

The Four Horsemen of R&D's Apocalypse

Common Misconceptions about Innovation Management

Executive Summary:

There are four common myths about Research & Development. Let's call them "**The Four Horsemen of R&D's Apocalypse**":

- "Tom" Technology
- "Bud" Budget
- "The Big Bang" (nobody knows his real name)
- "Chuck" Chance

Between the four of them, they represent the **majority of traps for Innovation Management**.

The Apocalypse of R&D

Today's R&D departments are in an unfamiliar position. For decades, they were allowed to play with their toys. Corporate R&D was something of a given: you had to have it to impress your big customers and the industry with all the wiz-bang your egg-heads could come up with.

Enter a new era.

Nowadays, R&D needs to deliver **one of the cornerstones of corporate survival: the Next Big Thing**. Some of the first to reach for the oxygen mask were the R&D departments of big Pharma. Then, one by one, the others followed. The issue: **idea conversion to products was lousy**.

The reaction of corporate leaders ("Joe Executive") all over was a **renewed focus on the front-end of product creation**. Getting some metrics into these folks might help them do their job better.

Innovation Management was born.

And here comes the crux: **what worked in the mainstream business**

these executives were used to managing, **failed in R&D**.

With a backdrop of more than a decade of innovation work, there are **four main-stay mistakes**:

- **Innovation is all about new technology**
- **The more budget, the more success**
- **Go Big, Fast**
- **You cannot**

predict success, this is roulette.



Albrecht Dürer: Four Horsemen of the Apocalypse



The Trouble with Tom

The standard response of “Joe Executive” in a tight spot is to try investing out of it, usually with the help of technology. This should work just as fine with R&D: “Tom” *Technology knocks on the door.*

Tom is a great whisperer. He will talk about all the great things you can do with his help. He will mention all those Internet Startups that made millions (and their founders famous) based on his help. He will talk in techno babble, better than any StarTrek fan. He will sound convincing, will make success easy, within your grasp. **He is wrong.**

How many companies do you know that bet big on technology as the only savior, and failed miserably? *Apple's Newton; IBM's OS/2; Kodak's Picture-CD; the EuroTunnel; the music industries various copyright protection schemes.*

Innovation Management is not about technology, simply because it is not about invention. It is about pairing markets with products in a new way.

The customer does not care for technology; she cares for what the product will do for her. The rest is black magic, out of mind share.

Making the R&D department responsible for the development of new technologies is like asking an

artist to focus on her selection of clay and the way she wields her tool. Necessary, but ultimately not the reason you buy the sculpture.

So what do you do?

You will need technology, but you will not make a profit from developing it. So, unless you have the billions to throw at a top-notch research facility like IBM or HP, find partners. **Spread your technology development risk.** Work with universities and other specialists to find new technologies. **And be the master of applying them in your markets with the consumer at heart. eBay did not have the best auction engine, but the most easy and robust to use. They are marketers, not technologists.**

You have to instill a sense of purpose, a tactile perception of the customer's likes, into your R&D crowd. You have to change the way they are regarded (drop the egghead term), and help them make their

thinking more relevant to your business, without losing the edge you get from their points of view. That magic lies in the way you reward.

The engine of real economic growth is not technology but innovation.

Hector Ruiz,
CEO of AMD

Apocalypse Averted: *Technology enables but does not create great products! Most successful business are at the worm hole between existing technologies and new applications.*



The Big Bang Myth

Joe E. is human, that is he has an ego. **Joe wants to leave a mark, a monument of sorts** with his name on it. Will he build that through careful, measured, and deliberated decisions? No! To leave something for posterity, you have to take bold steps into the beyond. Left with less attractive choices, Joe goes for “The Big One”, the one that leaves the competition in the dust, reeling from the sheer audacity of the idea. He is going to build his monument.

Joe has fallen prey to “The Big Bang” (nobody knows his real name; he always refers to himself as “The Big Bang”). This fellow has an ego the size of a planetary body (Jupiter perhaps). He will talk about glory; he will conjure up an image of Joe as the company’s savior. There is always sunshine in his lands, big mountains, massive streams and vast oceans, ready for the taking. His office is on the top floor overlooking Central Park. He wears black Armani. When Joe listens to him, his hands can *feel* the marble of his monument.

What Joe does not hear from him is the **rate of success** of Big Bang R&D. How in most cases they have been resource-drains on the com-

pany, sucking away talent, funds, attention, and credibility for years.

The Big Bang takes away the one thing that determines survival at the bleeding edge: nimbleness.

Your commitment to The Big Bang locks you in place, in more than one way:

- Your team is focused on the final product, no longer on the steps to get them there.
- They will ‘get important’, looking down on the mere mortals working on the day-to-day business.
- You will lose your ability to make changes in the direction your project is going.
- Your customers and partners now expect The Big Bang from you. Not delivering it not an option (and as soon as you hear that, you need to pull the plug).

What is Joe to do?

Success or failure in business is caused more by the mental attitude even than by mental capacities.

Walter Scott

Joe needs to realize that ambitious yet successful projects are not build in one day, but in the form of a **program**, with cohesive, discrete and managed steps from A to Z. This is a lot

more work for the management team, but **it retains the crucial component of R&D success: the ability to respond to change.**

Apocalypse Averted: *Remember that statues don't get paid.*



Giving Chuck a Chance

Joe is about to meet the last of The Four Horsemen: Chuck Chance. This character preys on Joe's desire to control his destiny. In Joe's case, that does not look too bright. The R&D department has had a lot of false starts, and a few ideas that actually left the labs to the mainstream organization but never reached a customer.

Chuck knows. He can see the future, and he can alter it. Chuck is capable of **fighting risk, simply by eradicating it.** Chuck has eyes like the inside of basement cubicles. His favorite color is eggshell. He wears a grey suit with a blue tie. He speaks with a slow, droning voice. There are many tax accountants in his family.

With Chuck's help, Joe devises a solid plan: since the risk of an idea cannot be controlled, only those ideas that do not represent risk at all are to be realized. All other will be killed or delayed indefinitely in the process they put in place.

Brilliant. Simple. Elegant. *Wrong.*

Innovation in the hands of a bureaucrat is a terrible thing to see.

Once you organize timidity and reward sandbagging, your "Status" has lost its "Quo".

The results of this approach are sagging on shelves everywhere: the 34th button on your video recorder or rubberstamped pop from interchangeable boy bands. The other extreme is not wise, either. Going full force without any caution might be the only strategy for a startup, but an established corporation ought to know better.

What should Joe do instead?

The Golden Middle is to know how to manage risk, not to cut it out or embrace it on the way down the cliff.

Warren Buffett

Aggregate the volatility of R&D's

atomic successes and failures in the perceived (statistical) solidity of a diamond.

Risk becomes controllable once it is **mixed with disproportionate payoff.** The traditional and proven portfolio strategy in every investment book is the way to go. **Don't know risk, know how to work it.**

Joe needs to establish processes that determine the value of an idea very early, and then manage the risk down. Whether that is platform management or Learning Maps, in the end the R&D department needs to make calculated bets.

Apocalypse Averted: *Remember the power of portfolios*

Risk comes from not knowing what you're doing.

Warren Buffett

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Pulling it all together
The truly horrid last step is to put these four horsemen into the full-blown apocalypse.

The Cacophony

If Joe listens to the Four Horsemen, he will be stuck with a **bloated R&D department** churning out **irrelevant technologies suited only for mega projects**. His idea conversion rates are up (more R&D ideas out the door) but **profit margins are going down** (less interest in the market).

The Symphony

Or Joe does not listen to them. Here is what would happen if Joe would drop those four gentlemen:

A **highly interconnected R&D group** of scientists, engineers, and product developers of all flavors, is **churning out one testable idea after the other**. From that rich pipeline of opportunities, the company selects the ideas with the **highest business potential to check out with real customers** with very low transaction costs. Quickly, those that do not work are **redesigned or shelved**. Those that do work get a **rigorous fitness training** to get into production. **Changes are incremental, but at breakneck speed**.

Companies that shun creative risks may be undercut by competitors not only with better products and services, but also with better processes and ways of perceiving opportunities.

John Kao, 'Jamming'

Now, Customers love the addictive stream of new ideas generating targeted and relevant new value for them. Margins and Sales soar.

The Four Mainstay Mistakes

Mistake 1 ('Tom Technology'):

Innovation is all about new technology

Remember that Innovation is about the customer, not you. As such, it cannot be about technology, since the customer rarely cares about that. Technology is an internal challenge, in many ways irrelevant to the market.

Mistake 2 ('Bud Budget'):

The more budget, the more success

Money does *not* fix everything. The R&D department will not deliver breakthrough performance simply because it is well funded. Some of the best ideas have been

born out of scarcity, and some of the worst out of abundance. Too much fertilizer lets some weird looking things grow.

Mistake 3 ('The Big Bang'):

Go Big, Fast

Rarely does a project succeed that tries to shoot for the stars. Even the Apollo program took almost a dozen spaceships to



reach the moon, instead of one. The successful R&D department is capable of breaking a big leap into small, more easily manageable steps. This allows for mid-stream steering, keeps the organization as a whole engaged, and prevents getting stuck in developmental dead-ends. Plus it gives customers and investors something tangible to hold onto while cash flows out the door.

**Mistake 4 ('Chuck Chance'):
You cannot predict success, this is roulette.**

You can beat the odds if you create an artificial imbalance between cost and payoff. By selecting the right projects and weeding out those with bad finances or bad assumptions, you can tip the balance of your overall performance into the green. Finding answers very early and very thriftily will direct your cash into the winners, whose payoff should be large enough to make up for this upfront investigation and refinement cost.

About Jay Heuer

Dr. Heuer is co-founder and CEO of SarJay GmbH, the Germany-based consulting outfit focused on **Innovation Management, Finance Management, and Talent Development.**



Jay has spoken on numerous occasions at conference and in company events about Innovation Management and Talent Development.

Dr. Heuer has been quoted in several newspaper articles about product development and Innovation Management, last in the Boston Globe.

His career spans the creation of a German software development company and a successful, US-based decade in IT and Research & Development for one of the largest companies in the world.

He can be reached through the contact form at <http://www.sarjay.com> (because he really, really, really hates spam).



