

Introducing an Innovation Journalism Index Benchmarking the Swedish Market.

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Introducing an Innovation Journalism Index: Benchmarking the Swedish Market.

Although Innovation Journalism is not a common label of a beat or of a type of publication, it is possible to benchmark the media landscape, using an innovation journalism index based on the results from a simple questionnaire, which measures the integration of technology and business reporting.

1 Introduction

Innovation as a Thing of the Future is a Thing of the Past.

Innovate or die. This is the reality for most big companies today and a fair number of small ones, especially technology companies.

Half a century ago most commercial products had a market lifetime of many years. Companies could live on the same products for years on end and innovation was about being successful in the future.

Today, products move through the market with a speed unimaginable even twenty years ago: rapid advances are made in the ways existing or new technologies are used, and improved technologies and business ideas push products off the shelves in only a few years, and even less when the product is a new technology. In order for products to maintain their brand value they must be continuously upgraded to keep on par with the competition.

The combination of invention and the market is the important issue. A good invention in itself does not earn money – it costs money. In order to earn money it has to sell on the market. It is innovation – the introduction of an invention as a product or service on the market – that creates wealth. In short: research turns money into new knowledge. Innovation turns new knowledge into money.

Innovation has been defined for some time. In 1934 Joseph Shumpeter¹ defined economic innovation as:

¹ Schumpeter, J., “The Theory of Economic Development”, Harvard University Press, Cambridge, Mass., 1934. Schumpeter’s definition of innovation in economy is (like in this paper) usually presented in a simplified form. Schumpeter’s exact definition is the following: 1) The introduction of a new good —

1. Bringing a new product to market;
2. Introducing a new method of production;
3. Initiating a new market;
4. Opening new sources of supply of raw materials or half-manufactured goods;
5. Creating a new organization of industry.

In 1995 OECD published a useful definition of technological innovation with guidelines on how to measure it in the Oslo Manual²:

“Technological product and process (TPP) innovations comprise implemented technologically new products and processes and significant technological improvements in products and processes. A TPP innovation has been implemented if it has been introduced on the market (product innovation) or used within a production process (process innovation). TPP innovations involve a series of scientific, technological, organizational, financial and commercial activities. The TPP innovating firm is one that has implemented technologically new or significantly technologically improved products or processes during the period under review.”

Economical and technological innovation have converged through the IT revolution in the end of the 20th century. This is easily realized when comparing the OECD definition of technological innovation with Schumpeter’s five definitions of economical innovation. Intuitively, technological innovation is the major driving force of each of Schumpeter’s cases of economical innovation: new products, new production methods, new markets, new organizations, and even opening new sources of raw materials and half-manufactured goods. Also other forms of societal innovation are driven by technological innovation, new user scenarios and economic innovation, such as the formation of communities and collaborative projects on the Internet as a leading example.

that is one with which consumers are not yet familiar—or of a new quality of a good. 2) The introduction of a new method of production, which need by no means be founded upon a discovery scientifically new, and can also exist in a new way of handling a commodity commercially. 3) The opening of a new market that is a market into which the particular branch of manufacture of the country in question has not previously entered, whether or not this market has existed before. 4) The conquest of a new source of supply of raw materials or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be created. 5) The carrying out of the new organization of any industry, like the creation of a monopoly position (for example through trustification) or the breaking up of a monopoly position

² OECD, “The Measurement of Scientific and Technological Activities. Proposed Guidelines for Collecting and Interpreting Technological Innovation Data. Oslo Manual”, 2nd edition, DSTI, OECD / European Commission Eurostat, Paris 31 Dec 1995.

Due to the high rate of innovation and the ruthless competition between technological products on the market, the big companies' research strategy has moved away from fundamental scientific research and futuristic visions – like those created at legendary labs such as Xerox PARC and the big IBM labs, which were extremely successful in shaping the future of human society. Today, the emphasis of their research strategies is on market-oriented R&D and understanding consumer behavior.

Companies realize that they will remain competitive only through innovation. While previously a technology was first developed and then marketed, today the technologies and the business models are often co-developed. As companies take into account the importance of innovation, the development of business models is increasingly integrated with technological research and development. The success of new commercial products is determined, in part, by how well a technology and a business strategy are integrated, and how they can withstand the development of competing technologies and business strategies.

Convergence of technologies is an especially large threat to existing combinations of technology and business models.

Two examples:

1. “Voice Over Internet Protocol” services are today brushing against traditional telephony, foreboding the end of traditional PBX telephony as a technology as well as the business model that was developed with it. It is a valid question to ask whether in the future there will be a market at all for pay-services that do nothing more than connect two people via audio, when it is already offered as a free service on the Internet.
2. The music industry, built around the distribution and sales of physical objects, is shaken by the delivery of music on the Internet, demonstrating that the traditional technology and business model of the industry has no future. Global sales of recorded music fell by 7.6% in 2003, driven, at least in part, by peer-to-peer file-sharing technology.³ However, sales of recorded music over the Internet are increasing, bucking the overall trend. Apple's iPod and iTunes are good examples of innovation where R&D and business models have co-developed successfully around a fundamental insight in market evolution and consumer behavior.

Innovation is no longer only about shaping the future, it has become about surviving today.

³ “Global music sales fall by 7.6% in 2003 – some positive signs in 2004”, April 7, 2004. Published on IFPI's web site <http://www.ifpi.org/site-content/statistics/worldsales.html> (Oct 31, 2004)

1.1 Lack of Innovation Journalism and the Need for It.

The news media has been slow in both recognizing and adopting this fundamental change in the world economy.

Since innovation is the leading driver of economic growth, it reasonably deserves a news beat of its own, similar to topics with less societal impact such as sports or wine. But today “innovation” is not even a keyword in news, and can’t be obtained as news feeds from news services.

The probable underlying reasons are that the media is not acquainted with the definitions of innovation, and that innovation is a vital topic in two major existing news beats: business and technology.

Journalism is dominated by publications that draw distinctions between business and technology, even though the integration of business and technology drives economic growth in the developed world today. Publications continue to follow older news models and norms of journalism, structuring coverage by using the traditional “beats” of reporting and maintaining the newsroom barriers between technology and business coverage. As a result, very few news outlets manage to give a comprehensive picture of innovation. This is not good for a democratic innovation economy.

Think of this:

- Democratic System: ideas compete for introduction and implementation in society; decisions are ultimately based on how people use their votes.
- Innovation System: ideas compete for introduction and implementation on the market; decisions are ultimately based on how people use their money.

In both cases the people pushing ideas create alliances, make compromises, strike deals and fight fights in order to achieve the introduction and implementation of their ideas. In both cases there are strong incentives for winning, and therefore also for cheating.

Journalism has an important role to play in covering the competition between ideas and interplay between actors in innovation systems as much as in democracies.

The processes for covering politics and innovation have a connection. Elected politicians are responsible for setting regulations as well as educational standards in order to keep up industrial development and prosperity, while industries reliant on innovation have strong interests in lobbying politicians. If there is not good information about how the innovation economy hangs together or the opportunities for and threats to businesses, then people make less informed decisions when they elect the politicians who will regulate these issues. It is also not good for the share-holders and employees of the innovation economy, who might be interested in voting based on their personal interests.

For example, when Swedish citizens in the spring of 2004 wanted to follow the development of Ericsson, a technology company of national pride and importance, in the business news they would learn that Ericsson was doing fine. After cutting down on spending it was again showing profits. From the technology news, they would learn about various downsizings of Ericsson's R&D portfolio.

Ericsson, like most other high-technology companies, has a technology horizon of only a few years. So natural questions would be: Were they throwing out promising technologies? How would this affect the future of their core technologies and business models? Was the aim to outsource their R&D? To consolidate their R&D? How did technology and business arguments balance to form their decisions about what to keep and what to cut? Besides Ericsson's internal politics, what was going on between Ericsson and the Swedish government? How were Swedish regulations, fiscal policies or other policies affecting the possible recovery of Ericsson?

To provide the readers with answers to these questions and a true forecast of Ericsson's potential in a global market requires mixing business, technology and political reporting. Without the consideration of possible answers to these questions it is very difficult to develop a sense of what is happening to the company, what is the potential for future growth, or what is the strategy of top management. And by discussing these issues it is also possible to form an opinion about how elected officials are performing in their role of supporting economic growth.

Innovation Journalism is about asking these questions with the goal of circulating economic knowledge and opening widespread debate about the factors of growth to society. Innovation Journalism focuses on the process of technological innovation, covering all the technical, business, legal and political aspects of innovations and innovation systems.

It should be pointed out that journalism about innovation is not new. But calling it "Innovation Journalism" and suggesting it as a theme for the journalistic community is very new. The expression "Innovation Journalism"⁴ was coined in 2003 by a Swedish initiative offering journalists interested in innovation an opportunity to develop the concept and community of Innovation Journalism.

As some of the publications considered in this study demonstrate, in practice successful Innovation Journalism involves all aspects of the news organization, including: hiring reporters with specialized experience in covering business and

⁴ "The Concept of Innovation Journalism and a Programme for Developing it" by D. Nordfors, VINNOVA Information VI 2003:5, ISSN 1650-3120, Nov. 2003. The paper has been re-published by Innovation Journalism, Vol. 1 No. 1, May 2004. www.innovationjournalism.org/archive/INJO-1-1.pdf

The fellowship program was set up by VINNOVA, the Swedish Agency for Innovation Systems, in cooperation with The Foundation for Strategic Research (Sweden), The Council on Competitiveness (USA) and Profnet (USA).

technology, defining audiences in terms of market- and technology-oriented readerships and writing for these audiences, incorporating aspects of both business and technology into articles, relaxing a “beat” system that throws up barriers to shared knowledge, and having editors who encourage broad perspectives among their reporters and stress collaboration.

Research Methodology

This study in Innovation Journalism was conducted over September-October 2004 in Sweden. Twenty interviews were conducted with Editors in Chief, Section Editors, and Business and Technology Reporters of leading publications, including business, technology, sectoral, regional, and general interest publications and daily newspapers.

The interviews consisted of survey questions designed to quantitatively measure a publication’s score on an “Innovation Journalism Index” developed for the purposes of this study. Respondents’ answers to a range of questions were assigned a numerical value that was factored into the Innovation Journalism Index.

1.1.1 The Innovation Journalism Index

Today, journalism about innovation is usually labeled as business or technology news. Under this condition, the Innovation Journalism Index, abbreviated IJ index, benchmarks how engaged publications are in reporting on innovation for innovation readerships. The IJ index measures the integration of business and technology coverage and audience share. Our basic assumption is that the intensity of integrated business-technology journalism and readerships indicates the grade of innovation journalism that can be attributed to a publication.

The index does not measure quality or success, i.e. a publication with higher index does not need to be bigger or better than a publication with a lower index. The index is a measure of how much technology and business reporting are integrated, and how much the reporting is aimed at a mixture of technology and business people.

As noted above, the Innovation Journalism Index is based on a series of questions in a questionnaire, where each question can be answered on a scale 0–3, except one question, which is answered as a percentage.

QUESTIONS:

<p>TECH IN BUSINESS STORIES</p> <p>A= How often do you cover business?</p> <p>B= How often is technology a component of the business stories?</p> <p>C= How often do the business stories also consciously target the technology-oriented readership?</p>	<p>BUSINESS IN TECH STORIES</p> <p>D=How often do you cover technology?</p> <p>E= How often is business a component of the technology stories?</p> <p>F= How often do the technology stories also consciously target the business-oriented readership?</p>
<p>Q= How often is the interaction between the business factors and the technological factors a component of a business or technology story? (in % of the total volume of business and technology stories)</p>	

PERMITTED ANSWERS TO QUESTIONS:

A-F: {0=NEVER , 1=OCCASIONALLY , 2=OFTEN , 3=ALWAYS} ,

Q: {0-100%}

The questions A–F ask how often tech and business stories occur, respectively, how often tech components are included in business stories and vice versa, and how often stories of one category reach out to readers typical for the other category. They do not ask directly if the interaction between business and tech is covered.

Q is a very straightforward question about how often the interaction between business and technology is covered in technology and business stories. It does not take the distribution between “business” and “tech” categories into consideration, nor the proportion of the entire publication that is devoted to either business or tech. It does not take into account which types of readers are targeted, business or tech.

While A–C address business stories and D–F address tech stories, Q addresses both equally.

In the next step we define two subindexes, $IJ\alpha$ and $IJ\beta$, that take values between 0 and 10:

$$IJ\alpha = Q/10$$

$$IJ\beta = \frac{TechInBiz + BizInTech}{2}$$

where “BizInTech” and “TechInBiz” are calculated from the answers to questions A-F:

$$TechInBiz = 10 \frac{A(B + C)}{18}$$

$$BizInTech = 10 \frac{D(E + F)}{18}$$

$IJ\alpha$ is the same as Q , only divided by ten so that it should have the same range (0-10) as $IJ\beta$. $IJ\beta$ measures how often business is mixed with tech and how often a story of one type targets readers of the other type. It also measures how often a story is either business or technology-oriented.

A top score on $IJ\alpha$ can be achieved by always bringing up how business affects technology or vice versa when covering either of them. A full ten points for $IJ\beta$ will be scored by publishing a lot of both business and tech stories, where each business story should include tech components and vice versa, and where each tech story should also target business readers and vice versa.

The IJ index is the average of both:

$$IJ = \frac{IJ\alpha + IJ\beta}{2}$$

A non-uniformity index, $\Delta\beta\alpha$, measures the relative difference between $IJ\beta$ and $IJ\alpha$:

$$\Delta\beta\alpha = \frac{IJ\beta - IJ\alpha}{IJ\alpha + IJ\beta}$$

$IJ\alpha$ and $IJ\beta$ are similar and expected to be proportional to each other. Plotting them together gives an opportunity to spot deviating data points. Such data points have differences between $IJ\alpha$ and $IJ\beta$, which results in a big non-uniformity index $\Delta\beta\alpha$. They can be explained by small IJ -numbers with large insecurities, data errors and inconsistent answers to the questionnaire. The deviating points can have more interesting explanations, like the unorthodox character of the publication.

1.1.2 Additional questions

There were a number of qualitative survey questions that were not factored into this Innovation Journalism Index but are considered here in terms of the potentials for and barriers to Innovation Journalism. These questions include, but are not limited to, issues of newsroom “beats,” the rate of reporter collaboration on stories, the ways editors and reporters define innovation, and interest in incorporating innovation into publications.

1.1.3 What Journalism Colleges Offer

We investigated if the major journalism colleges offered any courses on how to cover innovation.

1.1.4 Innovation Experts' Satisfaction With the News Media

In order to get an indication of the prevalence of innovation coverage in today's news media and whether the media offers useful information for innovation professionals, we consulted a number of "innovation experts," professionals who have a leadership position in innovation, university presidents, venture capital investors, industrial research managers, executives of innovation companies, and people working in similar fields.

2 Overview of Findings

2.1 Innovation Journalism Index

The IJ index measures the integration of business and technology reporting, as well as how much the stories address a mixed business-technology audience. As we have stressed earlier, the IJ index is a measure of character, not a measure of quality or success.

The specialized technology press is in general ahead of the specialized business press in innovation coverage, and daily newspapers fare the worst in covering both business and technology for their readerships. The following are the Innovation Journalism Indexes for the publications surveyed:

Table 1. Innovation Journalism Index (with non-uniformity index)

PUBLICATION	TYPE	IJ Index ($\Delta\beta\alpha$)
Biotech Sweden	Innovation	10 (0%)
Elektroniktidningen	Technology	9 (14%)
Elektronik I Norden	Technology	8 (10%)
Rapidus	Business	7 (9%)
Process Nordic	Sectoral Business	6 (14%)
Ny Teknik	Technology	6 (14%)
<i>Svenska Dagbladet</i>	<i>Daily news</i>	<i>6 (-60% Data Error?)</i>
Affärsvärlden	Business	2 (56%)
Veckans Affärer	Business	3 (5%)
CommVision (AWApatent)	Corporate press	2 (25%)
Dator Magazine	Technology	1 (133%)
Dagens Industri	Daily Business	1 (100%)

Västerbottens-Kuriren	Daily News	1 (33%)
Dagens Nyheter	Daily News	1 (only IJ β)
Relation	Regional	1 (38%)
Forskning & Framsteg	Science	0 (IJ α =IJ β =0)

The foremost innovation publications, in terms of the Innovation Journalism Index, had frequent coverage of business as well as technology, defined their audiences in terms of both market and technology-oriented demographics, and published a high percentage of stories that appeal to both of these audiences simultaneously, including integrating both business and technological factors into each business or technology story and discussing how they interrelate. The publications with the lowest IJ indexes rarely wrote about business and technology or addressed only one subject area, separated between business and technology audiences, and did not discuss the interaction between business and technology.

2.1.1 Correlations

There is a reasonably good correlation between the components of IJ β , the TechInBiz and BizInTech values. This is quite expected: there is no surprise in that publications that have many tech stories with business components in them also have many business stories with tech components in them. The exceptions from the correlation are mainly at the low end of the plot, where the scattering can be expected to be larger, since publications that are less into mixing business and technology and have a lower frequency of publication of either business or technology stories might very well be less conscious about what they are doing and give vaguer answers.

There is a good correlation between IJ α , which measures how often the interaction between business and technology is addressed in all stories, and IJ β , which measures the balance of business and technology stories and how often business and technology components and audiences are mixed. This is expected, since in order to write about the interaction between business and technology, both business and technology components have to be addressed in the same story. The opposite is not true; it is possible to mix business and technology components without discussing how they interact.

Correlation between the symmetric halves of IJ β - TechInBiz and BizInTech

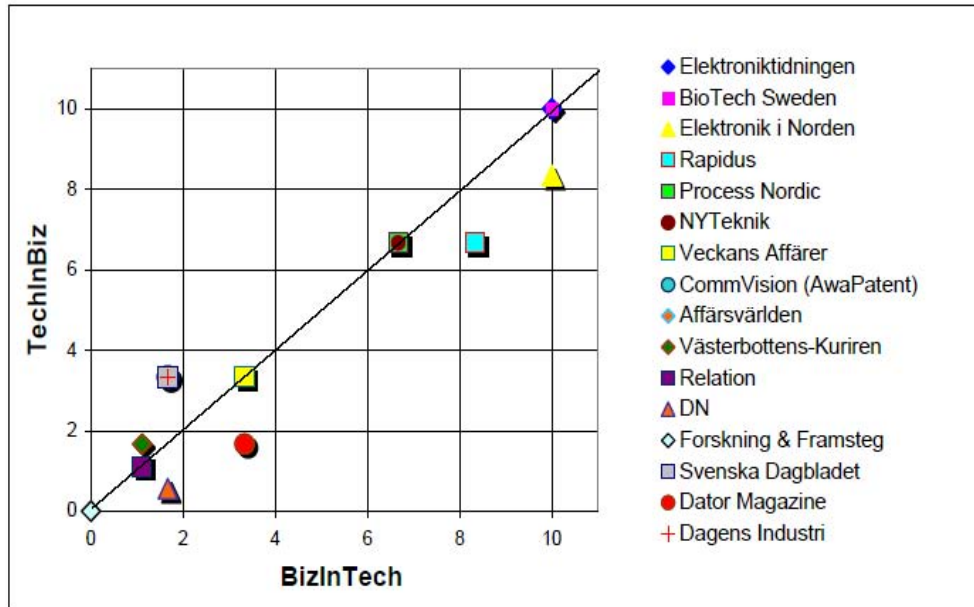
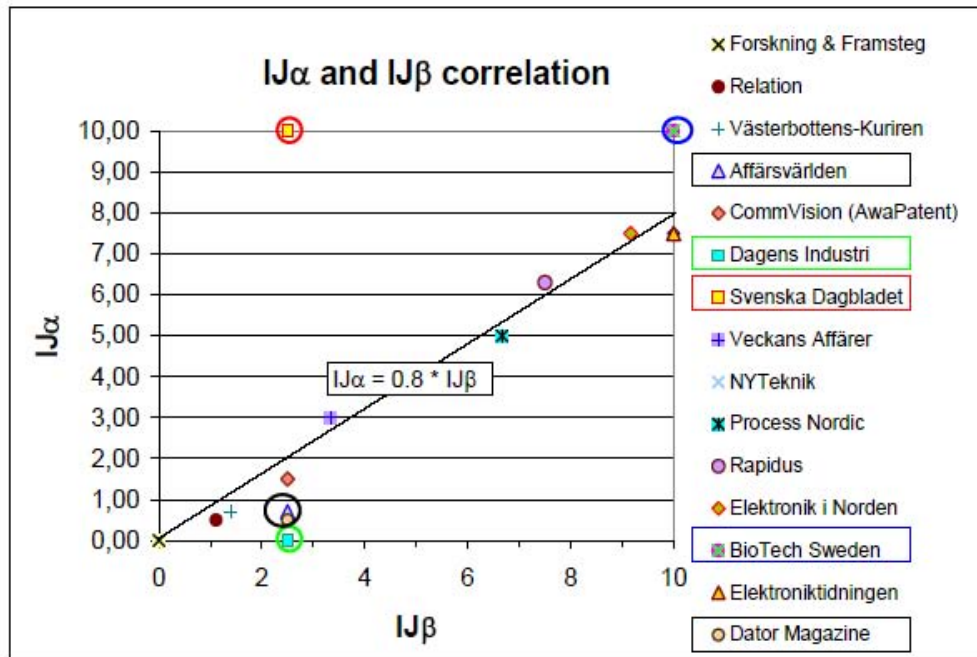


Fig. 1 Correlation between Innovation Journalism Index components α and β



The graph shows that in general, $IJ\alpha$ is 80% of $IJ\beta$. The exceptions are marked by colored rings in the graph: Biotech Sweden – a biotech innovation publication, Dagens Industri – the leading business daily, Svenska Dagbladet – a larger daily newspaper, Affärsvärlden – a larger business weekly, and Dator Magazine a computer magazine. The deviations in the graph are reflected by big values or the non-uniformity index $\Delta\beta\alpha$ in the table of the Innovation Journalism indexes. Since the correlation between $IJ\alpha$ and $IJ\beta$ is so good, it makes sense to list the deviation from the correlation:

$$DC = 0.8 * IJ\beta - IJ\alpha$$

Publication	DC	Publication	DC
Elektroniktidningen	0,50	Svenska Dagbladet	-8,00
BioTech Sweden	-2,00	Dator Magazine	1,50
Elektronik i Norden	-0,17	Dagens Industri	2,00
Rapidus	-0,30	CommVision (AwaPatent)	0,50
Process Nordic	0,33	Affärsvärlden	1,30
NYTeknik	0,33	Västerbottens-Kuriren	0,41
Veckans Affärer	-0,33	Relation	0,39

The deviating points all have a value of DC that is larger than 1. All other data points are 0.5 or closer to the line.

Svenska Dagbladet (ringed in red on the graph) has the only negative non-uniformity index in the table, and a large one, too. This is strange; the interpretation would be that SvD write about the interaction of technology and business often, while they seldom mix technology and tech components in the same story. This does not make sense, so it is most likely a data error.

Dagens Industri is the leading Swedish business daily. The interpretation of the deviation is that they do not analyze technology. Technology components occasionally occur in stories about business, but the analysis is always business. The same explanation is valid for Affärsvärlden.

Biotech Sweden, on the other hand, has the interaction between business and technology as a central theme to all of its reporting. This is an example of a publication that from its conception has been aimed at covering innovation for innovation systems. Most stories mix business and technology components and in all cases the interaction between them is considered.

Due to lack of statistics it is difficult to say exactly, but let us anyway play with the thought that Biotech Sweden, by consciously focusing on the interaction between

business and tech, fits to the correlation ($IJ\alpha = IJ\beta$) rather than ($IJ\alpha = 0.8 IJ\beta$) which seems to apply in the general case.

2.1.2 Innovation is Not Recognized as a Beat

None of the publications considered had a section called “innovation” or a reporter assigned to an “innovation” beat. The publications scoring higher on the Innovation Journalism Index often did not have “beats” at all. Reporters were responsible for covering both business and technology in every publication, and had a high percentage of both business and technology being covered in individual articles. Publications scoring lower on the Innovation Journalism Index often had beats for either business or technology, but rarely integrated the two subjects into one article.

2.1.3 Innovation is Not Discerned From Invention

When editors were questioned as to the definition of “innovation” most described it in strictly technological terms, and did not provide the more comprehensive definition that also takes into account market factors. In other words, “innovation” is often seen as a synonym to “invention”.

In fact, “Innovation” may be used as a synonym to “invention” according to the Oxford dictionary. But the primary explanation of “innovation” offered by Oxford is wider: “the introduction of new things, ideas or ways of doing something”. Here “innovation” is the aggregation of the invention, the market for it, and the interaction between them. This is the root of the definition used in economy, defined by great economists like Schumpeter or recognized international bodies like the OECD, which defines “innovation journalism”.

Publications scoring both higher and lower on the Innovation Journalism Index equated “innovation” with “invention”, suggesting that the OECD definition of the word “innovation” has not yet become commonly recognized in Swedish journalism.

The scale of the Innovation Journalism Index further suggests that there is a dichotomy between publications covering innovation well, and publications barely considering innovation for their audiences. Six of the publications surveyed scored six or above; the remainder of the publications considered scored a three or below. The Index is weighted at both the high and low ends of the scale; a majority of the publications considered here have not yet considered incorporating both business and technological concerns into a high percentage of their articles while others are more advanced in reporting on innovation.

2.2 Readerships

Publications with the closest percentage of both market and technology-oriented readerships (where the breakdown was provided or available) scored higher on the Innovation Journalism Index than publications with a more exclusive readership

weighted to either business or technology. When the readership breakdown was 20 percentage points or less in terms of market and technology-oriented audiences – Elektroniktidningen, Biotech Sweden, Elektronik i Norden, and Rapidus – the Innovation Journalism Index scores were over eight, suggesting that there is a strong correlation between readerships and reporting that incorporates both business and technological factors.

How publications define their audience is central to Innovation Journalism. As is argued in an earlier article by Nordfors⁵:

A successful innovation system is fundamentally dependent on the interaction and shared knowledge between different professions, such as engineers, business executives, academics, and politicians. Media is a major source of shared knowledge between these actors in the public, private, and academic sectors.

Overall, the majority of publications surveyed were unable to provide a readership breakdown in terms of market and technology oriented professions, suggesting that very few editors know how their readerships are distributed over innovation systems, and that the majority thus may have difficulty presenting innovation news to actors in innovation systems, not knowing which news events or news angles are most relevant for the readership. Many editors were able to provide only a general demographic sense of their readership broken down by age, income, and education.

As this study demonstrates, there is little attempt among editorial staff or marketing departments to identify innovation systems relating to the industry or sector a publication serves. Biotech Sweden, which probably for the first time explicitly defined an audience and a business model in terms of the market, technology, and political readers who constitute the innovation system of the biotech industry in Sweden is the exception rather than the rule⁶. Readers are rarely profiled in terms of where they are placed in innovation systems. When categories are provided, they tend to be general among the daily newspapers and regional press like Relation or highly specialized in the press that focuses on just technology or business.

Audiences tend to also be seen as rigid and are linked to the brand-identity of publications; a great barrier to successful incorporation of Innovation Journalism are editors' fears that if they incorporate more business or technological factors into their

⁵ “The Concept of Innovation Journalism and a Programme for Developing it” by D. Nordfors, VINNOVA Information VI 2003:5, ISSN 1650-3120, Nov. 2003. The paper has been re-published by Innovation Journalism, Vol. 1 No. 1, May 2004. www.innovationjournalism.org/archive/INJO-1-1.pdf

⁶ “Biotech Sweden – A Business Model Case Study in Innovation Journalism” by J. Sandred. In “The First Conference on Innovation Journalism: Conference Papers”, Innovation Journalism, May 2004, www.innovationjournalism.org/archive/INJO-1-3.pdf

publications they will no longer be giving readers what they wished to read or what they expected from the publication. Editors tended to also have a range of assumptions about their audience's preferences, although many cited positive responses to coverage of technological innovation. In all, definition of readerships and content preference tends to drive news coverage rather than the other way around. Yet this definition of readership and content preferences seems vague at best for the majority of publications considered, even though it is used as the defining factor in driving news coverage. This suggests that there is a significant potential to measure actual audience demographics, define new readership groups, and incorporate additional business and technological factors into existing coverage in order to expand the market for a publication.

2.3 Reporter specialization

There is no 100 percent correlation between the specialization of reporters and scores on the scale of the Innovation Journalism Index, although publications with higher degrees of reporter specialization in either business or technology score consistently higher.

Publications with smaller staff sizes, which generally dissuade editors from incorporating management structures organized by "beats", on average scored higher in the combination of business and technology reporter collaboration and the integration of business factors into technology reports and vice versa. This seems to imply that there is substantially greater organizational pressure for large publications to maintain strict reporter specialization and solid distinctions between business and technology coverage.

Two of the daily newspapers considered, Dagens Nyheter and Svenska Dagbladet, demonstrate this. Both papers organize their substantial business coverage around business "beats" and have no systematic technology reporting or reporters who specialize in technology, although Svenska Dagbladet is taking initial steps in this direction. When technology is considered in these daily papers it is always from a perspective of business, which is telling in their coverage focusing on product reviews and not high technology. In summary, these news organizations are less prepared to cover innovation from the standpoint of the co-evolution of technology and business. Both newspapers also highlighted newsroom bureaucracy as contributing to a lack of reporter collaboration and the narrow focus of their business reporters.

2.4 Coverage Patterns

Overall, publications that tended to have coverage weighted towards basic industry, rather than high technology, scored lower on the Innovation Journalism Index, further reinforcing the false notion that only high technology companies are dependent on innovation for their growth. General business publications, along with the daily newspapers, which focused on coverage of basic industry, tended to have less reporting

that incorporated technology into business reporting for their market-oriented readership. This suggests that they are failing to provide a sense of the innovation systems that these companies are in. When business publications, daily newspapers, or science publications did write stories about technology they tended to be in the direction of product reviews and general R&D and science.

Technology magazines were on the whole much more likely to incorporate business factors into their reporting. All the publications scoring seven or above on the Innovation Journalism Index – with the exception of Process Nordic, an industrial sector magazine – characterized their technology coverage as a mixture of R&D, product reviews, and scientific research.

All the publications that scored seven or above on the Innovation Journalism Index, again with the exception of Process Nordic, characterized their coverage as weighted toward high technology companies, or a mix of high technology and basic industry. Publications scoring 3 or below in the Index are weighted towards coverage of basic industry.

2.5 Barriers to Innovation Journalism

When asked about the barriers to combining business and technology reporting, the responses among different publications varied. Three concerns were common throughout:

1. Journalism education in Sweden was cited to be “general” in its focus, producing few reporters with the necessary specialized knowledge in either business or technology. Some editors cited that their reporters were uncomfortable with their degree of technical knowledge to cover new technology effectively.
2. The barriers to reporter collaboration are numerous, from the structure of the newsroom with firm section editors and a rigid “beat” structure to a culture of independence among reporters that stresses individualized work.
3. Editors would often cite that they were afraid of declining audience share if they provided more business or technology coverage to their readerships. This was often cited when few editors had a definite sense of who their audiences were outside of a general readership profile.

Another barrier to innovation journalism is the general lack of recognition of the conceptual framework of innovation that has been outlined by numerous economists and reputable organizations like the OECD. Furthermore, it overlaps with several traditional news categories, which can add to confusion. When asked for definitions of innovation, many editors did not know what innovation means (in the OECD sense), failing to account for innovation as a market phenomenon. Of the few editors who did cite innovation as the process of bringing inventions to a commercial market, editors

tended to cite readership concerns, or in larger publications, were unable to figure out where to place coverage of innovation in a publication.

2.6 What Some Innovation Experts Say

Three “innovation experts” were randomly selected and interviewed about the quality of the coverage of innovation in Swedish news media: a tech-industry R&D expert with a background as a newspaper editor, a consultant on corporate and community technology initiatives and former editor-in-chief of a daily newspaper, and a university president.

Their general opinion is that Swedish news media coverage of innovation is poor. NyTeknik, the largest Swedish tech publication, was singled out by two of the experts consulted for being better than the rest in their coverage of innovation. Dagens Industri was cited for being somewhat good for coverage of technological innovation from a business perspective, and the daily Svenska Dagbladet tended to receive more complimentary remarks for innovation coverage than its main competitor Dagens Nyheter.

All three experts also noted that in the Swedish press on the whole there is very little understanding of business, of the role that technological innovation plays in the growth of companies, and the importance of reporting that goes beyond the quarterly financial reports of companies.

According to the experts there is a lot of research on innovation and innovation theory in Swedish universities and institutes, but this does not often get into the hands of journalists and “innovation” and “invention” continue to be used interchangeably in the media.

3 Conclusions and Recommendations

The Innovation Journalism Index offers a weighted measure of how much a publication integrates business and technology reporting, and how much this reporting addresses a mixture of business and technology type readers. It is therefore a measure of the ability of the publication to cover innovation processes and innovation systems, where it is the interaction between business and technology development that is central. The IJ Index is not a measure of how good or successful a publication is. A publication with a high IJ index has overcome the fundamental barrier for covering innovation in full width and depth. But there is more to journalism, and it can still rank lower in penetration and acceptance, and be less relevant than a publication with a lower IJ index.

A common finding was that publications that from an innovation perspective better understand the composition of their audiences score significantly higher on the

Innovation Journalism Index. Biotech Sweden is an example of a publication that defined its readership as covering all the technical, business, legal and political aspects of the biotechnology industry in Sweden. With its readership as such, Biotech Sweden has an obligation to provide its readers with coverage that incorporates both business and technology into regular reporting, and hire journalists with a greater degree of business and technology specialization.

Elektroniktidningen, which also scored very high on the Innovation Journalism Index, is another example of a publication that has a good sense of its market- and technology-oriented readers. Because their audience is distributed between people involved in market and people involved in tech, the publication is able to offer proportional coverage of both business and technology and incorporate business coverage into a substantial amount of their technology reporting. As an electronics magazine they also cite business concerns as being critical to their reporting on technology, suggesting that they are able to simultaneously address both audiences for their publication in serving the innovation system around consumer electronics in Sweden.

As both publications demonstrate, a defined audience either based on an innovation system at the outset of publication (in the case of Biotech Sweden) or a strong sense of the orientation of readership leads to better coverage of innovation. As noted above, publications with less of a sense of their readership, except in the most general terms, are more hesitant about incorporating both business and technology coverage into their reporting, fearing that they will lose audiences.

In terms of reporter specialization, publications that had a higher percentage of specialized reporter knowledge in either business or technology scored higher on the Innovation Journalism Index. A common citation among editors as a barrier to integrating technology and business coverage was the lack of professional educational opportunities for journalists to learn more specialized knowledge about business and technology. Editors would often cite time constraints as a barrier to reporters receiving this education. In addition, a common sentiment among editors was that reporters often did not know how to start when faced with complex innovation processes.

Secondly, editors often cited general journalism education in Sweden as being a barrier to reporter specialization. Some editors felt that journalism education should provide more in-depth knowledge of either business or technology in order to better prepare reporters for the task of writing about innovation. Not all editors agreed however, and many cited that general news reporters make better journalists in covering business and technology.

Among business publications there seems to be a consistent failure to identify new trends in technology until very late in the process, which explains the emphasis on product reviews and basic industry. These publications often cited a failure to be able to pick up the process of innovation at the university level or in the industrial R&D

process. Assigning reporters to a beat devoted to covering innovation would enable this process to be covered much more comprehensively.

While technology publications generally scored higher on the Innovation Journalism Index, a failure to identify the market potential for new technologies was a consistent concern among editors. These publications tend to cover technology very well, but often these new technologies are not making it to the market. Incorporating more discussion of the business component of innovation, as well as company infighting and relevant politics, perhaps through a beat as well, would enable these publications to give their more specialized technology audiences a better understanding of why certain technologies are focused on by various decision makers, how this can be interpreted in terms of their intentions for future developments, and what makes a successful technological innovation into a commercial product.

As cited above, editors were unsure how to systematically incorporate business and technology reporting into their publications, often being unclear of both the market for Innovation Journalism and the newsroom management decisions that will lead to greater innovation coverage. On the first point, defining a market audience in terms of an entire innovation system, whether it is sectoral, regional, or national in its focus, would increase the potential audience share for a publication and allow marketing to be done to the defined sectors of an innovation market. Secondly, in term of innovation coverage, reporters who are not working within the “beat” system are freer to cover the interaction between business and technology. As demonstrated above, smaller newsrooms evidence higher degrees of innovation coverage. To this end, Svenska Dagbladet has taken initial steps to create a working group of IT reporters writing about innovation, which points to possible ways editors of large business and technology sections can restructure their staffs to account for innovation. It is possible that in the future having reporters cover the intersection of business and technology at Svenska Dagbladet will result in ideas radiating outwards to other reporters on staff.

4 Summary

Although Innovation Journalism is not a common label of a beat or of a type of publication, it is possible to benchmark the media landscape, using an innovation journalism index based on the results from a simple questionnaire, which measures the integration of technology and business reporting.

Such an index measures the capability to cover innovation and innovation systems in width and depth. But the index does not say if the publication is good or bad, successful or unsuccessful, this may be measured in other ways.

In the case of Sweden, the following conclusions can be made from the index:

Tech publications are generally ahead of business publications and daily newspapers in covering innovation in a broader way. Publications that often include business components in tech stories will often also include tech components in business stories, and they will more often cover how tech and business interact, and this is more true for tech publications than for business publications today.

Many editors don't know what innovation is in the economic sense and think of it as a synonym for "invention". Of those who are familiar with technological innovation as an economic phenomenon, many don't know where to place it inside their publications due to the partitioning of business and technology issues in different sections. Of those who do know where to place it in their publications, many do not know how the stories relate to their readerships, or how their readerships are distributed between technology-oriented and market-oriented occupations, which could help them to select a relevant news angle.

But it is at the same time clear that there are movements toward innovation journalism in Sweden by a diverse collection of technology and business magazines. One-third of the publications studied through the Innovation Journalism survey have demonstrated high scores on the Innovation Journalism Index. While the other two-thirds of publications considered scored low on the Index, the efforts of newspapers like Svenska Dagbladet demonstrate at least some editors are beginning to explore news ways to cover innovation in Sweden.

The results of the study point to the fact that it might be easier for technology publications to further integrate business into their publications than for business news sources to write more about technology. But there remain many obstacles to successfully integrating business and technology coverage in Sweden, including editors' understanding of audience demographics and interest, reporter knowledge, and newsroom structures that reinforce a dated system of journalism organized by rigid beats. There is a market for Innovation Journalism, as publications like Biotech Sweden and Elektroniktidningen demonstrate. Following their lead might evidence more wide-spread industry changes.

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