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# An Interview With Geoffrey Moore

Geoffrey A. Moore is an author, speaker and advisor who splits his consulting time between startup companies in the Mohr Davidow portfolio and established high-tech enterprises, most recently including Salesforce, Microsoft, Intel, Box, Aruba, Cognizant and Rackspace. His life's work has focused on the

market dynamics surrounding disruptive innovations. His first book, *Crossing the Chasm: Marketing and Selling Disruptive Products to Mainstream Customers*, focuses on the challenges that startup companies face when transitioning from early-adopting to mainstream customers. It has sold more than a million copies, and its third edition has been revised such that the majority of its examples and case studies reference companies that have come to prominence from the past decade. Moore's most recent work, *Escape Velocity: Free Your Company's Future from the Pull of the Past*, addresses the challenge that large enterprises face when they seek to add a new line of business to their established portfolio. It has been the basis of much of his recent consulting.

Moore was recently interviewed by Bob Morris, whose *Blogging on Business* website features in-depth conversations with business and technology innovators. Below is an excerpt of that interview.



Geoffrey  
Moore

**Morris:** Now, please respond to some questions about radio frequency identification (RFID). When did you first become aware of it, and what were your initial reactions?

**Moore:** Sometime in the 1990s, I believe. The first client I worked with in earnest was Savi, which had a very-high-end tag sold into the Pentagon. My reaction was that location and container contents were both powerful sources of value creation, and the initial application (pre-chasm) was compelling—namely, now that we have shipped all these containers full of stuff into a combat zone, where exactly are medical supplies?

**Morris:** In your opinion, what are the most common misconceptions about what RFID is and does? What, in fact, is true?

**Moore:** Like all location-based promises, it turns out the physical world plays many more tricks on us than we realize. Even adding Wi-Fi, Bluetooth, GPS, and all the rest, location promises are still deliverable only within significantly constrained conditions. That said, when those constraints are met, the results are *transformative*. With respect to inventory management, the same issues apply—within constraints, magic; elsewhere, not so much. The big challenge overall, the one that the Internet of Things will be taking on, is how to scale to virtual ubiquity. It turns out you have to do this on someone else's budget. Smartphones and tablets were scaled on someone else's budget—that's what makes mobile credit card readers viable. Free Wi-Fi isn't free—but it is to you if someone else pays for it. The core challenge that RFID faces is that it has to scale itself on its own budget. That has limited it to date to high-value use cases.



Bob  
Morris

**Morris:** In your opinion, what are the three to five greatest potential benefits of an RFID system? Please explain.

**Moore:** RFID reminds me of Tandem nonstop computers, of Radius monitors that could pivot between Portrait and Landscape, of Grid laptops that you could drop without breaking, or of those wonderful toolsets where you get 101 different adjustable heads for every possible nut, screw, or bolt on the planet. When you need them, nothing else will do. But they do not scale to general-purpose infrastructure. So, tagging livestock

(or pets), tracking containers, protecting luxury inventory in specialty retail—they are all compelling apps.

**Morris:** What are the most serious mistakes made when selecting an RFID system?

**Moore:** It is not about selecting the system. It is about *targeting the right applications*. The biggest mistakes in RFID were made by investors, not customers. Many of us thought that these tags would become the Internet of Things. It is possible, even today, that they still might. But the scale, the amount of commoditization needed, has to be driven by forces outside the industry itself—like the way Amazon drove cloud computing standards, or the way that Apple drove mp3 standards.

**Morris:** I recall a time, years ago, when public school systems made an enormous investment in AV equipment and programs, only to learn to their dismay—after a few years—that a majority of classroom teachers made little (if any) use of the resources. In your opinion, to what extent could that become a problem with RFID systems, once in place? Please explain.

**Moore:** That is the challenge when you deploy any niche technology at a mass level. You cannot train people on this—the budget won't ever cover it. So they have to be already trained. The good news is that Apple iPhones and Facebook and Google and Twitter have already trained literally billions of people in a whole host of UI and UX [user interface and user experience] conventions. For RFID systems to persist, the edge has to commoditize to virtually free, the intermediate zone has to be built on de facto standards that are inherited for free, and only then, outside of niche cases, can the high-value analytics and real-time transaction execution applications seize the day.

**Morris:** With regard to your “inside the tornado” metaphor, to what extent is it relevant to the success of RFID systems?

Please explain.

**Moore:** Highly relevant. Complex niche technologies—think eCAD, for example—do not ever “tornado.” We call them “bowling alley forever.” They generate valuable niche markets and sustain companies with revenues of hundreds of millions of dollars. But they never fully commoditize, which is the precondition for tornado distribution. I think the toughest challenge RFID faces is that we always expected it to tornado, and thus we have yet to appreciate how valuable it is as a bowling alley play.

**Morris:** What about the “crossing the chasm” metaphor?

**Moore:** RFID has definitely crossed the chasm. That is the transition from the early adopter “project” phase to the early majority “solution” phase. In the use cases where it has gained adoption, it solves very real problems in effective and efficient ways—hence, it is very sticky.

**Morris:** Do you see RFID as potentially providing better information on what’s happening in real time to physical inventory, assets, tools, work-in-process and other things companies struggle to track today?

**Moore:** I am not sure what the technology at the edge will be. I certainly believe that the Internet of Things is going to become a reality over the next decade or so. I think we should take a leaf from the Watergate playbook and “follow the use case.”

**Morris:** Apparel retailers, large and small, are turning to RFID to improve inventory accuracy. Do you see this as the first sector likely to reach mass adoption of RFID, and do you foresee that propelling use in other sectors? Please explain.

**Moore:** For luxury goods, yes, probably more for preventing shrinkage than accuracy of inventory. But in general, not

anytime soon. There is still too much frictional overhead in the process to make it truly scalable.

**Morris:** It seems the RFID industry is struggling to create a “whole product,” one of the things necessary for a new technology to achieve mass adoption. Do you see the slow pace of RFID adoption to date as a result of the complexity involved with putting together a solution?

**Moore:** No, I think the industry does put together whole products. I just think it takes too much work. What it does not get to do is inherit someone else’s whole product features easily. Every smartphone comes with Google search for free. That adds a ton of value to the smartphone. You don’t get that sort of thing with RFID.

**Morris:** Here’s a follow-up question. Do you see that changing?

**Moore:** For the Internet of Things to work, it has to change. Whether that will be a derivative of RFID or some other technology is the question.

**Morris:** There’s a lot of buzz about the Internet of Things, a term that was coined originally to explain the value of putting RFID tags on cases, pallets and shipping containers in the supply chain. What is your own perspective on the IoT?

**Moore:** This decade is being characterized by four global game-changer technologies: social, mobile, analytics and cloud (SMAC). IoT will be the fifth horseman of the apocalypse, arriving a bit later to the party. All five enable the digitization of modern life and culture, end to end. We are mutating even as we speak.

**Morris:** Given that the “Internet of Things” covers a lot of different technologies—radios to connect things to the Internet, software to allow machine-to-machine communication—do you see it as a technology that can tornado,

or as a series of individual technologies that will achieve mass adoption?

**Moore:** To be meaningful at scale, it must tornado.

**Morris:** Some RFID companies are trying to rebrand themselves as IoT companies. Do you think this is a smart strategy?

**Moore:** Well, ontologically they are part of the Internet of Things, so it is not lying. The issue is expectation setting vis-à-vis bowling alley versus tornado market dynamics. Just calling yourself IoT does not get you into the tornado.

**Morris:** In Crossing the Chasm, you say that for a technology to reach mass adoption, there must be a problem it solves that no other technology can solve. For RFID, there are many. For example, retailers have always struggled with inventory accuracy. Hospitals have always had problems locating medical equipment, and aerospace companies have struggled to track the history of parts. Here's my question: Is the fact that RFID can solve these and other problems one of the problems it faces in crossing the chasm? Please explain.

**Moore:** Per my earlier answer, RFID does not struggle with the chasm. The applications you refer to are excellent bowling alley use cases. The challenge is finding the killer app that crosses virtually all use cases, the one that can drive scaling at three to four to possibly five orders of magnitude beyond what we see today.

**Morris:** Many people have become frustrated because they think RFID adoption has been unusually slow. It's been about 10 years since the passive UHF Electronic Product Code standard was created. What is your view? Has adoption been slower than normal? Please explain.

**Moore:** Niche markets burn more slowly than mass markets. Laser technologies have traced a similar curve. Bits can proliferate

very quickly. It's when they get attached to atoms that things slow down.

**Morris:** In your opinion, have RFID companies contributed to the slow pace of adoption by providing generic tracking solutions rather than building a whole product for specific industries? Please explain.

**Moore:** No, I don't think RFID companies are making mistakes. I think RFID investors are.

**Morris:** It would seem that the trend toward cloud computing, big data, and RFID are all converging. Do you see the ability to capture massive amounts of data with RFID—and to analyze and share it anywhere globally—as the next wave of IT innovation? If not, what do you see as the next big wave?

**Moore:** This is the Internet of Things, and as SMAC tornadoes begin to subside, it is the next great disruption in the wings.

*To read Bob Morris' complete interview with Geoffrey Moore, please visit [Blogging on Business](#).*



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