

EDA Vision November 2001

An Interview with Joe Costello

A non-linear thinker for a non-linear world

by Peggy Aycinena

Several years ago, I worked with a beautiful young project manager named Brenda. One day, I walked into her cube while she was looking at an aviation magazine with a picture of Oracle CEO Larry Ellison on the cover. He had just landed his MIG jet and was loping across the tarmac. Brenda studied the photo and said, “He is such a babe!” I wondered at the time how a guy who starts a nerdy software company manages to manipulate his public image into something akin to that of a rock star, complete with trendy jets and beautiful groupies.

Earlier this year, I attended the opening ceremonies for the ISQED conference in San Jose. After the requisite awarding of Best Paper, the keynote speaker was introduced. He had just come in through the back doors of the hotel ballroom and was loping up to the podium as his introduction was underway. And, where as the bulk of the other technologists in attendance were in dark suits or conservative business casual, Joe Costello was wearing a neon-yellow shirt which only accentuated the fact that at 6’7” he absolutely towered over everybody around him as he jumped up onto the stage. I thought to myself, “I wonder if Joe Costello ever owned a MIG jet?”

I had a chance to ask Joe that very question when we sat and talked recently about his career – past, present, and future.

Joe burst out laughing: “A MIG jet? Not likely at this point. But did you know I was on Larry’s board for 4 or 5 years? But I got fired. We agreed to disagree.”

I probably was one of the few that had forgotten that Joe was on the board at Oracle, but the MIG jet was a great segue to a captivating hour of conversation with Joe – a conversation as non-linear as Joe’s thinking, full of discontinuities and joie de vivre.

The Young and the Restless

Joe's a man of energy – endless, restless energy that for the uninitiated seems at first unfocused. But, he's not unfocused. He's just gifted with endless, restless energy. Period. And, from the looks of things – and websites of the companies he's currently associated with – that's the secret of his success. He's bright, quick, funny, and unconventional. Those things combined with his endless, restless, *focusable* energy make up a package that has figured hugely in his success and the success of many people and companies around him. Who wouldn't want to converse with, invest in, or follow somebody that brings a kind of intellectual firestorm into a discussion, an enterprise, or a leadership role.

And this isn't to say that Joe hasn't had his adversaries, because he has – particularly in EDA. People, like Joe, who flaunt their brashness and bravado always pick up enemies along the way. But even his detractors have to admit that EDA was never boring when Joe was around.

By his own admission, Joe's not in EDA anymore. Does he miss it? “No, I don't,” he says. “I'm done with that phase of my life, although I'm still fooling around with it [a bit] at Barcelona and Simplex.”

How does he think the industry is doing today? “Well, the risk taking in EDA is gone,” he says for starters. “Cadence is run by good managers, but they're not talking with authority and confidence about where things are going. Aart [de Geus at Synopsys] is a brilliant technologist, but also very conservative. He's not a bold marketing guy. He's more focused on the engineering. With either of these companies, the right leader could make a difference.”

Joe says now may be time for the next youthful characters to emerge in EDA. “Actually, it's not just age, it's a mental set. [Somebody] can be older and still be radical. The question is: Are you leading or are you just managing? Are you taking bigger risks or being more conservative? Are you a visionary and are you marketing oriented? Unfortunately, the [current] personalities tend to be on the conservative side of these dualities. My own guess is that there will be a changing of the guard [soon] from within one of these companies or through a super start-up – or a combination of both. Aggressive, more radical leadership will inspire new experiments in technology. True, some aren't going to work. Some failed experiments are [always] needed to get the home run. But, my impression looking at EDA today is that it's more a leadership issue than a technology issue.”

He acknowledges that the design problems today are really complex., but says, “Isaac Newton reminded us about standing on the shoulders [of those who went before]. No matter how great we think we are in our generation, how much we've built at this level, we need to go to the next generation [to see what's coming]. It's not like our work is lost. We did great things.” Joe says he doesn't miss EDA, but adds, “If I was still in EDA, I would be riling things up a helluva a lot more than they are today!”

Meteoric Rise to Success

Joe earned his BS in physics at Harvey Mudd College in Southern California – a small school with an intimate graduating class of 90. From there he waltzed off, starry eyed, to Yale just like a character in a Thomas Hardy novel, he says – only to discover that the life of a

graduate student is the life of a slave, always laboring at the beck and call of professors and their research. “It was a horrible school,” Joe says, which is why he fled Yale for U.C. Berkeley as soon as he’d earned his MS in physics and a ticket out of New Haven. To his dismay, however, he discovered the slavery model was just as alive and well for graduate students in Berkeley. So, he bailed out from graduate school a second time with a second “booby prize” – another MS in physics. Forsaking academia, he jumped into industry for good.

Joe’s name has been linked with the history of Cadence for so long, one might think that he actually started the company. But that’s not so. Initially after leaving Berkeley, Joe joined National Semiconductor as an R&D manager for digital signal processing and speech, during which time he became friends with Jim Solomon at SDA Systems (an early EDA company). When Joe left National to found Electronic Speech Systems, Solomon began actively recruiting Joe for his own company. Joe was only mildly interested: “I had no intention of ever working in design automation. The CAD people were second-class citizens at best, but I liked Jim. When I went to see him at SDA, it was pretty neat. They had all these PhD’s out of Berkeley, Carnegie Mellon, Bells Labs. I told Jim I’d call him the next day.”

“Actually, [the truth was] I had run out of money and only had about \$200 left in the bank. It was a compelling issue to get a job, so I called Jim and he offered to make me head of documentation and customer service. He told me he’d always thought I’d make a good teacher, so I started with SDA in 1984.”

Joe may have liked Solomon, but he didn’t think everything was as it should be at SDA Systems. “They had hired this guy out of IBM to head up sales and he was pretty arrogant. I didn’t know how corporate functions were supposed to work, but this guy sure seemed to do things that were stupid.”

Eventually, SDA needed a new marketing guy and Joe was promoted to acting head of marketing. But business was tough and SDA Systems got into more and more trouble. The sales force resigned – at least half of the staff in a single day. Joe says wryly, “ That was not a good day.”

Joe told Solomon he would take over in sales. Solomon asked, “Why would I put you in charge?” Joe said, “Excuse me. I was just offering a helping hand.” So Solomon, through desperation or design, made Joe the acting head of sales.

In Joe’s words: “Right at that time, SDA Systems did this huge, huge deal with Toshiba and essentially saved the company’s ass. Then I took over sales for real. [To that point], we had sold a grand total of \$400,000 worth of stuff in the entire history of the company. So I set goals [for the organization] because we hadn’t been setting, or meeting, goals up to that time. I [told the sales people], the first month we’ll sell nothing – that’s an easy goal to meet. The second month, we’ll sell \$200,000 worth of stuff [until we get into the millions]. I presented the plan to the board of directors and they snarled back: ‘Why are you even talking about selling \$2 million worth [of product at this point]?’”

Meanwhile, the sales staff was asking Joe why he wanted to put his job on the line in such a dramatic way and he answered, “Well, somebody’s got to make a stand!”

SDA started in on the plan and after selling absolutely nothing the first month, they celebrated right on schedule. Then, the following month they sold \$200,000 and celebrated again. Joe remembers: “Then I said, screw marketing and I got those guys to sell for us as well. [In fact], every man, woman, child, and relative [related to the company] started selling for us. Everything that looked alive we jumped on. There hadn’t been that kind of intensity [in the selling effort] before [and it worked]. It was where you don’t know what you should know [and it was for the best].”

Stuff of Legends

By 1986, with Jim Solomon at his side as Chairman of the Board, Joe had become president and COO of SDA Systems and there he remained until the fabled merger with Paul Huang’s ECAD served as the foundation for the industry blockbuster Cadence Design Systems.

Joe recalls, “At the time of the merger in 1987, I had been president of SDA Systems for over a year. Larry Ellison was actually one of the main reasons [I had that job]. He had told the board of SDA that if they didn’t make me president, he would hire me away. It would have been fascinating [to have been part of Oracle], but I was named president at SDA instead.”

“In the early days at SDA, we were doubling our sales regularly, but we didn’t sustain [the growth rate] we had wanted. Although we did well, we started to think about who we could merge with. There’s lots of serendipity [in business] and [as fate would have it], ECAD approached us about a merger. The idea had come from Pete Slider, an analyst for an investment bank, and Andy Rappaport. It was after the stock market crash in October of 1987, but before Christmas. The more I thought about the idea, the better I liked it. Jim Solomon’s young at heart, but he’s thoughtful. He was intrigued, but nervous.”

Joe thought the merger was exciting, but might prove costly at a personal level. “They were going to make the president of ECAD the president [of the newly merged company] and I was out. I had all kinds of angst over this, but asked myself why I would stand in the way. I was told I would be made vice president of ‘something important,’ but [all I could think was] ohmygod, all that I had been warned about was true: I’m going to be screwed. The merger was announced and the ECAD president [promptly] went on vacation. I thought, maybe that’s why I’m not president. [I don’t go on vacation at a moment’s notice].”

Meanwhile, there was a meeting of the two executive teams – from SDA Systems and ECAD – while the new president, Jim Hill, was away. Paul Huang turned to Joe quite suddenly during the meeting and asked, “What do you think of Jim Hill?”

Jim Solomon said, “Joe, I think you should honestly answer that question.” After Joe answered, Paul Huang said, “We think we will get rid of Jim Hill. We want to make you president.”

Joe says, “It was a power coup and they fired the ‘other guy.’ The merger [ended up] being a very emotional [event] for everybody.”

What's in a Name

According to Joe, once the presidency was settled, “We thought we should have a new name for the new company. Naming is a dreadful task, so we held a naming contest with all of the employees from both SDA Systems and ECAD. The prize was a week’s trip to Hawaii. I told Bruce Verbin [who came to the new company with me from SDA Systems] that no one was going to win because the naming thing was too difficult, so we better plan to have a booby prize. [Instead] we hired a consultant to help find a name. Interestingly enough, ‘Cadence’ was actually a name suggested by one employee from ECAD, one employee from SDA Systems, and one of the names suggested by the consultant. And this, in spite of the fact that our one instruction to everyone was that the new name could not have ‘CAD’ in it. After we settled on ‘Cadence,’ Bruce put the little line over the ‘a’ to guarantee that the pronunciation was correct – CADence, not CADense.”

Joe went on to serve as the energized CEO of “CADence” from 1988 to 1997, and he believes the company’s many years of success was more than just “owning” the back end of the design process: “We were young and enthusiastic. We fundamentally believed in what we were doing. We always had a vision about what was good for the industry and we were pretty much [always] on the mark. We were always willing to go out and try new things, to push and prod [the technology]. We had passion [for the work] and set a new tone in the industry. Maybe we threw a bigger shadow than we deserved because we talked about new directions and were never afraid to try different approaches.”

Learning to read

Joe left Cadence in late 1997, by this time a legend in Silicon Valley. “I remember when I left Cadence, I was going to start a ‘Knowledge University’ with several backers including Michael Milken and Larry Ellison. They had invested \$200 million and \$300 million respectively and I was hired to be the CEO. We never finished the deal, however. We worked on the project for three months before deciding it just wasn’t the right time for the venture. Things have changed now, however. I think there’s an opportunity in this first decade of the 2000’s to create a 10x leap in learning efficiency. The opportunity is now and the appropriate application of technology will start it.”

Since ‘97, Joe has been involved in a plethora of endeavors. Currently he is chairman of the board for Barcelona Design and on the board for Simplex and Altius. He’s chairman and CEO of Think3 – a mechanical CAD company. Additionally, Joe is chairman of the board for Zamba, a company consulting in the CRM space, and NextNet, a wireless computing company. He also serves on the board of directors for Calico Commerce, Catena Technologies, Reality Fusion, Saba, Snaketech, Clarify, and iCopyright.

But, by the energy in his voice, one’s got to think that a lion’s share of his passion right now is wrapped up in educational software through his company BravoBrava!, which is spinning out yet another company called Soliloquy set to launch next February.

The idea for Joe’s current work wasn’t originally intended for youngsters; it was to help teach English as a second language to adults. “Part of teaching people a new language is getting them to read in that language,” he says. “But suddenly a light bulb went on for us – it’s hard

to [even] learn a first language, [let alone a second]. The technology to aid in the [language learning] process was so compelling, we decided to build a product for kids.”

“There was a lot of serendipity in looking into this. We worked to understand the needs of the first-grade reader. At this level of ability, the process of reading is not all sight reading, nor all phonetics. It’s a combination of both. Most kids can learn to read at this level, however it turns out that most kids fall off the ‘reading wagon’ in the second to sixth grades. During this period – which is lengthy – the need is for increasing vocabulary and fluency in the language and the associated reading skills. Additionally, we learned that all educators agree that the number one way to improve reading up to the sixth grade – the only proven way, really – is for the student to read out loud using what is called the ‘mentor approach.’ This process is time consuming, particularly in a classroom where a teacher is handling tens of students simultaneously.”

“But technologists today have perfected speech recognition to the point that kids can read an electric book and the computer can recognize what the child is saying. The system essentially acts as a virtual parent. Of course the ‘real’ parent is absolutely needed for the full reading mentor experience, but even the best-intended parent has difficulty finding the time for the labor-intensive approach. With the systems we have developed, the kid can actually sit down and read a little passage. The computer records the voice – kids love to hear their voices played back – and can keep extremely close track of which words the child is having trouble with. The teachers we have worked with so far are hog wild about both sides of the equation. The process would be one by which the child would read out loud every single day to the computer mentor. This is an appropriate use of technology – not a substitute for teacher or parent interaction with the child. The technology leverages the resources of teachers and parents and becomes really important for the development of reading skills. The teachers and parents are able to do a much better job and the technology fits well into the bigger scheme of fostering reading skills.”

Clearly Joe is jazzed and teachers and parents should be as well.

Then there was September 11th

It’s difficult to articulate the enormity of the events of September 11th or subsequent military and political developments in the world. Certainly the American business landscape has been altered dramatically due to the attacks – coming as they did in the midst of an already weakened economic situation. Among the ripple affects, small technical companies now fight the heightened perception that their long-term viability is compromised more than that of larger, more established companies, particularly in EDA. Both Mentor Graphics and Cadence, for instance, have encouraged that perception in the past several weeks, saying they should be the vendor of choice for design software because they’ve got the size and financial ballast to weather the current downturn.

Joe takes issue with this: “Of course, big companies will say this. The real question [however] is staying power. Many small companies have just as much staying power as the big guys do. You have to look at cash reserves and cash burn. No matter the size of the company, if you have a good cash reserve and low-to-no cash burn, you’re a good choice. In fact, the opposite view [the viability of small companies surpasses that of large companies]

may have as much validity. Small companies have very low revenue needs per quarter, so it's much easier for them to find money. The bigger guys rely much more on a small number of very large customers. This can be [actually] more difficult in tough economic times.”

Perhaps existing companies – big or small – may survive, but how can new start-ups come on-line in these troubling times, when VCs are hunkered down and investment money is nigh on inaccessible? Joe encourages optimism for the start-ups: “I think the worst is over from the investment point of view. The second half of 2000 and this year, 2001, are going to represent the low point. You have to remember that venture capitalists don't make money if they don't invest. They can stay out of the market for a year or so, but they can't hold their breath and their wallets [shut] for two years. As a partner at one of the VCs said in a board meeting this month, ‘We, and others, have to start investing this year. We can't go to next year's annual meeting and tell our investors that, for one more year, we didn't do much new investing. They don't need us – or our management fees – to do that!’”

But, even assuming companies can continue to stay afloat, how do the folks in engineering and development re-direct attention back to their work when the world around them is so awash in dramatic news developments and security concerns. Joe insists that, although there's lots of disturbing late-breaking news, we all need to get back to the business of living. “Short term, [concentration in the work place] has been and continues to be a big issue. I think that this [may be perceived as] a failure of leadership in the country. We need to put all of this terrorism in perspective. The biggest and most devastating effect of the terror would be for it to freeze our economy. That would cost us hundreds of billions of dollars. And there is no need for this reaction. We should get back to work and get [on with] growing and building a stronger, safer country and world.”

For many high tech companies in the U.S., particularly in EDA, the past several decades has seen closer business ties with enterprises and subsidiaries in countries adjacent to Afghanistan and the current hostilities. A current dilemma revolves around the ability of those companies and subsidiaries to continue to partner in business or technology with American companies in the region.

Joe's response: “I think it's more important than ever that we reach out and work with people and companies in the Middle East. We are at a critical juncture. We can either make a big step towards closing the gap between our countries and cultures, or we can let [the current situation] devolve into a complete breakdown in communication. The results of [that type] of poor communication are now clear to everyone in the U.S. I don't think that we have any choice but to build better and stronger bridges in the future.”

Role Model Reversal

Joe is the father of four youngsters – 8, 10, 12, and 14. He says that EDA is only a hobby for him now: “My four kids are my full-time work.” He never tires of observing their non-linear thinking or watching them pursue their passions – be it Little League, art, or drama.

Joe is confident that parents can deal honestly with their children in the midst of the current crisis. “Tell [children] the truth and give them the full picture. [Tell them] there is no reason to give up all of the great things about the society into which they have been born. The

events of the last 7 weeks clearly show that the entire world is interconnected and we can't [afford to] live in isolation.”

Reflecting his relentless optimism, Joe says, “Our children won't have to give up all the good things that our country has to provide for them. But they will have to take more care than their parents [did] that others in the world share in the same wealth that they enjoy. Our children need not live in fear. As long as we confront our enemies and the underlying issues that have created these problems, the future ahead will be brighter and safer.”

Does Joe have a mentor or role model? “I don't. I actually learn something from everyone I interact with. The truth is that in day-to-day interaction, a lot of what I've learned, I learned from meetings with customers.”

But truth be known, Joe Costello does have role models – they live right in his own home. “My children are among the greatest blessings in my life. They've made me a more compassionate leader and a far better person that I would have been otherwise.” In a marvelously non-causal way, Joe continues the non-linear tradition that has been the signature of his fascinating life – letting those he would teach, be his teachers.

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