

# The 'Long Tail' of Expert Systems

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Seemingly everyone is talking about "The Long Tail", a term that describes a booming new economic model. The Long Tail, a phrase coined by Chris Anderson of Wired magazine, is originally a statistical expression, and here describes a population of low-selling products that, when combined, can equal or even vastly outnumber the bestsellers.

Business models like Amazon.com or Netflix demonstrate the potency of the Long Tail. As Anderson reports, blockbuster titles remain popular mainstays for both companies, but low-cost distribution via the Internet has enabled consumers to exercise their highly individualistic tastes. And these specialized titles -- quirky though they might be -- outsell the blockbusters when added together.

For example, the average Barnes & Noble store stocks 130,000 titles. "Yet more than half of Amazon's book sales come from outside its top 130,000 titles," Anderson writes. The cost of producing, distributing and delivering these countless products has plummeted, making The Long Tail a pillar of the new economy.

Now everyone -- mainstream pundits, bloggers, boardroom chiefs and water cooler quarterbacks -- is dissecting the Long Tail phenomenon. In his Wired article, Anderson focused on the media and entertainment industries. But the Long Tail effect also is evident in other fields, like interactive software.

Recently, I had an ah-ha moment at the Caltech/MIT Enterprise Forum, during a talk by serial entrepreneur Eric Pulier.

With software in mind, it struck me that the decreased cost of manufacturing and delivery allows for the existence of niche products that formerly didn't have the economics to justify not only the marketing and distribution costs, but the design and production costs, as well.

And this isn't new. We saw this 25 years ago.

Before VisiCalc (the first spreadsheet available for PCs), what was the cost to develop and distribute a custom accounting application? VisiCalc created a Long Tail for an entire class of applications that wouldn't normally have enough market demand to justify development, marketing and distribution. Developers could create small spreadsheet applications and distribute them. That trend continues to this day -- to such a degree that people wouldn't imagine paying top dollar for something spreadsheets can do. However, even with all the bells and whistles of today's Excel and Open Office Calc, they really don't handle complexity that well.

Fast-forward from the '80s to the '90s, when everybody and his/her brother was learning HTML and earning money creating static Websites.

In the commercial world, only people willing to spend a healthy sum of money could afford a professional-looking Website with the latest design and layout techniques -- certainly not a mom-and-pop shop. Now, a high quality Website is in reach for everyone. Numerous WYSIWYG HTML editors and full-blown online content management systems, like CrownPeak's CMS, mean you don't need to know HTML, CSS or how to set up a server.

A business can be as far out on the tail as it likes.

So what about dynamic, interactive software applications?

My old friend Dr. Rich Volpe, who manages the Mars Rover Software effort, lamented recently that the "working unit of software construction is still the single line code." Due to the unique constraints of space flight software, that may be true for some time for folks like Volpe. But in many corners of the software world, that is changing. Costs are lower because of common

building blocks like Oracle, PostgreSQL, WebLogic, Jboss, Hibernate, Spring, and Apache.

But people are still writing a lot of code.

### **Software Rock Stars**

So who are the Dave Matthews Band and Britney Spears of the software world?

I submit that it's Turbo Tax Online. You might call it a work process tool or you might call it an expert system, but it really is a category of its own. It's the Tivo of tax -- a truly exceptional product that has single-handedly decreased American anxiety and Prozac use while increasing quality family and golf time.

But what about the niche products -- the individual obscure and specialty titles so precious to so few, yet purchased by so many. Where is the Long Tail for interactive software?

Few pieces of software need sufficient market to justify the tens of millions that Quicken spent developing Turbo Tax. There now are companies developing products so configurable that there is little or zero custom code being written for each application, and these sophisticated interactive Web applications can embed amazingly complex logic, calculations, and content. You might call them expert systems for the rest of us -- or Turbo Tax for everything else, if you like.

Since these are tool-based platforms like VisiCalc, Excel, or a content management system, interactive applications can be built without writing a single line of code and offered over the Web for a fraction of the cost of a custom application. That means all of those applications out on the tail -- the ones that didn't have the size to justify the cost of custom applications -- now have a market.

Let's try a case study to illustrate.

Say you are a doctor with a growing practice who wants to determine the feasibility and costs of opening your own outpatient surgery center. Certainly it's a complex decision, but the market probably isn't large enough for a software company to invest millions to develop an application just for you. But working with the client's experts, that very application was built by one non-tech person in 12-person weeks and has since been used by more than 100 physicians groups.

When was the last time you designed, built, tested, and deployed a complex software application in 12 person-weeks?

And there's even a bonus.

The dirty little secret of software is not the purchase price, but what it costs to modify when your business changes next week. There is old adage about boats: "A boat is a hole in the ocean into which you pour money." The same is true of custom software applications. Modifying these applications is convenient and affordable because they do not require changing code.

Ready for one more case study? This one might take a bit more imagination.

Imagine you are a rural sheriff whose state just passed a law that requires you to process permit applications. Odds are against you digesting a hundred pages of legalese to comply with the new system. It's also unlikely someone can build you an affordable application to implement the new law within, say, 12 weeks, before the citizens are at your door.

Yet that exact application was built and deployed in two person-weeks at a price even state government could love. And since it is "software as a service", it was live to 88 county sheriffs the same day it was finished...now that is a Long Tail indeed.

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