The *Guardian* Reportage of the UK MP Expenses Scandal: a Case Study of Computational Journalism

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Abstract

The *Guardian* reportage of the United Kingdom Member of Parliament (MP) expenses scandal of 2009 used crowdsourcing and computational journalism techniques. Computational journalism can be broadly defined as the application of computer science techniques to the activities of journalism. Its foundation lies in computer assisted reporting techniques and its importance is increasing due to the:
(a) increasing availability of large scale government datasets for scrutiny;
(b) declining cost, increasing power and ease of use of data mining and filtering software; and Web 2.0; and
(c) explosion of online public engagement and opinion..

This paper provides a case study of the *Guardian* MP expenses scandal reportage and reveals some key challenges and opportunities for digital journalism. It finds journalists may increasingly take an active role in understanding, interpreting, verifying and reporting clues or conclusions that arise from the interrogations of datasets (computational journalism). Secondly a distinction should be made between information reportage and computational journalism in the digital realm, just as a distinction might be made between citizen reporting and citizen journalism. Thirdly, an opportunity exists for online news providers to take a 'curatorial' role, selecting and making easily available the best data sources for readers to use (information reportage). These activities have always been fundamental to journalism, however the way in which they are undertaken may change.

Findings from this paper may suggest opportunities and challenges for the implementation of computational journalism techniques in practice by digital Australian media providers, and further areas of research.

Computational Journalism Defined

Computational journalism can be broadly defined as the application of computer science techniques to the activities of journalism. It is defined more formally by Hamilton and Turner (2009: 2) as:

> the combination of algorithms, data, and knowledge from the social sciences to supplement the accountability function of journalism. In some ways computational journalism builds on two familiar approaches, computer-assisted reporting (CAR) and the use of social science tools in journalism. Like these models, computational journalism aims to enable reporters to explore increasingly large amounts of structured and unstructured information as they search for stories.

Information sets may also substantiate known stories. The concept of computational journalism is not new, and builds upon computer assisted reporting, precision journalism or database journalism techniques. Historically scepticism about database journalism concerned issues of complexity, the overpromising of what tools could deliver, and disinclination of journalists to learn how to use the tools (Meyer 2002). But its potential value is increasing, driven by:
(a) government policies to make publicly available large scale datasets for scrutiny, to increase government transparency (Singel 2009);
(b) the declining cost, increasing ease of use, and power of data mining and filtering software; and Web 2.0; and
(c) the explosion of online public engagement and opinion. The proliferation and scale of user generated content such as blogs, twitter feeds and social network content may or may not contain information of interest (Sifry 2009).

Meyer believes a journalist needs to be a database manager, data processor and data analyst (Meyer 2002: 1). They also still need to connect with people. Computational journalism techniques include crowd sourcing and can be bi-directional. This may enable journalists to identify, connect and converse with key readers rather than the 'mass' (Skoler in Georgia Tech 2008: 4). For example, journalists may search user generated content to identify and interview eyewitnesses and/or experts to verify results, but online forums also provide opportunities for unofficial debate and analysis. The news may be reported, but online it is not stagnant, the news item is not the end of the process. The discussion it generates online - reader and expert commentary; journalist responses; consequent edits and revisions - goes beyond the reporting of events, perhaps towards curatorship (Shaw, McCombs & Keir 1996). The resulting news 'item' provides filtered and verified information, analysis and expert commentary and may be the result of conversations. Journalists also make choices about how the news is presented, and software can be used to improve the message (see Daniel, Flew & Spurgeon 2010 for examples).

By using computational journalism tools and techniques, journalists may:

1. Increase the depth of quality original investigative reporting;
2. Differentiate a digital masthead from competitors;
3. Accelerate the process of journalism from news source to delivery; and
4. Provide a factual basis for analysis, which may minimise the risk of incorrect reporting and counter the influence of public relations.

Ultimately these benefits may attract and retain online readers. Computational tools and techniques may be more easily implemented by mass market news providers who have scale and specialist staff (Daniel, Flew & Spurgeon 2010).

In 2010, a global scan made of computational journalism initiatives identified the *Guardian* as best practice for digital news providers in this field, although earlier initiatives in the United States were noteworthy, for example investigative journalism undertaken by the Sunlight Foundation (Daniel, Flew & Spurgeon 2010). This paper will describe a key initiative of the *Guardian*, and by doing so will reveal the opportunities and challenges for media providers regarding computational journalism.

History of the *Guardian*

The *Guardian* is owned by the non-profit Scott Trust and has often been at the forefront of online initiatives in the United Kingdom. Singer and Ashman (2009: 19) claim the Trust supports the value of free and open discourse —"comment is free"— but also a traditional journalistic approach to ensuring credibility and accuracy — "but facts are sacred." Its network of websites launched in January 1999. Former director of digital content for the *Guardian*, Emily Bell launched *MediaGuardian.co.uk* in 2000, and by March 2001 it had over 2.4 million unique users, making it the most popular UK newspaper website. The *Guardian* is also globally important and attracts the highest number of unique users in North America to a news site (Picard in Townend 2010). It has won best newspaper on the web awards ('webby') in 2005, 2006 and 2007. The *Guardian* effectively has ten years of experience in digital media, is now at the forefront of computational journalism initiatives, and is also a key player in the open data initiative in the United Kingdom (Arthur and Cross 2010). That initiative lobbies the government to make datasets of public records available for public use.

Guardian MP Expenses Scandal Reportage

The Guardian was not the first news organisation to initiate an investigation into expense claims by Members of Parliament (MPs) in the United Kingdom. In early 2009, the *Daily Telegraph* of London obtained two million leaked pages of documents relating to MP expense claims (Hicks 2009) and began to investigate using internal resources. Over the next month, the *Daily Telegraph* released news based upon a sample of claims they had reviewed. In response to freedom of information requests Parliament then released over a million documents relating to MP claims for household and office expenses. Newsworthy items lay hidden in the document deluge and news staff and resources to trawl them were limited.

The Process

A fifteen person internal *Guardian* team took one week to make the documents available on their website using Django software, and the process included taking an image of each claim and receipt. The contract server hosting (*Amazon EC2*) used could rapidly scale up if needed (Andersen 2009). Once the documents were made available, registered readers were invited to participate in an operation that crowdsourced basic review activities. To register with the *Guardian* site, readers must provide personal data including name and address. Reader participation involved five easy steps. They were asked to:

- search for an MP or constituency on the website to bring up the relevant documents, and then select one;
- assess and then click on one of four boxes to indicate what type of document it is: claim; proof of claim; other document; or blank (redacted) page;
- click on one of four boxes to indicate to *Guardian* staff whether it was: not interesting; interesting but known; interesting; or investigate this!;
- enter the claim data into the *Guardian* system; and

- comment on any specific observations and why a claim may deserve further investigation (*Guardian* 2010).

The *Guardian* has not disclosed in detail how they internally managed the data received. Items marked for investigation by readers were presumably reviewed and investigated by *Guardian* staff. The *Guardian* visualised data on their site and via links (Rogers 2010). News items linked to their supporting evidence. Online outputs included a frequently updated summary of expenses by category (Rogers 2009a). Claim summaries can be sorted by: party; MP; category of expenditure; or via a map of the United Kingdom. Readers can click on any expense item to access more detail on its composition. All available expense claims may be downloaded as spreadsheets via the *Guardian* 'OpenPlatform' datastore, and readers are encouraged to create mashups and send links to *Guardian* staff. For example, the *Guardian* links to a graphic visualisation by data software development company, *Timetric*, that compares MP expense claims against others as nominated by the reader (Rogers 2009b).

The *Guardian* has not reported the cost of the expenses investigation. However, it appears to have used resources that were already in-house (eg. Django software). It initially cost an additional £50 for temporary server rental although this cost would have grown exponentially with use (Andersen 2009). The *Guardian* online also linked to articles and findings already revealed by other newspapers. For example, it linked to a *Daily Telegraph* story that included a statement made by MP Peter Viggers, who claimed for a duck house in his garden pond: "I have made a ridiculous and grave error of judgment, … I am ashamed and humiliated and I apologise" (Swinford and Warren 2009; para. 2).

Results

As at June 2010, about half of the 460,000 claim documents were reviewed by 26,774 registered readers. 170,000 documents were reviewed in the first eighty hours (Andersen 2009). Because of the investigation and ensuing media, nearly all MPs reviewed their claims and many repaid claims, before an official investigation commenced. Many MPs did not contest their seat in the following election. The repayment of claims then became another set of news items and data visualisations (Rogers 2010a). In response to media reportage, the government launched a full investigation into MP expense claims and found, of those that had not been repaid before the investigation, over £1m were deemed improper and as at June 2010 four MPs will stand trial for fraud (Davies 2010).

A key benefit for the *Guardian* was that no other media entity was able or prepared to replicate the efforts of crowdsourcing, innovative online reportage and computational journalism. It secondly enhanced the reputation of the *Guardian* for investigative journalism, and enabled *Guardian* journalists to focus on investigation rather than low-level activities.

Key Learnings

What has been learnt from the case study of the *Guardian* MP expense claims initiative? Emily Bell (2009) provided several clues, including:

- go to where your audience is;
- networks work better than silos;
- utility, reliability, trustworthiness and transparency are crucial;
- tools and users are the future to journalism;
- your readers and audience know and see more than you ever could.

Software developer Simon Willison (in Andersen 2009) suggests crowdsourcing initiatives should be made 'game-like'. His tips include:

- Your workers are unpaid so make it fun, and personalise it;
- Public attention is fickle so launch immediately;
- Speed is mandatory so use an already established software framework;

The *Guardian* review of expense claims was 'game-like' with competitive aspects, for example the website included a ranked list of reviewers and their reviewed documents (see 'eatmypoverty' 2010). This assisted transparency and accountability, because registration required the submission of personal data. Participation increased rapidly after MP photos were added, which Willison believes increased personalisation (in Andersen 2009). It was easy for readers to participate, but this created some hesitancy with one commenting "I generally felt after doing a few pages that there was a real chance I wasn't doing it right, and that stopped me doing more" (Andrew Ingram in Andersen 2009: comments).

To capture and maintain momentum the *Guardian* expenses interface launched with minimal testing. At the time of launch, *Guardian* journalists had not agreed on how they would review the data results (Andersen 2009). The scope and process of data collation may have been improved, but delaying the launch may have sacrificed momentum. Momentum did fade over time, and the *Guardian* 'live blogged' its analysis of the second tranche of MP expenses, perhaps to stimulate momentum (Sparrow 2009). The *Guardian's* Meg Pickard (2009) cites the Jarvis (2007) ethos of 'do what you do best and link to the rest', and believes there is no point in the *Guardian* creating their own information management tools where open source tools already exist and have been tested by others. Some errors did occur, for example, a software error incorrectly tallied data and the *Guardian* issued a correction (Rogers 2010b). However given the scale of this project the number of mistakes made does not appear to be abnormal.

Another mistake made highlights the sometimes competing pressures of speed to publish and verification of facts. The *Guardian* ran a story about an MP claim for a tanning salon, without verification, stating the MP was "unreachable for comment last night" (foibl.es 2009: figure 3). A weblog identified that a reviewer had misread the handwriting of a claim receipt as being for a tanning centre when it was in fact for a training centre. Another news provider contacted the MP and quoted him:

> This could potentially be very damaging. It is quite a prominent article and it is the sloppiest journalism I have ever seen. They have said something very serious about a Member of Parliament and there is no truth in it. … I will be talking to my solicitors and I think *The Guardian* could have to pay out a lot of money for this (foibl.es 2009: para's. 10, 11).

Rogers (2010c) believes making sense of the data deluge is an increasingly important service that journalists may offer. By using crowdsourcing and/or emerging software across vast datasets, journalists may quickly identify clues that lead to original investigations and enhanced reportage. A 'curatorial' opportunity exists for online news providers to:

- direct readers to the best datasets of content;
- educate them in use; and
- enhance the news experience.

However data provision and enabling access to datasets is information management, not journalism.

The *Guardian* MP expenses project used crowdsourcing techniques for basic fact checking and innovative data presentation and curation. Journalists could then focus on: verification and investigation of questionable claims; analysis; and reportage. This demonstrates the fundamentals of journalism: editorial decision making; fact checking; ethics; and storytelling, remain essential, but how journalists deploy the key skills will change (Grose 2009).

Subsequent Initiatives

Subsequent *Guardian* initiatives have included: APIs (application programming interfaces – or software that enables interaction with other software); a datastore (where data can be obtained by subject); datablog; and initiatives during the British election. The *Guardian* is open platform, making their digital tools and resources publicly available to encourage reuse. To access the *Guardian* APIs, readers must register with the site and use is tracked. There are three tiers of service from free to premium, and data is limited by how many queries can be made per day.

The quality and speed of computational journalism initiatives from the *Guardian* grows with experience. For coverage of the 2010 British parliamentary election the *Guardian* released an election API that included data on politics and elections going back to 1992 and in some instances back to 1945. Unlike other *Guardian* APIs it did not require a registration to access it, a decision made to increase use (DuVander 2010). As with the expenses project, the *Guardian* partnered with several companies to provide services, including a lobby group (38 Degrees) and volunteer transparency agency (the Democracy Club). A *Guardian* election website allowed readers to view hyperlocal news such as which MP was visiting their electorate and activities via a map. Initiatives around the election did not suffer from the problem of declining momentum that the MP expenses project suffered, because it was a finite time frame and momentum built up until election day (and beyond with the close result) rather than waned after the announcement.

The *Guardian* site now includes a 'datastore' where readers can access and manipulate datasets (for example see Hirst 2009 and Arthur 2009). Its role in making these publicly available datasets is one of curatorship (programmableweb 2010), selecting the best quality datasets worldwide and making them available in an easy to search and use format. The aim is that "data needs to be consistently readable across the web" (Rogers 2009: para.4). For example, different sources use different terminology (such as Burma versus Myanmar) and the *Guardian* standardises these for consistency. Finally, the *Guardian* now has a datablog, managed by journalist Simon Rogers, where stories submitted by reporters are made available interspersed with the datasets used and advice on how readers can search them.

Conclusion

Computational journalism involves using tools to access, manipulate and present data and report news. By the use of emerging software across vast datasets, journalists may identify clues that lead to original investigations and enhanced reportage.
Secondly a 'curatorial' opportunity exists for online news providers to:

- direct readers to the best datasets of content;
- educate them in use; and
- enhance the news experience.

However providing data and enabling access to datasets could perhaps be described as data management. This case study of the *Guardian* expenses reportage also included crowdsourcing techniques used for basic fact checking. Journalists were then enabled to

focus on verification of questionable claims, further investigation, analysis, reportage and conversations. The reportage was not stagnant, the release of a news item was a starting point for conversations.

This approach provides a counterpoint to 'newsfeed driven' reportage, or stories gleaned from media releases of public relations firms, because it is original, independent, grounded in facts and verified by journalists. Just as there is a distinction between citizen reportage and citizen journalism, so must there be a distinction between computational reportage and computational journalism. Kristian Hammond, an engineering and computer science Professor in the Centre for Innovation in Technology, Media and Journalism at Northwestern University, believes traditional journalism attributes of: editorial decision making; fact checking; ethics; and storytelling remain essential. Rufus Pollock (Director of the Open Knowledge Foundation) says a key tenent of journalism that is increasingly important amongst the data deluge is the ability to understand and interpret data (Rogers 2010c). However Hammond believes how these journalism skills are deployed will change (Grose 2009). Computational journalism techniques and tools can provide facts and substantiation that may provide a counterpoint to newsfeeds in shaping public opinion, and facilitate the inclusion of diverse opinions.

What does this mean for investigative journalists? Perhaps they may choose to: learn to code; work closely with coders; or wait until coding abilities become ubiquitous. Early career journalists are already increasingly capable of coding (Bunz 2010), and computational journalism degrees are now offered in the United States, including at Columbia University and the Georgia Institute of Technology. However early career journalists perhaps lack the attributes of experienced investigative reporters as described above by Hammond and Pollock. Heather Brooke, a journalist involved in the expenses project and who now teaches computational journalism, believes:

> A journalist who can understand how to use and analyse data is so powerful – because most of the public don't understand how to use it and those in power don't know how to make it interesting. The journalist can bridge that gap (Rogers 2010c: last para.).

Further research has been suggested by Hicks (2009) regarding the failing momentum of the *Guardian* MP expenses project. She suggests an improvement may be to identify computational ways of converting short-term interest into sustained participation. For example perhaps in a future crowdsourcing project, the complexity of a task may increase commensurate with the number of tasks successfully completed. Alternately, projects that are based upon finite time frames (political elections, annual reporting seasons etc.) may build momentum and complexity towards an end date. Other case studies may involve ground up use of software for analysis by journalists, for example the overlaying of mapping or visualization tools over datasets to reveal dense cluster locations (such as high crime rates, deaths, mortgage stress etc.).

Secondly, the *Guardian* is a non-profit entity. Further research might include a case study of computational journalism in practice at a for-profit entity and may reveal revenue generation opportunities (for example, what if a 'datastore' charged for data?), what premium services may people or entities be prepared to pay for and how much? Finally, for computational journalism to operate effectively large news providers may need to change organisational structures. A study that identifies optimal operational models may help to facilitate this exciting opportunity in Australian media.

Sources Used

Andersen, M. 2009, 'Four crowdsourcing lessons from the Guardian's (spectacular) expenses-scandal experiment' *Nieman Journalism Lab*, 23 June, viewed 12 May 2010, < http://www.niemanlab.org/2009/06/four-crowdsourcing-lessons-from-the-guardians-spectacular-expenses-scandal-experiment/>.

Arthur, C. 2009, 'Visualising MPs' expenses: the best may yet to be done', *The Guardian*, 20 May, viewed 5 May 2010, < http://www.guardian.co.uk/technology/blog/2009/may/20/mps-expenses-visualised-best>.

Arthur, C. and Cross, M. 2010, 'Free Our Data', *The Guardian*, n.d., viewed 5 May 2010, <http://www.freeourdata.org.uk/contact.php>.

Bell, E. 2009 'Lecture to Falmouth', 8 May, Emily Bell's blog, viewed 26 May 2010 < http://publicserviceblog.wordpress.com/2009/05/08/lecture-to-falmouth/>.

Bunz, M. 2010, 'Will journalists of the future need to know how to code?' *The Guardian*, 15 January, viewed 15 May 2010, < http://www.guardian.co.uk/media/pda/2010/jan/15/digital-media-journalism-education>.

Daniel, A., Flew, T. & Spurgeon, C. 2010, 'The Promise of Computational Journalism'. In T. Flew (Ed.) *Media, Democracy and Change: Refereed Proceedings of the Australian and New Zealand Communications Association Annual Conference*, Canberra, 7-9 July. Available at: http://www.proceedings.anzca10.org

Davies, C. 'Expenses trial: Former MPs and peer must appear in court, judge rules', *The Guardian*, 11 June, viewed 12 June 2010, < http://www.guardian.co.uk/politics/2010/jun/11/mps-expenses-four-face-trial> .

DuVander, A. 2010, 'Data is Journalism: Politics API from The Guardian', *Programmableweb* (weblog), 1 March, viewed 23 May 2010, < http://blog.programmableweb.com/2010/03/01/data-is-journalism-politics-api-from-the-guardian/>.

Eatmypoverty 2010, 'eatmypoverty' [web page], *The Guardian*, viewed 10 June 2010, < http://mps-expenses.guardian.co.uk/user/eatmypoverty/>.

Foibl.es 2009, 'Guardian: "MP paler than we might have led you to believe"', Foibl.es [weblog], 21 June, viewed 20 May 2010, < http://foiblesblog.wordpress.com/2009/06/21/guardian-mp-paler-than-we-might-have-led-you-to-believe/> .

Georgia Tech. 2008 'Journalism 3G: The Future of Technology in the Field' Symposium on Computation + Journalism, Georgia Tech. College of Computing, 22-23 February 2008, viewed August 20 2009 < http://www.cc.gatech.edu/events/cnj-symposium/CJ_Symposium_Report.pdf>.

Grose, T. 2009, 'Can Eng. Wiz Save the News Biz?' *ASEE Prism;* December, vol. 19, iss. 4, p. 31-35.

Guardian 2010, ‘Page 7 of Peter Viggers's Additional Costs Allowance 2004/05’, viewed 26 May 2010 <http://mps-expenses.guardian.co.uk/page/403849/>.

Hamilton, J. 2009 ‘Tracking Toxics When the Data Are Polluted’, *Nieman Reports*, Spring, viewed 3 November 2009, < http://www.nieman.harvard.edu/reportsitem.aspx?id=100933>.

Hicks, C. 2009, ‘EASY: The Guardian's Crowdsource Game’, *News Games, Georgia Tech*, 21 October, viewed 6 June 2010, < http://jag.lcc.gatech.edu/blog/2009/10/easy-the-guardians-crowdsource-game.html>.

Hirst, T. 2009, ‘Visualising MPs’ Expenses Using Scatter Plots, Charts and Maps’, OUseful.Info, the blog… [weblog], 2 April, viewed 10 June 2010, < http://blog.ouseful.info/2009/04/02/visualising-mps-expenses-using-scatter-plots-charts-and-maps/> .

Hundal, S. 2009, ‘Exclusive: Guardian considering charging for “members’ club” (updated)’ *Liberal Conspiracy*, August 11, viewed 7 June 2010, < http://liberalconspiracy.org/2009/08/11/exclusive-guardian-considering-online-members-club/>

Jarvis, J. 2007, ‘New rule: Cover what you do best. Link to the rest’, *BuzzMachine*, 22 February, viewed 26 May 2010 < http://www.buzzmachine.com/2007/02/22/new-rule-cover-what-you-do-best-link-to-the-rest/>.

Meyer, P. 2002, *Precision Journalism, a Reporters Introduction to Social Science Methods*. Maryland, Rowman & Littlefield.

Pickard, M. 2009, ‘Media Technologies’, presentation to *Media 2009* conference, Fairfax Digital, Sydney, 13 February.

Programmableweb 2010, ‘Guardian API’, *Programmableweb* [weblog], viewed 20 May 2010, <http://www.programmableweb.com/api/guardian>.

Rogers, S. 2009 ‘The Guardian rosetta: the Datablog reference guide to nearly everything’, *The Guardian*, 24 November, viewed 26 May 2010, < http://www.guardian.co.uk/news/datablog/2009/nov/24/iso-country-codes-reference-guide-rosetta-stone>.

Rogers, S. 2009b ‘MPs' expenses: all the revelations, as a spreadsheet’, The Guardian, 13 May, viewed 26 May 2010, < http://www.guardian.co.uk/news/datablog/2009/may/13/mps-expenses-houseofcommons>.

Rogers, S. 2010a ‘MPs' expenses: the Legg report's full list of MPs and their repayments’, *The Guardian*, 5 February, viewed 26 May 2010, < http://www.guardian.co.uk/news/datablog/2010/feb/05/mps-expenses-repayments-legg-report >.

Rogers, S. 2010b ‘MPs' expenses: who claimed what? The full list’, *The Guardian*, Datablog, 4 February, viewed 26 May 2010, < http://www.guardian.co.uk/news/datablog/2010/feb/04/mps-expenses-claims-full-list#data>.

Rogers, S. 2010c ‘Information is Power, *The Guardian*, Datablog, 24 May, viewed 26 May 2010, < http://www.guardian.co.uk/media/2010/may/24/data-journalism>.

Shaw, D., McCombs, M. & Keir, G. 1996, *Advanced Reporting: Discovering Patterns in News Events*. Prospect Heights, Waveland Press.

Sifry, M. 2009, ‘A See-Through Society. How the Web is opening up our democracy’, *Columbia Journalism Review*, January/February, viewed 12 July 2009, < http://www.cjr.org/feature/a_see-through_society.php>.

Singel, R. 2009, ‘White House Orders Agencies to Open Up’, *Wired*, 8 December, viewed 9 January 2010, <http://www.wired.com/epicenter/2009/12/white-house-orders-agencies-to-open-up>.

Singer, J. and Ashman, I. 2009 ‘“Comment Is Free, but Facts Are Sacred”: User-generated Content and Ethical Constructs at the Guardian’, *Journal of Mass Media Ethics*, January-March, vol. 24, no.1, p.3–21.

Sparrow, A. 2009 ‘MP Expenses – Live’, *The Guardian*, 10 December, viewed 5 May 2010, < http://www.guardian.co.uk/politics/blog/2009/dec/10/mps-expenses-houseofcommons >.

Swinford, S. and Warren, G. 2009, ‘Duck island MP says his birds never liked it’*, The Times*, 24 May, viewed 26 May 2010, <http://www.timesonline.co.uk/tol/news/politics/article6350646.ece>.

Townend, J. 2010 ‘Professor Robert Picard on why newspapers deserve to die’ *Journalism.co.uk* (weblog), 9 June, viewed 10 June 2010, < http://blogs.journalism.co.uk/editors/2010/06/09/jntm-professor-robert-picard-on-why-newspapers-deserve-to-die/>.