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# **The business implications of consumers' behavioural patterns on a magazine website**

**Keywords:** Consumer online behaviour, magazine, business model,

## **Abstract:**

This paper explores consumer behavioural patterns on a magazine website. By using a unique dataset of real-life click stream data from 295 magazine website visitors, individual sessions are grouped according to the different sections visited on the websites. Interesting behavioural patterns are noted: most importantly, 86 % of all sessions only visit the blogs. This means that the visitors are not exposed to any editorial content at all, and choose to avoid also commercial contents. Sessions visiting editorial content, commercial content or social media links are very few in numbers (each 1 per cent or less of the sessions), thus giving only very limited support to the magazine business model. We noted that consumer behaviour on the magazine website seems to be very goal-oriented and instrumental, rather than exploratory and ritualized. This paper contributes to the current knowledge of media management by shedding light on consumer behaviour on media websites, and opening up the challenges with current media business models. From a more practical perspective, our data questions the general assumption of online platforms as supporter of the print business.

## 1 Introduction

The creation of new revenue streams and development of the existing ones is at the top of media firms' strategic as well as operative agendas. While the development of digital technology has given rise to several opportunities to expand the portfolio of revenue creating features online, few attempts have proven to be profitable so far (Wikström and Ellonen, 2012). This paper explores the online activities of publishing firms and tests the widely held assumption that online activities have positive spill-over effects on the overall magazine business model. Such effects are expected to include increased brand awareness and brand loyalty which influence other parts of the brand portfolio including the printed issues (Kuivalainen et al., 2007). While Horppu et al.'s (2007) study provided empirical support for the positive brand-loyalty effects in the magazine publishing context, the question, however, remains: how does a magazine website support the magazine business model?

In this paper, we approach this question from the perspective of consumer behaviour and zoom in the behavioural patterns on a magazine website that are expected to support the magazine business model. Current theories in media research (*Uses and Gratifications*, see e.g. Ruggiero, 2000) and consumer behaviour (*Technology Acceptance Model*, see e.g. Venkatesh and Davis, 2000; *Theory of Reasoned Actions*, see e.g. Sheppard et al., 1988) tend to focus on initial media choice and behavioural intention, but provide no insight over the actual behavioural patterns while using digital media. Hence, this paper takes its starting point in the actual behaviour of magazine website visitors.

By using a unique dataset of real-life click stream data from 295 magazine website visitors, this paper sets out to explore consumer behaviour patterns on magazine websites, specifically, we focus on categorizing behavioural patterns that support the magazine business models.

Our study reveals novel and significant patterns about online business models and has theoretical as well as practical implications. The findings provides suggestions on what basis existing web site structures and content could be developed, and how the overall magazine business model could be strengthened.

## **2 Theoretical background**

Theoretically, this study builds on prior research on consumer online behaviour and magazine business models.

First, research on business models focuses on the firm's logic for creating and commercializing value (e.g. Osterwalder et al., 2005; Zott et al., 2011). Of the three general dimensions of the business model — economic, operational and strategic — this paper concentrates on the economic aspect. Internet alongside the development of social media platforms and reading devices has brought about significant changes to the traditional business model of magazines — that consisting of subscription revenues, advertising revenues and single copy sales (Daly et al. 1997). Publishers have experimented with a wide set of online revenue streams including new advertising formats, online-shops and to some extent paid content. The online presence is also utilized to promote off-line revenue streams — such as events, trips and subscription of printed issues.

Although studies support the general idea of positive spill-over effects on the overall brand (Kuivalainen et al. 2007; Ellonen et al. 2010<sup>ab</sup>), actual profit is found to be scarce so far (Wikström and Ellonen, 2012). This points at the need to understand how online user behaviour is connected to the online activities tied to revenue streams. Building on the aforementioned articles on magazine business models, we classify the following behaviours (Table 1) on the magazine website each having links to the business model, on the short term or long term. This overview will serve as the basis upon which the clickstream data will be categorised and analysed.

Behaviour on the magazine website	Link to business model	Effect on revenue streams
Clicking an add or commercial link, or participating in a sponsored competition	Support online ad sales	Short term
Clicking on pages that include content provided by the magazine's editorial staff	Increased brand familiarity and/or loyalty	Long term
Clicking on links that lead to offline revenue streams, such as subscription offers.	Support offline sales	Short term
Clicking on links that lead to the magazine's different social media channels	Increased brand involvement	Long term
Clicking on pages that include blogs hosted by the magazine	Support brand identity	Long term

**Table 1.** Behaviors that support the magazine business model during a single visit to the magazine website

Second, literature on consumer online behaviour distinguishes between *exploratory and goal-oriented online behaviour* (e.g. Hoffman and Novak, 1996; Novak et al., 2003; Moe, 2003; Moe and Fader, 2004). Goal-oriented behaviour is driven by extrinsic motivation, such as the need for a supplier of winter wheels, and the consumer choices are mainly goal-directed and cognitive (e.g. Novak et al., 2003). This reflects well with the instrumental use of media, which is characterized as intentional, selective and purposive exposure to specific content (Rubin and Perse, 1987).

Exploratory behaviour, on the other hand, is driven by intrinsic motivation, such as wanting inspiration for a new kitchen design, and the choices are primarily navigational and affective (e.g. Novak et al., 2003). This behaviour is close to the ritualized use of media: The focus lies more on the medium than on particular content and is associated with diffuse motives, such as passing time and relaxing (Rubin and Perse, 1987).

The results of a recent study on consumer motives to use women's magazines and their websites (Sonkamuotka, 2013) indicated that women use both channels of a women's magazine for very similar purposes. Relaxing, entertainment and inspiration were listed among the top reasons given for using both print and the websites, alongside more information oriented purposes (getting information on topics that interest oneself).

Sonkamuotka's findings indicate that it would be likely that women's magazine websites are visited in an exploratory or ritualized manner. Also, as exploratory behavior is likely to result in more exposure to different elements of the website, we assume exploratory behavior to be linked to more direct (support online ad sales, print subscription sales) and indirect (brand familiarity, loyalty and identity) positive business implications.

### **3 Research design and methods**

The empirical part of the study focuses on the website visitors of a Scandinavian women's magazine. The target group of the magazine and its website are well-educated women in their 30's. The print magazine reaches approximately 100 000 readers, while the website attracts approximately 70 000 weekly visitors. The website includes some editorial content (fashion and beauty articles, recipes, how-to-videos etc.). In addition, a focal element on the website are four signature lifestyle blogs hosted by the magazine.

#### **3.1 Data collection and processing**

To address the research questions, an exploratory and data-driven approach was chosen to categorize the patterns of consumer behaviour using clickstream data. Clickstream data are defined as the electronic record of a user's activity on the Internet and traces back the path a visitor takes while navigating a website or across websites. As such, clickstream data reflects the visitor's choices while browsing. (Bucklin and Sismeiro, 2009)

To facilitate the data collection and overcome some practical problems faced with raw weblog files (Bucklin and Sismeiro, 2009), the publisher agreed to install a web analytics software called OpenTracker on the magazine website, which allowed us to access the clickstreams of individual visitors. At the end of the tracking period, 295 visitors were randomly selected of all 9 975 visitors, who visited the website that day and their clickstream data were extracted using the OpenTracker interphase.

The dataset consists of all page requests made by 295 visitors on the magazine website over a period of 16 days, totalling 7 067 data points. A page request refers to a user's requesting a URL through her browser program. In turn this page request will appear as a hit in the server's log file. A session is defined as a sequence of page requests. If a user has not

requested any pages for 60 minutes, we assume that the session has ended and that the next page request marks the beginning of a new session.

For the purposes of this paper, we focus on the level of analysis of *a single session*. The dataset consists 3 830 individual sessions ranging from 1-71 page requests per session. Most of the sessions are short and only consist of a single or a few page requests as illustrated by the table below.

<b>Page requests</b>	<b>Number of sessions</b>
1	2 324
2	837
3	335
4-10	316
11-	18

Table 2. The sessions are generally short and only consist of a few page requests.

The timing of the data collection was discussed with the decision makers of the case firm prior to the data collection to make sure the period was not coinciding with any particular marketing activities relating to the magazine brand or the bloggers, but represented an ordinary time period.

### **3.2 Data analysis**

In order to identify behavioural patterns, individual URLs were classified in six categories according to their content (c.f. Montgomery et al., 2004) based on the scheme presented in table 3.

URL Category	Content included in each category	Code
Editorial content	Articles, recipes, newest issue of the magazine	E
Blogs hosted by the magazine	All URLs of the four blogs	B
Social media	Links to Facebook, Instagram, YouTube, Spotify, online community	S
Nagivational pages	Front page, blogs front page	N
Commercial	Links to ads, sponsored competitions or any other type of commercial content featured on the website or on the blogs	C
External	Links to any external other content	x

Table 3. Categorization scheme of URLs.

Session clickstreams could thus be described as sequences of URL codes, such as for example “N, E, B, B, B, C” describing a pattern where a user first enters the front pages, then clicks an article, then clicks three posts of a blog, and finally clicks on an ad. Each URL code denotes one page request in that category. In this example, the session consists of six page requests in four different categories. In our search for clickstream patterns we focus on transitions (e.g. Bakeman and Quera, 2011) between URL categories, i.e. which and how many categories of the website are visited during a single session, rather than length of the pattern and the number of the page requests within a single category. We consequently processed the 3,830 sessions and reduced consecutive page requests within the same category into a single code. As an example, the sequence above is reduced from “N, E, B, B, B, C” to “N, E, B, C”.

It should be also be noted that entering and leaving the website is counted as transitions, which means that a session with a single page request consists of two transitions. Table 4 shows the distribution of number of transitions for the sessions included in the study (varying between 2 and 31 transitions). It is worth noting that most of the sessions (89%) include page requests of only one URL category hinting that a vast majority of visits to be



goal-oriented rather than exploratory – i.e. the user enters the website with the intent to view a specific content.

<b>Category transitions</b>	<b>Number of sessions</b>
2	3 407
3	241
4	102
5	35
6	20
7	9
8-	16

Table 4. The number of category transitions in the sessions included in the study.

In the search for common patterns among the sessions we focused on specific user behaviours that we considered having immediate consequences for the magazine’s business models (see table 1). Thus a straightforward data analysis approach was chosen, and subsets of session database were formed based on the categories included in the sequential strings. As during the data preparation we had noted most sessions to consist of solely blog visits, we started by separating a subset of the data consisting of only those sessions that only included B in the coded sequential strings. This resulted in a subset including 3 282 sessions. With the remaining of the data, we then searched for strings that included editorial content, then commercial content and finally social media links, and analysed the resulting subsets manually with a particular emphasis on the categories preceding and following the categories in focus. This lead us to form the six subsets of sessions described in the next section. The six purposefully mined subsets cover approximately 90% of all sessions in the entire dataset.

While the number of transitions within the session gives some indication of the exposure and experiential behaviour, we also suggest a simple measure of whether a session is an example of goal-oriented or exploratory online behaviour: A session is considered to be exploratory if a user during the session transitions from one URL category (i) to another category (j) and later during the same session returns to URL category (i). If every URL category during a session is visited only once, it is considered to be an example of goal-

oriented behaviour. Using this measure it is possible to conclude if an exploratory or a goal-oriented behaviour is dominating sessions that have been categorised as constituents to a specific pattern cluster.

## **4 Results**

This section presents the results from the analysis of the clickstreams in our dataset. The analysis generated six subsets of sessions representing distinct behavioural patterns, which are presented below.

### **4.1 Pure blog sessions**

The first subset consists of sessions that only visit the blogs hosted by the magazine. These sessions do not include any page requests of commercial links or editorial content. This subset is by far the largest, consisting of 3 282 sessions, or 86% of the entire dataset. It indicates the main usage of this website is to go straight to one's favourite blog and then leave the website without exploring any other content. Not a single session in this subset is an example of exploratory online behaviour (according to the measure suggested above), which means that they all follow a goal-oriented online behaviour, using the taxonomy suggested by Novak et al. (2003).

### **4.2 Sessions including editorial content**

The second subset is constituted by sessions that might be expected on a magazine website: These sessions include visits to the different types of editorial content provided on the website. It is worth noting, that altogether, there were only 30 sessions (0.78%) in the whole dataset including any visits to editorial content indicating a severe lack of interest towards the editorial content on the website.

Only two of the sessions in this subset exhibit an exploratory behaviour. The sessions are thereby similar to the first subset in the sense that they do not explore the website but exhibit a very goal-oriented online behaviour.

### **4.3 Sessions combining blogs and editorial content**

The third subset includes sessions that have page requests to both editorial content and blogs in a single session. There were only five (0.13%) sessions of this type in the whole dataset. One interpretation of this small number is that readers of blogs and readers of editorial content are two distinct user groups that exhibit very different behaviour. A user is either interested in reading blogs *or* editorial content and it is unusual that a user is interested in reading both during a single session.

None of the sessions in this small subset was an example of an exploratory behaviour, which is similar to the sessions in the two previous subsets. One might argue that these sessions are more exploratory as they visit two different URL categories (blogs and editorial content), but as they do not go back and forth between the categories, the sessions are goal-oriented rather than the opposite.

### **4.4 Sessions originating from social media platforms**

A fourth subset consists of sessions that originate from an external social media platform. Nine (9) such sessions were identified and all of them lead from the external social media platform to the section of the web site with blogs that are hosted by the magazine. Once the users in this behaviour have entered the website, they exhibit similar behavioural patterns as the users in the first subset, i.e. a very goal-oriented behaviour that does not involve exploring other sections of the magazine website. Most likely these users have found a link in their flow of social media notifications that leads them immediately to a specific blog post on the magazine website. Once they have finished reading this blog post, they return to the social media platform and continue perusing their other notifications.

### **4.5 Sessions including clicking commercial links**

The fifth subset identified in the analysis consists of sessions where the user clicked on a commercial link, either an ad, a sponsored competition or commercial links that are featured on the blog posts. Among the 3 830 sessions, there were fourteen (14) that included clicking on some form of a commercial link. This means that the magazine's click-through rate is

0.36% (assuming that all sessions exposed the user to a display ad), which is slightly above the average click-through rate for display ads as reported by Google's subsidiary DoubleClick (2015). In 9 of these 14 sessions, users clicked the commercial link after having visited one of the blogs hosted by the magazine. The remaining five (5) were clicked on from a navigational URL (front page). This result is not very surprising considering that most of the users visit the blogs hosted by the magazine. It is nevertheless interesting to note that the magazine's editorial content did not encourage a single user to click on a commercial link.

In terms of goal-oriented versus exploratory online behaviour, users that have clicked on a commercial link exhibit a fairly exploratory behaviour. 7 (50%) sessions are categorised as exploratory using the measure suggested in section 3. This is considerably higher than the sessions in the other subsets.

#### **4.6 Sessions including clicking social media links**

The final subset consists of sessions where the user clicked on a social media link. 41 sessions of this character were identified during the analysis.

28 (52%) of these sessions are examples of exploratory online behaviour, which means that there are stronger parallels between this subset and the previous one than with the sessions in the first four subsets. The users in this subset explore blogs hosted by the magazine but they are also inclined to click on other links that are external to the website (e.g. links to external blogs covering the same topical area). While there are parallels between the last two subsets, there are also clear distinctions between the two. Primarily this distinction is manifested by the fact that there are no sessions that include page requests of commercial links *and* social media links during a session. While it is merely speculation, it seems as users click on commercial links as part of a session that is specifically aimed at visiting the magazine website – since no other external links are clicked on during the session. Users clicking on social media websites on the other hand, seem to weave the magazine content into a session that includes other external content at social media platforms as well as at other website external to the magazine website.

Table 5 below summarizes the findings.

Behavioural pattern subset	Number of sessions of all studied (%)	Exploratory vs. goal-oriented	Avg # trns per session	% exploratory sessions
Pure blog sessions	3 282 (86%)	Goal-oriented	2.0	0%
Sessions including editorial content	30 (0.78%)	Goal-oriented	2.53	7%
Sessions combining blogs and editorial content	5 (0.13%)	Goal-oriented	3.2	0%
Sessions originating from social media platforms	9 (0.23%)	Mostly goal-oriented	3.44	22%
Sessions including clicking commercial links	14 (0.36%)	Fairly exploratory	4.36	50%
Sessions including clicking social media links	54 (1.4%)	Fairly exploratory	5.35	52%

Table 5. Behavioural patterns supporting the magazine business model

## 5 Discussion and conclusions

The purpose of this paper was to explore the behavioural patterns on a magazine website and uncover their linkages to magazine business model. The results of the present study lead to some interesting findings.

Firstly, we noticed a clear separation between the blog readership and editorial content readership online. This is quite contrary to the magazine publishers' long established belief (e.g. FIPP, 2005) that an online presence will attract more readers for the (print) magazine's editorial content and lure in new subscribers. In fact, a recent industry report (FIPP, 2014) states "*Publisher websites' self-selected audiences means the ads (like the editorial content) have high relevance to the visitors*". While the click-through rate is up par with other websites, it would seem that the editorial content does not have high relevance to the visitors of this website. Another interpretation is that traditional magazine content is preferred to be accessed in the traditional magazine format – i.e. printed issues.

Also, in our exploration of the data, we did not come across any sessions that had "subscribe the print magazine" link in them. While this link is available on the website, it was not clicked once in the data gathered for this study.

Secondly, it also seems that the blog visitors are not really exposed to the magazine brand. Blogs, being a born-digital product, are not integrated in the editorial content and merely use the magazine brand as a vehicle to reach its readers. From a business model perspective, this raises questions with which actor the value-added dimension of blogger-magazine collaborations actually lie – at the blogger’s brand or the magazine brand? Hence, it is debatable if the magazine brand actually benefits of spill-over effects despite the vast volume of page requests. As indicated by the results (subset 5), blog visits are valuable in terms of supporting online ad views, but the broader brand level spill-over effects (see e.g. Horppu et al., 2007; Kuivalainen et al., 2007) would need a stronger linkage to the magazine brand.

Thirdly, based on the results, the websites role in the magazine’s business model is limited. The direct positive implications include the online ad sales, mostly buffered up by the blog visits. The possible broader brand level implications on brand loyalty, brand awareness and brand personality are in best case indirect. However, judging by the low number of sessions driving the long-term brand implications, and the above-discussed question of blogger vs. magazine brand, the positive business implications are scarce.

From the consumer behaviour perspective, we note the difference in the degree of exploratory behaviour in the six groups of sessions we identified. Sonkamuotka’s (2013) study showed that women’s magazines are read in order to relax, be inspired and get a breather in between the normally hectic life - both in print and online; hence exploratory behaviour was expected on the magazine website. However, it seems that, at least in this case, consumers tend to visit the website in a very goal-oriented manner. Rather than spending time on the site and exploring the range of the magazine’s online offerings, content is consumed in an intentional, selective and purposive manner which is typical to instrumental use of media (Rubin and Perse, 1987). Instrumental use of the website can be easily understood given the ease of search engines and frequent updates on the websites. It may be that in an effort to keep up with current updates on the blogs, most visitors use bookmarks and visit the website often, rather than exploring all offerings at one time as is often the case with monthly print magazines.

This paper contributes to the current knowledge of media management by shedding light on consumer behaviour on media websites, and opening up the challenges with current media business models. From a more practical perspective, our data questions the general assumption of online platforms as supporter of the print business. This indicates an urgent need for publishers to boost more exploratory behaviour on the website and ensure a clear brand exposure when visiting the website. Another possibility is to increase the content which matches a goal-oriented behaviour, i.e. more blogs, or other pure digital products such as videos from current events or online-forums and utilize those outlets more in online ad sales. If the latter approach is chosen, magazine publishers need to consider how they wish to capitalize from the blogger-magazine partnerships in a way which ideally lead to a win-win situation.

This study carries the typical limitations of click stream data studies: the dataset only covers the consumers' activities on one single site and during a relatively short period of time. Also, user activity is tracked at the machine level and is unable to combine the activities done on other devices (Bucklin and Sismeiro, 2009). Of course, more studies on actual consumer behaviour are needed in order to understand the behavioural changes taking place in the industry and the related business implications of online behaviour. With this study we also want to point at the possibility to work in collaboration with the industry to reach a higher level of theoretical as well as practical knowledge of online behaviour and its business implications.

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