

Oak Ridge Centers for Manufacturing Technology — What if we got rid of the wires?

Testimonials keep coming. The Oak Ridge Centers for Manufacturing Technology changed lives. Wayne Manges tells his story in an e-mail to me. What a fun read...enjoy:

Wayne began his story, "When I think about the handful of people who have changed my life, over the years, Jack Cook stands out. I have some great ORCMT stories to share.

"It all started somewhere around 1995 when I participated in an ORNL [Oak Ridge National Laboratory] - sponsored workshop for the ISA (then Instrumentation Society of America, now The International Society of Automation), the professional society for instrumentation and controls professionals. The workshop was about the future of instrumentation. ORNL just hosted a second workshop with the same title in 2010. The workshop in 1995 was hosted by Dr. Richard Anderson, an ISA Fellow, ORNL I&C [Instruments and Controls] division employee, and all-around wonderful guy.

"The workshop included participants from ORNL, university researchers, industry leaders, and vendors who supplied equipment into instrumentation and controls applications. The main thrust of the workshop centered around the revolution being brought about by low cost computation.

"The introduction of the microprocessor the decade before was finally creeping into industrial applications as decision-makers became more comfortable with the idea of 'software on the factory floor.' What a concept.

"During one of the question and answer sessions, I, standing at the back of the room, asked a far-out question. 'What if we could get rid of the wires?' I already knew that wiring for I&C systems was more costly than the actual instrumentation since wiring had to include many highly invasive steps which, in an industrial environment, require a great deal of effort. (At the time, the Electric Power Research Institute – EPRI – quoted wire costs as \$2,000 per foot in a nuclear power plant).

"Up in front of the room, a gentleman from Eastman Chemical of Kingsport, TN, stood up, turned completely around, pointed a finger at me and said, '**That would change everything!**' I recently ran into the guy, John Twork, at a conference in Houston and told him how his comment changed my life.

"Jack Cook, unbeknownst to me at the time, also heard the comment and was looking for ideas where ORNL and ORCMT could collaborate to bring advanced technologies to bear on manufacturing. Jack came up to me after the session and asked, 'How would you like to pursue this wireless idea?'

"I responded that I thought it was going to be as big a revolution in the industry as the microprocessor but I had no funding to pursue the activity. Jack described his vision for ORNL participation in ORCMT and how he could put some funding together for outreach if I would join his team. I was hooked.

"Now, ORNL is recognized as the world leader in industrial wireless. Sandia National Laboratory and Idaho National Laboratory researchers tell people that, if you have a question about industrial wireless, Wayne's the guy.

"I have given invited (and host funded) talks in France, Peru, Australia, Canada, China, India and at numerous venues around the US. I co-chair the new industrial wireless international standard, ISA100.

"All this because Jack Cook saw the vision with me! He and Dave Beck were true game-changers in the Oak Ridge complex.

Wayne also sent me some information about the impact of industrial wireless where over 20 new companies had formed as of 2009 directly related to the ITP (Industrial Technologies Program) driven effort to spread the technology and apply it broadly. This technological advance has been successful beyond the wildest dreams of even the gentleman who said, "That would change everything!"

In a publication of the DOE Industrial Technologies Program published in May 2010 the very first bullet listed in regards to the effort of development and use of wireless sensors to boost industrial energy efficiency is "Conducted pioneering R&D using the expertise of Oak Ridge National Laboratory to demonstrate the promise of wireless sensing in 1999. The same publication goes on to indicate the start up of three companies to pursue initial systems.

Finally the publication indicates the "formation of the Wireless Industrial Networking Alliance to facilitate wireless deployment in industry." All of this technological advancement got started because of one question in a meeting and the collaboration of two individuals, Wayne Manges and Jack Cook.

This is yet another example of the world-renowned experts we have in Oak Ridge. Sadly we just take for granted the fact that such knowledge exists in Oak Ridge and such pivotal scientific research is done here. It is treated as "just routine" and no mention made of it. Oh, maybe it will get published in a technical journal, but we are missing a bet by not making more of the tremendous things being done in Oak Ridge that impact the world.

Have you thought about how this wireless technology impacts you personally? Well, why not consider that every time you push that remote button on your keychain to open the doors of your car (or if you have a new car, even start the engine remotely) that handy gadget is the direct result of wireless sensor technology that started at the Oak Ridge Centers for Manufacturing Technology.