An applied Scheme for Cross-linking News Resources between Physical and Digital Editions

Dr Alex Jonsson, Ola Johansson, Martin Leandertz

KTH School of Computer Science and Communication
Department of Media Technology and Graphic Arts, Stockholm, SWEDEN

This paper proposes a guideline on how to link resources between physical and digital editions, along with a outline for applying the cross-channel links, based on full-scale trials at a Swedish daily paper, with feedback from the subscribers in two focus groups and questionnaires.

Background

Ever since the introduction of digital newspaper editions in the early 1990's, newspaper publishing companies have made attempts to increase reader value and brand stickiness by making various, often ad hoc efforts to link articles in the physical edition to resources in the digital editions or vice versa – from raw URLs in the article margin, to devoting entire sections to links and sitemaps – often with poor results. Noteworthy, more channels have recently been added to the mix; RSS feeds and the emerging e-paper channel, making the issue more topical than ever before. Pre-study interviews with the two large daily Swedish newspapers papers showed that less than 15% of the paying subscribers for the physical edition, actually make their way to the newspaper's own website on a monthly basis. So for the newspaper organizations, there is a genuine interest to catch the paying subscribers' attention in order to strengthen the relation with their readers.

Meetings with focus groups and web-based questionnaires prior to the trial introduction of graphic symbols for cross-channel links also showed clearly that there existed an interest from the readers as well. As much as 87% of the 274 respondents of the initial public poll in the study, stated that they used the web in search for further information in general, after reading a article in the paper edition. 84% wanted to be presented with some kind of guidance in conjunction with the article, on where to go for further reading. The preamble questionnaire also contained a line of questioning in regards to if it would be interesting to have the paper provide links on the website edition, with references to related information in the paper edition. A majority of the

respondents of the web-based poll made positive remarks stating that they might well follow such a link if there was one.

Interesting reading indeed, since many papers have relatively few visits from their paying subscribers, according to preliminary discussions. One interpretation would be that finding ways to accommodate easy linkage between physical and digital editions could be a fruitful method to attract more readers to the paper edition, which yet is not fully exploited.

A newspaper strategist next question would be: "Would you (as a subscriber) be prepared to pay extra for your paper in return for qualitative link information", did not seem as appealing and rendered positive replies from only 17% of the respondents. An indication perhaps, that marginal costs for a linking service, might be best regarded as a natural segment of branding and marketing budgets, rather than a direct increase through subscription fees. In conclusion, all parties involved are interested in developing a scheme for cross-channel linking, and several attempts have been made already.

Previous efforts

Apart from individual attempts each carried out by the daily newspaper companies editorals, a number of third–party companies, like Airclick, Webview [Webview], Jump Tech and NeoMedia [PaperClick], each addressing the issue of cross-channel linking by introducing some kind of new technology or usage [Seybold]. These systems typically involve an optical reading device, such as a pen, bar-code scanner or digital camera (such as that of DigiMarc). By placing unique identifiers, e.g. barcodes, and other bitmap patterns in the paper edition, these can be read and the information sent to a computer server where a look-up table renders a web address or even a dynamically rendered page for viewing on the subscribers computer, mobile terminal or PDA.

However, newspaper reading has proven to be a far too institutionalized part of daily ritual exercised throughout the Western society than first appreciated by the developers of new technology. Alas, the barcode scanner is simply not an easily introduced entity of the breakfast table, which proved to be the case and hence, many of the enthusiastic third-party solution providers have discontinued their efforts. The right way to go, at least for those following this gadget path, might do best with a device that the consumer already owns – like the camera phone with both capture device and network access – or better yet with nothing other than the paper itself and your index finger, much like the trials described in this paper.

Long URLs and short

Long URLs leading deep into the hierarchical website structure, has proven to act as a considerable threshold for the average reader to overcome. Paths to overcome these lengthy keyboard tapping sessions all involve various ways of providing shortcuts, noteworthy here is the patented Speed URL from Digital Technology International [DTI], where any URL is referenced to a unique, seemingly random four-letter code, e.g. "UX2P", making up the shorter code sequence. A more general approach, without the third-party service structure, would be to let the error page of a website "Error 404 – file not found" target a script which captures the trailing end of the URL and feeding it to a search engine or lookup-table. Some newspapers choose creative short symbolic link URLs using a typical keyword. For instance, a short path to General Motor's 2006 Pontiac Solstice virtual showroom page, could have easily been www.gm.com/solstice, making a visit more probable than asking the average couch-potato to navigate through the site for that specific car (go ahead and try). The authors have in search of the perfect URL, summoned several focus groups followed by meetings with editorial staff. The debate was on what strategy would be optimal in the case where no optical reading device is available and the most feasible solution is a non-random code of some three, four digits, rather than letters. Just like in TV text services, the leftmost digit would correspond to a major section of the newspaper, such as these categories:

Category name	Class code
News, general	1xx
Economics	2xx
Sports	3xx
Weather	4xx
Miscellaneous	5xx
Entertainment	6xx
Special Interest	7xx
…	

Each section would then have one hundred (or why not a thousand) dynamic link entries, also reusable over the course of time – since links from a year-old paper rarely would be an issue when the paper is re-purposed into wrapping for fish-´n-chips. A searchable archive is probable the way to go in these rare cases.

But replacing a long URL with a short symbolic text link alone has proven to be inadequate; hence paper-to-web links remain unvisited for the morepart. A newspaper page, with all its bells and whistles, has too small signal to noise ratio for an inline URL or links in conjunction to the articles to stick out properly. By adding graphic elements to the printed links, the final trials

showed that 57% of the 358 respondents had seen the planted symbols in the paper edition, of which 79% claimed to understand that they had encountered a link to a other media channel, i.e. the newspaper's website. Perhaps due to the novelty of the symbol usage, 58% of the respondents (95 total) had also followed a cross-link from an article in the paper and visited the website in order to receive more information; such as an analysis, additional pictured, web-TV feeds et cetera.

Enter: the symbols

Symbols of various shape and form have been used in printer matter for centuries, in order to aid the reader to navigate through a material, highlight important detail and catch the reader's interest. Travel agencies for instance, use a lot of symbol in their advertising, such as for "pool", "bar", "doctor", and "elevator". In consumer products such as cameras, cars, remote controls, audio/video appliances, all wield a multitude of well-known, and accepted symbols in brochures, manuals and on the actual products as well. Noteworthy is also the set of symbols used in the sports events of the Olympic games, new artsy sets every year and yet consistent and easily recognizable by the general public most of the time.

Although, when it comes to computers and software, symbols are no longer as standardized as in the physical world. Symbols for "USB", "Firewire" or "Bluetooth" are often the same from one desktop computer make to the other, while symbols on the WWW for "home", "contact" or "download" often are ambiguous and confusing since anyone can make their own as to their own liking – and do. The task was therefore on the conception of a local "standard" set of symbolic graphical elements for cross-channel linking, was planned to be put to the test of collaborative filtering and iteration in search of the ultimate, clearest and least ambiguous set of symbols possible with our finite amount of resources in mind, i.e. let's ask the end-users and see what they think.

In the course of the project, a number of graphical elements were conceived and presented to both a focus group of subscribers (16 individuals per session) and by running another web-based poll on the newspapers website with candidates for symbol categories. The main categories were Further Reading, Video, Audio and Images. In addition, suggestions for symbols depicting SMS, MMS, RSS, WAP, Forum, (discussion) and Monitoring (of on-going events), as well as the final versions of the main categories were drawn by two spin-doctors; web designer Anders Jacobsson and chief designer Stefan Nilson, both at Swedish daily newspaper Nerikes Allehanda [Dagspress], the company were the trials also were carried out.

Selecting symbol candidates – questionnaire

Through a straightforward voting process, with the option of adding a suggestion of their own, the focus groups and respondents of the web-based questionnaires collaboratively filtered out the candidates for a trial run in the daily paper edition. The candidates were compiled by looking at various web sites, brochures, magazines and broadcast media in search of symbols that could prove to have relevance for the categories at hand. Below, a screen dump from the voting process, covering the category "video". In Appendix A, the reader can scrutinize all categories, and candidates in a series of screen dumps from the questionnaire (text translated from Swedish in retrospect).

Figure 1. Candidates for video symbol.

The respondents opinions where then summarized and placed in tables for comparison. The percentages correspond to the actual choices made when asked to select their favorite candidate in each category. There was no possibility to choose multiple candidates in this trial.

Film camera	59%	(163 votes)
TV	12%	(35 votes)
Film strip	8%	(24 votes)
Filmmaker's tool	6%	(19 votes)
Video tape	6%	(17 votes)
Other suggestions	2%	(7 votes)

Table 1. Example of summarized votes when choosing the preferred symbol candidate for "video".

Therefore, in the case with a "video" symbol, a stylized video camera was used. It soon became clear, since each winning candidate in each category received more than 50% of the votes in each instance, and there were no close ties.
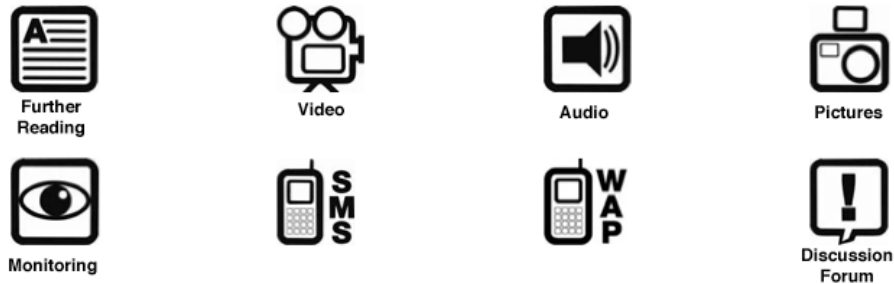
Figure 2. The final icon set utilized in the final stage of the symbol's project.

An additional symbol was required for RSS (RDF Site summary) channel to complete the icon set, but since there already exists a de facto standard button for RSS, it was only necessary to adapt the same robust pictorial style, see figure 3. For the same reason, this graphical element has not undergone the same scrutiny as the other symbols. Yet, it is still be part of the set of symbols, recommended in this report.

Figure 3. The RSS-link symbol (under the category of Sports, since it begins with a 3), could also spell "XML", but less people are aware of the underlying technologies, here seen in conjunction with a number sequence for quick referencing.

The RSS-feed, in its short URL appearance as in figure 3, typically corresponds to www.ne.se/321 for a user would in its lookup table (or by writing 321 in a quick-reference input field of the main web page), leads the user to a resource with content-type of "text/xml" and the appropriate xml structure for insertion in your favorite news-reader, e.g. "http://www.ne.se/rss/sports/tennis/daviscup_2005.xml".

In the case with the RSS cross-link, its more important that the link is persistent, than with the others, since many subscribers keep their RSS feeds over long periods of time, depending on the subject.

Symbols at work – field trial

Figure 4. Placement of symbols in the physical edition, here without the cross-link numbers. In the questionnaire, suggestions were made for alternative placement of symbols, which of this alternative was proven to be the least intrusive on the reading experience.

Below a full-fledged example, with all features active in an article about a horse race at a local track. The legend on the left-hand side of figure 4 allows first-time readers to be introduced to the concept and the cross-channel symbols. Note also included hand-held terminals, preferably used for "monitoring", "wap" or "sms", rather than lengthy "discussion", due to input mechanisms and screen sizes. Attempts have been made, e.g- by Hong Kong–based UMTS service provider Hutchinson-Whampoa to send streaming mpeg4 video clips to consumer handsets, but quality in audio/video, sync and download times are still issues of concern.
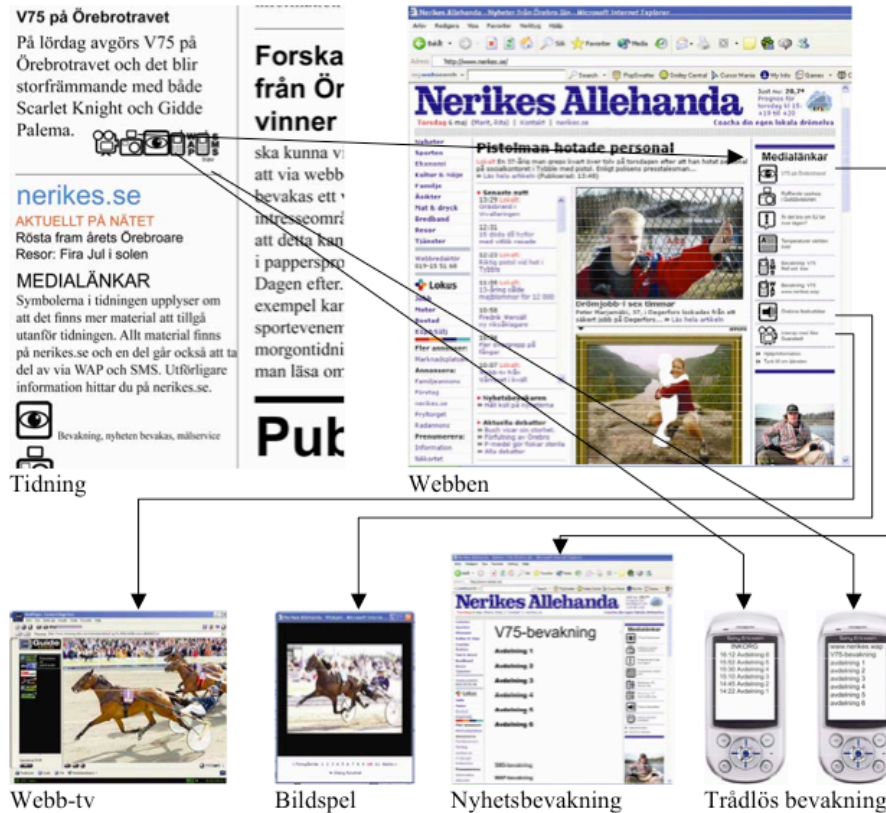
Figure 5. A full example with the symbols in their natural habitat, in a news snippet example featuring racetrack events, along with its multitude of linking options.

Tracking link usage

An advantage over the regular or short URLs that occur in both the physical edition as well as in the on-line version is that a unique address only existing in the paper, would make it possible to see if a visitor on the webpage got there by reference from an article in the paper. Hence, the willingness to follow a specific link can be easily monitored in near real-time by the editorial staff. Knowing the news value of an article can provide essential knowledge about the paper edition, apart from attractiveness of the website, much the equivalent of a banner click-through count. This line of reasoning applies to advertisement as well, where the web site can provide additional information, rebate coupons to print out, or even direct sales. A number

cross-link can naturally lead to any website, just like in the case with the SpeedURL pioneers mentioned earlier.

Results & conclusions

The traffic from the website was monitored during March 15 – April 30, 2005, with a click-count for every time a symbol was used. In the beginning, few readers acknowledged the symbols. But after a while an average of 360+ clicks per day were registered, compared to the approx. 6000 unique visitors per day on the website in all.
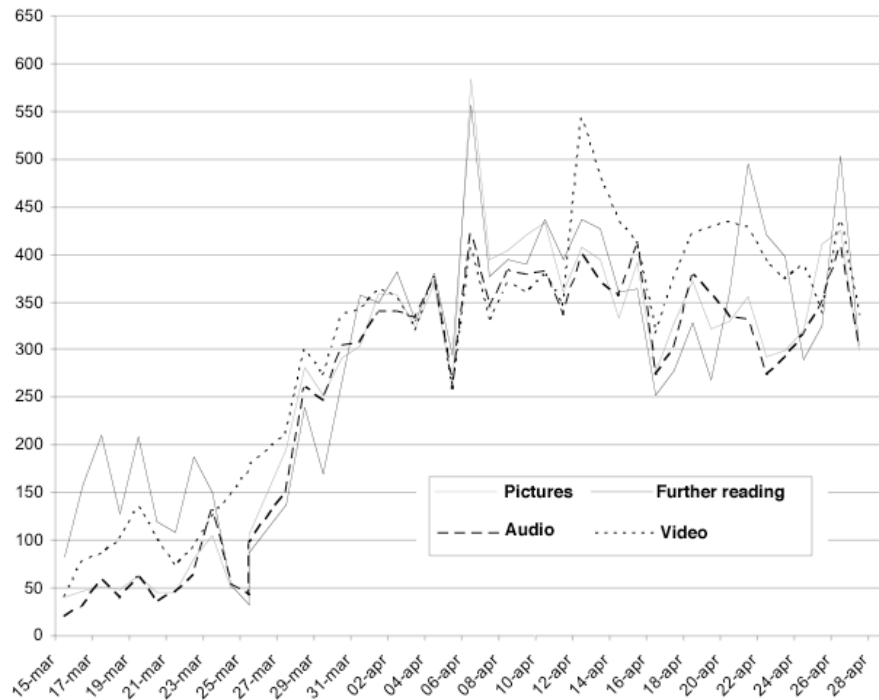
Figure 6. After a slow start, the paper-to-web links pick up and are today in daily use at the Swedish daily newspaper Nerikes Allehanda.

At first, few readers acknowledged the symbols, overcoming the threshold of using their keyboards. But after two weeks of exposure to the links, a stable average of 360+ paper-to-web requests per day were logged, compared to the approximately 6000 unique visitors per day on the website in all, with the category "further reader" slightly favored. The icon set was easily understood and statistics (along with comments in the full report)

show that it would a feasible strategy for attracting more subscribing users to the website.

Discussion & Further Work

One of the pitfalls in successful linking not addressed here is that of the modality of news snippets on the WWW. Following an article-link from an article, supposedly leading to more in-depth reading and analysis, will only fall flat into the trough of disbelief when only encountering yet another news snippet, stating much of the same as the information already consumed. The light news characteristics of the web channel today, may also have to change in order to bring more of the paper edition's paying subscribers to the digital publishing channels, even as following the links themselves has been made easier.
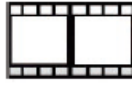
Topics for future studies are to further develop and automize the creation of links and make inventory of possible incentives for the editorial staff to support increased usage of cross-channel, thereby establishing the principles at the source, fuelling the transformation of old principals and encouragement of new consumer behaviors.

References

[Seybold] Seybold Reports Techwatch
        Article about linking concepts
        http://www.seyboldreports.com/TSR/free/0101/html/techwatch.html

[Webview] Computer Sweden, Article about Web View
        http://domino.idg.se/cs/artikel.nsf/0/906249a32735cc91c12568850068c71?
        OpenDocument

[PaperClick] PaperClick, Corporate website (Neo Media)
        http://www.paperclick.com/

[DTI] DTI's SpeedURL,
        http://www.dtint.com/pswp/dtint/pagespeed/url/SpeedURL/story/1829/

[Dagspress] Dagspress, Link to information on Swedish daily newspapers
        http://www.dagspress.se/tidningsdata

Appendix A: Symbol candidates for cross-media linking and their corresponding number of votes

Video

Video tape		6%
Film camera		59%
Clapboard		6%
Film strip		8%
TV		12%

Audio

Ear		27%
Loudspeaker		54%
Microphone		4%
Music		11%

Pictures

Camera		81%
Film strip		13%

Futher reading

Sheet of paper w. text		63%
Typewriter		27%
Other		5%

Monitoring (on-going events)
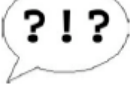
Binoculars		71%
Magnifier		18%

SMS & WAP

En ruta med texten "SMS"
En ruta med ett "S"
En mobiltelefon med texten "SMS" i displayen
En mobiltelefon med ett "S" i displayen
Annat förslag, nämligen

En ruta med texten "WAP"
En ruta med ett "W"
En mobiltelefon med texten "WAP" i displayen
En mobiltelefon med ett "W" i displayen

Discussion forum

Talk bubble		73%
Pen		13%
Pen-guy		6%

Analysis (eventually merged w. further reading)

Line diagram		60%
Bar diagram		14%
Pie chart		9%
Magnifier		8%

Note: At times the percentages do not quite add up to 100%, representing the odd "other" suggestions, not accounted for in the views. Each respondent was asked to account for their favorite candidate for every category, for linking from the paper edition to other media channels. There was an average of 276 respondents per category in the questionnaire.