

# Editor's Corner

---

Editor's Corner

The printable version is no longer supported and may have rendering errors. Please update your browser bookmarks and please use the default browser print function instead.



*We changed the name of this page to "Editor's Corner". Moving forward from this release, this page will be used for the Editor in Chief to discuss critical topics for systems engineering, either through their own words or by inviting a guest writer. Also beginning in this release, the additions, updates, and changes made in each release will be discussed on the Main Page.*

15 October 2021

**Metaverse.** This term has hit me from several different directions the past few months. You may have heard the term in one context or another. It is not new if you are a fan of science fiction, or a gamer. Most sources attribute the term to sci-fi/cyberpunk/dystopian writer Neal Stephenson in his book "Snow Crash" in 1992. My first exposure to this concept was in Tad Williams' 4-book series "Otherland" first released in 1996. Then there is the *Matrix* trilogy.

The best way I can characterize the Metaverse is a virtual social *and* workplace network steeped in virtual reality, augmented reality, and artificial intelligence. And yes, let us throw in another buzzword - blockchain - for good measure. Most of these Metaverses include some form of a currency to buy and sell goods, spells, weapons, knowledge, and property. That currency may even have international currency exchange rates. One instantiation of a Metaverse is actually running on top of an Ethereum blockchain to manage all of the financial

transactions - buying and selling of goods, in that Metaverse.

Why am I thinking about the Metaverse? Think “digital twin” and digital thread.

Many of you know I am an industry person turned academic. One of the things that has concerned me the past few years is that we as engineering educators seem to be teaching what we learned or used 5-10 years ago. I have come to believe that instead (or, maybe in addition to) we should be teaching what our students will need 5 years in the future.

**The Metaverse for Systems Engineering.** Let me dive further into the deep end here. Think of a virtual reality environment in which teams can gather to build SysML models, that become functioning code, that become engineering designs that can be verified and validated in this environment before it is ever built. The Systems Engineering Research Center (SERC) conducted some preliminary work toward this direction a decade ago for the US Department of Defense (DoD). It was called Graphical CONOPS, but it did not have the vision of becoming the entire engineering design chain. Nor were the tools available then.

Does a lot of this sound familiar? Of course it does. I have seen numerous presentations on “Digital Transformation” by corporations and governments. And tool vendors are working to provide their proprietary solutions to this challenge. Spend some time on Youtube, you will find BMW using a new tool to redesign their factory, Disney designing rides, and NavAir designing aircraft. But what are the challenges facing us as systems engineers to take advantage of these concepts and notions. I believe they are many, but here is my short list:

- Proprietary vendor stacks (the tool vendors have no motivation to work with other vendors)
- Methodology (SysML has shown that tools without corresponding methodologies are bewildering)
- Integration complexity (the tools that are out there today are just too hard to integrate for mere mortals)
- Academic involvement

Let me address that last bullet in closing. I proposed at an INCOSE MBSE workshop a number of years ago that for universities to use these emerging tools and tool

integrations, the vendor community needs to step up and create "MBSE in a Box". Or, a "Metaverse in a Box". One simple install - push a button and the entire suite of tools gets installed. The box needs to include lessons and lesson plans that teach **both** the concepts and the tool application. These must be free and open to be included in current and future curriculum. Bottom line, this complex implementation must be made simple for it to be integrated into current curriculum, which is already jam packed.

I used to work for a gent that would say technology is "same stuff, different decade". Considering many of these ideas and concepts have been around for decade(s) now, maybe he was right. One of my favorite sayings is, "It takes a generation, or two, to effect real change". What I do not understand is: why?

**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](mailto:rcloutier@southalabama.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.

A handwritten signature in blue ink that reads "R. J. Cloutier". The signature is written in a cursive style with a horizontal line underneath the name.

---

Retrieved from  
"[https://www.sebokwiki.org/w/index.php?title=Editor%27s\\_Corner&oldid=63002](https://www.sebokwiki.org/w/index.php?title=Editor%27s_Corner&oldid=63002)"

---

This page was last edited on 14 October 2021, at 21:59.