. With AMOScentral, we will be in a good position to support a blockchain distributed ledger once required standards are set.”

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