

Innovation Journalism in Popular Scientific Press

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Abstract:

This talk will focus on what methods of innovation journalism can be used in a popular science magazine. It starts with a description of MIT's magazine of innovation, Technology Review, TR, its marketplace, departments, features, and conditions for accepting a story, and necessary components in a story. Then the talk will move on to comparing with Forskning & Framsteg, F&F, a magazine roughly equivalent to Scientific American. While there are more similarities than expected, the focus will be on differences between F&F and TR. The most important discrepancy is probably how TR is instrumental to its readers, while Forskning & Framsteg concentrates on general knowledge. The key question then remains: is instrumentality imperative to innovation journalism?

Very Similar

When executive editor David Rotman, at a TR editorial meeting, gives an advice on how to write a caption, it's like a déjà vu. He says: "Write about what you can see in the picture, not a short summary of the article". Now, guess what, the exact same advice was given by F&F's editor-in-chief just weeks before I left Sweden.

Actually the most striking experience working at TR is how alike they are. Advice, problems, solutions, struggles, the deadline sheets, headline meetings, art meetings, department brainstorms, and just about everything, is very comparable.

But of course there are differences too, some due to the different sizes of the magazines, in circulation and staff number, some due to differences in culture, and the again some due to the fact that one magazine is an innovation magazine, and the

other is a popular science magazine. It is this last difference – the market position – that this talk will focus on.

Technology Review

The magazine TR has a circulation of 315,000 copies, it comes out 10 times per year. Its mission is to promote the understanding of emerging technologies and their impact on leaders. TR's editorial mission says: "All TR content must pass a rigorous editorial litmus test. The criteria for the products we deliver to our sophisticated community include. • A clear, strong message with a definitive point of view • Why this article matters to you and your business, • Deep analysis of the profit potential and impact of emerging technologies, • Stories that will illustrate a trend rather than round up."

Maybe the best way to describe TR's litmus test, is in the words of senior editor David Talbot: "everything gets a reality-check". To publish a story the technology covered needs to actually make some progress – being commercialized, finding new or wider applications. And for technology in the laboratory, news could mean concrete evidence of an important advance. So, a hydrogen fuel cell that has 20 percent better efficiency could be very newsworthy, even though it's still too costly to make much impression in the marketplace. Maybe a big company is licensing that advanced technology – that could be a piece of news. And TR could also write stories about policy trends that are affecting technology.

TR doesn't write about things just because they are cool. The magazine need some evidence that they are important for some reason, and having traction (or are likely to) out there in the real world. You won't find a story about technology for keeping someone alive on a space flight to Saturn, or technology for vertical-takeoff planes that could slash airport delays, even if people might be doing research on all this stuff.

Also TR doesn't write straight business stories. They wouldn't publish stories about how legal woes will affect Microsoft, or about mergers or about spin-offs or stock trends.

Core areas of coverage is: biotechnology/healthcare, computers/electronics, energy, nanotechnology, security, software, telecommunications/Internet, and transportation. The readers are 48 years on average, 68% are male, 96 % are college educated, close to 50 % have graduate study, 13% are CEO's.

Prototype department

A more close look at the distribution of articles in TR reveals that of the 86 page April issue, ads accounts for 29 pages, features for 32 pages, the rest is regular departments and columns, that's one third of the magazine.

Prototype is the first department in the book. It's about technology straight from the lab. Here you'll find short news stories on technology's first draft. This is the department with solutions just when they are ripe for commercialization. See appendix 1 for an example, a story on a new software for searching images with a camera enabled cell phone. It is a story on a prototype that is working, but has several years before it hits the market. The particular technology has some patents pending, but no start-up. Other stories have start-up's just forming, but if there is a product already on the shelf, it's no use pitching for a Prototype, then it's time for innovation news.

Since prototype news items are very short – usually less than 200 words – the order of writing is: solution, problem, future.

Innovation news department

This is the department that picks up just after technology has left the lab. It calls itself “the forefront of emerging technology, R&D, and market trends”. In this section you

will find either stories on one company and their brand new product, or on a new field, a niche, and the exciting products in this field. See appendix 2 for an example.

Partly because they are longer than prototype-items, the order of innovation news is more straightforward: problem, solution, technology, company, market. The stories range from 300 words up to 600 words.

Other departments

One regular department in the back of the book is called Launch pad. It is a one-page portrait of a hot university startup. In the April issue the story is about a company called NanoInk, a new company coming from Northwestern University. The setup looks a lot like the department Innovation news, but focus is on the company rather than the technology. Launch pad stories answers questions like when the company was founded, how much the company has raised, market forecasts. In this department competitors are usually dealt with in a sidebar.

Other departments in the magazine includes, Trailing edge; about innovation history, Point of impact; a Q&A with an important decision maker in a hot field, Visualize; popular mechanics, and Demo, a kind of popular science approach to a behind the scenes story. This last department, Demo, actually is a regular feature, rather than a department, but readers probably don't care.

Features

In the April issue there were five features, out of which one was a cover story on hybrid cars, two were in a special report on virtual connections and one was a Q&A with a famous VC, the last feature was on a new cure for malaria.

There is a focus on good storytelling, a narrative, with portraits of key people in the field. But explaining the technology is equally important, how it works and how it is better than what used to be around. The market, companies in that market and what is expected to happen, is the third leg of a good TR feature.

It is like a cross between a Scientific American and Fortune feature. David Rotman says that technology features in Fortune could almost always work in TR, with the same amount of economics, adding some technology, but reducing the amount of storytelling slightly.

Forskning & Framsteg

Forskning & Framsteg – Research and Progress – is a Swedish popular science magazine covering all kinds of research, from science to the social sciences and humanities. More than 30 years ago, the magazine was founded to cover Swedish research and innovation. Still today, leading research and innovation organizations in Sweden are contributors to the non-profit organization behind F&F.

Technology research and innovation is on the top-three list of what readers want to read more about in F&F. It is also an important part of the editorial policy to write about the technological frontline and innovations. The magazine has four goals: • to give general knowledge from a research standpoint, • to cover the frontier of knowledge, • to focus on the readers preferences, • to be respectable as a voice that is listened to in the Swedish society.

F&F is comparable with Scientific American. It has about the same position in the innovation system, and probably about the same kind of readers, and is also written mainly by experts, not by journalists.

F&F has a circulation of 50,000 copies, comes out 8 times per year. About 58% of the 250,000 readers are male and the age is close to the Swedish median, 48 years. More than 50 percent has university education, 14 percent have a PhD. One important characteristic of the popular science reader is that she or he wants to know rather than needs to know.

Three kinds of science writing

There are several types of texts covering science: scientific writing, science information, popular science and science journalism. Unlike innovation journalism, popular science has been around for a while, and the borders to other genres of texts covering science are quite established. Still there is some confusion between the two areas of popular science and science journalism, where experts, scientists, most often write the former, while of course journalists write science journalism. Also popular science tends to be more educational and science journalism tends to be more critical.

Since F&F is partly written by experts, some of it's content is definitely popular science, but the editorial staff writes about one half of the contents, and most of those stories could probably be treated as science journalism. The news section is written by the editorial staff only, and is science journalism.

Fokus – focus department

The news section of F&F is divided into two main parts; one could be called Focus in English, the other Wide angle. The first is news oriented and the second is more wide-ranging, with Q&A's, short essays, lists, web tips and trivia.

The editorial goal for the first news section, Focus, is to cover important and recent advancements in science and humanities. It is seen as a service to the reader; all major scientific breakthroughs shall be covered here. Reading this should be sufficient to have a light understanding on what is going on. Even news that has been covered in other media will be presented here if they are significant enough. It is a broad mix ranging from astronomy and quantum physics to history and anthropology.

The Focus section is followed by a short essay kind of page, called Page X, with a scientific view on a public problem. This page has a photo story next to it and after that comes the Wide angle pages. These are typical popular science magazine short items.

Features

There are several different types of features in F&F; the two main ones are typical popular science essay and journalistic science reporting. In the April Issue there was nine features, actually one more than the usual eight. Three of the nine features were written by editors at the magazine, six were written by scientists. The features cover physiology; fat people and sugar, biology; turtles navigation, philosophy; prudence concept, technology; blue laser technology, history; the evolution of monuments and statues, language; writing easy language, IT; multiplayer computer games, and sociology; massmedia and alarms.

Differences

I said in the beginning that there are more similarities than differences between these two magazines, and this is not only true to the way work is done, but also on the actual stories. But let's concentrate on the differences. And they are actually not that hard to find either. Just look at them. If you compare them by their layout they certainly are poles apart. Different formats, no ads, different type, use of photo. Adding to this is the fact that by covering for example animal and plant biology there are always opportunities to have eye-catching photo essays.

If we plough deeper, into the actual reporting, there are differences there as well.

The most important difference is, I think, what the readers use the reporting for. TR is far more instrumental to its readers. TR reports on what readers need to know to stay informed as researchers, scientists, venture capitalists, bureaucrats, decision makers in technologically intensive markets, even students deciding on what to study. this instrumentality is also very effective as a tool to decide what to publish or not. It can be used to kill a story that is too researchy, because it simply doesn't give any useful information. In F&F any new knowledge could be worth a story, and the measure is more fuzzy.

The other great difference is of course the stage at which research and development will be reported. A market place diagram, showing where in the innovation process the different magazines fit, illustrates this very well: first comes Science, then comes F&F, then comes TR, and then comes Fortune. They have different roles in the innovation system. This affects every story, since there is often something real, even if it's just new software, to report on. There is actually something concrete to hold on to, and a problem that this concrete gizmo solves. This closeness to the market, to commercialization induces other problems, but those are fortunately covered by other talks on this conference.

There is one third difference between the reporting in F&F and TR. But I don't think this one has to do with science journalism versus innovation journalism. This is about the optimistic view of technology in society. Here my sense is that TR is more positive to change and to the benefit of technology, while F&F – being totally optimistic about the role of science and research – is more skeptical to the use of new technology. I have been told that TR used to have a critical voice, but that it changed. There is a more optimistic popular science magazines around, and probably could be a more skeptic innovation magazine too. But I think that a positive approach comes partly with a magazine being instrumental Turning technology down can be interesting, but not as useful as pointing to new cool applications of it.

This brings us to the final question: Is there a place for innovation journalism in a magazine like F&F? Is it possible to have stories that are instrumental to its readers? Is it possible to write about gizmos, start-ups, and venture capital?

The answer if of course: yes. Not only would it work great, it would probably vitalize a popular science magazine – especially if the optimistic attitude is brought along. Most innovation news reporting in TR would fit with just a few minor changes in F&F. Some news in F&F could actually also work in TR, but not so many. All the features in TR would work in F&F, but with major rewrites, since storytelling is so different. The two features on technology in F&F would work fine in TR, also here

with some rewriting. In the features TR uses more people and surroundings, while F&F uses more facts. It probably wouldn't hurt to get some of those people into the F&F-stories, but it would have to be done carefully not to chock the readers.

Changing to Popular innovation

Ok, now we know it can be done. But how? Let's try to take a typical new story in TR and convert it to F&F.

This is one that I wrote on Holographic storage for TR (see appendix 2). It will be published in the may issue of TR and tells the story about a new storage device that promises terrabyte space on a DVD-size disc. The hook is, here comes terrabyte storage, the angle is long awaited technology finally comes out.

If I was to write the same story in F&F I could use the same hook. Possibly downplaying the future need for such a device a little bit. I would omit the details that tell about the launch of this device and the predicted market, and talk more on the history of holographic research. It would still be an innovation driven news story but with a slightly different content.

Looking at other news items, I find that there is probably a standard order in which one could translate an innovation story to work in a popular science magazine: Use the same hook, but check for to optimistic statements. Often the same angle can be used. Replace market statements with reports from basic research, and the story is all set.

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Appenidx 1:

Pointing With Your Cell Phone

Not sure you've made it to the right building on a crowded college campus? Think you might like to buy a car like one you see across the street, but don't know what kind it is? Why not use your phone – not to make a call, but to take a picture and use that image to search for the desired information? Technology developed at MIT's Computer Science and Artificial Intelligence Laboratory will, once it's loaded on your phone, send the image to a database, compare it to other pictures, and then present you with a list of matches, together with facts such as the address and name of the building, or the make, model, and price of the car. Called iDiexis, it works together with a server that crawls the Web for pictures, preprocesses them – identifying shapes and other major details – and stores them on a dedicated database. "Others have demonstrated the use of photos and image comparisons for searching, but this is the first one that is mobile," says project leader Trevor Darrell. The researchers hope the service will be available on your phone in two years.

Appendix 2:

Home Holographic Storage

You could store a whole lot of things on a one-terabyte computer disc – say, a million novels, or hundreds of full-length movies. A Lucent Technologies spinoff is hoping to bring you that kind of capacity using a long-talked-about technology: holographic storage, in which a laser records data in three dimensions on a polymer medium. The technology can store up to 300 times as much data as traditional optical drives of the same physical size, and the startup, Longmont, CO-based InPhase Technologies, says they'll start selling the holographic drives next year.

InPhase's initial product, with discs capable of storing 200 gigabytes and reading and writing data at 20 megabytes per second – four times as fast as today's DVDs – will

be relatively expensive and marketed to companies and government agencies. Because they can read large chunks of data at high rates, the drives could be ideal for uses such as image searching and comparison. That's why InPhase's first target market will be organizations with large image-archiving needs, such as the mapmaking agency that supports the U.S. defense and intelligence communities. But the company hopes holographic storage will eventually be available to consumers, and along with another startup company, a Polaroid spinoff in Maynard, MA, called Aprilis, also in the holographic business, they are licensing the technology to companies such as Sony and Sanyo, which should have products on the market within four years. In fact, says analyst Wolfgang Schlichting, a research manager at IDC, an information technology consultancy in Framingham, MA, it's the work done by electronics manufacturers to create accurate and cheap lasers and sensors for CD players, digital cameras, and DVD drives that is making holographic disc drives affordable.

Schlichting thinks the technology is a promising successor to today's magnetic and optical storage products but points out one big remaining limitation: the holographic medium – a photosensitive polymer that records and stores the data – isn't yet rewritable. In the meantime, InPhase expects to market its own non-rewritable, 200-gigabyte holographic drives late next year. But a rewritable drive is just a couple of years away, they say. – Patric Hadenius