

Invited Speech: Semiconductor Manufacturing 3.0 Moving towards zero defect



Mr. Dan Somers

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About the Speaker

Dan Somers is currently Co-Founder and CEO of Warwick Analytics since August 2011 where he leads the business development. He is also an angel investor and a Partner at Boundary Capital, an early-stage technology venture capital fund and has been since 2009.

Prior to that he was the Founder and CEO of videoconferencing provider VC-Net which he started in 2000, and exited in 2011 in a trade sale. Before being an entrepreneur he started his career as a management consultant for LEK Consulting after graduating from Cambridge University in Chemical Engineering with a Diploma in Management Studies.

He has won and been shortlisted for numerous entrepreneurial awards including a finalist for Entrepreneur of the Year in 2006. He is a member of the Royal Society of Arts.

Abstract

1. With and without 3D printers, manufacturing is moving into a new paradigm shift: Firstly in the stone age it was manual with the skill in the product designer, then in the industrial revolution it became automated with the skill in the factory designer. Now it is becoming digital with product design, factory design and product lifecycle intimately interlinked through the data. The engineer of the future will be a data scientist.
2. Many companies are capturing the wrong data, and not capturing the right data. There are a whole bunch of these companies out there who don't know what they don't know. This is made even worse because many of the tools for extracting insight only work when the right data are present. There will be three outcomes: 1) they get lucky. 2) They change. 3) they die.
3. In manufacturing there is a phenomenon called No Fault Found or No Defect Found ("NFF"). When I first heard this I thought this was crazy but what it means it that the fault itself can't be recreated, let alone find and resolve the root cause of the fault and design a solution. So a phone, PC or more seriously automotive or aeroplane avionics fails temporarily. Alarming, many companies do not address NFF because they cannot measure or define the problem properly, even though there may

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be serious consequences (e.g. aviation or medical devices). The problems can be solved with (a) the right technology, (b) data capture and (c) the right mindset.

4. You would think that the quality of manufactured products should be always increasing. After all we've had cars and aeroplanes for over 100 years and even mobile phones for 40 years. Yet ironically as things become more complex and competitive, with shorter product lifecycles, manufacturing quality has actually improved little since the widespread advent of Quality Management techniques 30 years ago and sometimes goes down. Today the Cost of Poor Quality accounts for 15% to 30% of a manufacturing companies' sales! That's a trillion dollars worldwide for the industry. We believe that a data-driven approach and root cause analysis technology are the only way to drive this down for good.
5. To get insight from big data, do we need smart software, smart data or smart consultants? The answer here is probably all three (in this context "consultants" can be internal resources not just external). There are tools out there in the analytics world that are plug and play, but the old epithet is garbage in = garbage out.
6. The role of "IT manager" has evolved. From "break-fix" cable junkie to "killjoy" security junkie to "embrace change" BYOD junkie. Now is the advent of the knowledge dat