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ABSTRACTS

Data and standards for digital construction

Alan Muse Frics(United Kingdom)

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Abstract

Collaborative International Construction Measurement Standards (ICMS) will significantly affect worldwide financial management practice in construction, particularly when applied to emerging digital technologies such as BIM, blockchain and artificial intelligence.This paper will consider the emerging scope of these developments, how they integrate,and why they will enhance global practice.

Cultural change and technological innovation are axiomatic. In the built environment,digital technologies promise much, but they need to overcome industry global challengesand fragmentation.Various studies have shown that improving project performance is only possible byimproving decision-making at each stage of the project life cycle. In turn, decision-makingcan only be improved by providing the right information, in the right form, at the right time.Hence, developing standards for this information is crucial. Of course, we need open datastandards at an IT technical level. In addition, however, we also need standards for theprofessional work processes for those collecting, analysing and using construction costdata.However, information is like turning on a fire hose. It can quickly overwhelm you. Ittherefore needs to be defined in accordance with what decisions need to be made ateach stage of the project lifecycle. Defining information needs is critical.Similarly, validation and checking of the information is easier if we have definedclassifications and categories of information that can not only be automatically verified,but also compared on a project by project basis and across markets throughbenchmarking. Hence, to optimise digital construction, we also need to consider the nexus between IT standards and professional standards. Technology needs professional standards - and, in terms of data collection, use of predictive data and general relevance, professional standards need technology. So, as digital construction advances and the disruptive technologies come to the fore, the need for international professional standards becomes greater. Thus, digital construction and ICMS enjoy a symbiotic relationship where data collection and data use are improved to benefit project performance and the public good.

Connecting ICMS across the project lifecycle with emerging technologies consolidates and enhances their relevance. Adoption of ICMS around the world, by end users and governments, combined with use in BIM models, blockchain applications and data mining using artificial intelligence, is recommended to improve cost prediction and cost reporting across buildings and infrastructure. In turn, this will encourage more private sector investment to meet the increasing forecast need in this sector over the next decade.