Q&A with Jean Trewhella, IEEE EPS President

The IEEE Electronics Packaging Society (EPS) has been showcasing its new name and logo at various recent industry conferences. Formerly known as the IEEE Components, Packaging and Manufacturing Technology (CPMT) Society, IEEE EPS is the leading international resource for technologists driving the research, design and development of revolutionary advances in electronic microsystem packaging and integration. Here, IEEE EPS president Jean Trewhella talks more about the new industry realities that necessitated the society's name change and opportunities she foresees for IEEE EPS.

Tell us about the name change. What was the thinking in moving to "Electronics Packaging Society"?

The first intention was to create a name representing the broader scope of areas our society is working in; the old name unfortunately did not represent our field of activities completely. If we say "manufacturing" in the name, for example, does that mean that our society does not cover research and early research? Because that is absolutely not true—we do. If you read our Field of Interest, new technologies is definitely one of the things that's heavily discussed in there. Our focus is every niche and aspect of packaging and interconnection of ICs (integrated circuits). So, we thought if we try to make a very broad but shorter, simpler name, we could then encompass the whole Field of Interest and better reflect the growing industry recognition that packaging is strategic in all areas of electronics.

Has something changed in the industry that made this name change especially necessary now?

Yes, packaging is really becoming more and more critical to the electronics industry. It used to be that packaging protected the silicon devices and otherwise was expected to do no harm. It would help the silicon by dissipating the heat, but, basically, it was there to not get in the way. Now, packaging is actually a means for integrating dissimilar technologies—*how do you use packaging to interconnect*

the chips in a way that they're going to actually function at peak performance because they're packaged right next to each other? How can we use packaging so that we can do 3D stacking where you have very low-latency signals between the two different chips or hybrid memory which requires very high-speed lines between the memory and the processors? That's a real change in the industry—all of the heterogeneous integration that is taking place. The industry as a whole is finding out that packaging can be a tool to make more value for customers and products.

We know this to be true in part because what we're seeing is that the different technical societies within IEEE are oftentimes in their conferences having dedicated sessions on packaging. So, we're seeing it crop up into their conferences and their publications, and what I want to do with IEEE EPS is to have our society support that need in the industry. What we have as a society is intense depth of knowledge that we can then bring to each of these other societies and make their sessions even richer and deeper. And then my thought is also that, as our experts go to these other societies, they'll learn how are people using the packaging technology—*what kinds of questions are they asking?*—and then they'll bring that back to, say, ECTC (the society's flagship event, the IEEE Electronic Components and Technology Conference) and have richer discussions at our own conferences about what benefits and trends packaging is driving through the industry.

Do you foresee more of a horizontal, cross-cutting role for IEEE EPS than maybe what has been the case in the society's history?

We're definitely going to be pulled into that horizontal way, and we think the name change will help us in this sense, too—that the improved clarity will result in increased collaboration with other IEEE societies. For example, another thing that is also dramatically changing things in electronics packaging is that the IoT (Internet of Things) is happening. There's an immense amount of packaging work involved in making sure that devices can be ingested in the human body, for instance, or be deployed in cars in rugged terrains and exposed to the environment. The IoT and the system infrastructure that's needed to support the bandwidth for IoT are what we're finding driving technology today. The end IoT units and the infrastructure supporting them require tremendous amounts of packaging expertise, and this impacts the work of engineers across a broad spectrum of technology areas.

At the same time, I want IEEE EPS to keep our deep vertical, technical expertise. A T-shape is what I'm looking for, where we can really reach down to the depths of the materials properties, the reliability aspects, the interactions of different materials with different stresses and strains, the modeling, etc. There's an intense amount of modeling and co-design that goes on between how you design a package and how you design the chip to make it function optimally. So, in each one of these areas, there is deep expertise in packaging, and that's what we want to continue to nurture.. But we also want to be able to bring that out in a T-shape, horizontally to all the different societies.

What are some of the other new challenges you see the society tackling?

I really believe we have a very strong message for the undergraduate engineering population—the people who are studying the basics, and maybe they don't yet know in which direction they want to go. Our society is really well suited for the next generation because it's rich with all different kinds of experts. Electronics packaging gives these students the opportunity to look at all the different fields that they're considering. They can learn how packaging gets applied, and, from there, it's a great launching place. The concepts are transferrable. If they want to go into, say, optical devices, understanding the materials that will go into those devices and why the materials are picked for optical transmission is really important.

This line of thinking is what has really gotten me excited about this presidency. I am trying to focus on our mission and really support our members and the industry at large. I'm focused on questions such as, what are we doing, and are the members seeing this as valuable? What are they getting out of participating with us? Are the other societies seeing us as a valuable contributor to the overall IEEE technical activities? Because that's really our mission. It's easy to get caught up in a budget and numbers. But those things tend to take care of themselves if you keep focused on a vision and a mission for where you're going.