TBD

by Charles Hoes

I have been asked to provide a summary/status report on our involvement with the Arizona State University (ASU) initiative to introduce the topic of "design for safety" into engineering courses. I will attempt to do that here, but I wish to point out that this effort has the potential to change some of the fundamental aspects of our understanding of the goals and operation of the International System Safety Society (ISSS). It is my opinion that this is the correct time to re-think the vision of the ISSS to reflect an expanded global role. The ASU initiative is just one piece of a multi-part effort to reposition the ISSS as the "go to" organization in the field of system safety engineering and management. The effects of sequestration have made it clear that, for the ISSS, depending upon government projects is unreasonable, risky and does not meet the much broader needs of global industry — or mankind. I believe it is time for the Society to step up and admit that we are the leading organization in the field of system safety (by whatever name that field is referred to by various organizations).

Russ Mitchell, OVP of professional development, and I, OVP of engineering education, were invited to attend the ASU Design for Safety Initiative stakeholders' meeting in September 2016 as full participants in the initiative's efforts, representing the interests and objectives of the profession and the ISSS. The meeting was held on the Tempe campus and was attended by approximately 17 participants, including members of the Global Center for Safety (GCS) advisory board (including Russ and myself) and a few additional interested parties. The meeting participants represented ASU, several large commercial corporations, the International System Safety Society, the Arizona Division of Occupational Safety and Health, Gateway Community College and the National Institute for Occupational Safety and Health (NIOSH). The intent of this small group was to work out a clear path forward and to implement one or more small pilot projects to work out the kinks. Then, the effort would expand wide, then across the United States and, eventually, the world.

Russ and I have been attending these meetings for a couple of years. We are working closely with the ISSS President, Executive Vice President, Director of Education and Professional Development, the Director of Conferences and the Virtual Chapter to make sure we are representing the desires of the Society. We keep our collegues informed via status reports, phone meetings and online meetings. We work with their advice and consent to ensure that our goals, recommendations and understandings are in alignment with those of the ISSS. We are committed to achieving a long-term, strategic team effort that can mold the way we serve the profession for years to come — as well as change the face of engineering education.

Much of the time spent during the recent meeting was used in a brainstorming exercise focused on identifying issues and goals for the GCS. This session began with the phrase "cut bait or go fishing." The phrase sums up the mood of the group — it is now time to stop *talking* so much and start *doing* things to make the initiative happen. The meeting focused on three categories: business consortium, future outreach and the way forward.

The discussion almost turned into a discussion of how ASU could begin to research how to implement its goal of designing safety into engineering projects of all kinds. I pointed out that we, the ISSS, have a long history of designing, implementing and managing safety programs just like those they are envisioning. Therefore, there is little or no need, or value, in doing more research on the topic of how to "do" system safety. I suggested that if they want to dive into doing research at the moment, a better topic might be how to integrate system safety knowledge and experience into engineering curricula and influence the "mindset" of engineers in general.

The GCS is attempting to do something that has never been done before; therefore, that it is a good place to focus research attention. The question isn't so much, "What should we teach?" but rather, "How should we teach it?" My comments quelled the discussions on the system safety approach and changed the subject to how

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to implement system safety training for non-safety personnel in the existing academic environment. From that point forward, the phrase used to describe what we were discussing was usually "system safety" rather than "PtD" (Prevention through Design — a NIOSH term and concept). While this change may seem like a small issue, I believe it was a huge shift in focus that is critical to the ISSS. There are undoubtedly many topics worthy of research, but there will be plenty of time to explore them once the initiative is up and running.

Our general concept of how this effort will be implemented is that the ISSS will create training programs for engineering professors so that they have a good understanding of the field of system safety. They will then evaluate their courses to find ways to integrate system safety concepts and practices into their existing course materials. We (the ISSS) will assist in this activity, helping to find opportunities to include system safety, and helping to make sure that good system safety practices are reflected. We will "train the trainers," and then help the trainers train their students. Our current vision is that the ISSS will retain ownership of the intellectual properties (IP) for the train-the-trainers activities, while ASU will retain ownership of the IP for the course materials. The ISSS will be appropriately reimbursed for our efforts on both of these activities. I believe they are convinced that the ISSS has access to the correct expertise in these

fields. We certainly know the right people; hopefully, we can obtain sufficient funding to entice them to assist with this project.

There was a lively discussion around what type of certification or credentialing, if any, is needed. The discussion focused on providing some sort of certification reflecting classes taken, rather than a formal certification such as the CSP. They feel that ASU can quickly, easily and honestly provide certification, but are not in a place to offer credentialing at this time. This is similar to the ISSS, in that we can provide a certificate of attendance at our training courses and can provide CEUs for them, but we are not currently prepared to offer anything like a formal credential or test-based certification. This might be something we want to approach in the future, but it is not on the immediate critical path to success.

There was an unanswered question concerning whether this initiative would include some form of alliance between the ASU, GSC and the ISSS and, if it does, what that alliance would look like and how it would be managed and funded. This is a question that the ISSS Executive Council and general membership should begin to wrestle with because it includes several potential impacts on what we do and how we manage the activity, as well as the ISSS itself. Obviously, if we decide to do this, there must be sufficient funding to allow us to support our end of the arrangement.

The idea of obtaining money from sponsors was briefly discussed, with the caveat that it is extremely easy for this to backfire. Sponsors who put up money tend to want to drive the ship, and that is often to benefit them rather than the project as a whole. Some horror stories were shared as a warning to do this with extreme caution, using lawyers to help chart a "safe" path forward.

The group seemed to think that there is a strong possibility for gaining financial support from a number of foundations and other sources. ASU currently works with a number of large, well-known foundations that were identified as likely sources of support. I got the impression that we just need to clearly state what we want to do, what the benefits of our efforts will be and how much it will cost. If we do, there will almost certainly be significant support.

An interesting possibility of funding was described by an attorney who had traveled to Arizona from Australia to attend the meeting. He told us about the possibility of obtaining contravention funds generated from safety-related settlements related to safety violations of various sorts. Apparently, many countries include criminal charges for corporate management, and contraventions provide a means of dealing with part of a court-mandated settlement through something akin to "community service." Courts can sometimes decrease, or eliminate, criminal sanctions if the guilty company "donates" funds to worthy organizations that will use the money to research, promote, train or otherwise do good works with regard to safety. These organizations do not need to be in the same country as the claim, but need to be recognized as worthy of the money. He indicated that he believes the ASU initiative, including the ISSS's role in support of that initiative, might be a good choice for using this source of funding.

While discussing potential sources of funding, the group started talking about the possibility of creating an "app" to assist with the implementation of the program. They were talking about what we sometimes call a "Hazard Tracking System." I told them that I have created these kinds of programs/tools in a number of database applications over the past 30-plus years, used them on many projects with many safety engineers and have worked out many of the bugs (and know the ones that remain). I suggested, and they tentatively accepted the proposition, that Russ and I lead the development of this app through my contacts.

The "deal" that was tentatively struck was that Russ Mitchell and I would continue managing a software development consultant that I have been working with to get a set of three inter-related apps (student version, pro version and enterprise version) up and running. We will

work with members of the ISSS to review and comment on the designs to make sure we haven't missed anything or added in extraneous items. The developer will do this for a share of future returns. Once we have a final product, we will sell the products and share the profits. My plan is to do this with the ISSS, sharing profits between the developer and the ISSS. If ASU is included in the project, then it will get a share as well. The advantage to us for them doing this is that they have access to *tens of thousands (or possibly millions) of potential customers*. I believe it will be like Apple selling computers to students at a great price. That practice caused them to become "Apple people," and created a great deal of brand loyalty as they moved into their careers. We can do the same.

The head of the ASU Global Center for Safety has been asked to make a worldwide speaking engagement to promote the GCS concept, including the importance of system safety to achieving success. This was not discussed in any depth, but sounds like the tour has been funded and is going to happen. It will include speaking engagements in 25 to 30 countries. I believe an appropriate person from the ISSS should accompany him on this tour because he is not "steeped" in system safety enough to understand the nuances of our profession, or to withstand the pressure that will undoubtedly be present to try to force him into existing compliance-based models. He will need moral and technical support. I have made a preliminary suggestion that he might need technical support, but have had no response as of this writing.

I think the takeaway from this meeting is that we (Russ, myself and the ISSS) have become full partners in this project. We are no longer sitting on the sidelines offering advice; we are full participants in the development of the effort. There is a feeling that this project will go forward with or without us, but if we want to get on the train, we are welcome to do so. We were offered the opportunity to assist at whatever level we desired or could support. I pointed out that our level of support will depend on having adequate financing to do our part. We cannot afford to do all that needs to be done with the current ISSS budget. It appears that funding could be forthcoming to allow us to hire support staff to accomplish our side of the deal. We can't — and don't need to — depend only on using volunteers.

There is an opportunity before us to make some major changes to how engineering is taught, how system safety is integrated into projects on a global scale, and the roles and responsibility of the ISSS. However, this will require that we significantly change our vision of our Society and change how we do business. This is a chance for us to become known as the go-to source of all things related to system safety. ⬡