

New Electronics

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Think like a fish!

... that's the key to success in the electronics industry, says Joe Costello.



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It is almost a decade since Joe Costello quit as CEO of Cadence Design Systems, the eda company he took from a turnover of around \$10million to one of around \$1billion. Since then, mainstream electronics has heard comparatively little from the maverick executive. His interests – and investments – have been more in areas such as manufacturing CAD and the application of technology to niche areas such as the teaching of English as a foreign language.

However, at this year's Design Automation Conference, Costello decided to put his neck on the line. Happily admitting that his time out of eda meant he knew 'diddly squar' about that business

staked their spot on the stream. So we pick our spots, then this fisherman says, 'OK, I'll see you guys later' and disappears into the bushes. Twenty minutes later, he comes back and he has a string of about 10 beautiful fish. And he's the only guy on this whole stream who's caught anything.

"We're like, 'Woah, how did you do that? Teach us. That's why we're here'. So then he fishes with us and, in about 20 minutes, I've got my 10 fish. Same thing. But still I'm wondering what's the secret? This guy doesn't talk a lot, but finally he turns to me and says, 'Joe, the secret? Well, it's really simple – you got to think like a fish.' Right, now I'm eyeballing this guy."

look at how it all connects together – and keep doing it, every time you are about to cast your own line in the profit pool. Or to put it another way, consider it as a game of SimCity that never ends. Moreover, for electronics, he believes this has become even more the case as consumer electronics has grown to dominate the industry's growth.

Costello uses two contrasting ventures to underline his point – the notorious satellite phone venture Iridium from the late 1990s and today's ludicrously successful iPod from Apple Computer.

For him, the lesson in Iridium was that, in many ways, everything went right. The technology was delivered on budget and almost on time. It was also a 'beautiful' technology, with around 1000 patents

attached and an enthusiastic staff who believed they were undertaking the noble goal of interconnecting the world. The company even launched every one of its low orbit satellites without a single failure.

"When Iridium got started, there really wasn't a choice for high end business travellers. Every country had a different cellular system. It only required 400,000 units to break even – not much. It wasn't a stupid idea. But the prediction was that, by 2002, there would be 12m satellite phones and a 100m total cellular. Now we start to see where the thing fell apart. The bottom line is the world changed. By 1998, there were already 150m GSM users," Costello said. "They had known for years this could be a problem, but they were enamoured of their technology and they just carried on."

The result was one of the largest bankruptcies in US corporate history and a technology that today lives on in the highly specialised military and disaster recovery sectors. But what about the iPod?

"Well, the funny thing about the iPod is that before Apple decided to do it, it decided not to do it," Costello said. "At first, it thought why should we do this? We make computers. You've got Sony out there with the Walkman. This isn't us. But it kept simulating and simulating – and realised there was something it could do that none of the other players could."

"Rip, edit, burn" – remember that was the first slogan. People could use this iPod to steal billions and billions of songs. Sony couldn't do that – it

"Consumers are looking for an experience that triggers the passion and emotion in them – technology simply supports that."

Joe Costello, chairman, think3

Think like a fish . . .

It's an eyebrow raising pretext to evangelise, but former eda luminary Joe Costello believes it is key to fishing successfully in the electronics pool. By Paul Dempsey.

nowadays, he prefaced a typically energetic keynote with the comment that, nevertheless: "We're gonna have some fun and we're gonna change this industry – and that's fine. We need fun and I think everything needs change."

It was a signature Costello moment – as much as when 10 years earlier, he once made a staff video that found him vox popping the unsuspecting residents of Boston and asking what the word 'Cadence' meant to them. Costello is an unabashed enthusiast, agent provocateur and risk taker – albeit calculated. Indeed, more than anything else, it was the need for calculation he wanted to evangelise at DAC. He wanted to talk – on stage and elsewhere – about the need to 'think like a fish'.

Costello's approach to management theory has not, thankfully, descended to the level of the classic 'surrealist knock knock joke'. There is far more to it than that and it is best to allow him to explain. It all starts with Costello's interest in fishing, his desire to improve and a chance conversation with a colleague.

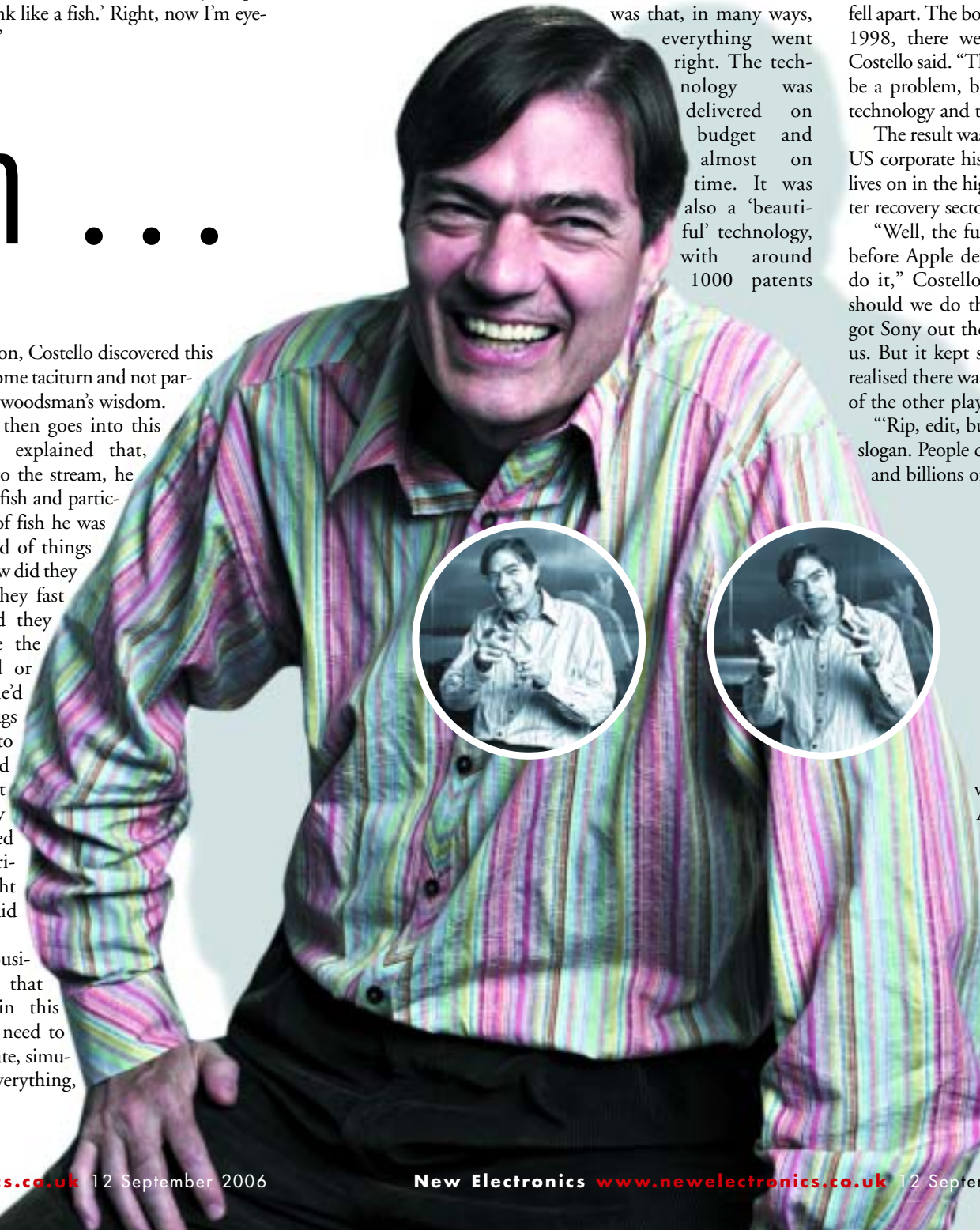
"He says to me, 'My brother is a fisherman, probably one of the best in Northern California. I'll see if he'll take you out. But I'm not promising anything: he may take you; he may not. He's a very strange person,'" Costello recalled.

A short while afterwards Costello and his colleague did get the summons. "We go to this river somewhere in northern California and we've got all our gear. There are hundreds of people – they've all

But pretty soon, Costello discovered this was more than some taciturn and not particularly helpful woodsman's wisdom.

"Because he then goes into this discussion. He explained that, when he went to the stream, he first studied the fish and particularly the type of fish he was after. What kind of things did they eat? How did they behave? Were they fast water fish? Did they prefer it where the water was cool or warm? And he'd look at what bugs were falling into the water and what all that meant. This guy owned and loved the fish experience. He thought like a fish," said Costello.

The direct business analogy that Costello sees in this anecdote is the need to 'simulate, simulate, simulate.' Analyse everything,



was heavily invested in music. Apple realised the other guys couldn't do this.

"Even now, you've got iTunes and people say people are buying more and more music, but they're still stealing it way faster. The business story, though, is that Apple kept simulating and simulating and they saw the opportunity – and it wasn't about technology." Since quitting Cadence,

Photography: Jeff Singer



Costello has been most widely known as the chairman and ceo of think3, a product lifecycle management (PLM) and manufacturing CAD company. However, through BravoBrava, the incubator in which he invests, he is now concentrating much of his time on a consumer electronics spinout that has been under development since before the turn of the Century.

As with the iPod, sometimes it is not right to do something, until suddenly it is. And, in light of his theory of simulate, simulate, simulate, this emerging project is one that has its origins in a different market to that which it is to enter.

Orb Networks offers a web based access system for a user's tv, music, files and more besides. Wherever you are, your content goes with you. The applications for such technology today are self evident. Yet, Orb evolved not from a fascination with the workings of the Walkman/iPod market, but out of Costello's interest in marrying education and tech-

nology. That initially led him to Knowledge Universe and later into a broad interest in start ups. He then hired a group of researchers from the Stanford spinout SRI to work for BravoBrava. "They were looking at a number of education ideas and one involved how to use interactive tv. One of the deals I had with the SRI people was they could spend 20% of their time on their own stuff. As a result, and through this tv strand, we emerged with this architecture that allows hardware, software and network based applications to play together and communicate transparently," he explained.

"At first – and this goes back to 2000 – it was difficult to see who to sell this to. We needed to flesh it out and to flesh it out. And we had a [technology] market that was on this four year hiatus."

Again, things have changed. Devices such as HDD based video recorders and, more recently, the Sling Box, which distributes the output from a user's personal tv over broadband to wherever they may be, are now seen as hot consumer items.

"We have a means that allows you access to and control over any of your digital content, wherever in the world you also have access to a web browser. And that's all you need, beyond the connection of the software," said Costello. "Over the next year or so, you'll be hearing a lot about Orb. We are now getting the interest and putting together the partners for the technology" he said.

Bringing Orb through now will put Costello's theories to the test – in the harshest commercial realm imaginable. But there is an underlying logic.

To conclude, it's also worth mentioning three other pieces of advice he offers. First, make your simulations universal – make them about everything and everyone. Include the engineers and even the accountants ("I don't want you to just count up the numbers and tell us we're dead.").

Second, before you do anything else, write the press release. "A lot of people think I am eccentric about that – I am not. The press release is as good as it gets. Or it should be. If your press release isn't a killer, if it will not have the fish snapping. If you can't articulate very cleanly and clearly what you are doing in a few sentences or paragraphs, you just don't know what you're talking about," said Costello.

And lastly – remember what it is all really about. "Consumer products and markets are generally emotionally driven. You have to feel the passion that consumers have and that you're inspiring in them. They are looking for an experience that triggers the passion and emotion in them – technology simply supports that explosion of energy," he concluded. 🐟

Making the case for DFM

Joe Costello's 'day job' running MCAD and PLM company think3 has given him some insight into the realities of design for manufacturing (DFM) among industries that are supposedly more advanced in its deployment than semiconductors.

"The truth is that it's kind of there. But there is much less of it than you would imagine. They do a better job of talking the game than delivering," he says.

"Sure, the guys at the pinnacle can show you some very complex, very slick systems. And the assumption is that everybody else is doing this kind of stuff. In fact, most companies don't.

"However, when it comes to electronics, I think adoption could be much broader and much faster. In the semiconductor world, the cost of manufacturing mistakes is real pain. And when the cost rises high enough and the pain rises high enough, things happen.

"People ask me where to invest and, for electronics, DFM is one area I'd look at. Just don't get caught by what the other guys claim they've done."

