



## Jim Carroll, Futurist

*Jim Carroll, futurist, trends and innovation expert is the author of What I Learned from Frogs in Texas: Saving Your Skin with Forward-Thinking Innovation. He is a frequent speaker at global events, with a client list that includes Motorola, the BBC, Verizon, DaimlerChrysler, the U.S. Army Corps of Engineers, the National Rural Telecom Cooperative and the Swiss Innovation forum. He has provided his*

# Guest Author I

## Are We Thinking “Fast” Enough?

If there are three key words that should carry broadband organizations and the people within them into the future, it is these: agility, innovation and execution.

Today, as telecom, cable, wireless and satellite networks merge into a converged, accessible-anywhere data cloud, we are being confronted by absolutely furious rates of change, and you need an incredible amount of agility to be able to respond.

And in this era in which new developments and technology are coming to the market faster than ever before, everyone must become an innovator, whether it be with new business models, skills partnerships or customer solutions.

And execution, because in an era in which everyone is becoming a competitor often offering the same commodity services, it will be excellence of delivery that will provide for distinction: excellence in customer service, product lineup and the ability to respond instantly to the rapidly changing demands of the consumer.

Step back for a moment and think about the key trends that are driving broadband today, and why these three traits will be critical to future success.

### Hyper-innovation dominates

Innovation has moved from the corporate to the collective, a trend that is causing absolutely furious rates of discovery. Fifteen years ago, the exchange of new ideas, research and scientific advance in the world of cable, technology and telecom occurred at a rather leisurely pace, through conferences, journals and publications. Today, we find ourselves in the midst of a global infinite idea loop, in which new ideas, inventions and innovations are shared faster than ever before in countless numbers of online forums, discussions, blogs and other collaborative efforts. The pace of R&D and discovery has forever changed at this global collaborative net-



**No one can hope to define the future anymore — the best you can do is simply to plug into the future that is being developed all around you, and learn how to profit from it.**

work, as has an eternal discussion about what comes next. The result is that no one can hope to define the future anymore — the best you can do is simply to plug into the future that is being developed all around you, and learn how to profit from it.

### Furious rates of scientific advance dominate our world

The impact of the infinite idea loop is such that scientific discoveries are now occurring to a degree never before seen, with the result that the last 10 years of rapid technology development will seem like a slow train ride in retrospect, compared to what comes next. And indeed, we will witness significant new innovations that continue to boost technology performance and bandwidth. At IBM and elsewhere, optical researchers are learning how to slow the speed of light to 30 miles a second, in order to develop the next

generation of optical router. Next-generation storage companies are dealing with concepts that involve storing three data bits in every single molecule, a development that could make today's 4GB flash memory-based devices look like the the 640kB memory PCs of yesterday in comparison. It's only a matter of time before VoIP is built into every laptop at the chip level. How do we ensure that we've hitched our train to everything that is going on?

### Bandwidth capacity and demand is set to explode

This rate of scientific advance is such that a world of yottabits and zetabits is going to arrive faster than you might think, which makes the current debate over the question of whether the speed to the home will be 100 Mbps or 300 Mbps seem kind of quaint in retrospect. At the beginning of the 21st century, it would have taken a bundle of optical fibers the size of the New York subway system to build a network of yottabit capacity. Yet you can expect that bundle to get smaller and smaller every

*(Continued on page 12)*

*insight in more than 600 articles and in more than 3,000 interviews on radio, television and in print, with media exposure and interviews with ABC News, INC, Fast Company, Texas Meetings and Events, the South China Morning Post (Hong Kong), American Way, CEO Magazine Hungary, Association LEADERSHIP, the National Post and PROFIT, and more. He currently is working on his latest book, The Masters of Business Imagination: Why It's the Only Degree You'll Ever Need. This article is based on his keynote remarks in January 2006 to the Society of Cable Telecommunications Engineers Emerging Technologies conference, held in Tampa, FL.*

*(Continued from page 10)*

day as we figure out how to squeeze more light bits through increasingly sophisticated optical switches. Add to this the continual capacity improvements coming to cable, and the fascinating developments in increasing the speed and reach of wireless networks, and you've got room for a bandwidth explosion. Will we use it? Definitely so: with digital cameras having just entered our world, we are already taking 80 billion pictures a year, and are sharing them online. Once we all start sharing video, bandwidth will take off in ways that are unimaginable.

#### **Product lifecycles disappear**

Things are happening so fast that some industries are beginning to witness the end of the concept of the product lifecycle. Some digital camera manufacturers now know that their latest product might last only six months at best before being made obsolete by the next generation of product. Self-obsolescence is now a business strategy. Apple chose to stop manufacturing its bestselling iPod Mini because of a seismic technology shift with flash memory, and introduced the wildly successful iPod Nano instead. Cell phone manufacturers continue to see fascinating new developments with the essence of the machine at every single juncture — how long before we've got 1,024x768 resolution with a camera video phone? Hyper-innovation means that you must plan for tomorrow's market right now — and that market might last only six months at best. I think we all should go back and look at our old marketing textbook, and in particular, the chapter on product lifecycles. Read that chapter — and then realize that this business concept simply does not exist anymore.

#### **New competitors will continue to emerge at a furious pace overnight**

Rapid innovation and technology development means that new competitors can now come into a marketplace and cause fundamental, significant and longlasting change at the drop of a hat. Look at Skype: it started from a simple premise that people would love the idea of free telephone calling through the Internet. When eBay bought the company for a price in excess of \$3 billion, people finally realized they were now witnessing a

time when legacy carriers were potentially threatened by small, nimble, brash, take no prisoner competitors. Have you ever looked at Xbox Live, and realized that it's simply a vehicle for voice-over-IP? New competitors are everywhere, and they are rushing into every marketplace whenever they can.

#### **Bandwidth continues to commoditize, and service, integration and delivery are key**

In an era of increased competition, decreased customer loyalty, hyper-churn and other challenges, every business plan requires regular radical, and instant surgery. Challenging assumptions and eliminating ingrained corporate habits

will be the key to responding to rapid change. That's why agility, execution and customer service are the key success factors that can be adopted in order to stay above the fray.

#### **Skill agility is key**

Rapidly evolving technology is resulting in an increasing shortage of critical skills — and those broadband companies who can reskill their staff will find that it becomes a critical success factor. If we're doing VoIP, we've got to be able to transition the skills of someone who understands the cable plant, so that they understand how the architecture of that plant can affect packet latency. There are huge new skills demands evolving out there, and we've got to ensure we are on top of them. Give me a cable company that thinks it's business as usual, and I'll give you a company that just doesn't get how rapidly things are changing out there. Give me a cable company that is doing radical skills retraining, and I'll give you one that gets it.

#### **Generational mindset change**

When the Napster generation takes over the airwaves, so to speak, we're in for some interesting developments! Not to be disrespectful, but the rate of change is really going to take off as the current change-resistant generation of baby boomers relinquishes control. When they leave, the next generation of uber-wired kids is going to take over. And the simple fact is: they view the world in a different way.

**Rapidly evolving  
technology is resulting in  
an increasing shortage of  
critical skills.**