

ITEC 2019 Chairman's Opening Remarks: Interoperable by Design: Connecting People, Technology, and Nations

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Abstract —These ITEC conference Chairman's opening remarks were presented on May 14, 2019 in Stockholm, Sweden. The theme of ITEC 2019 – “Interoperable by Design: Connecting People, Technology, and Nations” is a call to action for each of us, whether from research, industry, and operations to scale collaboration, technical innovation, and knowledge-sharing across different domains, perspectives, and nations. The ITEC 2019 theme reminds us of the importance of authentic human connectedness in operations, as well as the technical challenges we need to overcome to bring modern modelling and simulation training solutions for joint, combined, and distributed contexts to life.

1 Introduction

Good morning Generals, Director General, Mr. Secretary, distinguished guests, colleagues, ladies, and gentlemen – I am Dr. Elaine Raybourn, your ITEC 2019 Conference Chairman. Welcome to Stockholm! It has been my honour to serve as Chairman, working alongside a truly remarkable team. I am personally very excited about this year's theme, “*Interoperable by design: Connecting People, Technology, and Nations*” because it gets at the heart of our greatest and most elusive challenge of all – interoperating people!

This year we have made a concerted effort to interoperate ITEC *by design*. Following the example set by our Swedish hosts in multi-agency, multinational and multicultural collaboration, we sought to provide opportunities for you to explore new ideas from different perspectives. For example, ITEC is co-located with other conferences and features guest speakers from Undersea Defence Technology (UDT), keynote speakers from the Swedish Army and MSB, a VR workshop organized by Cecilia Hammar Wijkmark of MSB, and the intentional inclusion of civil defence and first response protection in our exhibits and programme. I hope that like me, you will take home a profound passion for connecting people, technology, and nations.

2 Connecting People

I believe this theme is not only relevant today but will be for many years to come. In fact, I've always believed this, which is why I became a social scientist in the first place. You see, I realized early that as technologies and global defence contexts become more complex and evolve more quickly, we will need to rely on each other more. Increasingly we will need to *reach across* perceived boundaries to advance our capabilities, we will need to *move beyond* stand-alone tools to more connected and interoperable solutions, and we will need to *lead the way* for generations that follow toward functioning as a global “team of teams.”



Figure 1. Team of teams—a network of trust and transparency.

“Team of Teams” (see Figure 1) is a concept about interoperating people that I have been applying recently to high performance computing scientific software teams [1]. In his book, “Team of Teams: New Rules for Engagement in a Complex World” retired US Army General Stanley McChrystal and his co-authors describe a “team of teams” as a network of coordinated teams who are interdependent and share trust, transparent communication, and an awareness of a common purpose [2]. Ideally, “teams of teams” (see Figure 2) allow for more rapid decision making and more institutional flexibility. They interoperate through collaboration around an aligning narrative. This connectivity of common purpose, trust, awareness of each other, and transparent communication is referred to as shared consciousness [2].

In our daily roles as scientists, engineers, developers, operators, and informal leaders of many sorts, we are all in positions to develop teams of teams. And as members of the ITEC community we are indeed members of “teams of teams.” “Teams of teams” are also often geographically distributed and rely on technology to make progress.

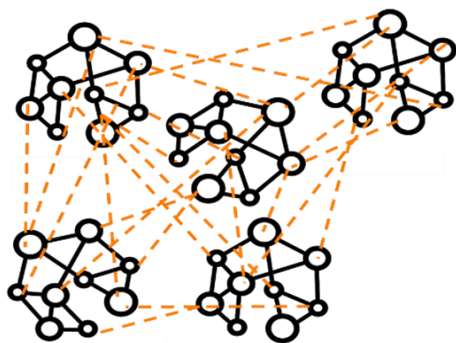


Figure 2. Team of Teams.

3 Connecting Technology

In the domains of military and civil defence training we too rely on technology to make progress. As our operators move toward more integrated teams, our architectures and simulations must also technically interoperate. But you already know this. So right now, instead of thinking about the “what we need to interoperate” or “how we will do it,” ask yourself *why* we need to interoperate technology.

About 10 years ago I asked and answered this question for myself embarking on an exciting area of research that I continue to apply today. Ten years ago, I was becoming frustrated with the number of stand-alone solutions I saw. From the perspective of human-centred design, they did not work together to connect a trainees’ core experience across media, or across the devices they most often used in daily life [3]. There was no interleaving of information, no synthesis of meaning, and no way to easily recombine and reconfigure. I wanted cognitive circuit training *and* connected cognitive battling cages.

For me, *why* I wanted to interoperate technology was to replicate authentic human connection and extend this across and throughout every level of operations. I wanted to bring modern human performance and simulation training solutions to life—whether for joint, combined, or distributed contexts. I wanted to create practice environments where trainees could experience total immersion—total immersion in understanding the problem, their strengths and limitations, and then generating creative solutions. I believe that *why we interoperate technology is to ultimately connect people*: allowing them to co-create meaning and align narratives through collective scenarios for training, mission rehearsal, and operations [3]. Another way to say this, is that for many of us, more exciting than the promise of the technology behind immersive training, is its potential to support for connected learning, cooperation, and creativity.

4 Connecting Nations

As I previously mentioned, successful ‘teams of teams’ rely on an aligning narrative. For nations to interoperate and function as global “teams of teams” there must be

alignment in a shared narrative or a common theme that unites. Some of you may know that ITEC is celebrating its 30th anniversary. Therefore, in preparing my remarks, I challenged myself to find at least one thing as true today about our domain as it was 30 years ago. *What has been an aligning narrative for the past 30 years?* One that seems to have largely framed our collective experience, is VUCA. Since the early 90s, the acronym VUCA (volatile, uncertain, complex and ambiguous) has been used to describe operational contexts for militaries, civil defence, and industry. Again, you know all this too. However, it is rarely acknowledged that the science and research driving the technical innovation is also VUCA [1]. We often execute in rapidly changing and shifting VUCA contexts, driving innovation in human performance technology and creating opportunities for breakthrough solutions—especially when we work together. VUCA has connected our nations and it is because of VUCA environments that we are here today discussing interoperability by design.

I believe that it is only by scaling cooperation and collaboration beyond the status quo that we will take our sector successfully into the coming decades. Through earnest collaboration we can apply advancements in science and technology to global trends such as urban concentration, demographic shifts, climate change, and technological surprise. Together, our nations can prepare for these and other known global trends that will, and have already begun, to shape our near and distant futures.

5 Conclusions

Each of us here today serves an important role in ensuring that the men and women who preserve our environment or protect and defend our citizens, are trained with the best tools, methods and pedagogy that science has to offer. The onus is on each of us to give them our best effort – to *interoperate by design*, as “teams of teams” by connecting our technologies, nations, and people.

The ITEC conference programme along with the exhibition on the show floor has the potential to spark ideas and aha! moments, show applications never experienced before, and encourage cross-pollination about ways to solve the challenges ahead. I encourage you to take advantage of being here, now, to explore the diverse expertise of your ITEC colleagues in the plenary panels, sessions, exhibition, and while networking.

In closing I’d like to thank our Swedish hosts and particularly General Englebretson, Chief of the Swedish Army, Mr. Eliasson, Director General of MSB, and Mr. Lindgren, Head of Saab training & simulation business development. I also thank Dr. DiGiovanni, US Navy Deputy Director of Expeditionary Warfare Division, Secretary Arafat, Head of Emergency Situations, and BG Sloane, US Army PEOSTRI for your participation in our conference. Many thanks to Rear Admiral Simon Williams OBE, the members of the Clarion team, NTSA, and my colleagues on the conference committee for all your effort over the past year. I also thank our speakers, exhibitors, and of course, all our delegates.

It would be natural for someone visiting our show floor to think that we are fascinated with technology alone. Perhaps now if asked you would say that the real reason we are fascinated with connected technology is because of its power to connect people and nations—to demonstrate the art of the possible and create new experiences for our trainees that they have often only imagined [4]. Willy Wonka popularized the words written by Poet Arthur O'Shaughnessy, “*We are the music-makers and we are the dreamers of dreams*” [5]. As we envision the future and dream up connected technologies, let us work together to keep our eyes on the needs of those we serve: the men and women who selflessly defend and protect our nations abroad and at home.

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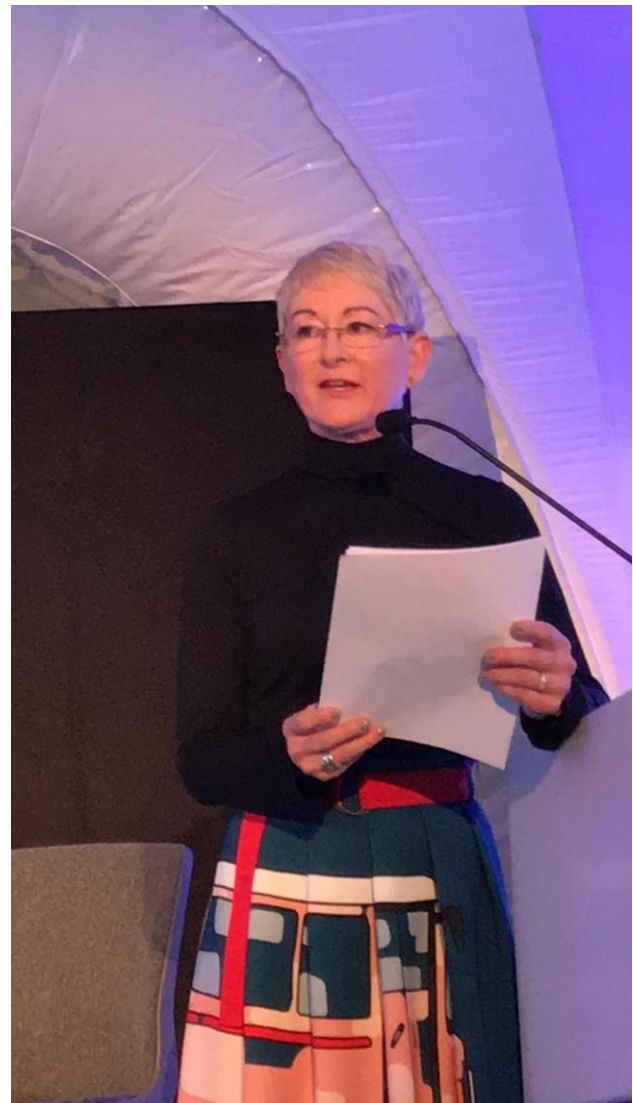
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