I would like to continue my discussion from the previous SEBoK release on a Metaverse for systems engineering. In the six months that have elapse since I last wrote about this, the metaverse community has continued to expand. The Sandbox Metaverse and Decentraland are both built on the Ethereum blockchain. Each has their own cryptocurrency which is used to buy objects and services. And each has their own DAO – decentralized autonomous organization for governance. There are a number of others that continue to emerge as Web 3.0 continues to gain acceptance.

Recently, Lippert, et al. presented a systems engineering metaverse framework at an IEEE conference. A three-layer topology was proposed. First, there is a technology layer comprising tools, computation, and blockchain. The communication layer contains the content creation interface, a digital twin, and the user experience. Finally, the environment layer is made up of artificial intelligence, economics code, and user generated content (UGC)[1]
Does all of this sound like jibberish to you? I can assure you the younger members of INCOSE, IEEE, and IIESE understand every word of what I just wrote. I am suggesting that professional societies and engineering communities need to get out in front of this. It is quickly becoming the fusion of the next generation of the Internet, artificial intelligence, blockchains, and social media with the ability to host digital twins, transact business, and facilitate collaborations.

There are a number of issues we should be thinking about. How do we write requirements for a metaverse? What should the architecture look like? How do we V&V a metaverse? Then, there is blockchain technology. While the notion of blockchain is most commonly attached to cryptocurrency, it is also being implemented as a ledger for real estate transaction, an archive for important documents, and throughout the many steps and types of supply chains. It is being looked at in areas of managing intellectual property, cybersecurity and health care and records. These are all the challenging issues of which we as systems engineers should be involved.

It is a brave new world, as systems engineers, we need to be part of the solution. We cannot do that if we do not even understand the technology.

**What do you think?** Can this community become the catalyst for change? Can we define what a Metaverse for Systems Engineering could become? I would love to hear your thoughts. Please drop a comment using the “Add comment” feature at the bottom of this page. The “Add comment” feature does not capture who is posting the comment. So, if you want a more vibrant interaction with others, please consider including your name and email with your comment. (We recommend using [at] and [dot] if you post your email address.)

Alternately, if you want to initiate a longer conversation with me, drop me a note at rcloutier[at]southalabama[dot]edu. Please put “SE Metaverse” in the subject line to help me sort the mail easier.

With all of that in mind, I hope you enjoy this latest release of the SEBoK.

RJ Cloutier

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