Non-Geeks are *not* Morons

The Change Function Model for Adopting Technology

by Pip Coburn

Here's my thought: the technology industry has bought into an incredibly limited, misleading and misdirecting, flat-out unhealthy model for adopting change.

This old **supplier-centric** model:

"Moore's Law" x "Grove's Law" = a commercial market

or

Technology adoption = f (Moore's Law, Grove's Law)

Let's check the components of the limited supplier-centric model:

"Moore's Law" says that the price of core technology will keep dropping while technical capability keeps rising.

"Grove's Law" implores technologists to create disruptive, game-changing, 10x improvement technologies.

(*Gordon Moore and Andy Grove were CEOs at Intel during its hey day)

Let me translate the old supplier-centric model in English: ®

"Hey you technologists! Go create miracles no matter how much they cost 'cuz once those miracles come down in price—thanks to Moore's Law—even those stupid Earthlings who don't understand our miracles will be buyers 'cuz its just a whole lot better for them. You are smarter than them. Build it and they will come!"

Andy Grove once said "Technology Happens" and I think that is a fatalistic and unintentionally egocentric view from a tremendously successful former PC duopolist. "We are smarter than you and you will do what we create and it will be good for you."

I suppose that after years of success, it is easy to get sucked into thinking it was all in YOUR control as opposed to your customers' as Grove seems to. But if you have ever been served at an old-time hardware store that has been in business since 1864 and survived the Home Depot threat you might have a counter example of what customer service is and who is always in charge—the user.

Technologists have misinterpreted the successes as "theirs" and dismissed the 90% of tech-nologies that commercially fail as just not quite ready. Or they just cut to the chase and blame Earthlings (regular human beings) for being too stupid to get it. At an intimate industry gathering last year a very well-known technologist finally blurted out:

> "We have to develop products for morons."

Ugggghhhh. Et tu? No, non-geeks are not morons.

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Let's consider this part #1 of my manifesto:

Technologists place too great a connection between what can be supplied and what users are willing to buy.

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Now…before moving on to part #2, I want to take a break for clarity: I am NOT anti-technol-ogist or anti-technology! Technologists have provided more than their fair share of miracles. The old model of Moore's Law x Grove's Law is not wrong but rather limited. Supply is a necessary condition and technologists have delivered and will continue to deliver their part of the bargain over and over.

But supply is not a sufficient condition for commercial success…I do not believe in business models built on "build it and they will come" (though I loved the Kevin Costner film that inspired the phrase and I personally visited Dyersville, Iowa during the summer of 1992—the home of The Field of Dreams).

It just might be time for a new model of technology adoption. One takes into consideration that the user.

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The Change Function

The "build it and they will come" model assumes that change is seamless for humans and so if something is "better", it will be adopted—a rational world model. But change is emotional, not rational. And I think that people hate change. So why are they willing to change their habits for this external intrusion? And why are they willing to hand over money to do it?

I believe (and I think this is important, in case you were napping through part #1) people change habits when the level of crisis in their current situation—on a scale from indifference to full-out crisis—is greater than their total perceived pain of adopting a possible solution.

Let's consider this part #2 of my manifesto:

> CHANGE FUNCTION:
>
> Tech Adoption = f (crisis, total perceived pain of adoption)

I'm going to take a second to say this one more time: Change occurs when a user's crisis is greater than their total perceived pain of adopting a possible solution.

Does someone have to have a full-out crisis in order to change a habit? No. So long as the perceived pain of adopting the solution is lower than the level of "crisis"—on a scale from indifference to crisis—a change can happen.

But this model suggests that we better know a whole heck of a lot about users at the individual level—since all have unique "crisis" levels and perceived pain of adoption. We'd be best off to consider crisis carefully and better understand all of the elements that add up to the "total" perceived pain of adoption. Lot to consider.

Technologists generally say things like "I know, I know, I know, and we do that. We just need to add more features to get the technology to be disruptive, and it's not quite there yet. Then when we get the technology to really work that cost will find the magic price point!"

Ugggggggggghhhhhhhh!!!!!!!

Why "Ugggggggggghhhhhhhh!!!!!!"?

Looking at features and price feeds into the supplier-centric view of the world. It is soooo Moore's Law x Grove's Law. What can be done to counteract these reactions? Once we assume that the technology works and the price is right and ask "is there any thing else at all in the whole world that might be a hindrance to the person changing their habits and buying your product? Anything else?"

Like…maybe there is ZERO "crisis". Maybe you have a technology looking for a problem. Maybe folks don't understand the service your product provides for them because the marketing message has been ineffective.

Maybe folks find your product hard to learn. Moments ago I received an email from a friend describing a study that showed half of all returned electronics products in the U.S. that were claimed to be faulty actually worked but users tend to give up figuring them out in 20

minutes! Think maybe those fat user manuals or long call lines listening to Barry Manilow is enough to scar them forever?

What do technologists often say when I tell them a product "is too complicated"?

"No, it's easy. You are wrong."

(Imagine the person who invented the *For Dummies* line of books taking the stance: "No, really, it's easy!!!").

What they mean is: "It is easy for me, and I can't empathize with your plight since you are just a typical Earthling. So I must conclude that you just don't yet realize how easy it is, but if I tell you over and over that you are wrong you will eventually re-commit yourself to learning, and then you will see what I do that it is in fact easy to learn."

This really ticks off typical Earthlings and is one of the great sources of schism in our fragile society.

Technologists use the phrase "intuitive". This seems just wrong. I use "familiar". Does this new thing resemble something I already know and is thus familiar? Intuitive? Not sure what the word intuitive means, but if a Martian dropped to Earth clicking on the proper icon inside, FireFox may not be intuitive or familiar. I first saw this argument against "intuitive" in Jef Raskin's superb book, *The Humane Interface*.

Back to Andy Grove for a second. He suggests *only* pursuing those disruptive, game-chang-ing, innovative technologies. But I have no desire to be game-changed or disrupted. Zilch! I want technologies that make my life better somehow, and I want them to be easy to adopt. That's all. Simple.

None of my non-geek friends have ever, *ever*, told me that they want to buy an innovative technology. "Innovative" is a supplier-centric word.

What we look for as investors are products that have strong positive reference points. A flat panel TV is just like, well, a TV, except better. Satellite radio is just like, well, radio, except better. Not scary.

There is absolutely nothing "wrong" with products that have weak or negative reference points, but I suggest crafting a durable business model that is able to endure the test of time, cuz it will likely take a good long while for folks to "get" this miracle product…if they ever do.

Let's take a look at one prominent technology through both lenses. The personal computer. The first PC was created at St. Louis University in 1964. Sixteen years later, IBM announced the "PC", and in its first year of sales, IBM sold, well, only 65,000 units. But 25 years later, in 2005, there were 218MM PCs sold worldwide.

What happened?

Technologists might say Moore's Law brought the price down and the technology finally matured. Earthlings would say, "At first, I had no idea what in the world I might use a personal computer for. But steadily, over 15 years, I started to figure out one or two things I could use it for. What reeeaaallllly helped, however, was when they made those little icons appear on the screen so I didn't have to remember or learn all that confusing code. The whole thing became less confusing and less scary and more usable."

And sure enough the broad introduction broadened the market. Their "crisis" rose as folks saw one or two (or five) things they could use a PC for, while experiencing a lower total perceived pain of adoption. In the late 1990s consumers experienced a further "crisis" with the wide scale adoption of the Internet and the fear of their children winding up on the wrong side of the Digital Divide. Big-time Crisis.

In the background, prices were neatly coming down as a necessary condition but price alone doesn't matter. As a friend conveyed last year: "There is no market clearing price for an ugly shirt."

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"What is the biggest change you are detecting currently affecting the all of technology thru the prism of the Change Function?"

The Digital Demographic Revolution

"What in the world is that?"

Younger people who grew up in the age of computers—Digital Natives—will be affecting society's behavior toward technology more and more.

Let's set the scene.

It is 1996 and there is a meeting at your office of 8–10 people. OK. Calculate the digital acumen in the room. Freeze it.

OK.

Now in 2006, again, consider the digital acumen in a similar room of 8–10 people. Higher? Lot higher? You bet. Let's call that shift in digital acumen a 2x change for a baseline.

Now consider what an 8–10 person meeting in 2016 will be like in terms of digital acumen? Yikes. I suspect it would be more on the order of a 10x change from 2006. When I walk thru this line of thought in front of a group of folks I often see smiles and hear scattered laughter: "Oh, my, wow! The world is gonna be a whole lot different", they seem to be saying.

I agree. But if there was a 2x change between 1996 and 2006, why would there be a 10x change in the coming decade?

Here's why…

For the sake of framing the discussion, I am going to start from an exaggerated black and white model: Let's suppose there are three types of people in the developed world today:

→ Digital Natives: All people under 25 years old. Not afraid of technology.

→ Digital Immigrants: Any people over 25 years old. Not afraid of technology.

→ Analogists: Any people over 25 years old. Afraid of technology.

The first two phrases come—I believe originally from Mark Prensky at Games2Train—and the rest of this stuff can only be blamed on me.

Well, here in 2006, the breakdown of the population in terms of spending capacity and/or participation in the work force might be:

→ 5–10% Digital Natives

→ 10% Digital Immigrants

→ 80% Analogists

Those techie folks in the San Francisco Bay Area have a tad bit of trouble now and then get-ting that there are so many Analogists remaining on the planet and that some might even live silently amidst them. It is just getting more difficult to fess up to being afraid of or even uncomfortable with technology.

And that is the point!

In our Change Function terms: During the next ten years, the "crisis" of being an analogist will grow dramatically, and folks will chose the less painful path of immigrating.

"What kind of crisis?"

ECONOMIC: Want to be the 53–year–old in the office known to laud others for their imaginative use of technology in solving business problems, but never offering any suggestions of your own? Probably not. Few people in 2006 are even willing to say, "Geez, my kids get this computer stuff, but I really don't understand it all!" It's not OK to say such things in today's economy, especially when upper management is contemplating head count reduction.

SOCIAL: Want to be the one to fess up to watching TV at its regularly scheduled hours solely because you don't know how to use a personal video recorder? Probably not. Want to call someone for directions to their home 5 or 10 years from now? How rude. "Ever hear of Mapquest? Don't you have a personal navigational device?"

"Why is this change such a big deal?"

Because as more and more Analogists immigrate to the digital world they will be taking on attributes in the future that the Digital Natives exhibit today. They will be less scared of technology. The total perceived pain of adoption of many technologies will begin to drop and the "crisis"—peer pressure—to employ technology in numerous ways will grow dramatically. The opportunity for new technology products will expand rapidly.

So, if we think about qualities of the Digital Natives in relation to technology we can expect those qualities to become far more common.

In our book—not surprisingly titled *The Change Function*—, we focus on questions to ask managements to understand their method and ability to assess the experience of the earliest adopters. We do this for a couple reasons.

First, without getting the initial 2% of market penetration, we can't get to 10% or 25%. The big "macro" story behind the technology falls apart if you never ever get the first couple percent.

Second, if you get beyond 1–2% and up to 10% penetration, life gets much easier because a very important crisis kicks in across the potential user base: peer pressure. The same social-ization that affects the Analogist migration to the digital world plays a part in the adoption of products. Socialization can affect a large number of people quickly: crisis skyrockets even though the total perceived pain of adoption side of the Change Function has not changed much at all!

By focusing on the first couple percent, we understand management's deep thinking on the toughest portion of the adoption curve. The rest is easy, so why bother dwelling on page 36 of the slide show that says there are 800MM possible users in China?

So...Digital Natives exhibit characteristics such as extreme mobility, extreme personaliza-tion and the willingness to swap, share, steal, send, edit, manipulate, and store data. The Analogists have a long way to go in each of these ways.

"In what ways might this change societal norms and the tendency to buy and use certain technologies?"

One of our mental exercises is to consider future societal norms and then map back to today. If in five years, we are at our best friend's cocktail party, and we ask ourselves, "What would a typical Earthling be embarrassed to admit about their technological prowess that they wouldn't have been embarrassed about in the past?", what would be some key answers?

In 2011, we think folks will be embarrassed to admit that...

1 They just bought a desktop computer that afternoon, instead of a laptop.

2 They own an old-fashioned CRT television instead of a flat-panel.

3 They don't use a digital video recorder.

4 They still ask their son or daughter for help with syncing the digital camera.

5 They have actually asked directions of somewhere in the past month as previously referenced.

6 They have an old-fashioned radio in the car as opposed to a "real radio"—what in 2006 was still called by its full name, a satellite radio.

7 They have less than 100Mbps wired broadband into their home, and also don't have a broadband wireless connection available at home.

8 They can't stream videos from the Internet to any device in their home.

9 They don't use a hosted CRM solution at their under-100-employee firm and have 24 x 7 updates of their business as one friend offered up.

10 They don't work directly/indirectly with someone in India.

As each Analogist richly learns the key abstracts of extreme mobility, extreme personalization and swapping, sharing, stealing, sending, editing, manipulating and storing data, and applies these abstracts to a specific new technology product—like the iPod for instance—they become far better candidates for other technology products—such as a personal video recorder. They have built skills they then confidently apply in many situations. They have a new life of sorts. They are no longer so scared. They have immigrated.

As much as life feels very different than ten years ago, the Digital Demographic Revolution will place pressure across society suggesting we haven't seen much of anything just yet.

Case study: In the 1950s, India made a focused commitment to technological institutes. 30–40 years later the trickle thru effect began to be widely felt.

But perhaps an even better example of a societal wave of technology adoption is in Korea. There is a thought in technology circles that "those Koreans are gadget nuts" and when you ask folks why they think that "Koreans are gadget nuts" they usually say: it's the culture. But I want to know what made "the culture" the culture?

Nature or Nurture?

Well unless you want to make the case that Koreans are born genetically more apt to hug gadgets than, say, Spaniards, you would probably vote nurture.

I think that's right.

In the early 1960s, Korea was one of the poorest countries on the planet. The government determined it must direct and employ technology usage widely to help the economy and society achieve health. To this day, there are many who accuse the Korean government of being heavy-handed in its decision-making, but for those tired of the bells lobbying Washington to prevent the future, a visit to Seoul might be refreshing. Tired of dropped calls? Go to Korea for a vacation! No dropped calls. No ads saying, "We are better because we drop fewer calls than the next guy!"

After years of continual programs to spur technological adoption, Korean society has systematically achieved a lower total perceived pain of adoption toward new technologies in the same way the Digital Demographic Revolution will be reducing the total perceived pain of adoption for so many. The "crisis" in Korea to be digital has also grown. For anyone im-

pressed with Myspace.com, well, Korea began its predecessor, Cyworld, a couple years ahead to ridiculous fanfare.

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A Final Word

The world sure seems to need all the help it can get. It needs people to listen to each other and it could use technology's miracles along the way. What the Change Function says at its heart is that you will only be accidentally successful if your focus is on what you can create. Systematic success—whether its in creating new products, building great companies, or changing the world—comes to those who manage to see the world through the eyes of others, to understand their crises, and to help them find less painful ways of changing their world for the better.

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ABOUT THE AUTHOR

Pip Coburn studies change for a living. In addition to writing over 300 weekly reports about technology investing, in 2004 and 2005 he released two long-term think-pieces, *The Nutcracker Suite and Sour* and *The Hitchhiker's Guide to the Changing Galaxy*. These reports focus on the user-oriented "Change Function"—a mental model Pip has developed that describes why change takes place and why various technologies are either adopted or not. In June 2006, Pip will release his first book, not surprisingly titled, *The Change Function: Why Some Technologies Take Off and Others Crash and Burn*. The book addresses why some technologies are adopted and why most are not. Also, Pip founded, along with his core team from UBS, a firm named Coburn Ventures, an organization that puts its knowledge about "change" to work in the realm of technology, telecom, and media investing. Prior to founding Coburn Ventures, Pip Coburn was a Managing Director and the global technology strategist in the technology group of UBS Investment Research. Pip earned an M.B.A. from the Wharton School at the University of Pennsylvania where he founded the Wharton Fellows Fund; and an A.B. from Brown University.

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