Doctoral Thesis

Applications and implications of user-generated content in retail consumer participation in social networks, crowdsourcing and pervasive in-store advertisements

Author(s):
Dubach Spiegler, Erica

Publication Date:
2011

Permanent Link:
https://doi.org/10.3929/ethz-a-007326104

Rights / License:
In Copyright - Non-Commercial Use Permitted

This page was generated automatically upon download from the ETH Zurich Research Collection. For more information please consult the Terms of use.
Applications and Implications of User-Generated Content in Retail
– Consumer Participation in Social Networks, Crowdsourcing and Pervasive In-Store Advertisements

DISSERTATION
for the degree of

DOCTOR OF SCIENCES

ETH ZÜRICH

presented by

ERICA DUBACH SPIEGLER

Ms. Sc. Computer Science – DePaul University, USA
born August 6, 1969
citizen of Switzerland and United States of America

accepted on the recommendation of
Prof. Dr. Elgar Fleisch
Prof. Dr. Roman Boutellier
Dr. Florian Michahelles
2011
I dedicate this dissertation to the memory of my grandmothers
– Annemarie Dubach and Myra Martin –
two amazing women who shaped my character.
## CONTENTS

**ACKNOWLEDGEMENTS** ........................................................................................................ VII  
**ABSTRACT** ........................................................................................................................ IX  
**KURZFASSUNG** .................................................................................................................. XI  
**LIST OF FIGURES** ............................................................................................................... XIII  
**LIST OF TABLES** ................................................................................................................ XVII  
**ABBREVIATIONS** ............................................................................................................... XIX  
**DISSERTATION** ................................................................................................................... 1  
  
1. **Introduction** ................................................................................................................... 3  
   1.1. **Motivation** .................................................................................................................. 3  
      1.1.1. Business Problem ................................................................................................. 4  
      1.1.2. Enablers .................................................................................................................. 5  
   1.2. **Research Question and Contributions** ..................................................................... 6  
   1.3. **Methodology** ............................................................................................................ 9  
   1.4. **Research Context and Boundaries** ......................................................................... 9  
      1.4.1. Kiosks: Small-Space Retail Stores ................................................................. 10  
      1.4.2. Private Label Consumer Goods ................................................................. 11  
      1.4.3. Facebook as an Example of Social Network Sites ....................................... 12  
   1.5. **Thesis Outline** ......................................................................................................... 12  
   1.6. **Conclusion** .............................................................................................................. 14  
  
2. **Related Work** ................................................................................................................ 15  
   2.1. **User-Generated Content** ......................................................................................... 15  
   2.2. **Crowdsourcing** ....................................................................................................... 17  
      2.2.1. Open Innovation ................................................................................................. 17  
      2.2.2. Crowdsourcing .................................................................................................... 18  
      2.2.3. Crowdsourcing in Retail ................................................................................. 20  
   2.3. **Social Networks** ..................................................................................................... 20  
      2.3.1. Definition and History ....................................................................................... 21  
      2.3.2. Word-of-Mouth Marketing in Social Networks .................................................. 23
2.3.3. Brand Pages in Social Networks ........................................ 24
2.3.4. User-Generated Content on Social Networks ................... 30
2.4. Pervasive Advertising with User Generated Content ............ 33
2.4.1. Pervasive Computing in Retail........................................... 34
2.4.2. Pervasive Advertising ........................................................ 36
2.4.3. Advertising with User-Generated Content ....................... 39
2.5. Conclusion ............................................................................. 41
3. Crowdsourcing for “Kiosk of the Future” .............................. 43
3.1. Introduction .......................................................................... 43
3.2. Justification for the Choice of Methodology ......................... 44
3.3. Method ................................................................................. 46
3.4. Analysis of Data .................................................................... 46
3.4.1. Deliberation Phase ............................................................ 47
3.4.2. Preparation Phase ............................................................. 48
3.4.3. Execution Phase ............................................................... 49
3.4.4. Assessment Phase ............................................................. 52
3.4.5. Post-processing Phase ....................................................... 53
3.5. Discussion ............................................................................. 56
3.5.1. Expert knowledge in the CS team ................................. 56
3.5.2. Question Formulation ....................................................... 57
3.5.3. Budgeting Time and Effort ................................................ 57
3.5.4. The Public Nature of CS ..................................................... 58
3.5.5. Post-Processing ................................................................. 58
3.5.6. Implementation................................................................. 59
3.6. Conclusion ............................................................................. 59
4. Management of a Social Media Brand Page .............................. 61
4.1. Introduction........................................................................... 62
4.1.1. Motivation........................................................................ 62
4.1.2. An Overview of Facebook and Facebook Brand Pages..... 63
4.1.3. Description of the Facebook Brand Page okPunktStrich ... 67
4.2. Methodology .................................................................................. 69
  4.2.1. Case Study ........................................................................... 69
  4.2.2. Quantitative Data ................................................................. 70
  4.2.3. Qualitative Data .................................................................. 72
4.3. Social Media Brand Page Case Study ........................................ 72
  4.3.1. Initial Considerations ............................................................ 73
  4.3.2. Preparation for Social Network Brand Launch .................... 74
  4.3.3. Social Network Moderating and Monitoring ...................... 84
  4.3.4. Evaluation of User Contributions and Moderator Effect...... 98
4.4. Discussion ....................................................................................... 112
  4.4.1. Defining Measurements ...................................................... 112
  4.4.2. Active Moderation to Encourage Participation ................. 113
  4.4.3. Insights from Analysis of Content and Patterns of User Posts ................................................................. 114
  4.4.4. Maturing of the Moderator Role ......................................... 115
  4.4.5. Need for a defined process model ....................................... 115
4.5. Result: Brand Page Management Model .................................... 121
  4.5.1. Strengths and Weaknesses of Existing Models ................. 121
  4.5.2. Proposal for a Brand Page Management Model ............... 123
4.6. Conclusion ...................................................................................... 127
  4.6.1. Implications ....................................................................... 127
  4.6.2. Lessons Learned ................................................................. 129
  4.6.3. Limitations ......................................................................... 130
  4.6.4. Future Research ................................................................. 131
  4.6.5. Summary and Recommendations ..................................... 131
5. In-Store Advertising with User-Generated Content ....................... 133
  5.1. Introduction ............................................................................. 133
  5.2. Justification for the choice of methodology ......................... 134
  5.3. Hypothesis and Experimental Design .................................... 136
  5.3.1. Hypothesis ....................................................................... 137
  5.3.2. Dependent and Independent Variables ............................ 138
6.2.2. Social Media Marketing ..................................................... 172
6.2.3. Pervasive Computing ....................................................... 173
6.3. Recommendations for Retail .............................................. 174
   6.3.1. Implications of User-Generated Content for Retail ......... 174
   6.3.2. Applications of User-Generated Content in Retail .......... 175
6.4. Limitations and Further Research ...................................... 176
   6.4.1. Limitations ................................................................. 177
   6.4.2. Future Research .......................................................... 179
6.5. Summary ............................................................................ 181

BIBLIOGRAPHY ................................................................................. 183
ACKNOWLEDGEMENTS

This dissertation started with Prof. Elgar Fleisch taking a chance by accepting me as an external doctoral student. I will always be grateful to him for this decision, since it allowed me to fulfill my lifelong dream of studying at ETH and getting a PhD. I admire Prof. Fleisch’s ability to build bridges between academia and industry and will carry forth many lessons learned from him.

In the course of my studies, Dr. Florian Michahelles was a steady guide, whose counsel was of great help. Prof. Roman Boutellier was an inspiration. Among my fellow doctoral students, I thank Dr. Felix von Reischach for his big-hearted friendship, Irena Pletikosa Cvijikj for great collaboration and humor, and Christian Hildebrand for his virtuoso data analysis. I also thank: Dr. Thorsten Staake, Lukas Ackermann, Dr. Alexander Illic, Markus Weiss, Tobias Graml, Stephan Karpischek, Claire-Michelle Look, Andrea Giardello, Michael Baeriswyl, Andreas Budde, Vojka Tasic, Kristina Flüchter, Edward Ho, Monica Heinz, Liz Vetsch-Keller, Dr. Stephan von Watzdorf, Dr. Norbert Burger, Dr. Oliver Baecker, Dr. Ali Dada, Dr. Jasser Al-Kassab, Dr. Cosmin Condea, Dr. Mikko Lehtonen.

Working on this dissertation would have been a lot less interesting without Patrick Stäuble, Jörg Brun and Dominic Stöcklin, among many others at Valora, who gave me insights into all aspects of running “small-space retail stores.”

My friends were invaluable; they supported, guided, cheered and babysat through the high and low points of working on this dissertation. Thank you to Corinne Rohner, Sam and Anna Leuenberger, Michèle Sandoz and Gisela Monot, as well as the ladies’ night regulars: Carolyn Majkowski, Ellen Brasse and Aida Jones. And I specially thank those who have mentored me: Annette Schömmel, Beat Curti, Rolf Kubli, Giannino Löliger, and Uli and Rita Sigg.

And most of all, I am grateful to my family: my mother, Myra Dubach, a huge thank-you for being an enormous help with proofreading, babysitting, providing nutrition, and giving me enduring love and moral support; my father, Jürg Dubach, on whom I can always count and whose independence of spirit I am happy to have inherited; my dear husband, Marc Spiegler, with whom I share this exciting life and who never fails to believe in me; and my two children: Max Leon Spiegler who at three understood that I was about to get a “Dr.” title and announced to me after my defense, “But I will still call you Mami!”, and, Olivia Myra Spiegler, who experienced the writing and defense of my thesis in utero.
ABSTRACT

The increasing importance of the digital world forces a series of questions upon the retail-industry, such as these: How to interact with these consumers empowered with information? What is the most effective way to reach them and what are the business implications for our segments within the retail economy? And what does it mean if my competitors have more social media “fans” than we do?

Obtaining answers to these questions was also of interest to Valora, a Swiss retail holding company that dominates the kiosk business in the country and, entered into a research partnership with ETH. The goal was to determine how user-generated content (UGC) could best be used in the context of their business, of which three were identified as most relevant: crowdsourcing for new ideas; using social media for word-of-mouth marketing; and attempting to increase sales by showing UGC in stores. Ultimately, Valora Retail collaborated in three projects with ETH and these have been analyzed in this dissertation.

Crowdsourcing

As a form of open innovation, crowdsourcing enables the retailer to ask consumers directly for innovative ideas regarding products, services or business models. A case study describes the process that was used to gather ideas for the “kiosk of the future”, which resulted in only four applicable ideas. However, they were considered valuable enough to be selected in multiple rounds of evaluation from a large initial idea pool (626 ideas), having survived a Darwinian selection. The research shows that the established process for crowdsourcing in the service industry also applies to the retail industry.

Managing a Social Media Brand Page

Participating in social media has become a common practice for brand owners, who are using the new channel for communicating with consumers and as a platform for word-of-mouth marketing. This case study of a social media brand-page details the process required, from initial deliberation to implementation and daily operation. The lessons learned are used, together with a synthesis of two existing processes (drawn from software engineering and classical marketing literature), to propose a new “Brand Page Moderation Model”.
The model integrates two key iterative steps: tactical changes and strategic control based on data analysis and evaluation. This model is the research contribution to the field of social media marketing. For practitioners, the application of this model is discussed and additional guidelines and methods for analysis of user data and moderator data are provided.

**Advertising in Stores with User-Generated Content**

A field experiment compared digital screens showing advertisements with UGC to those with traditional advertisements. The measurements of sales data showed the effectiveness of advertisements with UGC; however, classical advertisements still had a greater effect. The experiment also showed consumers’ preference for product-related content rather than general brand-related content. Additionally, lessons learned contribute to the field of pervasive advertising.

These three separate lines of inquiry answer the research question, “How can user-generated content be applied by the retail industry, and what are the implications?” and result in quantitative and qualitative contributions to research and retail practice.
KURZFASSUNG

Die zunehmende Bedeutung der digitalen Welt stellt auch den Einzelhandel vor eine Reihe von Fragen: Wie können gut informierte und digital vernetzte Konsumenten heutzutage erreicht werden? Wie können die Aktivitäten der Konsumenten dem Einzelhandel nutzen? Was bedeutet es, wenn auf den Online-Netzwerken die Seite des Konkurrenten mehr "Fans" hat als die eigene?


Crowdsourcing

Als Form von "Open Innovation" gibt Crowdsourcing Einzelhändlern die Möglichkeit, Kunden nach innovativen Ideen bezüglich Produkten, Dienstleistungen oder gar Geschäftsmodellen zu fragen. In einer Fallstudie wird der Prozess beschrieben in dem Ideen generiert wurden für den "Kiosk der Zukunft". Aus den 626 eingereichten Ideen wurden letztendlich vier ausgewählt, die als wertvoll gelten, da sie in mehreren Runden verfeinert wurden. Die Ergebnisse zeigen dass die in der Dienstleistungs-Branche bestehenden Crowdsourcing-Prozesse auch für die Retail-Branche gelten.

Marken-Seiten auf sozialen Online-Netzwerken


**Werbung auf der Verkaufsfläche mit UGC**


Diese drei getrennten Forschungsströme beantworten in Summe die Fragestellung: "Wie kann User-Generated Content vom Einzelhandel angewendet werden und was sind die Auswirkungen?". Die in dieser Dissertation beschriebenen Erkenntnisse leisten quantitative und qualitative Beiträge für Forschung und Praxis.
LIST OF FIGURES

Figure 1: Example of a kiosk at a busy traffic intersection ........................................ 11
Figure 2: History of SNS from 2003 to 2011 (Richter 2011) ...................................... 21
Figure 3: Brand sites and consumer-launched fan sites for Nutella mixed together in the Facebook search page (status May 2011) .................... 27
Figure 4: Sample UGC from a Facebook brand page (okPunktStrich) ............... 31
Figure 5: Categorization of user activity types (based on Parent et al. 2010) .................................................................................................................. 32
Figure 6: GS1 prototype of mobile phone shopping assistant (GS1 2010) .... 35
Figure 7: Crowdsourcing process with five steps, as developed for services industries (Muhdi et al. 2010) .................................................. 45
Figure 8: Screen shot of the CS intermediary platform “Atizo” showing the project “Kiosk of the Future” ....................................................... 49
Figure 9: Number of ideas generated by week, showing that 37.2% of ideas were submitted the first week .......................................................... 50
Figure 10: Total number of ideas generated compared to number ranked, rewarded, and used, showing that less than 1% of ideas were used in the end .......................................................... 53
Figure 11: Idea categories generated during the execution phase, ranked by total number of ideas generated ........................................... 54
Figure 12: Example of assessment according to complexity and impact of the top four ideas .......................................................... 55
Figure 13: Spreadsheet used by the members of the “idea jury” in preparation for the rating workshop, as well as for final tallying of results .................................................. 56
Figure 14: Number of Facebook brand fans of various top brands (by January 2011) .......................................................... 62
Figure 15: Example of a Facebook “wall” with (from the top): a personal post, a message from the ok.- brand page, a status update from a friend and post with a link to a web page from a friend .. 65
Figure 16: The ok.- Facebook brand page with sample postings by fans. Also visible is the number of members at 48’787 (screen shot captured on 27.6.2011) .......................................................... 68
Figure 17: Facebook Insights for member demographics of ok.- Facebook brand page (screen shot for duration of March 2010 to February 2011) .................................................. 70
Figure 18: Flow-chart to assist communication decisions. Adapted by Valora Retail from the US Army Social Media Handbook (US Army 2011, Valora Retail 2011). ......................................................... 78

Figure 19: Initial content plan for the ok.- Facebook brand page, showing close collaboration with the brand owner and communication department................................................................. 79

Figure 20: Example of the different “Fan” or “Like” Pages that were discovered for the popular ok.- Energy Drink, all of them set up by users not related to Valora Retail.............................. 82

Figure 21: Screen shot of the announcement of a new ok.- product on the Facebook brand page which generated 42 “Likes” and 20 comments................................................................. 85

Figure 22: Screen shot of the guidelines for conduct (termed “Netiquette”) that were added to the ok.- Facebook brand page in July 2010................................................................. 90

Figure 23: Analysis of the two social advertisements that were run within six weeks and eleven weeks after launch of the ok.- Facebook brand page ................................................................. 91

Figure 24: The data on the number of members of the ok.- Facebook brand page during the time period of the two social advertisement campaigns (15.-22. April 2010 and 25.-30. May 2010) shows a clear increase corresponding to the two advertisements................................. 92

Figure 25: The data on the number of members of the ok.- Facebook brand page over the duration of the case study (March 2010 to February 2011) with a sharp increase from September 2010 to December 2010 due to the introduction of the new ok.- Energy Mango drink................................. 93

Figure 26: Development of user contributions to the ok.- Facebook brand page over the duration of the case study, showing a clear increase in overall activity and a proportional gain of comments and likes in relation to posts (Pletikosa, Dubach Spiegler and Michahelles 2011a)................................. 95

Figure 27: Demographics of the ok.- Facebook brand page reflects the target group for the ok.- brand ................................................................. 96

Figure 28: Posts of the ok.- Facebook brand page analyzed for semantic content revealed seven major topics, of which the dominant one was “Product” which is highly desirable for a brand page (Pletikosa and Michahelles 2011b)................................. 99
Figure 29: Posts of the ok.- Facebook brand page analyzed for semantic content revealed eight major categories (Pletikosa and Michahelles 2011b)................................. 100
Figure 30: Daily active users charted against moderator posts over a sample 2 months show a clear increase in activity in response to moderator posts (DAU=Daily Active Users) .... 104
Figure 31: Mean values of the three types of user interaction (likes, comments and interaction duration), based on post type (Pletikosa and Michahelles 2011b)............................................. 106
Figure 32: Two measures of user interaction on the ok.- brand page: mean values of likes and comments in response to the three post types (left) and mean values of interaction duration in days (right) (Pletikosa and Michahelles 2011b) ...... 106
Figure 33: Daily active users of the ok.- Facebook brand page ................... 107
Figure 34: Daily active users in terms of active user participation and impressions of the ok.- Facebook brand page as ratio of total number of members .......................................................... 108
Figure 35: The iterative spiral model software development process (based on Boehm 1988).......................................................... 117
Figure 36: The basic marketing planning process (Brooksbank 1996)....... 119
Figure 37: Proposed Brand Page Management Model (BP-MM) with four main phases and two types of iteration: tactical control in the moderating and monitoring phase and strategic control emerging from the evaluation phase. ......................... 125
Figure 38: Still frame from video advertisement for the ok.- brand............ 140
Figure 39: Digital signage screen with social networking comments for the ok.- brand.................................................................... 140
Figure 40: Still frame from video advertisement for the ok.- “Energy Drink” product ................................................................. 141
Figure 41: Digital signage screen with social networking comments for ok.- “Energy Drink” .......................................................... 141
Figure 42: Screen shot of Facebook Fan Page for the private label ok.- ..... 145
Figure 43: Digital signage in the retail store displaying social media comments in the screen layout pre-defined by Valora Retail .... 148
Figure 44: Geographic distribution of kiosks participating in the UGC field experiment ................................................................. 154
Figure 45: Example of screen placements with screen ideally placed above the ok.- Energy Drink......................................................... 156
Figure 46: Example of screen placements in two different kiosk locations with screens placed in different variations ............... 156
Figure 47: Pre-defined screen layout as designed by the agency hired by Valora Retail ................................................................. 158
Figure 48: Crowdsourcing process with five steps (Muhdi et al. 2010), shown to be applicable to the retail industry ......................... 170
Figure 49: Proposed Brand Page Management Model (BP-MM) with four main phases and two types of iteration: tactical control in the moderating and monitoring phase and strategic control emerging from the evaluation phase. ............................. 173
LIST OF TABLES

Table 1: Example of “10 success factors” for Facebook brand page management (Walter 2011) ........................................................ 29
Table 2: Rules of Communication as defined by the Valora Retail moderator team for the ok.- Facebook brand page .................... 77
Table 3: Combination of post topic and category pairs. Of interest are both the empty spaces which might indicate potential for development, as well as the dominant pairs which indicate the highest need for moderation (Pletikosa, Dubach Spiegler and Michahelles 2011a)............................................................. 101
Table 4: Analysis of the sentiment occurring in the “Affect Expression” category shows that positive sentiment is shared more often than negative sentiment (Pletikosa and Michahelles 2011b)..... 103
Table 5: Categorization of moderator posts on the ok.- Facebook brand page (Pletikosa and Michahelles 2011b)................................. 105
Table 6: List of Facebook brand pages chosen as a basis against which to compare the performance of the ok.- Facebook brand page. The table shows number of fans, posts, active users, etc. (Pletikosa, Dubach Spiegler et al. 2011a) ........................................... 110
Table 7: Comparison of two iterative models, supplemented by lessons learned from the case study, which together form a basis for the brand page management model. .............................................. 124
Table 8: List of kiosks with large screens participating in the digital signage pilot (Typ=classification of kiosk, Cluster=location, VF=Verkaufsfäche / sales area)................................................................. 143
Table 9: Parameter estimates of fixed effects from repeated measures LMM .................................................................................................. 152
## ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>Application Programming Interface</td>
</tr>
<tr>
<td>BP-MM</td>
<td>Brand Page Moderation Model</td>
</tr>
<tr>
<td>CAP</td>
<td>Customer-Active Paradigm</td>
</tr>
<tr>
<td>CHF</td>
<td>Swiss Franc</td>
</tr>
<tr>
<td>CS</td>
<td>Crowdsourcing</td>
</tr>
<tr>
<td>E-Commerce</td>
<td>Electronic Commerce</td>
</tr>
<tr>
<td>eWOM</td>
<td>Electronic Word of Mouth</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>ISN</td>
<td>Internet Social Networking</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>M-Commerce</td>
<td>Mobile Commerce</td>
</tr>
<tr>
<td>MAP</td>
<td>Manufacturer-Active Paradigm</td>
</tr>
<tr>
<td>N/A</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>OI</td>
<td>Open Innovation</td>
</tr>
<tr>
<td>PerAds</td>
<td>Pervasive Advertising</td>
</tr>
<tr>
<td>POS</td>
<td>Point of Sale</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
</tr>
<tr>
<td>SNS</td>
<td>Social Network Site</td>
</tr>
<tr>
<td>TBD</td>
<td>To Be Determined</td>
</tr>
<tr>
<td>UGC</td>
<td>User-Generated Content</td>
</tr>
<tr>
<td>USD</td>
<td>United States Dollar</td>
</tr>
<tr>
<td>WOM</td>
<td>Word of Mouth</td>
</tr>
</tbody>
</table>
1. Introduction

Internet users are also consumers, a fact that retailers and brand owners are well aware of and take into consideration when attempting to use the Internet to communicate marketing messages or position advertisements. However, Internet users are increasingly not just recipients of content and media, but are also actively participating in the creation of content of all forms: text contributions, short public messages, photos and videos. While this “user-generated content” (UGC) is prolifically being generated, retailers are becoming more aware of this activity and are interested in how they might apply UGC for themselves. Suddenly, a new kind of dialog between retailers and consumers that was not possible before is emerging: the audience of retailers’ Internet activity no longer consists of passive users, but is full of consumers who sometimes even “talk back” by creating their own online content.

In trying to understand UGC, it becomes apparent that not only does the content come in different content formats, but that many different types of UGC exist: blogs, social networks, crowdsourcing, to name a few major ones. Which ones of these are applicable to the retail domain? What are the implications for a retailer attempting to make use of one of the types of UGC?

These open questions are formally addressed by the research question:

*How can user-generated content be applied by the retail industry, and what are the implications?*

In the course of the research undertaken to answer this question, three types of UGC were identified as being relevant to retail: social media and user-generated content in advertising. How these three were examined in detail and the results from this research is the subject of this dissertation.

1.1. Motivation

The rise of UGC represents an opportunity for retail, though how exactly to apply UGC to the business, and understanding the implications, is not yet well understood. This is the situation that Valora, a retail holding company,
recognized in 2009 and attempted to address. Their motivations for venturing into UGC are described here.

1.1.1. Business Problem

The Valora holding company operates about 1000 kiosks within its division “Valora Retail”. Kiosks are small (or even micro)-space retail shops at high-footfall locations that primarily sell four categories of products: 1) press products (newspapers, magazines and books), 2) cigarettes, 3) candy and drinks and 4) gambling (mainly lottery).

While these four pillars of the business are closely associated with the kiosk business model, each one is projected to run into difficulties for different reasons:

1) Press products are increasingly affected by the digitization of media (mobile phones, e-readers, iPads, etc.) and the press market is currently in decline and facing an uncertain future (Valora 2010).

2) Cigarettes are subjected to an increase in legislation and bans and a demographic shift in consumption (WHO 2008).

3) Candy and sugary drinks are harder purchases to justify in the larger trend towards a healthier life style, which is reflected by shifting consumer attitudes towards sweets (Pacyniak 2010).

4) Gambling is increasingly moving online and no longer relies as heavily on outlets at physical locations (Valora 2010).

At the same time however, the main kiosk assets, such as competence in the logistics and retailing press products and convenience foods, together with long-running leases of highest-value retail real-estate make the kiosks valuable.

For these reasons, Valora Retail began the search for the future role of kiosks in an increasingly digital world, both in terms of products on offer as well as services. The vision is to make kiosks an “information and service hub” (Meier 2010) and provide customers with a bridge between the digital and the physical world.

The goal of Valora Retail was to combine the kiosk strengths of consumer product retailing and convenience with successful elements from the digital
world. This would need to include “Web 2.0” technologies featuring UGC, and social networks. Gaining an understanding of social networks was of particular interest, though the decision to initiate a brand page had not been taken due to high internal barriers.

Crowdsourcing represented a further type of UGC that was in discussion: Though brainstorming sessions had taken place within the company, Valora Retail decided to work with their network in an open innovation approach to get a broader set of ideas for the “Kiosk of the Future”.

Separately, a set of workshops conducted with Valora Retail and different industry partners (SAP, Siemens, Nokia) on the topic “kiosk of the future”, identified pervasive applications as potentially being part of the answer in the search for the new role of kiosks as an “information and service hub”. This was echoed in literature, especially in combination with social networks (Michelis and Send 2009). Valora Retail reached the conclusion that pervasive computing concepts are a good fit with their goals and would allow them to take advantage of the superior locations of their kiosks.

One decision already taken by Valora Retail was to show advertisements on digital signage, which provided the company with advertising revenue, intermixed with entertainment and information for customers (e.g. celebrity birthdays, horoscopes, weather, etc.). Combining the digital signage with UGC would mean showing online social network activities for kiosk products on in-shop digital signage, thus bringing the digital and analog worlds together.

Understanding their need to gain experience with these UGC topics, and aware that major retailers and product brands were experimenting with and applying UGC, Valora Retail initiated a research partnership with ETH. The work performed as part of this collaboration is described in the following chapters.

1.1.2. Enablers

The desire of Valora Retail to benefit from UGC is a direct result of the rise of technologies which enable UGC.

- **Crowdsourcing**: Improved communication and collaboration tools available online have reduced the transaction costs of open innovation, which has popularized this method (see 2.2. “Crowdsourcing”).

- **Social Networks**: Dedicated Internet sites enable users to create, maintain and interact with one’s social network. Their rapid adoption
has resulted in a large user numbers have become connected to each other, but also to companies and brands (see 2.3 “Social Networks”).

Advances in pervasive computing provide additional channels for retailers to gain UGC from and to show UGC:

- Pervasive computing: Due to steadily decreasing costs, public display screens and smart mobile phones – in consumers’ hands - are increasingly present in stores (see 2.4 “Pervasive Advertising with User Generated Content”).

Societal changes have also contributed to the rise in UGC:

- Openness towards technology: An increasing number of consumers grew up with technology (“digital natives”) and are comfortable with technology in increasingly diverse situations, such as shopping (see 2.1 “User-Generated Content”).

- Increased willingness to create content: People are interested and active in their role as consumers (“prosumers”) and aim to influence what they are consuming by participating in online, product-oriented communities (see 2.1 “User-Generated Content”).

The pressures on retailers to understand the role of UGC in their organizations, and the enablers described in this chapter provide the motivation for the research question below.

1.2. Research Question and Contributions

The previous sections discussed the emergence of user-generated content in general, and specifically its increasing importance to the retail industry. This motivates the need to understand the implications of applying user-generated content in the retail domain.
Research Question

This dissertation addresses the challenges facing the retail industry by aiming to find answers to the following question.

How can user-generated content be applied by the retail industry, and what are the implications?

As a first step, an understanding needs to be developed concerning which of the different types of user-generated content are both applicable and of use to the retail industry. A review of the literature and common practices among retailers (detailed in Chapter 2 “Related Work”) revealed three types of user-generated most relevant for retail in their application: social networks, crowdsourcing and user-generated content in advertisements.

As each one of these types of user-generated content presents the retailer with fundamentally different applications, uses and benefits, to answer the extended research question each of the three different types of user-generated content identified must be discussed individually. They each must be examined for their characteristics, their applicability to retail and finally, the implications of their application.

Thus, this dissertation seeks to answer the question of applications and implications for retail of each identified type of user-generated content, by treating each one in turn. The resulting sub-questions are as follows:

What are the applications and implications for retail of:
1. Crowdsourcing
2. Social media
3. User-generated content in advertising

To answer these questions, three distinct projects were conducted resulting in two case studies and an experiment. The research presented in this
dissertation provides contributions to the fields of each of the three identified applications of user-generated content.

**Using Crowdsourcing as a Method for Idea Generation**

As a form of open innovation, crowdsourcing enables the retailer to directly ask consumers for innovative ideas regarding products, services or business models. A case study is described in which a retailer uses crowdsourcing to generate ideas for the next generation of small-space retail stores. The process results in a relatively low number of ideas: four. However, since these ideas were selected from a large initial idea pool (626 ideas) in multiple rounds of evaluation, they were considered valuable by the retailer. These ideas would have unlikely arisen from within the retail company due to internal barriers. The contribution of this research in the field of open innovation is in showing that the established process for crowdsourcing, developed for service industries, also applies to the retail industry.

**Managing a Social Media Brand Page**

Participating in social media as a form of word-of-mouth marketing is shown to be a common practice for brand owners. The research details a case study of a social media brand page from initial deliberation to implementation and operation. Special emphasis is placed on the analysis of brand-page data both for daily improvements of the moderating process, as well as for more strategic adjustments to the operations of the brand page. Since no appropriate process model could be found for these activities, the lessons learned are used together with a synthesis of two existing processes, to propose a “Brand Page Moderation Model”. The model integrates two key iterative steps: tactical and strategic control. The contribution to the research field of social media marketing is this new model. The application of this model is discussed and additional guidelines and methods for analysis of user and moderator data are provided.

**Advertising in Stores with User-Generated Content**

A field experiment conducted in small-space retail stores with advertisements on screens compared advertisements with user-generated content to traditional advertisements. The measurements of sales data showed the effectiveness of classical advertisements to be higher than advertisements with user-generated content, but both increased sales in comparison to
showing no relevant advertisements. The findings contribute to the field of pervasive advertising by providing guidelines on how to improve the results of advertising with user-generated content by presenting consumers with a mix of classical advertisements and user-generated comments, and at time of design taking into consideration the consumers' context in the complex retail environment. Finally, the experiment showed consumers' preference for product-related rather than general brand-related content.

These contributions are detailed in their respective chapters and are summarized in the final chapter of the dissertation, Chapter 6 “Conclusions and Implications”.

1.3. Methodology

Answering the research question presented above, required performing two steps, beginning with the identification of the types of UGC relevant to retail. This was done with a thorough literature search and is described in Chapter 2 “Related Work”.

Once identified, the differing characteristics among types of UGC determined to be relevant to retail, prompted the research effort to be split into three separate lines of inquiry. Approaching a business problem with mixed methods provides the appropriate perspectives on the data being examined (Easterby-Smith 1991 and Perry 1998).

Thus, to understand the application of crowdsourcing, a case study was chosen. The implications of moderating a Facebook brand page were studied using a case study. And finally, to understand the effect of UGC in advertising, a field study was undertaken.

To facilitate the understanding of the research conducted on each type of UGC, the methods used are detailed in the respective chapters (Chapter 3 “Crowdsourcing for “Kiosk of the Future””, Chapter 4 “Management of a Social Media Brand Page” and Chapter 5 “In-Store Advertising with User-Generated Content”).

1.4. Research Context and Boundaries

Conducting research in the context of an academic-industrial partnership presented a unique opportunity to gain access to real-world data and thus
increase the relevance of the research. As such, the collaboration set the context for the research, and imposed boundaries and constraints. The context and boundaries are described here, while the constraints – which affected different types of UGC in different ways – are detailed in the chapters corresponding to the UGC types.

1.4.1. **Kiosks: Small-Space Retail Stores**

Kiosks sell convenience products – mainly press, cigarettes, candy, drinks and lottery – to a mass customer base. In addition to these core products, they sell a variety of food and non-food products. Depending on the size, the larger ones sell a variety of additional products such as phone cards, stamps, stickers and collectibles, gifts (vouchers, plush animals) and, in some, food (sandwiches, salads, coffee, etc.).

Their customers span all demographic segments, though most of them are “on the go” and are looking for exceptionally fast service at very convenient locations. Accordingly, sales show high frequency at small volumes: kiosk serves 800’000 customers per day, who buy an average of 1.7 articles and are on average 34 years old.

Kiosks are characterized by their compact size, with the smallest kiosk consisting of a simple window shop, the middle sizes are open-front shops and finally the largest are walk-in shops. However, even the largest kiosks have a floor space of no more than 60m² total (for both customers and employees combined). They are located in high-footfall areas such as public transport stops, intersections, pedestrian areas and train stations.

Customers help themselves (self-serve) to most products and hand them to the personnel for checkout and payment. However, higher-value items (e.g. phone cards or lottery tickets) and restricted items (such as cigarettes), are kept behind the counter. See Figure 1 below for a picture of an example kiosk.

The Swiss retail holding company Valora (net company revenue in 2009 was 3.005 M$) runs approximately 1000 kiosks in Switzerland within the division “Valora Retail”. These small-space retail outlets are well known under the brand name “k kiosk” (commonly referred to just as “kiosk”).
The characteristics of the kiosks delineate the research to small-space retailing with a focus on convenience goods. Also, since the operations of Valora Retail are restricted to German-speaking Switzerland, the geographical boundaries of the research are automatically set.

1.4.2. Private Label Consumer Goods

Valora launched a private label range of consumer goods under the brand name ok.- to target a young audience on a budget. The brand name ok.- is a play on the Swiss custom of using the notation of 10.- instead of 10.00 CHF.

In May 2009 the first product of the brand, the “ok.- Energy Drink”, was launched, priced at 1 CHF (0.67 €) and designed to compete directly with the Red Bull energy drink (priced at 3.50 CHF (2.37 €)). The customer response was very positive and further products were successively introduced, including a calorie-reduced version of the energy drink, bottled water, chewing gum, etc.

Due to the success of these items, household products were added (e.g. tissues, soap). In total, the ok.- brand consists of approximately 130 quality consumer goods at low prices.
Two types of UGC were examined using the ok.- private label brand: social networks and UGC in advertising. Since the brand was created by Valora, all aspects of the brand were fully under the control of Valora. This presented a huge advantage for the research team, who were able to propose and discuss brand-relevant UGC ideas directly with the owners, often gaining quick approval for next steps, which would not have been possible for a larger or international brand.

At the same time, the ok.- brand presented similar constraints on the research as mentioned above for the collaboration with Valora Retail on the whole: since the brand was only sold in German-speaking Switzerland, the geographical boundaries of the research were limited, as was the market size.

1.4.3. Facebook as an Example of Social Network Sites

Many examples of social network sites (SNS) exist, but Facebook is currently the prime example due to the size of its user base and its importance to advertisers (see also 2.3 Social Networks). Facebook is a forerunner in online marketing when it comes to taking into account user interaction and behavior (Ermecke 2009). Also in terms of academic publishing, Facebook takes the lead (Richter 2011), providing further evidence that using Facebook as an example is a viable choice for researching social networks.

For these reasons, the social network case study presented in this dissertation, as well as the field experiment of UGC on public displays use Facebook as the example social network site.

An effort was made to keep the reported findings general enough so that they translate to other social networking sites that exist today or the ones that might surpass Facebook in the future. Nonetheless, the use of Facebook presents a clear limitation in the research presented in this dissertation.

1.5. Thesis Outline

The structure of the thesis and the chapters presented within owes much to the clearly presented overview paper by Perry (Perry 1998), in which each chapter begins with an introduction, followed by a justification for the chosen methodology, a description of the method used, analysis and discussion of the data and finally a conclusion, summarizing the main findings of each chapter. The following briefly describes each chapter.
Introduction

The use of UGC is motivated both from a business perspective, as well as by showing the enablers that have lead to the rise of UGC. The open questions of Valora Retail – the industry-partner for this research – are presented in the motivations section and formalized as research questions: “How can user-generated content be applied by the retail industry, and what are the implications?” The approach and methodology of answering the research question are described, as well as the context and boundaries of the research.

Related Work

Corresponding to the research question, the literature for UGC is introduced, followed by an overview of existing research on specific types of UGC: crowdsourcing, social networks and pervasive advertising with UGC. In addition to introducing each type of UGC and presenting the relevant research, special emphasis is placed on any literature regarding its use in retail.

Crowdsourcing for “Kiosk of the Future”

The topic of crowdsourcing as a type of open innovation is introduced, together with a process method for conducting a crowdsourcing project. The chapter follows the structure of this model in describing the data collected during the different process steps and in analyzing the data. In the discussion section, lessons learned and insights into the process are presented, concluding with a summary of the project outcome for Valora Retail and the contribution to research.

Management of a Social Media Brand Page

Facebook is introduced as an example social network site and an overview provides the relevant terminology through definitions and examples. In search of an appropriate model, a spiral model from the IT field and a planning model from marketing are drawn upon as the basis for describing the data. In detailing the data gathered regarding the process as well as the methods for social media data analysis, a rich case study is presented and analyzed. As a result, a new “Brand Page Moderation Model” is presented and discussed.
In-store advertising with User-Generated Content
A field experiment tests the use of UGC in advertising on public display screens in stores and compares it against traditional advertising. The chapter’s hypotheses are set up and tested by gathering and analyzing data from the point of sale, showing that UGC provides an increase in sales, but less so than traditional advertising. The discussion presents the insights gained for the use of UGC in advertising, but also lessons learned from conducting a field experiment within the constraints of an industry-led project.

Conclusions and Implications
The final conclusions from the three lines of inquiry are summarized and synthesized to answer to original research question. From this, implications for retail and for research are drawn, showing contributions to both. Finally, the limits of the research conducted are shown, together with the resulting opportunities for future research.

1.6. Conclusion
This introductory chapter laid the foundations for the research presented in this dissertation. It introduced the research problem, providing motivation from the perspective of the retail business problem as well as showing the enablers that create the environment in which the research problem can be answered. The approach and methodology of answering the research question are described, as well as the context and boundaries of the research. Based on these foundations, the description of the research will continue with an overview of the related work.
2. Related Work

The applications of User-Generated Content (UGC) for the retail industry are manifold and can be focused on company-internal, organizational topics such as collaborations in teams, or externally focused to address and interact with end customers directly. This dissertation examines the applications and implications of UGC for retailers in their dealings with end consumers, covering the following three major topics: crowdsourcing (CS), social networks and Pervasive Advertising (PerAds) with UGC.

The introduction below provides an overview of how these three topics were arrived at as being the relevant types of UGC for retail, followed by a section for each of them individually. In view of the research question, special emphasis is placed on the roles of the respective type of UGC in retail.

Different parts of this section were originally researched in the context of the following publications: “Social Networks in Pervasive Advertising and Shopping” (Dubach Spiegler et al. 2011a), “Crowdsourcing for ‘Kiosk of the Future ’ – A Retail Store Case Study” (Dubach Spiegler et al. 2011b) and " The Effect of Post Type, Category and Posting Day on User Interaction Level on Facebook" (Pletikosa, Dubach Spiegler, Michahelles 2011a). Thus this section contains some excerpts from these published works which are not further demarcated in the text.

2.1. User-Generated Content

The rise of UGC began soon after 2001 with an increase of users participating in content creation, not just consumption (Agichtein et al. 2008). This trend was supported by the arrival of “Web 2.0”, a term coined in a working group lead by Tim O’Reilly. It has come to encompass a very broad set of technologies, business models and practices, though the central tenant is “the harnessing of collective intelligence” (O’Reilly 2005). A crucial component of Web 2.0 consists of providing users with platforms and tools to create content easily, and for this content to be then broadcast in a timely and attractive manner (Skrenta 2005).

This stream of user-generated content covers every topic imaginable and has taken on many forms from blogs, wikis and picture repositories such as Flickr or bookmark collections (Agichtein et al. 2008) to contributions in crowd-
sourcing problem-solving or application-specific content, such as user-generated information on Google Maps. Today, user-generated content is an important driver for Web 2.0 (Jones 2008).

Societal changes have also contributed to the rise in UGC, mainly how recent generations use technology as compared to earlier generations (Howe and Strauss 2000). For the generation of people born when ICT was already prevalent, the term ‘digital natives’ has been coined (Prensky 2001). These younger people seem to be less hesitant towards ICT and be accompanied by technology throughout their normal daily lives. This is related to an increased willingness to create content: In recent years, Internet users have more and more found interest in creating and uploading data to Web communities, such as to Wikipedia1 and social networks (Wunsch-Vincent and Vickery, 2007). In parallel, people are increasingly interested in taking an active role as consumers, wanting to know more about what they are buying and influence what they are consuming. This encourages participation in online product communities and motivates them to create UGC, such as product reviews. Taking user-engagement one step further and applying the concept to products, the now-famous term “prosumer” was coined by futurologist Alvin Toffler when he predicted “that the role of producers and consumers would begin to blur and merge” (Toffler et al. 1981). This term is frequently applied when retailers recruit consumers in a crowdsourcing process for them to generate product ideas.

For retailers attempting to understand the applications and implications of UGC for its potential for reaching customers and ultimately increasing sales, the relevant topics include marketing, product development and analysis of customer data (Richter 2011). Specifically, three aspects of Web 2.0 are in the forefront:

- **Crowdsourcing**: Idea flow from consumers to retailers regarding products, services and brand questions, such as packaging (Section 2.2).

- **Social Networks**: Community building and monitoring of activity of customers who interact with the brand or products online (Section 2.3).

- **Pervasive Advertising with UGC**: Monitoring and harvesting of conversations surrounding the brand or products (Section 2.4).

1 [www.wikipedia.org](http://www.wikipedia.org)
The sections below discuss these three types of UGC and examine how they relate and affect the retail industry, beginning with crowdsourcing.

### 2.2. Crowdsourcing

Crowdsourcing as a form of Open Innovation (OI) does not represent a new concept, but with the rise of the Internet it has received a technological boost and has gained much attention thanks to its ability to include a broad range of users or even the general public into the innovation process. The desire to gather ideas from sources external to the company has benefitted from various Web 2.0 applications which facilitate sharing and harvesting of ideas. This section discusses the relevant related work in open innovation and crowdsourcing.

#### 2.2.1. Open Innovation

Interaction with customers, suppliers and partners in the context of innovation is part of a company’s competence in gaining value from their network and thus a differentiator for success. Older literature on this comes from the manufacturing sector, where the innovation process involving customers is described as the “MAP-CAP” paradigm: Until the 1970’s, customers were rarely actively involved, i.e. the Manufacturer Active Paradigm (MAP), but then Von Hippel developed a Customer Active Paradigm (CAP) which involved customers early in the innovation process (Von Hippel 1978a and Von Hippel 1978b). Also, Rohrbeck et al. point out how the role of the customer has changed over the last 30 years from being a passive consumer to being an active co-designer for a company (Rohrbeck 2010).

Traditionally, innovation took place in a protected and closed environment within large research and development (R&D) departments of companies. Today, however, the collaboration with external actors, such as business partners, customers and lead users has been accepted as playing an important role in companies’ innovation capability. Thus, companies are increasingly and actively allowing bi-directional flow of knowledge between the company and the outside world. Successful innovators use their extended network and the competencies that are within them, particularly the competencies of their customers (Prahalad 2000).

However, building such a network requires a company to choose to invest in cooperation for innovation and then prepare to integrate the external
knowledge gained (Gassmann, Enkel 2004). The company's ability to effectively use this network and include it into their innovation process is a crucial competence (Ritter, Gemünden 2004). Chesbrough captured and explained this development under the term Open Innovation (OI) (Chesbrough 2003; Enkel, Gassmann 2004). OI aims to accelerate internal innovation and expand the markets for external use of innovation at the same time.

One form that open innovation can take is to use technology to support the process. Virtual Customer Integration uses the Internet, which allows bidirectional or unidirectional communication between the network and the company and can take place in different modalities (Rohrbeck et al. 2010). Crowdsourcing is one example of Virtual Customer Integration.

2.2.2. Crowdsourcing

The term Crowdsourcing (CS) was introduced in 2006 (Howe 2006) and can be understood as a subset of OI in which the contribution of external knowledge is facilitated by advanced information and communication technologies such as the Internet (Ebner 2009; Fichter 2009). Today, Internet-enabled CS is an increasingly used OI approach for idea generation in the early innovation process by many companies from various industries (Muhdi 2010).

The popularity of CS is due mainly to two factors: First, the last decade’s rapid advancements in novel ICTs, such as the improvement of online communication tools and development of enhanced features for online interaction, have contributed immensely to the adoption and popularity of CS. Second, given the virtual nature of CS, companies are provided with the unique opportunity to benefit from the distributed knowledge of a considerable pool of individuals with different interests and backgrounds (Howe 2008).

The book “The Wisdom of Crowds“, written by James Surowiecki in 2004, brought the idea to the attention of the business world, popularizing the premise that “under the right circumstances, groups are remarkably intelligent, and are often smarter than the smartest people in them.” (Surowiecki 2004). As such, non-experts can offer better predictions and ideas due to diverse opinions and independence from constraining corporate structures. Surowiecki identifies four conditions that need to be fulfilled for crowds to be “smart”:
• **Diversity of opinion**: each person should have some “private,” i.e., unique, information, even if that “information” is an opinion

• **Independence**: people’s opinions not determined by other people’s opinions

• **Decentralization**: people specialize and draw on local knowledge

• **Aggregation**: some method of turning private judgments into collective decision (Surowiecki 2004)

It is this fourth requirement that can be fulfilled more easily today than ever before thanks to Internet technology and Web 2.0 applications such as wiki’s, social networks, etc. The applications of CS have blossomed and diversified beyond idea gathering: crowdfunding (to raise money for a cause or event), crowdcreation (designing real or virtual products), collective intelligence (looking to gain understanding about unknown phenomena or the future), voting (opinion gathering and aggregating) (Howe 2006).

While the intentions and outcomes are diverse, the basic steps remain the same: 1) Problem statement, 2) Broadcasting the problem, 3) the “Crowd” is asked to give solutions or contributions 4) Crowd submits solutions, 5) Crowd vets solutions, 6) Company rewards winning solvers, 7) Company owns winning solutions 8) Company profits (Brabham 2008).

And even though the last two process steps involve ceding ownership and not being able to participate in the final payout that an idea might generate, people participate in crowdsourcing in large numbers. The motivation to do so was summarized by Dan Woods in Forbes Magazine as: individuals motivated by obsession, competition, money or all three apply their individual talent to creating a solution (Woods 2009). The benefactors of this are the companies that choose crowdsourcing as a source of ideas for innovation.

CS is often utilized as a complementary approach next to the traditional idea-generating approaches such as e.g. Brainstorming (Diehl 1987); however, by basing their entire business model on this popular phenomenon, a number of creative startups have shown that CS by itself can as well lead to success (e.g. threadless.com, istockphoto.com). Regardless if utilized to feed R&D (e.g. Innocentive, NineSigma), marketing (e.g. Guerra Creativa), design (e.g. Jovoto, Burdastyle), idea generation (e.g. Fiat Mio, BMW Customer Innovation Lab) or collective intelligence (Wikipedia, Yahoo answers), CS has contributed to solving many challenging problems and enabled many innovations (Ebner
2009, Piller 2006). The intermediary facilitated CS process which is described in detail in this chapter consists five successive phases: Deliberation, Preparation, Execution, Assessment and Post-processing (Muhdi et al. 2010).

2.2.3. Crowdsourcing in Retail

CS can take different forms and in Retail is often employed for the generation of product ideas (Chesbrough 2003) or product design, such as the example of mass-customized Adidas shoes (Berger and Piller 2003). A further aspect of the retail business which has been shown to benefit from CS is for product forecasting; where the opinions of professional retail buyers are combined with a sampling of consumer opinions to form a more accurate prediction of demand (Kaufman-Scarborough et al. 2010).

CS can also be employed in advertising, where different approaches have been experimented with. For example, a pioneering example of crowdsourcing in advertising was launched by Pepsi, a brand of cola drink, where instead of spending 33M USD on advertising for the Superbowl – the biggest US sport event of the year – 20M USD will be donated to charities that are selected based on CS (Schwartz 2010). Doritos, a snack brand, gained attention with an advertising campaign that used CS in combination with user-generated content: consumers were first asked to develop video advertisements, from which a winner was chosen using CS. A striking feature of this advertising campaign is that no print or broadcast ads were used to publicize the product, the company relying entirely on the Internet CS process.

In contrast to the product-centric CS described above, the proposed research question from Chapter 1 “Introduction” focuses on idea generation for service innovations, new business models and ideas. This type of innovation is dominant in retail and anecdotal reports are plenty. For example, Tesco has given developers access to their “grocery engine” (Meyer 2010). Though academic research has examples of innovation in retail, the reported innovation techniques do not include CS (Oke 2007).

2.3. Social Networks

This section introduces social networks and looks at the different aspects of social networks in the context of retailing and advertising.

---

http://www.crashthesuperbowl.com
2.3.1. Definition and History

A Social Network Site (SNS) can be defined as “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system.” (Boyd and Ellison 2008, p221). An interesting distinction can be made that “Internet social networking” (ISN) is the umbrella term for activities of people who use the Internet to maintain and expand their social networks, independent of which technology is used. On the other hand, “Social Network Sites” (SNS or “social networks”) follow the definition provided by Boyd above and the term is defined to mean sites whose principal goal is to support the activities of ISN (Richter et al. 2011). This definition of SNS will be used for the remainder of the document.

Internet social networking emerged in the early days of the world-wide web in 1994 with SixDegrees (Boyd und Ellison 2007) and gained moderate public prominence first with the dating platform Friendster in 1999 (Schiffman 2008) - which was plagued by technical and managerial problems - and was soon eclipsed by MySpace which launched in 2003. Most of today’s large SNS were founded in 2003 and 2004, such as Xing, LinkedIn and Facebook (Richter 2011). MySpace was able to hold on to the leader position of social networks until about 2007 when Facebook took the lead. Since then, numerous SNS have been launched – though they often cater to a specialized or niche audience – and social networks have entered the public consciousness and permeate many people’s daily lives. See Figure 2 below for a visualization of social network launches from 2003 to 2007.

Figure 2: History of SNS from 2003 to 2011 (Richter 2011)
Of all the SNS, Facebook is the most prominent social network today, and by the end of 2010 had more than 500 million active users, half of whom log on every day and in total spent over 700 billion minutes per month (Facebook 2010). The result is that in 2010 every fourth web page accessed in the US was Facebook (O’Dell 2011) and with Facebook having more users than China or India have citizens, leading to the facetious statement that Facebook is the third-largest “nation” in the world (Techxav, 2010).

While there are many social networks, the next biggest ones after Facebook are My Space with about half the size of Facebook and Twitter, again just under half as big as My Space (Compete 2010). With such large numbers of users and activities, and a documented loss of consumer trust in advertising (Clemons et al. 2007), it is no wonder that social networks have attracted the attention of advertisers and retailers, with predictions of 3.3 billion USD spent for advertising on social networks in 2010 (Schonfeld 2010).

Literature on SNS covers a range of topics, such as privacy and personal information, types and roles of SNS relationships, self-portrayal of users and impression management and finally user motivation in engaging in SNS. Astonishingly little has been published about the use of SNS in the context of companies, though SNS can be applied in three distinct areas: “1) recruiting and professional career development, 2) relationship facilitation in distributed work contexts, and 3) business-to-customer interactions.” (Richter et al. 2011). It is this third section that is in the focus of this dissertation.

In the retail domain, the interest in online social networks is dominated by the business-to-consumer opportunities that SNS offer: (1) SNS allow a retailer to address a collection of consumers interested in a product or a brand, for example through targeted advertising activities such as Word-of-mouth advertising, (2) SNS present an opportunity to understand customer opinion and enter into a dialogue with customers and (3) SNS can be a source for user-generated content about their products and brands which could be used in advertising.

These three aspects are discussed in this section, beginning with examining how discussions that are held on SNS about retailers and their products are considered a modern form of Word-of-Mouth (WOM).
2.3.2. Word-of-Mouth Marketing in Social Networks

Information transmission by word-of-mouth (WOM) is one of the most influential resources since the beginning of human society (Duan et al. 2008). In 1957, WOM is described as a factor in determining consumer choices among younger white-collar consumers because 1) they face many more choices and decisions regarding purchases than did their counterparts in the past, and 2) at the same time they have less contact with tradition. Thus, the interpersonal network within the group serves a guiding function in the "delicate job of keeping in tune with the life style of the moment." (Brooks 1957). These societal trends have only accelerated since then and for retailers, WOM has become a particularly prominent feature on the Internet thanks to the ease with which people can transmit information (Chevalier and Mayzlin 2006).

In parallel to the loss of trust in traditional advertising, customers have been shown to rely more on customer recommendations than company-sponsored messages (Ermecke et al. 2009). The Internet provides numerous venues for consumers to share their views, preferences, or experiences with others, as well as opportunities for firms to take advantage of WOM marketing (Trusov et al. 2009), to the point that the term “Word-of-Mouse” has been coined for WOM in virtual communities (e.g., Godes and Mayzlin 2004) or the term eWOM is used. Further research supports this, showing that consumers prefer gathering information about their planned purchases first from friends and secondly from virtual communities above other sources, such as commercial information from sales-people, brochures and advertisements (Jepsen 2006, Nielsen 2010, Wang et al. 2009). Social networks neatly give users access to information from their friends as well as communities of virtual strangers, so that, e.g. all the “Fans” of the “Nutella” chocolate spread share a passion for that brand and form a community around it.

However, research on movie sales showed that online WOM were reliable predictors of movie sales but did not influence consumers (Eliashberg and Shugan 1997). This may be particular to the movie business where there is a proven risk that firms post reviews anonymously in order to influence consumers, which might result in buyers being more skeptical (Dellarocas (2006) and Mayzlin (2006)). Though theoretically the same risk applies in retail, consumers of retail goods appear less skeptical, as nearly six in ten adults (58%) in the USA have done research online about the products and services they buy, and about a quarter (24%) has posted comments or reviews online about the things they buy. On a typical day, 21% of adults search for product information online (Jansen 2010).
WOM has steadily gained in significance for retail and marketing (Zhu 2010) and the following concise modern definition reflects the transition from observed phenomena to instrument for marketers: “WOM is a firms’ intentional influencing of consumer-to-consumer communications” (Kosinets et al. 2010). Different channels for this influence exist, from direct communication with bloggers, Twitter feeds and monitoring of user forums. Given the dominance of social networks and the importance of WOM, it is not surprising that the retail industry is one among many that is trying to understand what this means for their business. One channel in heavy use in the retail and consumer goods industry are Facebook Brand pages, the literature around which is described in the next section.

2.3.3. Brand Pages in Social Networks

The focus in marketing has moved away from transaction-oriented marketing focused on a given sale to more relationship-oriented interactions (Vargo and Lusch 2004), placing increasing emphasis on the role of consumer networks, groups, and communities (Kozinets et al. 2010). SNS have a mediating effect between individuals and society in the virtual world (Wasserman & Faust, 1994). The significance of this feature has been recognized by marketers and they have started utilizing SNS for brand marketing activities as a means of maintaining close relationships with consumers (Palmer and Koenig-Lewis, 2009). SNS represent the natural technological platform for marketing since they provide access to the large number of users, grouped in communities, based on a structured set of social relationships among admirers of a brand, i.e. a brand community (Muniz et al, 2001).

Brand communities are not just an additional marketing communicational channel; they are “participants in the brand’s larger social construction and play a vital role in the brand’s ultimate legacy” (Muniz et al, 2001). Brand communities provide easy access to information exchange and community participation unrestricted by time or space, as well as acquisition of useful information (Palmer and Koenig-Lewis, 2009). Ulusu investigates three factors of brand and advertising engagement on Facebook, “Brand Community Engagement”, “Brand Community Approach”, and “Ad attitude” (Ulusu 2010).

His results indicate that users are interested in receiving brand announcements on their profile page, they feel as a part of the brand communities they joined, accept the friendship request of the brand pages and value friends’ opinion about a brand. In addition, members of brand communities spend more time
on Facebook, and males are more oriented towards brand-communities than females. Ulusu (Ulusu 2010) also found that users generally ignore the advertisements on their profile page and moreover they do not want to be fan/friend of any brand community if they continuously receive notifications from the community.

From the marketers’ perspective, there are many strategic and operational benefits of cultivating brand communities. Brand-community participation results in a positive effect on consumers’ attitude and attachment to the brand and the company (McAlexander et al., 2002). These customers play the role of brand missionaries, carrying the marketing message into other online and offline communities. They are more forgiving of product failures and less apt to switch brands (Berry 1995). Through users’ feedback or by observing conversations, a company can learn about customers’ needs, resulting in involvement of members of the community in the co-creation of value through the generation of ideas (Palmer and Koenig-Lewis, 2009).

Different companies have started utilizing different tactics in order to gain competitive advantage and find cost effective solutions to reach customers through online brand communities (Muniz and O’Guinn’s, 2001). Applications, social ads, brand communities, sponsored pages and sponsored apps are just some of the possibilities offered as communication channels with the customers on Facebook and other SN platforms.

Social networks will play a key role in the future of marketing; they will increase customers’ engagement, and help to transform the traditional focus on control with an collaborative approach suitable for the modern business environment (Harris and Rae, 2009). At the moment, literature on how practitioners use social media is still limited, primarily because social media is in its infancy. Most online communities are currently at a relatively early evolutionary stage and have yet to be subjected to serious study. Further analysis of the existing public relations should support building the knowledge on how the emerging technologies can fit alongside existing traditional communication tools.

The ability to interact directly with customers on SNS is an opportunity for marketers and is increasingly becoming a requirement for mass-market brands. Different consumer brands and retail stores are handling this opportunity and these challenges in different ways. Many brands started their own Facebook brand pages and manage them in their own styles. However, many SNS brand pages (often referred to as “fan sites”) can be found that have
been started by consumers themselves, notably cigarette brands (Freeman and Chapman, 2010), but also brands with strong followings, such as Coca-Cola.

These “renegade” pages can be welcomed by the brand, e.g. in the case of Coca-Cola, or present a problem for the brand owners who take legal steps to shut them down (e.g. the Scrabble page started by fans (Fournier and Avery 2011). One issue of brand pages that are under the control of a consumer is that the communication between the users and the brand is not under the control of the brand, and additionally, if there are several brand sites, many users cannot tell if they are reading an official brand page or a consumer-led page since they are often hard to distinguish from each other, as can be seen in the example of Nutella (see Figure 3 below).

A further issue for the brands and companies attempting to manage their fans is the fragmentation of the fans across these different unofficial brand pages, making them harder to manage and making the brand look weaker than it is. For example there are two official Nutella fan pages: one for Nutella international with 7.4 M fans and one for Nutella Italy with 2.3 M fans. They also provide an application that allows people to send each other virtual Nutella gifts (Facebook 2011). But in addition to these official activities there are over 20 different Nutella fan sites, some of which have over 100,000 fans each (status March 2011), putting a significant number of potential customers outside the reach of the company’s marketing communication efforts.

Companies make decisions on which brands they want to represent on the social networks. Some companies will show their main brand only (e.g. the clothing store H&M) or be represented as a company as well as with the brands owned by the company (e.g. Nestlé’s company page is on Facebook, but not related to any of their many brand pages such as Kit Kat or After Eight). Depending on the platform and the company strategy, the communication can have more of a broadcasting quality (e.g. Nestlé) or a more interactive one (e.g. Coca-Cola) or a mix, such as Audi where official communications are visible at the top level and customer comments at a second level where and photos of their cars or driving experiences are encouraged. Additionally, companies have the option of providing applications, running polls or hosting competitions within their Facebook fan pages.
Figure 3: Brand sites and consumer-launched fan sites for Nutella mixed together in the Facebook search page (status May 2011)
Regardless of the type and style of online activities of a company or brand, the ultimate goal is to increase sales. In general, this marketplace rewards more participatory, more sincere, and less directive marketing styles (Deighton and Kornfeld 2008). However, despite the various efforts from the companies and the general popularity of the medium, measuring the effectiveness is elusive (Shankar and Hollinger 2007).

Some small cases of success have been reported in literature, such as the Houston bakery chain that increased customer frequency in their stores thanks to their carefully managed Facebook advertising campaigns (Dholakia and Durham 2010). Also, an experiment regarding the effectiveness of company-driven WOM communication showed that it does increase sales (Godes and Mayzlin 2009). Despite the lack of documented evidence for return on investment for SNS marketing activities, one possible reason why companies engage in this activity is that having a Facebook brand page is a prisoner’s-dilemma situation: i.e. the effort different companies expend in effect cancel each other out; however, if the activities were stopped all together, there could be a significant loss in sales (Osinga et al. 2011).

Thus, the question arises how to best manage SNS brand pages, for which many guidelines can be found on popular blogs that describe the whole range of issues from choice of language and style to organizational matters. These are not academic treatments of the topic with proven cause and effect or verified models, but rather qualify a set of “best practices” for a nascent industry. An example from Mashable, a prominent social media blog, lists 10 points (Table 1 below):

<table>
<thead>
<tr>
<th></th>
<th>Don’t Automate Your Status Updates</th>
<th>Don’t automatically feed your blog posts or your Twitter updates into your page since the same format does not work across different networks (Facebook, Twitter, YouTube, etc.). For a lot of brand pages, auto posts do not engender engagement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Don’t Be Afraid to Show You’re Human</td>
<td>Thank your fans for their replies and for sharing their opinions with you. From time to time, talk about things other than your products. Wish them happy holidays.</td>
</tr>
</tbody>
</table>
Media like videos and photos always perform well on Facebook. Not only do they seem to be a favorite of the News Feed algorithm, but they just grab people’s attention in a feed full of text updates. A lot of web users choose to watch more than they read.

| 3 | Post More Photos and Videos | Use Facebook to crowdsource: your fans feel valued and heard, but some of their decisions might help your content strategy in the long run. |
| 4 | Put Your Fans in Charge Every Now and Then | If you are a global brand, make good use of targeting. Target your updates by country or language as necessary. In the U.S. you can even target by state and city. |
| 5 | Target Your Status Updates | If you want your fans to participate more, just ask them every now and then, you will be surprised how many of them respond. Multiple experiments by other brands and yours truly show that the posts where you include a call to action get better than average engagement. |
| 6 | Ask Questions and Involve Your Fans | Don’t overwhelm your fans with too many posts. I suggest posting once a day to start with and potentially moving to twice a day, especially if you have great news to share. Be patient, watch the response trends on your Page, and identify the frequency and timing that works best for you. |
| 7 | Watch Your Post Frequency and Timing | It is important to know your voice. Find a voice and tone that is representative of your brand and you. |
| 8 | Have a Unique Voice | Change up your content every now and then. Try adding how-to’s, trivia about your company, breaking news, polls, fill-in-the-blanks, relevant third-party content, multimedia, or even experts to speak about your field or business. |
| 9 | Diversify Your Content | Watch for trends on your Page and feedback from your consumers on topics/programs/discussions and adjust your content strategy appropriately. Don’t become complacent. |

Table 1: Example of “10 success factors” for Facebook brand page management (Walter 2011)
As is typical with these “best practices”, scant evidence is provided and usually no sources are given for the information (e.g. Table 1 above, where in point 6 the author refers to “multiple experiments”, but does not name or source them). While these types of guidelines resonate with common sense, proof of applicability and usefulness is lacking. A multitude of similar guidelines can be found with names like “The 8 Success Criteria for Facebook Page Marketing” (Owyang 2010) or “10 Facebook Page Strategies Every Brand Should Know” (O’Neill 2009).

More academic publications have focused on less sweeping recommendations and focused on individual factors of success, for example examining how social cues in online agents effect customer satisfaction, enjoyment and purchase intention (Holzwarth et al. 2006) In a study conducted in a service-oriented environment, online agents were shown to foster meaningful relationships with customers that resulted in an improved financial performance, by providing a mix of functional and interaction content (Köhler 2001).

This mix of content and the exact nature of social cues necessary to create strong relationships on SNS brand pages have not been sufficiently reported to provide a comprehensive overview for academics or professionals. Clearly, though, the interaction between companies and customers takes on extra significance with the increasing participation of customers. Their involvement with brands by creating content on brand pages will be examined in the next section.

2.3.4. User-Generated Content on Social Networks

Content generated by users is visible in a broad range of forms and on many different forums, from product reviews on the online store Amazon³, video contributions to YouTube⁴ or collaborative efforts, such as Wikipedia⁵. On SNS the user-generated content (UGC) appears in the context of relationships, comments about events, products, news or UGC uploaded by other participants on the SNS. In text form, they can be personal comments meant for only one friend or for a circle of friends, posts to fan or brand pages that reach a larger audience or responses to existing content (comments) or most minimally, “Likes“, where the user indicates with the press of the button that a piece of existing content is interesting. Different definitions of UGC exist,

³ www.amazon.com
⁴ www.youtube.com
⁵ www.wikipedia.org
though for SNS it is that the content is published, involves creative effort and is “created outside of professional routines and practices” (Wunsch-Vincent and Vickery 2007). Examples of USG on the Facebook brand page okPunktStrich are shown below: a suggestion for a new product, a suggestion for a product extension and an enquiry for product availability (see Figure 4 below).

Figure 4: Sample UGC from a Facebook brand page (okPunktStrich)

UGC in relation to brands is a phenomenon that shows an increase in consumer participation and a willingness to engage with a brand outside of sales transactions (Parent 2011).

A consumer will step through different levels of participation with increasing involvement: from passively observing and simple forwarding (levels 1 and 2) to increasing levels of sophistication in generating content (levels 3-5) (see Figure 5 below):

- **Viewing:** Customers passively see content on the Internet or through mainstream media
- **Forwarding:** A viewer takes the next step by sending a link to others in their network
- **Commenting:** Consumers write and publish comments under their name.
- **Creating:** A viewer creates rich content and publishes it.
• **Moderating**: The creators of content receive comments on it and as a next step moderate discussion that ensue.

• **Arbitrating**: Finally, consumers feel ownership to the point of rendering judgment and mediating conflicts. These consumers control the discussion.

![Figure 5: Categorization of user activity types (based on Parent et al. 2010)](image)

The most general classification distinguishes between participants who post, i.e. posters, and those who read but do not post, i.e. “lurkers” (Nonnecke and Preece, 1999; 2001; Nonnecke et al., 2004). Nonnecke and Preece (2000a) indicate that lurkers make up over 90% of online groups. A more detailed categorization is given by Li (2007a) under the term “social technographics” to describe six different levels of participation in social technologies: creators, critics, collectors, joiners, spectators and inactives. Each level indicates how certain user will respond to different approaches from companies via social networking channels.

Users who are members of the ok.- Facebook brand page have several options of interacting with the brand page after they join, as described in Chapter 2 “Related Work”: “Lurkers” do not participate but might read other contributions, “Posters” create content on the brand page wall, “Commenters” respond to existing content with a post (visually displayed beneath the original content), and finally “Likers” indicate interest in a post or in content by pressing the “Like” button.

While the UGC on Facebook brand pages are of great interest to the brand owners and thus the object of analysis, there is need for caution in interpretation, as the consumers contributing UGC are not a representative sample of all consumers (Köhler 2011). Instead, customers who are either extremely satisfied or extremely dissatisfied are more likely to initiate WOM (Anderson 1998) and there is documented consumer bias in product reviews (Li and Hitt 2008).
Both UGC and WOM are present on SNS, though they are clearly distinct phenomena with WOM frequently consisting of product recommendations and UGC in general focusing on entertainment (Cheong and Morrison 2008). In addition to being a rich environment for consumers to interact with brands online, thanks to pervasive computing, SNS are increasingly also accessible in retail stores where consumers can access information about a brand and opinions of other consumers on their mobile phone or see it on screens in retail stores. This is where the worlds of online social networks and pervasive advertising meet, which is discussed in the next section.

2.4. Pervasive Advertising with User Generated Content

The content that users generate in the various Web 2.0 platforms can be analyzed and monitored, as described above, or it can be harvested and used for advertising purposes. There has been a notable increase in UGC in advertising (Deighton and Kornfeld 2008) with many companies experimenting with different formats. For example, Mammut, the makers of outdoor equipment and clothing, asked consumers to create “mountains” using digital online tools and virtually “climb” them with as many friends as possible (Mayer 2011). Another very prominent example is how the snack brand Doritos launched a campaign called “Crash the Superbowl” (http://www.crashthesuperbowl.com), where customers were asked to create videos which featured the brand.

In using UGC in advertising, there are two choices: placing professionally created content next to content created by UGC users, or creating advertisements that use UGC created on a Web 2.0 platform. (Krishnamurthy and Dou 2008). The majority of examples of UGC in advertising are in traditional formats or online. However, in retail the use of UGC in pervasive advertising is of particular interest since this places the UGC in the hands of the consumer (in the case of advertisements on mobile phones) or near the point of sale where consumer decisions are made (in the case of public displays).

The following sections briefly gives an overview of pervasive computing in retail and the state of research in pervasive advertising, followed an overview of UGC in pervasive advertising, which is particularly relevant to the digital signage experiment described in Chapter 5 “In-Store Advertising with User-Generated Content”.
2.4.1. Pervasive Computing in Retail

Various pervasive computing applications are emerging in retail and proving themselves as business-relevant, none more than consumer-facing applications which have the potential to change customer’s interaction with retailers and their in-store experiences. This section will first introduce pervasive computing in general and then provide an overview of its role in the retail industry.

The first publication to treat ubiquitous computing was by Mark Weiser, who coined the term and defined it as it was being used in the labs of Xerox PARC (Weiser 1991):

“Inspired by the social scientists, philosophers, and anthropologists at PARC, we have been trying to take a radical look at what computing and networking ought to be like. [...] Our preliminary approach: Activate the world. Provide hundreds of wireless computing devices per person per office, of all scales. [...] We call our work "ubiquitous computing". [...] It is invisible; everywhere computing that does not live on a personal device of any sort, but is in the woodwork everywhere. In the 21st century the technology revolution will move into the everyday, the small and the invisible...“

The term “ubiquitous computing” is in use today, but other phrases quickly emerged that also still endure: IBM coined the phrase “pervasive computing” to represent a more industry-centric view that “…a billion people interacting with a million e-businesses with a trillion intelligent devices interconnected ...”. Work on similar topics was given different names: “Ambient Intelligence” (in Europe), “Things that think” (the academic vision put forth by Neil Gershenfeld at MIT in 1999) and “Internet of Things” (a more industry-centric vision of controlling logistics and consumer goods) (Mattern 2010). For the purpose of this thesis, “pervasive computing” will be used since it has become the established term in the context of advertising and shopping applications which are the focus of this thesis.

While the research areas in pervasive computing span different domains, most notably distributed systems and mobile computing, the focus of this dissertation are the aspects of information management, affected by pervasive computing. From an information management perspective, pervasive
computing brings together “two worlds that have been disjoint until now” (Satyanarayan 2001): the virtual world of information that is easily accessible through computers can be brought to a space that traditionally was lacking any information beyond the obviously visible. In retail, this might mean that a customer can access product information delivered from the Internet by using their own mobile phone as a scanning device (see Figure 6 below).

**Figure 6: GS1 prototype of mobile phone shopping assistant (GS1 2010)**

Pervasive technologies are relevant to many aspects of the retail industry and applications can be found in supply-chain applications, often using RFID, or in store concepts such as the Metro Future Store⁶.

Digital information provided in retail can either be in-store (e.g. with displays or on mobile phones), or mobile applications that provide information regarding products or specials. In the retail store, displays typically show information to a group of viewers or shoppers, and mobile phones can be used to access personalized or very specific information to assist a customer in shopping. A broad range of pervasive shopping applications are currently

available to consumers, (e.g. CodeCheck, ShopSavvy, Google Shopper, Barcoo) which provide information about customer reviews, ingredients, or special offers. (Karpischek and Michahelles 2010).

The mobile phone’s capabilities to access the Internet while on the go are coupled with its ability to use the built-in camera to scan product barcodes. This allows product information to be related with real-world items in a more seamless way, meaning that today’s real-world shopping practice, with its advantages such as people actually seeing and touching products, can be enhanced through product reviews and access to in-depth technical specifications. This provides new means for more efficient “hybrid shopping” or “multi-channel shopping” and increases the attractiveness of physical stores (Reischach et al. 2010).

Regardless of the type of information provided to the consumer, both on mobile devices and digital displays, it can be completely personalized based on user identification. Another option is to estimate the information needs of the users by e.g. taking location or time of day into account and forming stereotypic groupings, based upon which the displayed content can be tailored (Müller et al. 2009). This approach is most realistic for public displays which serve multiple viewers at the same time, especially in the context of advertising.

In advertising, the pervasive technologies that are most in use are targeted at customers on the go: mobile phones and public displays. The following section provides an overview of existing research on pervasive advertising on mobile phones and particularly on public displays.

2.4.2. Pervasive Advertising

In the context of pervasive computing applications, the one of interest in this dissertation is pervasive advertising on public displays. This section discusses pervasive advertising in general and pervasive advertising on public displays in particular.

Pervasive advertising enables the kind of serendipitous advertising common on TV, radio and print, but with the added benefit of allowing new types of ads (Rangangatan and Campbell 2002) such as user-generated comments. Since advertising in general is proven to increase shareholder value through increased sales (Vakratsas and Ambler 1999) and profits (Erickson and Jacobson 1992), research is being conducted to understand how to extend
traditional advertising into the domain of pervasive computing. The two main pervasive computing technologies that can be used in advertising are mobile phone applications and public displays.

**Advertising on Mobile Phones**

The simplest form of pervasive advertising, in the context of social networking, is advertisements that are visible to the users when they access their regular social networking sites using their mobile phones. The usage statistics provided by Facebook regarding the mobile access of the SNS reveals enormous amounts of activity: 31% of smartphone users have accessed social networks via mobile browser, a steep increase from 23% in 2009; and approximately 20% Facebook’s users access Facebook through their mobile devices (Facebook 2010). Use of the dedicated Facebook application is even more impressive: 14.5 million mobile users downloaded a social networking application to their mobile device as of April 2010, up 240% from the prior year (Facebook 2010). Thus, any advertisement placed alongside the regular SNS content will be well-exposed on customer’s mobile phones.

While the regular SNS ads on a mobile phone are targeted to the user’s preferences and screen content, they are not tailored to the location. However, pervasive computing by definition has a location component, so the recent development in social networks to add a location component needs to be watched closely. There is increasing prominence of location-based social networks that include a geographic element in the way their users connect to each other. The foremost example of this technology is Foursquare with over 8M users (Foursquare 2011), followed by others such as Gowalla and over 120 other such services (Schapsis 2011). At the time of writing, the newly launched location-based application by Facebook called Facebook Places is being watched closely to see if it will by default become the dominant location-based social network application, due simply to Facebook’s market hegemony. This is where the marketer’s interest in location-based social networks comes in, since consumers link to their network while being in a specific physical location, which the social network (and thus the advertising algorithms) are aware of. Currently many retailers are experimenting with providing coupons based on the locations of a consumer, or giving awards to members that “check in” to a specific store location (Bustos 2008, Ailawadi et al. 2009). One example is Starbucks, which gave a discount to the “mayor” of a given

---

7 [http://www.comscore.com/Products_Services/Product_Index/MobiLens](http://www.comscore.com/Products_Services/Product_Index/MobiLens)
franchise, i.e. the Foursquare user who had checked into that franchise most often (Van Grove 2010).

The users’ interactions with these location-based social networks are very personal due to the information they can access with their personal mobile devices, including all their logged statuses and preferences, as well as being very specific to time and location. These location-based social networks deserve the particular attention of advertisers because of their link to physical spaces which overlaps with the intentions of pervasive advertising and retailing.

Highly targeted, social-network informed advertising on mobile phones is currently fertile ground for experimentation and research. However, a related and equally vibrant topic is how to combine social networks and advertising in public spaces and retail stores using public displays.

**Advertising on Public Displays**

Public displays using large monitors or screens are proliferating and are increasingly often visible in various public spaces. Passers-by encounter them at bus stops and train stations, in stores and on buildings. Thanks to technological advances and rapidly declining costs, their presence is becoming more and more common, showing a wide range of information such as schedules, entertainment or advertisements (Narayanaswami et al. 2008).

This has prompted the fairly recent, increasing distribution of public displays in many places where paper-based posters used to reign, including in the retail space. The advantages are numerous: the cost of maintenance is lower, updates can be performed faster and more cheaply and new media can be employed, giving prominence to the new opportunities of animations and video. Interactive display installations that use sensors, mobile phones, and UGC are changing how the retail business reaches their customers (Strohbach and Martin 2011).

Thus, retailers are investing in experimenting with, and understanding how to convey marketing messages on digital signage. These screens show advertisements, tailored content, brand building information, etc.

Despite these activities and the research interest in using public displays for advertising, it is estimated that outdoor advertising in general has not reached its full potential, largely because of the difficulty in measuring the return on investment (Quercia et al. 2011). To quantify the gap: while people on average
spend 27% of their time exposed to outdoor advertising, this form of advertising in 2008 only comprised 5% of US media spending (Li and Edgecliffe-Johnson 2010). Clearly, this represents an opportunity worth exploring.

In the field experiment described in Chapter 5 “In-Store Advertising with User-Generated Content”, public displays were used to display the UGC harvested from Facebook, and the effectiveness of social media comments on digital displays was measured in terms of its impact on sales. To provide background for this, next section takes a closer look at existing research in advertising with UGC.

2.4.3. Advertising with User-Generated Content

Advertising using UGC, i.e. content generated by "ordinary" people, offers to options to advertisers: professionally created advertising could be presented alongside content created by UGC users, such as bloggers. Alternatively, advertisers could ask creators of UGC to wholly create advertisements for the firm's brand or deliver partial input (Krishnamurthy and Dou 2008). The first option has considerable appeal due to the high volume of viewers that UGC attracts. Already in 2007, industry reports indicated that the consumption of UGC is comparable to traditional media in UK (Marketing Week 2007), and 63 M people read at least one blog a month (Krishnamurthy and Dou 2008). The second option requires that advertisers and creators of the UGC interact in the process of developing the advertising, which can either be a simple one-time transaction or involve “setting parameters for creations, rendering recognitions, or handing out financial rewards for those creations” (Elliot 2008). It is this second option, where creators of UGC contribute to advertising campaigns that is the focus of our research.

Krishnamarty and Dou categorize the different actors in using UGC in advertising into three groups (Krishnamurthy and Dou 2008):

- Creators of UGC are consumers who produce, design, publish, or edit content
- The platform that hosts the UGC (i.e. “the media owner”) has less of a hold on the content created than traditional media would. Actually, apart from gaining a sense of legitimacy if the advertiser is a famous brand, the platform may have no further role when advertisers choose to use the UGC created on the platform.
• The users and consumers targeted for UGC advertising play a more complex role than in traditional advertising, since they are often not just passive observers of the advertisement but play an integral part of the UGC media by being both the target and creators, giving them greater influence over the advertisements than would have been possible traditionally. Thus, advertisers using UGC must place the users at the core of its UGC advertising strategy.

How the interplay between these actors is shaped, depends on the style of advertising that a brand prefers and the environment they operate in. Retailers are approaching this new form of advertising with care, since the appropriateness of UGC for advertising is not yet proven in either form: as advertising alongside UGC or using UGC in advertising (Krishnamurthy and Dou 2008). Since the medium is so interesting to advertisers, yet still harbors risks of the unknown, several advertisers have taken the intermediary step of repositioning their content to make it look similar to UGC in an effort to gain greater consumer acceptance (Jarrett 2008).

Many different format of UGC are found in advertisements, which reflects the many forms of UGC that exist, such as video or virtual goods (shown in the examples of Doritos and Mammut introduced at the beginning of this section). Digital signage screens can display these different forms as advertisements, tailored content, brand building information, etc. However, text contributions are a useful example of showing UGC on public displays, so an experiment might format these Facebook “quotes” (i.e. statements provided by fans of a given brand or company page) to be shown on a public display. This could either be done as “static” advertising where the content is defined by the marketing department ahead of time and broadcast the same way each time, or in a more dynamic fashion: updating the content on the display as the Facebook brand or company page receives a new comment. Research suggests that due to the customized nature of using content from social networking sites, the timeliness of the content is crucial. As such, information needs to be harvested, interpreted and consumed in the smallest possible time in order to be meaningful, since delays might invalidate the context (Di Ferdinando et al. 2009).
2.5. Conclusion

Based on the reviewed literature and the industry practices examined, the major Web 2.0 technologies of interest to retailers are crowdsourcing, social networks and advertising with UGC. This chapter showed that within each of these topics, research gaps exist:

- **Crowdsourcing**: While there are many examples of retailers using crowdsourcing for different aspects of their business, such as product selection, product design, academic literature does not offer many analyses of the effectiveness or applicability of the CS methods in retail. Our research aims to address this gap.

- **Social networks**: Though SNS have been the focus of many studies, there is a lack of research on them in the context of companies in general (Richter 2011) and for retail questions in particular.

- **UGC in advertising**: Despite large amounts of activity, little academic research attempts to examine the implications of this media for retailers.

The three following studies aim to address these three gaps in an attempt to provide an academic foundation on which retailers can base their activities with UGC.
3. Crowdsourcing for “Kiosk of the Future”

Among the three dominant types of UGC in retail, crowdsourcing (CS) has become a standard tool in generating new product ideas for retailers. As mentioned in Chapter 2 “Related Work”, CS can be used for other purposes beyond product innovation, such as marketing or charity fundraising. This chapter describes a CS case in which, unusually, service and business model ideas were sought.

Research on the data, analysis and discussions of this section was originally carried out in the context of the following publication: “Crowdsourcing for ‘Kiosk of the Future’ – A Retail Store Case Study” (Dubach Spiegler et al. 2011b) and thus this section contains excerpts from these published works which are not further demarcated in the text. The case study in this chapter describes the steps taken by Valora Retail in conducting an intermediary-mediated Crowdsourcing project and details the results of using this open innovation approach to generate ideas for the “Kiosk of the Future”.

3.1. Introduction

This chapter describes a case study showing the use of CS in the early innovation process in Valora Retail which, as described in Chapter 1 “Introduction”, runs the majority of kiosks in Switzerland under the brand “k Kiosk”. Kiosks are small-space retail shops at busy locations and sell convenience products – mainly press, cigarettes, candy, drinks and lottery – to a mass customer base. The current Swiss kiosk business model is projected to run into difficulties as described by the head of the kiosk business unit. The four main pillars of their business are under pressure:

1) **Press** products are increasingly affected by the digitization of media,

2) **Cigarettes** are subjected to an increase in legislation and bans,

3) **Treats**, such as candy and sugary drinks, are harder purchases to justify in the larger trend towards a healthier life style,

4) **Gambling** is increasingly moving online.
In order to counter these developments, which represent severe threats, several internal discussions and workshops were held in autumn 2009. The conclusion was reached that the search for the future role of kiosks in an increasingly digital world needed to be identified. Since a big part of the threat to the current business comes from the Internet and Web 2.0-based innovations, it was decided internally to use the Internet-enabled CS approach to gather ideas about what the “Kiosk of the Future” should look like and at the same time gain an understanding of this type of UGC, which is crucial in the retail industry.

The case study in this chapter describes how Valora Retail successfully completed an intermediary-mediated Crowdsourcing project, as well as the results they achieved using this open innovation approach to generate ideas for the internal project named the “Kiosk of the Future”. The chapter is organized such that following this introduction, the next section will justify the methodology used, and will be followed by a presentation of the data gathered and then a discussion. The conclusion will summarize the main findings.

3.2. Justification for the Choice of Methodology

The motivations companies have to run CS projects are manifold. Besides being a trendy alternative approach to feed the innovation process to achieve strategic goals, companies often choose this open innovation (OI) approach to track trends, meet customer needs, obtain an external perspective or achieve confirmation of their own business intentions. The combination of motivations is often dependent on the company, the department, the internal strategy, the industry and the situation. In the case of Valora Retail, the motivations were two-fold: to gather ideas for their project “Kiosk of the Future” and to gain experience in this important Web 2.0 technology.

The project went through a sequence of steps typical of industry-led CS projects, from deliberation through to final assessment and post-processing. The steps followed are identical to those described by Muhdi et al., who identified the five successive phases in an intermediary-facilitated CS process (see Figure 7 below).
The five phases can be described as follows:

1) Within the deliberation phase the companies decide whether or not the CS approach is suitable for solving an internal problem. Furthermore, the internal buy-in is also an important issue to be achieved. This phase terminates when a contract is concluded with a chosen CS intermediary.

2) All the necessary activities needed to be accomplished before the problem is represented to the solving community of the CS intermediary are executed in the preparation phase. Tasks in this phase include amongst others the clarification of internal expectations towards the CS project and the outcome, exact formulation and presentation of the problem, planning of necessary resources, and the timing of the CS project. This phase has a direct impact on the outcome because once the question/problem is online there are no further possibilities to make any changes to the published content.

3) The execution phase describes the time frame where the problem-solving community can submit solutions, namely in the idea-generation phase.

4) In the assessment phase submitted ideas/solutions are evaluated and the best idea providers rewarded.

5) Once the best idea/ideas are identified according to preset criteria the largest part of the work load in the CS process remains – namely the implementation of best idea/ideas. In the post-processing phase companies develop implementation strategies and prepare incorporation of the ideas generated by CS into the innovation process of the company.
3.3. Method

Since their customers are demographically very diverse and mirrored in the general public, Valora Retail chose a Swiss CS intermediary company, Atizo\textsuperscript{8}, with experience in the Swiss retail market, to perform their CS project. The company runs a web-based CS platform with a standing community of 6’400 members at the time of the case study (Galli 2010). These members contribute to the different CS questions posed on the Atizo platform in the hope of submitting the winning idea and thus earning money for it. These members together generate on average 40 ideas per day (Atizo 2010) and are situated globally, though most of them live in Switzerland, followed by people living in Germany, Austria, India and France.

The Valora Retail idea generation (execution phase) was conducted on this CS intermediary platform over seven weeks (from 21.1.2010 to 16.3.2010). During this time 626 ideas were generated.

In addition to the quantitative data described above, qualitative data was gathered from the initial proposal to conduct idea generation with CS, through initiation of the project and for the duration of the project. For this purpose, detailed notes were taken on the steps and decisions taken and actors involved. Careful logging of events took place, which allowed a precise mapping of the different activities to the methodology chosen. This manner of gathering data facilitated summarizing the insights, or “lessons learned”, which the company hoped to gain from the CS project in addition to the ideas generated.

3.4. Analysis of Data

In this section we will go through the steps of the CS process performed by Valora Retail and elaborate on the activities and results along the five steps of the CS process described above. A brief discussion will accompany the presentation of the data, but the final discussion and “lessons learned” will be presented in the next section (section 3.5).

\textsuperscript{8}www.atizo.com
3.4.1. Deliberation Phase

The key decision makers for the CS project were the head of process and project management and the head of the “Kiosk of the Future” initiative, both of whom reported to the CEO of Valora Retail. They selected two people to form the operational team for the CS project (CS project team): a team member of the Valora Retail “Strategic Marketing” department and an outside consultant.

Initially the motivation for Valora Retail to start a CS project was three-fold: 1) it is known that there is no “typical” kiosk customer, as they cut across all demographic categories. A public call for ideas via The CS intermediary company was therefore deemed the best way to achieve a set of ideas with highest diversity. 2) As part of the kiosk strategy to become more involved in Web 2.0 technologies, initiating a CS project would provide valuable experience in the Web 2.0 domain. 3) The CS participants would provide a first base for a kiosk Internet community interested in and dedicated to the company.

An analysis showed that the third motivation point would require a custom-built platform, and offers were solicited for this approach. However, upon inspection Valora Retail decided that the costs were prohibitive and that point was dropped. So instead of relying on a single community to generate ideas which would then transition to be a community for marketing activities, two separate communities were used: 1) A Facebook “Fan Page” was launched for marketing activities which focused on the Valora private label products under the brand “ok.-“ (see also Chapter 4 “Management of a Social Media Brand Page” for a detailed discussion), and 2) the CS intermediary platform, Atizo, was chosen because of their existing community of innovators which were a good fit with the type of “Web 2.0 customers” that Valora Retail wanted to understand better.

This split of communities reduced any development risks, so the project could easily be budgeted. The combination of a more controlled process thanks to outsourcing the CS and compensating for the lack of community by setting up the Facebook Fan Page, convinced Valora Retail senior management to approve the CS project.

9 www.facebook.com/okPunktStrich
3.4.2. Preparation Phase

The initial step in the preparation phase of the CS process was the definition of the company’s expectations towards the CS project. Valora Retail’s expectations were on the one hand to gain first experiences with an idea generation approach based on Web 2.0, and on the other hand to generate unexpected ideas which probably would not be proposed by internal committees or from workshops with experts.

The overarching strategic goal of the “Kiosk of the Future” project was to find ways to combine the physical kiosk retail spaces – which are one of the main assets of Valora Retail – with information available online to gain business and strategic advantages in the future. In order to achieve this goal, the CS question was formulated as follows:

“The Kiosk with its many locations will become the hub between the physical and digital world. Which surprising ideas, products and services can you imagine in the context of the Kiosk of the Future?”

And in the original German:

«Der Kiosk mit seinen vielen Standorten soll Schnittstelle zwischen realer und digitaler Welt sein. Welche überraschenden Ideen, Produkte und Services können Sie sich rund um den Kiosk der Zukunft vorstellen?».

The CS question was drafted by the CS project team and tested by internal employees. Furthermore, the CS intermediary company also reviewed the CS question to ensure that the intended message was being conveyed, preventing community misunderstandings or incorrect interpretations.

In parallel to drafting the CS question, the evaluation criteria that would be used to rank the ideas were defined. These were published on the CS platform alongside the CS question and were visible to the innovator community:

- The degree of interaction between the kiosk products and Web 2.0
- The level of appeal (attractiveness) to a broad customer base
- The value of information and entertainment
The CS question was published on the CS intermediary company platform as soon as it was technically possible in order to accelerate the CS project timeline (see Figure 8 below). The duration of the idea-gathering was set to 7 weeks, following the recommendation given by the CS intermediary company.

As soon as the question was online, the CS project team used their networks within Valora Retail and an academic institution respectively, to announce the CS activity in an effort to increase participation. Furthermore, personal networks such as Twitter and Facebook accounts were activated by posting the link to the CS project.

Finally in the preparation phase, the CS project team planned their resources for the upcoming execution and evaluation phases. Since the CS tasks were to be performed in addition to daily business, the CS project team anticipated and accepted an increase in workload.

### 3.4.3. Execution Phase

Over the course of the seven weeks in which the CS project ran, 626 ideas were generated, which significantly exceeded the expectations of Valora Retail. The first week saw the largest number of ideas submitted (233 ideas, or 37.2% of the total), but a steady stream continued during the following six weeks until conclusion of the execution phase (see Figure 9 below).
Figure 9: Number of ideas generated by week, showing that 37.2% of ideas were submitted the first week.

As is characteristic for the crowdsourcing process, the ideas arrived in no particular order and in a very wide range of quality, meaning that both the quality and length of the idea text varied, as well as the quality of the idea content. In general it can be stated that the ideas displayed a wide breadth, i.e. there was a wide range of ideas that had never occurred to the retail professionals at Valora Retail or the IT specialists supporting them.

At the start of the project, the CS team had decided to use the ranking system which the CS intermediary company provides as a standard for both innovators and moderators since it provided good support for analysis as well as transparency for innovators.

The tool supplied by the CS intermediary supports a ranking scale from 5 (best) to 1 (worst) and the CS team defined these numbers as follows:

- 5 = very good idea and contains Web 2.0 component (idea is relevant to the “Kiosk of the Future” project)
- 4 = good idea and contains Web 2.0 component (idea is relevant to the “Kiosk of the Future” project)
Crowdsourcing for “Kiosk of the Future”

- 3 = good idea, but does not contain Web 2.0 component idea is relevant for Valora, but not to the “Kiosk of the Future” project

- 1 & 2 = “bad idea”, i.e. ideas that did not correspond to the published criteria and were not relevant to Valora Retail

The CS team focused on ideas with a ranking of 4 or 5. Ideas with a ranking of 3 were not relevant to the “Kiosk of the Future” project, but they were identified as being potentially valuable for other departments within Valora Retail and were forwarded to them. Since the ranking activity was time-consuming and took several clicks per idea, ideas that were assessed to be 1 or 2 were not ranked at all.

The CS intermediary company had designed the ranking system to be used during the idea submission phase as well as at the end of the project. Since the innovators were motivated by the monetary reward, the CS intermediary company recommended providing rankings during the idea generation process which would result in innovators adjusting the direction and type of their ideas accordingly. The CS team took advantage of this and rated the ideas during the idea generating phase.

In addition to providing rankings, the CS team commented on some ideas and highlighted which parts of each idea best matched the goals of Valora Retail. This was done to steer the ideas in the right direction. The CS team initiated no further interaction with the innovators, except for answering specific incoming questions.

In general, the activity level of the platform was much higher than had been expected by Valora Retail and the CS team. One measure of the activity is the number of rankings and comments that the innovators initiated. Ranking by the innovators was very active, as they could thereby earn Atizo “seniority” points, which gave them recognition and status in the community. Thanks to their active participation, 444 of the 626 ideas were ranked (70.9%). The CS team read all the ideas but only ranked the ones with a 3, 4 or 5 or higher, resulting in only 208 ranked ideas (33.2%). And an astonishing 480 ideas (76.7%) had comments attached by other innovators.

During the rating of the ideas, many repetitions and ideas building on each were discovered. This presented an unexpected and significant amount of work for the CS team. What made their job a bit easier was that innovators were eager for their idea to win, and innovators would watch each other
carefully for duplicate ideas and, when detected, would link from the duplicate idea to their own original idea in the comment field. Interestingly, some innovators developed a repartee, as evidenced in some of the back-and-forth commenting that some ideas provoked. In one instance an innovator enhanced an existing idea, which was then commented on and enhanced some more by the innovator of the original idea with both of them agreeing (via the comment field) that they would split any money awarded to either idea. Such internal agreements aside, the official Atizo policy is to award the chronologically first idea of a group of similar ideas, unless a following idea contributes a significant improvement on the original idea, in which case the monetary award would need to be split.

The number of ideas submitted, the duplications and the need for several clicks per rating meant that the CS team had to invest more time than had been planned for this phase. Consequently, a few actions that might have increased the quality of ideas, such as dialogues with the innovators, could not be performed simply due to a lack of time.

### 3.4.4. Assessment Phase

Upon termination of the virtual idea generation during the execution phase, the CS team carefully analyzed the submitted ideas. Of all the ideas submitted, 60% were not considered relevant to Valora Retail and therefore not ranked. From the further 204 ideas (33%), 140 ideas (22%) were estimated to be relevant to Valora Retail, but not relevant to the project “Kiosk of the Future”. Therefore, only 64 ideas were assessed as being relevant to the “Kiosk of the Future” project and of those, 19 were rewarded and considered for further analysis and processing (see Figure 10 below).

The CS intermediary company gave the moderators two weeks after conclusion of the idea generation phase to sort through the comments and reward the 3000 CHF to the innovators. The CS intermediary company does not prescribe how to distribute the money, but two basic models were considered: dividing the reward evenly, or giving a larger amount to the top ideas. Since rewards are expected (Galli 2010), the CS team decided to reward the top two ideas with a larger amount, 400 CHF, and equally distribute the remaining reward to gain the innovators’ goodwill towards CS and possibly the Kiosk brand.
Following this step the Valora Retail and the CS team were free to use the ideas individually or in any combination, since the innovators ceded their rights to their submitted ideas at the conclusion of the CS process.

3.4.5. Post-processing Phase

After the ranking of ideas, the CS team grouped all 626 ideas by category. Interestingly, the vast majority of ideas could be clustered into just seven topic areas, with a few ideas spanning more than one category (number of ideas in parentheses): 1) Products and services (222), 2) Public displays and terminals (131), 3) Mobile offerings (75), 4) Intersection of physical store with digital information (74), 5) Pickup services (73), 6) Payment (26) and 7) Games (16). A further 69 ideas were uncategorized, since they were judged to be irrelevant to the project. For a summary, see also Figure 11 below.

The distribution of the ideas was taken to show a trend and an emphasis of topics and was welcomed by Valora Retail as confirmation that several ongoing projects were on the right track, e.g. a public display test.
These categories were further processed by prioritizing them according to their alignment to the Valora Retail strategy, and some were removed due to existing projects (e.g. payment) or lack of internal support (e.g. pickup services). Thus, the CS team entered the second phase of idea evaluation and validation with four categories:

1) Displays,

2) Products and services,

3) Intersection of physical store with digital information and

4) Games, both digital and non-digital.

The CS team prepared the 14 top ideas from these four categories for a selection workshop, which was conducted with an “idea jury” made up of stakeholders from different departments of Valora Retail (Strategic Marketing, Corporate Communications, Kiosk Management, and Conception & Construction Management). In preparation, the CS team described each idea in detail and proposed a ranking based on market impact and implementation complexity and gave a recommendation (see Figure 12 below).
For example, in category 1) Displays, the idea “digital pin board” (Figure 12, star “1”), was judged to have a high market impact but to be easy to implement and thus was recommended by the CS team for implementation. By contrast, the idea “Tryvertising”, where customers could belong to a club that would be given first access to new products, was rated as moderately complex due to logistical considerations (Figure 12, star “2”). The idea of sending a short message via Twitter for each sale conducted was a favorite in the CS team, but was rated to have a low impact with high implementation complexity (Figure 12, star “3”). In the games category, a treasure hunt (Geocaching) would be moderately difficult to implement, yet have a high impact (Figure 12, star “4”).

These assessments by the CS team were provided to the workshop participants, who were asked to prepare for the workshop by evaluating each idea along a matrix of criteria: customer acceptance, alignment with company vision, alignment with Kiosk strategy, uniqueness and “coolness”, implementation complexity, potential impact in the media, the ability to multiply the idea across multiple kiosks and high revenue potential (see Figure 13 below).

The individual evaluations were discussed by the “idea jury” and their ratings were gathered during the workshop. In the discussion, the jury very early determined that there was a need to examine some ideas in a more controlled lab setting and that some ideas needed to be implemented in an actual kiosk to be understood. Thus, a small number of the top ideas from the CS process (ranked 4 or 5) were seen as interesting ideas, but impossible to execute due to technological, logistical or business constraints and were put aside to be
tested in a lab setting. Of the others, through the rating process, the jury produced four clear favorite ideas which were selected for implementation.

These four top ideas from the CS process were combined with other ideas originating from internal Valora Retail teams which had been working on the project or generated during internal workshops including external experts. From those three sources, a total of seven ideas were chosen for implementation in the “Kiosk of the Future”.

3.5. Discussion

This case study demonstrated how successful the CS approach can be as part of an OI process by bringing in ideas that would not have arisen from within the company due to internal barriers. A few lessons learned along the way are summarized here.

3.5.1. Expert knowledge in the CS team

Expert knowledge is needed in the team for the deliberation and preparation phases, as well as the assessment and post-processing. In the early phases, a careful preparation helps ensure a successful outcome of the project. In the assessment of the ideas, a strong domain knowledge and knowledge of the business proved valuable in gaining the most from both the ideas that were central to the project but also in order to know which ideas might be usefully passed on to interested departments. Finally, the post-processing and implementation require a deep understanding of the business processes involved.
3.5.2. Question Formulation

The quality of ideas generated in a CS process rests to a large degree on the careful and precise wording of the question posed to the innovators. Drafts of the question were sent out for review and refined iteratively until the majority of reviewers had the same understanding of the written question as the CS team was hoping to transmit.

In formulating the question (and later in assessing the ideas generated) a certain technological bias of the innovator population must be assumed since a fairly high level of computer literacy as well as an affinity for technology is required to be involved in a CS platform at this point in time.

3.5.3. Budgeting Time and Effort

Monitoring the ideas during the active idea generation phase and the guiding of the innovators through ongoing ranking and commenting took a much larger amount of time than expected.

It is worth noting that while most innovators aimed to have original ideas so that they would be, chronologically, the first one to post the idea and thus reap the reward, the ideas were still remarkably similar and hard to distinguish from each other if looked at from an implementation or business perspective (i.e. while two ideas might look different in their wording, in a real-world implementation they would just be two features in one program). The similarity of the ideas made for quite repetitive reading for the CS team. However, this did allow a clear categorization of the ideas into only four categories and within those, a clear identification of the favorite topics: public displays and the intersection of the physical store with digital information.

The final number of ideas generated during the CS process described in this case study was higher than expected and consequently required a much larger effort to categorize and rank than had been budgeted. Thus the assessment phase was longer in duration than had been planned. If more time had been available, it would have been productive to initiate a dialogue with innovators providing the top ideas. More time should have been allocated in the resource planning phase. Best practices indicate that an increase in workload should be planned at the outset of the project and during the first four weeks where the bulk of the ideas are generated (Muhdi et al 2010).
3.5.4. The Public Nature of CS

A clear difference in focus exists between the phases of idea generation and assessment on the one hand and post-processing on the other. On a CS platform that is open to the public, both idea generation and assessment are therefore visible to the public. As such, the conduct of the company needs to be aligned with corporate policy, as well as communication strategies. The involvement of the communication department is particularly important since the ideas are visible to the press and might be re-printed, which happened during the project described in this chapter (Vogel 2010). The process of selecting and rewarding the top ideas needs to be understood by the public. This might lead, for example, to rewarding a great idea, even if it is clear to the CS team that the idea cannot be implemented due to company-internal constraints or strategies.

3.5.5. Post-Processing

As public as the idea generation and assessment phases are, the opposite is true of the post-processing phase. Here the best ideas from the CS process become just one of the inputs into a larger discussion of what ideas to implement and how. In this stage, ideas might be joined into a larger idea or mixed with concepts developed independent of the CS process. At this point, cross-department workshops are advisable in which people with diverse viewpoints assess the business-aspects of implementing the ideas.

Regardless of the publicly awarded “best” ideas from the CS process, the decision of whether and how they fit into the business is solely in the domain of the company. Thus in the presented case, of the 626 ideas generated, 64 ideas were relevant to the project, and while 19 were awarded, in the end 4 were taken into the next steps of implementation. While this number is small, they were chosen from a large idea pool which was iteratively narrowed by different criteria and increasingly larger groups at Valora.

The remaining 4 ideas were the highly condensed result of the process. In a sense, all the ideas not used were still useful in providing weight and selection. Also, since those ideas were grouped into categories, the top two categories gave weight to the ideas chosen that represented those categories: public displays and the customer interest in the intersection between the physical store and digital information.
3.5.6. Implementation

The four ideas generated during the CS process had broad support in all the teams involved in the CS process and were seen as viable and interesting business options for the “Kiosk of the Future”. Those four ideas were combined with three additional ideas generated within Valora Retail (but outside the CS process) to form seven ideas meant to be developed into concepts and finally to be implemented in the “Kiosk of the Future”. However, a few weeks after conclusion of the CS project, during the planning phase for concept development and implementation, the CEO who had been supportive of the “Kiosk of the Future” project left abruptly and was replaced by a CEO, whose main focus was cost-cutting and international expansion, placing a low priority on innovation.

As a result, the entire “Kiosk of the Future”, with all its aspects was terminated. In effect, not just were the CS ideas not developed further, but the plans to rebuild the store were stopped and the parallel project “Kiosk 2.0” was terminated.

3.6. Conclusion

This case study details the process by which the top ideas were chosen and clearly demonstrates a successful application of Crowdsourcing for idea generation for the early innovation process. It was reported that the achieved outcome of this project would unlikely have originated from the company itself due to high internal barriers.

In total, the CS process generated 626 ideas for Valora Retail over the space of seven weeks through a CS intermediary. Having access to an existing community of innovators allowed for a quick start of the project, which produced 19 top ideas that were selected and awarded during the assessment phase. These ideas were refined in the post-processing phase, resulting in four ideas ready for implementation in the “Kiosk of the Future”, though in the end, a top-level management change halted the project, as described above in section 3.5.6.

Regardless of the final outcome, this was a successful CS project for Valora Retail, and in addition to producing four ideas for implementation, the project also fulfilled the stated goal of Valora Retail to gain a better understanding of this important Web 2.0 technology. After the project concluded, Valora
embraced CS as a valid method for idea generation and has since launched several further projects.

The next section discusses the use of SNS for product brand pages, another dominant Web 2.0 technology in retail.
4. Management of a Social Media Brand Page

Of the three dominant Web 2.0 technologies in retail defined in the introductory chapter – crowdsourcing, social networks and advertising with user-generated content – the next one to be examined is the use of social networks as a communications platform between retailers and brand owners on the one hand and consumers on the other (see 1.1 “Motivation”). When consumers discuss a brand or a product on Facebook brand pages, this is considered a form of word-of-mouth (WOM) in the retail and marketing business. However, Facebook itself, and retailers attempting to manage the WOM on this platform, is new enough that no academic literature exists which links brand page activities to an increase of sales. Regardless of this, major as well as minor brands are rushing to participate on this new platform, even if the tangible benefits are still unproven, just in order not to be left out (see also 2.3 “Social Networks”).

The research described in this chapter rests on work performed with Valora Retail in setting up and moderating their Facebook brand page for the ok.-brand described in 1.4.2 “Private Label Consumer Goods”. This research, together with Florian Michahelles and Irena Pletikosa is ongoing and is planned to be submitted in addition to the following publications: “The Effect of Post Type, Category and Posting Day on User Interaction Level on Facebook” (Pletikosa, Dubach Spiegler, Michahelles 2011a), and “Understanding Social Media Marketing: A Case Study on Topics, Categories and Sentiment on a Facebook Brand Page” (Pletikosa, Michahelles 2011b), and “A Case Study of the Effects of Moderator Posts within a Facebook Brand Page” (Pletikosa, Michahelles 2011c). Research for these publications and parts of the text is included in this chapter, but in general is not further demarcated in the text, except for where specific results are quoted.

This chapter introduces the topic of Facebook brand pages, their management and moderation, with the data gathered during the collaboration with Valora Retail described as a case study. The findings result in a proposed brand page management model (BP-MM). The implications for research and the retail business are described in the concluding section of this chapter.
4.1. Introduction

The rise and continued growth of social networks (SNS) (see also 2.3 “Social Networks”) have attracted the interest of retailers who see the potential to transmit their brand messages to customers, enter into a dialogue with them using WOM principles and to use the SNS to gain a better understanding of their customers. This means that retailers and brand owners build up and moderate a SM brand page while continuously monitoring the consumers’ activities. This chapter describes Facebook brand pages in detail and gives an overview of interactions and measurements that occur on such a brand page.

4.1.1. Motivation

It is an indication of the newness of Facebook brand pages as a medium for retailers and brand owners that many different forms of interaction are being experimented with, sometimes with great success, e.g. Nutella found a communication tone that helped it become one of the most successful brands on Facebook, as measured by number of members (Figure 14 and Janke 2010).

Figure 14: Number of Facebook brand fans of various top brands (by January 2011) ¹⁰

<table>
<thead>
<tr>
<th>Brands</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coca-Cola</td>
<td>21'989'315.00</td>
</tr>
<tr>
<td>Starbucks</td>
<td>19'274'782.00</td>
</tr>
<tr>
<td>Oreo</td>
<td>16'401'818.00</td>
</tr>
<tr>
<td>Red Bull</td>
<td>14'922'637.00</td>
</tr>
<tr>
<td>Disney</td>
<td>14'848'019.00</td>
</tr>
<tr>
<td>Pringles</td>
<td>8'847'816.00</td>
</tr>
<tr>
<td>Monster Energy</td>
<td>8'190'283.00</td>
</tr>
<tr>
<td>Dr. Pepper</td>
<td>7'686'127.00</td>
</tr>
<tr>
<td>Nutella</td>
<td>7'447'679.00</td>
</tr>
</tbody>
</table>

¹⁰ Based on the number of Facebook fans per brand according to listing at http://fanpagelist.com, Jan 2011.
By contrast, poor understanding of the medium at Nestlé noticeably damaged the brand when a consumer post about the destruction caused by palm oil deforestation was answered by an official, but belligerent company representative.

The resulting flood of consumer reactions in support of the customer’s original post caused the discussion to be much more widely broadcast than would have otherwise been the case, ultimately being transported to mainstream media (Economist 2010, Fournier and Avery 2011).

All of these activities by retailers and brand owners and the customer’s responses to them are of high interest to the moderators of these sites and therefore subject to close examination in the form of measurements and use of analysis tools. Despite the various efforts from the companies and the general popularity of the medium, measuring the effectiveness is elusive (Shankar and Hollinger 2007).

Some small cases have been reported, such as the Houston bakery chain that increased customer frequency in their stores thanks to their carefully managed Facebook advertising campaigns (Dholakia and Durham 2010), and an experiment regarding the effectiveness of company-driven WOM communication showed that this does increase sales (Godes and Mayzlin 2009).

However, a structured, academic analysis is still outstanding at the time of writing. The promise of this new medium warrants a closer look, beginning with a definition of what a Facebook brand page is, given below.

4.1.2. An Overview of Facebook and Facebook Brand Pages

In the context of social networks, customers receive brand messages or advertising in two main ways: advertisements and “brand pages”. In Facebook, advertisements are placed in the side-bar of the page the users are viewing, and they resemble any other online ad that is not specific to social networks.

However, the advertising content might be better tailored to the user, since Facebook has extensive information about each user at its disposal. These advertisements are relatively passive – relying on measuring how often customers look at them and how many click on them as indicators for success.

In contrast, brand pages offer the opportunity for a more active engagement, both on the side of the retailer as well as the customer, who can actively
become members of a company’s brand page. These brand pages are initiated and operated by retailers and manufacturer’s brands and allow – depending on setup – a direct communication from retailers to the consumers or a true dialogue.

Consumers who become “members” of a brand page are often also referred to as “fans”. In order to better explain the terminology used in this chapter, the main activities available to users of a Facebook brand page will be described here. It is important to note that this must be considered a snapshot of the current status, which is subject to change due to decisions taken unilaterally by the Facebook Inc. as an example, the current official Facebook terminology “like pages”, which in turn used to be “fan pages”.

The terminology “brand pages” instead of “like pages” is in current use in the literature relevant to retailers in order to distinguish pages operated by retailers or brand owners from those pages initiated by other users. This convention is also followed throughout this dissertation.

The descriptions below aim to disentangle the terminology used for the remainder of this chapter using the current definitions from Facebook.

What Users Do On Facebook

Facebook users can create profiles for themselves in which they post photos, current thoughts or their status and personal interests or other personal information. Connecting with other users is termed “adding friends”, which creates a list of people who have privileged access to the different items on a user’s profile site. Built-in communication features allow users to send private or public messages or to chat. The user determines which messages are seen only by one intended recipient or by all friends.

The Facebook Wall: Posts, Photos, Videos and Likes

A central feature of Facebook is the first screen that is presented to the user at login: the ”wall” is the landing page where users are given different options and features, but mainly receive updates and news from friends, like pages and brand pages (see Figure 15 below).

11 http://www.facebook.com/help
Figure 15: Example of a Facebook “wall” with (from the top): a personal post, a message from the ok.- brand page, a status update from a friend and post with a link to a web page from a friend.

On the main area of the wall, a continuous stream of messages and photos appears, as they are posted by friends or like pages resulting in different sources of messages that can be found on a users’ wall and which appear in chronological order. Different message types exist:

- **Wall-to-Wall** messages are posted directly by a friend and are seen on the wall of a user (e.g. see first post in Figure 15 above).

- **Messages from “Like Pages”** are continuously posted on a user’s wall (e.g. see second post in Figure 15 above).

- **Status updates** generated automatically by Facebook to show activities of a friend (e.g. see third post in Figure 15 above).
• **Public messages** posted by a user show up on the wall of all their friends, which can be any form of text message, a picture, and a video or often a link to a web page (e.g. see last post in Figure 15 above).

No message type receives special treatment, so they all appear in the same format with a small square picture on the left, the name on the top in blue and the message content below.

The content of these posts can be text only, text with a link to a web page (optionally with a photo or screen shot from the destination page), a photo or a video. In response a user can react to these posts that appear on their own wall, on the wall of friends or on a like page by posting a “comment”, or pressing a “Like” button to indicate appreciation for the content. These comments or posts in turn are visible to all who subsequently look at that content. In addition, it is possible to “share” content with friends. These features of an apparent dialogue with friends and like-minded people around a piece of content are one of the main attractions of Facebook.

**Like Pages and Brand Pages**

Any user can create an interest group of any type by starting their own “like page”, with which they become “Administrators” of that page. Administrators can post to the wall of the like pages, but also remove any posts they choose, add sub-categories to the page, or add applications. In addition, through a tool provided by Facebook (called “Facebook Insights”), administrators have access to high-level data about the users who are members of the like page as well as summaries of activities (e.g. how many people commented on the page in the past week).

Importantly, the administrators also set the policy of what communications are allowed on their like pages. They can allow open access, which permits any member of the like page to post to the wall of the like page, or they can restrict access, allowing members only to respond to posts from the administrator, but not initiate any posts. Since the choice of which policy to implement has a large influence on the tone and style of a like page, it is part of the discussion of this chapter.

An administrator is the owner of a like page, though this role can be shared by several people. Similarly, the person creating content for a like page is referred to as the “moderator”, though also here this role can be held by multiple people. As with the policy-setting mentioned above, the content created for a
page determines the character of the page and is thus discussed in greater detail below.

A like page can have any number of members, and interested users can join a like page by pressing a button at the top of the page called “like”. By doing this, the user becomes a member and will see posts generated by the moderators of the like page on their own “wall” (see Figure 15 above).

The distinction between “like pages” and “brand pages” is not a technical one, but rather one of intent and ownership. As mentioned, any user can create a “like” page, and therefore there are many examples of such pages, e.g. online activism (“I bet we can find 1,000,000 people who want Japan to stop killing whales”12) or frivolous like pages (“I don’t want someone perfect in my life I just want…”13).

However, for pages created by brand owners for their brand, the convention to refer to these pages as “brand pages” has established itself in an effort to distinguish them from like pages. These brand pages are in focus for retailers, though a survey of existing like pages that reference the brand in question is necessary too and discussed below.

In order to better understand the data gathered and analyzed, the next section gives a detailed description of the Facebook brand page that was created for the ok.- brand.

### 4.1.3. Description of the Facebook Brand Page okPunktStrich

The Facebook brand page for the ok.- brand was set up in March 2010 and quickly acquired the necessary number of fans (5000 at the time) in order to get a dedicated URL. For this, a “translation” of the punctuation used in the ok.- brand was chosen, resulting in okPunktStrich. Correspondingly, the URL applied for and received was www.facebook.com/okPunktStrich.

Organizationally, the moderation of the ok.- brand page was one of the tasks of a member of the strategic marketing team (Mr. Dominic Stöcklin), but under close supervision and direction from different management functions.

\[12 \text{http://www.facebook.com/group.php?gid=291599004314} \]
From the launch of the ok.- brand page, the number of members steadily increased, resulting in an active dialogue on the wall of the brand page (see Figure 16 above). While the number of members of a brand page is not the only measure of success, it is a common basis upon which brand pages are compared and in the case of the ok.- brand page; this indicator was frequently quoted by Valora Retail as a sign of success. In addition to the number of fans, other numbers, such as posts, comments, “likes” and photo uploads, were used as measures to track the activities and resonance of the ok.- brand page. These are discussed in the sections below.

Our findings will indicate that the key to an active and engaged dialogue between consumers and the retailer or brand owner is high-quality moderation of the Facebook brand page. While many articles can be found on the Internet that promise “10 tips for success” and similar recommendations,
the academic literature does not yet document research on this topic. This chapter aims to develop a model for successfully moderating a Facebook brand page, using the format of a case study as a basis.

### 4.2. Methodology

The case study presented in this chapter is based on the work performed for Valora Retail in the course of planning, setting up and running the ok.- Facebook brand page. The case study precisely describes each step taken by Valora Retail, and results in the presentation of a process model that details the steps necessary for moderating a Facebook brand page.

#### 4.2.1. Case Study

The data collected for this case study spans the time from January 2010 to February 2011. The deliberation and preparation phases lasted 10 weeks, from January 2010 to March 2010, with the launch of the ok.- Fan Page on 2 March 2010. The Facebook data presented in this chapter was gathered for one year from March 2010 to February 2011, at which point the ok.- Facebook brand page had 38’706 users (on 28.2.2011). During this time, 134 posts were published by the moderator team and users published 625 posts, a total of 759 posts. These posts represent part of the data examined in this case study.

Valora Retail worked closely with the research team in planning, setting up and moderating the ok.- Facebook brand page described in this chapter. The data gathered during this time consists of both quantitative and qualitative data. The quantitative data was gathered from Facebook through Facebook Insights\(^{14}\), the analysis tool provided by Facebook and the Facebook Graph API\(^{15}\). The qualitative data consists of extensive notes, presentations and Valora-internal documents as well as public documents. These data sources are described below.

---

4.2.2. Quantitative Data

Facebook Insights

Any administrator of a brand page or a Facebook “Like” page is provided with an analysis tool that is built into Facebook, currently called “Facebook Insights”. This tool allows high-level analysis of the brand page and gives an overview of important member and usage statistics over the entire duration of the brand page.

Facebook Insights provides metrics, trend analysis, consumption and creation of content. For example the different activities are detailed showing which content is accessed how often. Most importantly, Facebook Insights provides data on the members’ demographics: Gender, Age group, country of origin, city and language. This information is presented in user-friendly graphs with options for examining specific time frames (see Figure 17 below).

![Figure 17: Facebook Insights for member demographics of ok.- Facebook brand page (screen shot for duration of March 2010 to February 2011)]
Facebook Insights provides data on member demographics and activities that cannot be gained any other way. However, the tool has several drawbacks:

1) The features of Facebook Insights are controlled by Facebook. A change in policy can mean that a metric that was considered important by the administrator or moderator is no longer available.

2) The Facebook dataset has shown repeated gaps and errors which show up in the Facebook Insights tool.

3) Certain key questions cannot be answered with Facebook Insights. Chief among them are that the “Likes” from page members are only shown cumulatively, i.e. no breakdown based on a timeline is available. And secondly, reactions to photos are not differentiated.

All of these shortcomings were worked around by using the open Facebook Graph API, described below.

**Facebook Graph API**

To gain a deeper understanding of the ok.- Facebook brand page than the data available through Facebook Insights, the research team used the Facebook Graph API, to access page data and store it in a relational database outside of Facebook and under the control of the research team. Use of the Facebook Graph API is described in detail here (Pletikosa, Dubach Spiegler et al. 2011a).

The Facebook Graph API provides access to the Facebook social graph via a uniform representation of the graph objects (e.g., people, pages, etc.) and the connections between them. The data is returned as a “Page” object, and the research team used the “Feed” connection of this Page object. This Feed provided the following information about posts from the Facebook brand page: (1) the message, (2) the post type, (3) number of likes, (4) number of comments, (5) creation time and (6) time of last interaction. All elements extracted from the Facebook Graph API were stored in a relational database for further investigation.

The primary dataset used for this study consists of posts on the ok.- Facebook brand page. The data collection was performed on a daily basis to guarantee accuracy of the data, which was not always given through Facebook Insights, and at the same time ensured independence from potentially changing Facebook policies. This measure was employed from July 2010 to date, and data from the official launch of the ok.- brand page in March 2010 to July 2010
were fetched retroactively to ensure a complete data set for this case study. For the selected period of time, 120 moderator posts were gathered (average of 0.33 posts per day). In order to be able to compare the performance of the ok.- brand page in comparison to national and international competitors, data from an additional 14 Facebook brand pages was collected over the course of four months, from February 2011 to June 2011. This resulted in an additional 1494 posts available for analysis. The selection criteria for these comparison brand pages and the data gathered are discussed in detail in the section 4.3.4 “Evaluation” below.

4.2.3. Qualitative Data

For the qualitative data, careful notes were taken throughout the different phases of deliberation, preparation, execution, monitoring and evaluation, documenting the steps and decisions taken and actors involved. Detailed logging of events took place, which allowed a precise mapping of the different activities to the methodology chosen. This manner of gathering data facilitated summarizing the insights and “lessons learned” which are presented further below.

Additional information comes from presentations which were prepared by the moderator team for Valora-internal meetings, as well as the following documents produced by the Valora Retail Strategic Marketing: 1) “Social Media Report” which was sent out monthly for the duration of this case study, 2) “Social Media How To” published February 2011 and 3) “Social Media Content Management” which consisted of a spreadsheet detailing moderator activities and measured reactions.

Both the quantitative and qualitative data gathered are presented and analyzed in the section below.

4.3. Social Media Brand Page Case Study

This section is a description of the different steps taken by Valora Retail in the setup of the ok.- Facebook brand page and actions taken during its operation, presented in the format of a case study.

This section follows the chronological timeline within which the events occurred during the project, which are grouped into the following steps: 1) initial considerations, 2) preparation, 3) moderating and monitoring
management of a social media brand page

(execution), and 4) evaluation. Each step described below not only lists the actions taken, but also shows in detail what methods, processes and analyses were used by the ok.- brand page moderator team and the researchers involved.

4.3.1. Initial Considerations

Management Commitment
The initial discussions within Valora Retail regarding participation on Facebook – held by the brand owner of ok.- (Jörg Brun), the head of projects and processes (Carlo Zanatta) and their manager, the head of all kiosks (Patrick Stäuble). They centered around two questions: how to launch a page, and what the focus of the page should be. Interestingly, there was little debate about whether a page should be started in the first place. Rather, a consensus existed, that Valora Retail needed to gain experience in this domain since major consumer brands were starting to establish a significant presence on Facebook. In that spirit, the initiative of strategic marketing (mainly Dominic Stöcklin) was the driving force behind the launch, and his suggestions were presented to the stakeholders and top-level management who accepted them and followed them as presented.

Definition of Stakeholders and Moderator Team
Once management commitment had been obtained, a more formal organization was formed, including those actors who had been involved to date, and management from strategic marketing and communication was added. Thus, the extended team was made up of stakeholders, the core Facebook moderation team consisted of the person in Valora Retail who had been the main driver in the initial discussions (Dominic Stöcklin), supported by the ETH doctoral candidate writing this dissertation:

Stakeholders at Valora Retail:
- Patrick Stäuble Head of k Kiosk
- Carlo Zanatta Head of Projects and Process Management
- Jörg Brun Head of avec. and Category Management, ok.- Brand Owner
- Sonia Hürliman Head of Strategic Marketing
- Stefania Misteli Head of Communications
Initially, the stakeholders and moderation team met and emailed frequently to discuss key points, for example the brand page objectives described below. Further roles and tasks of the stakeholders and the moderation team are explained throughout this chapter.

**Brand Page Objectives**

The point that did generate numerous discussions was the question of which brand to put on Facebook. The holding company Valora owns several brands – k kiosk, avec., P & B, Spettacolo, as well as the ok.- range of private label products – all of which were discussed as candidates for a Facebook brand page. The argument was made on the one hand that all brands should be represented.

On the other hand the newness of the medium weighed in favor of launching one brand as an experiment first. This last argument dominated and it was decided to use the ok.- brand first, due to the fact that the brand at that time was still new and the risk was thus perceived as being lower, and also because the young demographics of the brand were a good match with the demographics of Facebook users.

In characteristic style for such “bottom-up” projects, no formal objectives were gathered, nor was there a formal organizational planning process. The lead was given to the strategic marketing department as a natural result of their taking the initiative from the outset.

**4.3.2. Preparation for Social Network Brand Launch**

Due to the experimental nature of the ok.- Facebook brand page and the novelty of the medium, risks were frequently discussed by the management team. The uncontrollable nature of UGC was a dominant topic, which resulted in the definition of an emergency escalation path, as well as basic guidelines for the tone of the moderator and a first definition of moderator responsibilities in the form of “operating hours”. These points are discussed below.
Risk Analysis and Countermeasures

In discussions with the stakeholders, several scenarios were identified that posed a risk to the ok.- brand and Valora as a company. Here a few example scenarios:

- An incident occurs and media reports trigger a flood of negative posts on the ok.- Facebook brand page as a reaction from customers
- A member posts a message (fictional or factual): “My sister drank an ok.- Energy Drink last night and ended up needing to go to the hospital.”
- The ok.- Facebook brand page is misused for a call to boycott or similar activism.

The moderator core team defined an escalation plan which would take effect in such scenarios as well as similar but unforeseen events. They coordinated the planned escalations with the stakeholders, brand owner and the communications department. All parties formally approved the proposed escalation plan.

Specifically, the escalation plan covered two risk types: 1) mentions of the ok.- brand page in the press and 2) content on the ok.- brand page that poses a communication or brand risk. For the mentions in the press, the ok.- brand owners and communications department would be responsible for notifying the moderator team, who were required to monitor the ok.- brand page more closely for customer reactions and if necessary alert the person responsible for the press article in question (either the brand owner or the communications department).

For the second scenario, the moderator team was responsible for alerting the appropriate department and either reacting directly to the content on the brand page – according to direction from the responsible department – or entirely handing control over to the responsible department.

Since Facebook as a medium for consumer contact was new to Valora Retail, these preparations and discussions around the risks of the ok.- Facebook brand page proved to be necessary and important steps in gaining management support. However, up to the date of writing, no incident has occurred that required use of the escalation plan.
Operational Hours

In setting the policy for the ok.- Facebook brand page, two topics dominated the conversation: first the appropriate “operating hours” for the moderator, in view of the fact that there was only one moderator employed by Valora Retail, working under the conditions of normal office working hours. And, second, the content types and conversational tone for the brand page needed to be defined. The first is described in this section, the second one below.

The core moderator team as well as the stakeholders grappled with the question of what the operational hours of the moderation should be. Given the always-on nature of Facebook and the Internet, the ideal of having a continuous moderator presence for 24 hours a day and 7 days a week, was quickly identified. However, this was also immediately rejected as being unrealistic given the Valora Retail staffing situation, where the moderator consisted of one person working a 42.5-hour work week during office hours in accordance with the Swiss norm.

The desire for continuous monitoring to reduce the risks of the above-mentioned scenarios thus needed to be balanced against the staff working hours. Those in turn were closely related to the normal posting rhythms of the Facebook brand page members, which were unknown at the outset.

Ultimately, a compromise was reached, where active moderation took place mainly during normal working hours, but the moderator team frequently checked the ok.- brand page after work hours and on weekends, especially in the first months of operation. This was certainly a factor in the success of the page and greatly facilitated by the fact that Facebook is accessible on the mobile smart phones, which were in frequent use by the moderator team.

By July 2010, the first months of moderating the ok.- brand page had passed without any incident requiring emergency intervention. Additionally, it became clear that the majority of activity on the page took place during the week. Correspondingly, the moderators increasingly restricted their activities to normal office hours.

Conversational Tone and Content Guidelines

The moderator team early on attempted to define a conversational tone for the ok.- Facebook brand page, in order to ensure consistency over time as well as across moderators. In establishing the “Rules of Communication” described below, an effort was made to be compatible with the ok.- brand; i.e. address a
young demographic and carry the message of “affordable products at good quality”. From this, the “Ten Golden Rules of Communication” were defined in Table 2, below:

1. We always first listen
2. We address users informally
3. We are always polite to fans and group members
4. We promote an active dialogue with our fans and group members
5. We process each contribution and each question of our fans and group members
6. We generate value for our fans and group members
7. We only communicate when we have something to say
8. We are always authentic
9. We communicate quickly and authentically
10. We make use of emotional topics

**Table 2: Rules of Communication as defined by the Valora Retail moderator team for the ok.- Facebook brand page**

The stated goal for the moderators was to post approximately 10 contributions per month to the wall of the ok.- Facebook brand page. This explicitly referred to top-level wall posts and excluded the responses to either the members of the brand page. For these responses, a maximum answer-time of 24 hours was defined, excluding weekends.

In the beginning stages, the content guidelines were for internal use only and defined which content would be deleted (personal promotions, 3rd-party advertising, obscenities, defamation, personal attacks, derogatory and inflammatory speech). But at the same time it was clearly stated that in an effort to show that the ok.- brand stood for authenticity, no user posts would be edited, and negative posts or posts critical of the products would not be deleted.

Eventually, a “Netiquette” was developed for the ok.- Facebook brand page during the execution phase since the need for it only became apparent then. The moderators realized that pointing to a published guideline was a clearer and less inflammatory way to approach posters who were in violation of the
guidelines, rather than addressing each violation personally. The moderator team realized after it was established, that the Netiquette should have been defined earlier in the process and not only during execution. This learning will be taken into consideration for the proposed Brand Page Management Model.

For daily moderation activities, a flow chart was designed which guided the responses to member posts (see Figure 18 below). This chart was directly based on the US Army Social Media Handbook which is publicly available (US Army 2011).

![Flow-chart to assist communication decisions. Adapted by Valora Retail from the US Army Social Media Handbook (US Army 2011, Valora Retail 2011).](image)

Initially, a 100% response rate was defined as desirable, meaning that if possible, a comment or answer was formulated for every member post. This guideline was seen as critical in initiating a steady flow of activity on the brand page in the early weeks of operations. As more members joined the brand page and the conversation volume increased, the moderators increasingly reduced their interactions to responding to questions and suggestions and occasionally posting animating questions, contests, announcements, etc., rather than responding to each and every member post.
Integration with Existing Brand Concepts, Communications and Marketing Plans

From the start, the stakeholders and the moderator team worked towards a close integration of the ok.- Facebook brand page with existing concepts for the ok.- brand, as well as communication and marketing plans. The moderator team aimed for approximately two pre-designed posts per week, with incidental posts (e.g. “Enjoy the sunny weekend”), to add up to 10 posts per month. In these pre-designed and planned posts, product launches would be announced and reference made to ok.- advertising and articles appearing in traditional media.

The Figure 19 below shows the initial planning for the content with the different content types: Polls, Contests, product and store announcements and links or photos of advertisements in traditional media. In parallel, activities were planned that would use traditional media and advertising techniques to raise awareness of the ok.- Facebook brand page, such as linking from the main Valora web pages to the brand page, attaching stickers to ok.- products and adding the Facebook logo and URL to the brand page to ok.- advertisements.

Figure 19: Initial content plan for the ok.- Facebook brand page, showing close collaboration with the brand owner and communication department
Since the ok.- brand is only present in German-speaking Switzerland, the choice of standard German and Swiss German was pre-determined, in contrast to other brands which must choose whether to open a Facebook brand page for each language or country, or to have posts be multilingual.

In an effort to align the Facebook brand page as closely as possible to the ok.- brand, discussions around the naming of the page began early on in the process and involved the moderator team and the ok.- brand owner. The challenge with the ok.- brand is that the period and the dash are integral parts of the brand name and visual appearance of the brand (see also 1.4.2 “Private Label Consumer Goods”).

However, these characters are formally not acceptable within a URL, and thus the ok.- brand could not be used “as is”, resulting in two issues to be solved: 1) since the brand could not be used as trademarked, the trademark support of Facebook could not be called upon, and 2) the brand name without the period and the dash is just a generic “ok”, which is a common phrase in many languages and thus was not available as a URL nor distinct enough to be found easily in search engines.

The moderator team searched for multiple alternatives in an effort to satisfy 1) the technical requirements of URLs, 2) the availability of the proposed names on Facebook as well as other platforms such as Twitter\footnote{http://twitter.com/} and 3) the ok.- brand guidelines. After several rounds of discussion, the name was finally set to “okPunktStrich”, which is composed of the brand name with the punctuations spelled out in German (period translates to “Punkt” and dash to “Strich”). The result was a dedicated Facebook URL of www.facebook.com/okPunktStrich.

The chart in Figure 19 above also shows the preparation steps (“Vorbereitung”) and the scientific analysis (“Auswertung”), which were considered integral to the project. Part of the planning stage was dealing with other like pages that referred to ok.- products. This topic is treated separately in the next section.
Embrace Related “Like” Pages

The moderator team was familiar with examples of brands, such as Nutella, with dozens of “renegade” pages created by users and which were not under the control of the brand owner (see 2.3.3 “Brand Pages in Social Networks”). Therefore, in preparing for the ok.- Facebook brand page, the moderator team searched Facebook for “renegade” pages and other mentions of the ok.- brand.

Five of these “like pages” were discovered that had been initiated by users not related to Valora Retail, of which two were clearly inactive, but three were in use. This was taken as a good sign that the ok.- brand had a strong enough following to generate Facebook activities (see Figure 20 below).

Figure 20a: Example of one of the different “Fan” or “Like” Pages that were discovered for the popular ok.- Energy Drink, all of them set up by users not related to Valora Retail
Figure 20b: Examples of the different “Fan” or “Like” Pages that were discovered for the popular ok.- Energy Drink, all of them set up by users not related to Valora Retail
The moderator team debated the different alternatives for dealing with these “renegade” pages:

- Allow “like” pages related to the ok.- brand to continue without interruption or interference.

- Start the official ok.- Facebook brand page and post the link on the “unofficial” ok.- like pages in the hope that members of the unofficial pages would be interested in becoming members of the official page.

- Start the official ok.- Facebook brand page and ask the administrators of the “unofficial” ok.- like pages to post a link to the official brand page, in the hope that members of the unofficial pages would be interested in becoming members of the official page.

- Formally ask Facebook to disallow the unofficial pages by calling on official Trademark rules.

The last option was quickly rejected holding the risk of generating negative feelings towards the ok.- brand, and the first option of not taking advantage of the existing grass-roots activities around the ok.- brand was considered a lost opportunity. In the end, the moderator team wrote to the individual administrators, introduced themselves and asked them to post the link to the official ok.- Facebook brand page onto the wall of their like page. Two administrators did this and were personally thanked by the moderator team, though the effect on the ok.- Facebook brand cannot be measured, since the origin of any new members cannot be traced.

**Starting a Facebook Brand Page**

In opening a Facebook brand page, corporations and brand owners need to define if administrators should use their personal Facebook accounts for the registration, or if a generic “corporate” should account be defined. In the case of the ok.- brand page, the moderator team used their personal accounts since this is not visible to the members. However, the policy clearly stated that the moderators would lose their administrator rights upon termination of their employment contract with Valora.

With the definition of a Facebook brand page, it becomes instantly accessible and is ready for use. The moderator and member activities are detailed in the next section.
4.3.3. Social Network Moderating and Monitoring

After the preparations were completed, the ok.- Facebook brand page was launched and made public on 2 March 2010 with the welcoming post of “ok.- ist gut, günstig und jetzt online!” (“ok.- is good and a bargain and now online”), followed immediately by a product announcement for the new ok.- Latte Macchiato (“ok.- Latte Macchiato ist da!”). These were the first two posts of the 134 posts published by the moderator and the 625 posts published by users (total of 759 posts), which are examined in this case study.

The following describes both the actions performed by the moderator team, as well as the measurements taken of the responses and member activities. From the moderators’ point of view, there are two basic modes of interaction: proactive and reactive, both discussed below.

Proactive Moderator posts

Moderators have different options in creating posts that appear on the wall of their members. The different content types are polls, contests, product and store announcements, and links or photos of advertisements in traditional media, as well as serendipitous moderator posts, such as “Have a good weekend” or questions designed for entertainment (“designed question”).

Polls and Contests

Several polls were conducted and evaluated. The first one was a simple question to the members: “Which is your favorite ok.- product?” The post of the poll produced 4 likes, 42 comments and 6 further posts from members. The results of the poll showed a predictable distribution that mirrors the sales success of the top products:

1) ok.- Energy Drink (50%)
2) ok.- Energy Drink Exotic (14%)
3) ok.- Cookie (11%)
4) Further mentions: Beer, Chips, Energy Drink light, Ice Cream, Umbrella

The first contest run was the “ok.- Star” contest, which simultaneously was part of the Field Experiment described in Chapter 5 “In-Store Advertising with User-Generated Content”.

84
This contest asked members to come up with sentences that included “ok.-“ and mark the posts with an asterisk if they wanted the sentence displayed on screens in the kiosks. 52 sentences were submitted, and after a voting took place among the members, the winner and ok.-Super-Star received a gift package full of ok.- products for the sentence “One ok.-a day, keeps the dok.-ter away”.

After conclusion of the “ok.- Star” contest, the moderator team as well as some stakeholders raised concerns that this type of contest that requires members to post content might violate the Facebook guidelines. Since Facebook reserves the right to shut down pages that fail to comply with the guidelines, this type of contest was abandoned, even though it proved very popular. Instead, further contests were designed around a lottery-model for winning prizes such as ok.- mobile phones or cinema tickets. Analysis of the successes of polls and contests are presented below in the sections on monitoring and evaluation.

**Product and Advertisement Announcements**
A steady stream of product announcements and pre-announcements was posted by the moderators (see example in Figure 21 below). Some of the products were pre-announced to generate excitement, or a game was made out of letting members guess what the next flavor of energy drink would be.

![Figure 21: Screen shot of the announcement of a new ok.- product on the Facebook brand page which generated 42 “Likes” and 20 comments](image-url)
These posts were highly popular, but could not be generated by the moderator team without actual products being available for announcement. Similarly, posting links to advertisements in traditional media or articles about the brand was constrained by these events happening in the first place. In contrast, the “entertainment questions” below were fully under the control of the moderator team.

**Entertainment Questions and Serendipitous Moderator Posts**

In addition to announcements described above, the moderator team aimed to generate activity on the brand site by posting questions or comments. Comments often took the form of topical or situational posts regarding events, the weather or an upcoming holiday.

Further posts were designed in collaboration with the external advertising agency that was involved in the traditional advertisements of the ok.- brand. They generated a list of “strange” questions which the moderator team could choose from, such as: “Should a man and a woman no longer say ‘I do’ but rather say ‘ok.-’ when they get married?” or “Is it ok.- never to grow up?”. These posts were aimed at increasing associations with the brand ok.-.

In addition to these pro-active moderation described above, the moderator team watched the ok.- Facebook brand page for posts that required responses or were suitable for feedback. These are described in the next section.

**Reactive Moderation in Response to Consumers’ Content**

According to the conversational tone and content guidelines defined in the preparation phase, the moderator team aimed initially to respond to each member posting.

Two fundamental moderation tactics existed: to encourage the type of contributions that fit the ok.- brand and generated excitement or a sense of community, and in parallel discourage negative or destructive posts in accordance with the policy.
**Encourage Desired Contributions**

The moderator team responded positively or encouragingly to member posts that were themselves positive:

<table>
<thead>
<tr>
<th>Member post</th>
<th>Original post</th>
<th>English translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ich finde die o.k.- sind echt voll o.k ! =))</td>
<td>I find the o.k.- totally o.k. ! =))</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moderator response</th>
<th>Original post</th>
<th>English translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Besten Dank für das Kompliment. Das freut uns zu hören!</td>
<td>Thank you for the compliment. We are glad to hear it!</td>
<td></td>
</tr>
</tbody>
</table>

Posts that contained questions were answered factually and ideally with a sense of humor:

<table>
<thead>
<tr>
<th>Member post</th>
<th>Original post</th>
<th>English translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>oh ja noch eine Frage die warscheinlich bis heute nie geklärt wurde: sagt man eher &quot;ookaa&quot; oder eher &quot;okey&quot; (ich habe bis jetzt immer &quot;ookaa&quot; benutzt)</td>
<td>Oh yeah, one more question that probably has not been resolved until today: does one say more like “ookaa” or more like “okey” (up until now I’ve always used “ookaa”)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moderator response</th>
<th>Original post</th>
<th>English translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>bei uns werden auch beide Varianten verwendet, wobei die meisten okey ‘sagen.’</td>
<td>We also use both variations, but the most “say” okey.</td>
<td></td>
</tr>
</tbody>
</table>

A large number of posts were suggestions for products (149 posts, 24% of total) or sales suggestions (20 posts, 3% of total), which were also always acknowledged by the moderator team:

<table>
<thead>
<tr>
<th>Member post</th>
<th>Original post</th>
<th>English translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automaten wären echt eine gute Idee</td>
<td>Vending machines would totally be a good idea</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moderator response</th>
<th>Original post</th>
<th>English translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>So ok.- Automaten sind wirklich eine gute Idee! Müssen wir Mal den Kollegen erzählen...</td>
<td>Such ok.- vending machines really are a good idea! We’ll have to tell our colleagues.</td>
<td></td>
</tr>
</tbody>
</table>
These reinforcements were appreciated by the members of the Facebook brand page and sometimes also directly acknowledged, sometimes resulting in a dialogue, such as the following:

<table>
<thead>
<tr>
<th>Member post</th>
<th>Original post</th>
<th>English translation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gibt's die Schirme auch in anderen Farben? Black is booring</td>
<td>Are the umbrellas also available in other colors? Black is booring</td>
</tr>
<tr>
<td>Moderator response</td>
<td>Hallo Jörg. Schwarz ist halt die zeitloseste aller Farben, dass hat Henry Ford schon bemerkt. Was für weitere Farben werden gewünscht?</td>
<td>Hello Jörg. Black is just the most timeless of all the colors, which Henry Ford already remarked. What further colors would be desired?</td>
</tr>
<tr>
<td>Member response</td>
<td>Hätte gerne rosa und hellblau, grün und blau Jorge</td>
<td>I would like pink and light blue, green and blue Jorge</td>
</tr>
</tbody>
</table>

The active moderation and the moderator’s humorous style of responding to member posts became a characteristic of the ok.- Facebook brand page, and while these qualitative aspects were not measured, the moderator team felt that it improved participation.

**Discourage Negative Contributions**

In addition to encouraging positive posts, the moderator team ignored negative posts. An example of such a post is the following, where the member complains that the chewing gum sticks to her teeth:

<table>
<thead>
<tr>
<th>Member post</th>
<th>Original post</th>
<th>English translation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ich find ok.- mega gueti Produkte zu tollä Priise... aber d'Chaugummis chlebet zu fescht aa dá Zäh</td>
<td>I find ok.- totally good! Products at good prices... but the chewing gums stick too much to the teeth</td>
</tr>
</tbody>
</table>

During the case study, only the posts of one member had to be removed for containing unintelligible and confused language, either being an attempt by the poster to disrupt the activities of the brand page or stemming from a genuinely confused person.
Formulating a “Netiquette”

As the moderator team grew more experienced, they realized that occasionally it was necessary to ask a person to formulate their posts regarding other members more positively or politely. It became apparent that it would be easier for the moderators, as well as less incendiary to simply refer to an existing document.

This document, termed “Netiquette” in accordance with convention, was formulated in July 2010 and posted under a separate “tab”, but integral to the Facebook brand page. It explained that personal attacks and comments that violate the law or Facebook guidelines would be removed.

This document should have been worded as part of the preparation phase, but this needs to be considered a “lesson learned”, since the moderators only recognized its necessity in the course of gaining experience in moderating a Facebook brand page.

The full document appears in Figure 22 on the next page.
Social Ads for Promoting Brand Pages

Facebook offered administrators of like pages the opportunity to buy “social ads”, which are advertisements aimed at promoting the like pages. The ads appeared as simple links with the profile picture of the page in the side bar of users in the target group. Valora Retail decided to use social ads to increase the number of members on the ok.- brand page, and since it was considered
successful and a good value for money, a second round of social ads was initiated.

The two advertising campaigns, which ran from 15.-22. April 2010 and from 25.-30. May 2010, achieved a comparatively high average click-through rate (CTR) of 0.067% with a low average cost-per-click (CPC) of 0.20 CHF. The investment in the two ads was considered worthwhile by the moderator team and the stakeholders since the main goal of increasing members seemed to be met. See Figure 23 below for detailed data on both social advertising campaigns.

Figure 23: Analysis of the two social advertisements that were run within six weeks and eleven weeks, respectively, after launch of the ok.- Facebook brand page

The two social ads were meant to increase the number of members early after launch. Direct measurement of the effectiveness is not possible since new members might join after clicking the ad, after seeing that a friend just joined, or for other reasons. However, the two jumps in the number of members around the time of the social ads (see Figure 24 below) were seen by the moderator team and the stakeholders as proof that the social advertising campaign was success.

Though the two rounds of social ads were considered successful, a general debate within Valora on how to proceed with social media put further investments in social ads on hold. In effect, no further social advertising beyond the initial two ad purchases were initiated for the remainder of the case study.
Figure 24: The data on the number of members of the ok.- Facebook brand page during the time period of the two social advertisement campaigns (15.-22. April 2010 and 25.-30. May 2010) shows a clear increase corresponding to the two advertisements

**Monitoring Member Numbers and Activity**

In addition to the daily monitoring of the ok.- Facebook brand page for member posts and content, the moderator team used the built-in Facebook Insights tool (described in 4.2.2 above) on a regular basis to better understand the members and their behavior. Initially, the moderator team inspected Facebook Insights daily, and less frequently once the brand page was clearly actively thriving (approximately August 2010), but at least weekly.

**User Numbers**

The single most-discussed number among brand pages is the simple metric of number of users who have “Liked” the brand page. The value of this number is debated, as it is not clear how the raw user numbers translate to product sales. The discussion even led Facebook’s VP of global marketing to observe that “Brands are over-obsessed with fans” (Bradshaw 2011). Nonetheless the number of fans was constantly observed, discussed, reported and celebrated for milestones during the entire case study. Even at the time of writing, when
the number of users on the ok.- Facebook brand page is about to reach 50,000, the number is being closely watched. This is considered a very high number, given that the brand is only present in the small market of German-speaking Switzerland.

The user numbers developed slowly initially, boosted by the two social ads described above. The user numbers grew steadily but at a slow pace until September 2010, when new users began joining at an increased pace. This coincided with the introduction of a new product within the ok.- brand: the ok.- Energy Drink Mango, leading the moderator team to assume that the introduction of this new product was the source of the sudden spike: from September 2010 to late December 2010, the number of users increased from 4406 to 35,163 (a 798% increase). The number of new users started leveling off again to a steady increase until the end of the case study (and to date). See Figure 25 below for a graphic visualization of these numbers.

Figure 25: The data on the number of members of the ok.- Facebook brand page over the duration of the case study (March 2010 to February 2011) with a sharp increase from September 2010 to December 2010 due to the introduction of the new ok.- Energy Mango drink
The sharp increase of users from September 2010 to December 2010 was attributed to the announced launch of a new ok.- Energy Drink and the excitement that users were expressing about it (see Figure 25 above). The moderators initially played a guessing game with the users over which flavor this drink might have, starting on 13.9.2010 with “soon there will be an addition to the ok.- family: a fourth energy drink is coming”, which generated 24 likes and 17 comments. When the ok.- Energy Drink was announced to have a mango flavor on 24.9.2010, the response was large with 65 likes, 37 comments. Users reacted with their own posts: with 42 posts to the ok.- brand page wall. Additionally, a logistical issue meant that some stores did not receive the ok.- Energy Drink Mango on the promised date, causing additional posts from users looking for the product. This type of interaction is discussed further in the section “User Activity” below.

In terms of moderating, a tipping point was reached in October 2010, where the number of users was large enough that a true customer-led conversation was taking place without needing constant animation from the moderators.

User Activity

Users who are members of the ok.- Facebook brand page have several options of interacting with the brand page after they join, as described in Chapter 2 “Related Work”: “Lurkers” do not participate but might read other contributions, “Posters” create content on the brand page wall, “Commenters” respond to existing content with a post (visually displayed beneath the original content), and finally “Likers” indicate interest in a post or in content by pressing the “Like” button. The moderator team closely watched the active users (Posters, Commenters and Likers) and measured their contributions.

A clear shift happened over the duration of the case study, from the initial months where most contributions were posts to the brand page wall (of the 355 users, 28 were active, of which 23 were posting (28% of active users) and 5 liking (18 %)). Towards the end of the case study, the split had a more characteristic nature of almost exactly half of the active users (853) being posters (410 users, or 48%), one quarter commenters (224 or 26%) and a further quarter likers (219 users, 26%). See Figure 26 below for an overview.
While the activities of users were constantly monitored, activities of lurkers (i.e. users only reading but not actively participating, see also 2.3 “Social Networks” for definition) remained unknown. Even though lurkers make up the majority of the members, automatically measuring their exposure to the brand is difficult since they take no action online; they might be reading every post, glancing at them occasionally or never see any of them, all without leaving measurable traces. This is one of the reasons why just measuring the raw number of users on a brand page is considered insufficient for understanding the online activities and ultimately the buying behavior of the users.

**Demographics**

User demographics were initially of key interest to the moderator team and the brand owner. Repeated inspection showed a clear and consistent base of young users: 68% of the total was between 13 and 17 years old. The next biggest block consisted of 18 to 24 year-olds (25%). Interestingly, given that Facebook at the time had a higher percentage of male users than female, the distribution on the ok.- brand page was almost even (48% male, 52% female). See Figure 27 below for a visualization of this data.
These demographic numbers were quickly accepted by Valora Retail as a true reflection of the brand’s demographics, which in turn validated the use of Facebook for Valora Retail as a medium for communicating with the target consumers for the ok.- brand.

**Dependency on SNS Technology and Policy**

By definition, a brand page is part of a larger SNS, which brings with it dependencies for the moderator team regarding the technology and policy decisions made by the SNS. During the case study, two changes were implemented by Facebook which had a direct impact upon the ok.- Facebook brand page.

The first change occurred after the launch of the “ok.- star” contest on 9.8.2010. The original design of the contest required users to upload a photo of their post when they saw it on a public display in a kiosk. The first announcement of the contest included this instruction, but the moderator team quickly needed to remove it because it violated Facebook policy regarding providing users with incentives to post content. At the time the contest was designed, the policy was not new; however, Facebook suddenly,

---

and without further warning, began enforcing it by simply deleting the brand pages that violated the policy. Since the ok.- Facebook brand page at that point already had 4237 members, this was too great a risk to take, and the moderators quickly removed the photo requirement of the contest.

The second example of a change brought on by Facebook affecting the moderator team was a redesign in how second-level content was displayed. Instead of having additional content in “tabs” that were formatted with FBML, the content was automatically moved to side bars. This change meant that certain content, such as the Netiquette, was no longer correctly displayed. The moderator team was monitoring the announcements and was required to adjust the brand page content to the new format. A further change came a few months later, when FBML was replaced by iFrames.

Since changes are unilaterally decided by Facebook and can be announced or enforced unexpectedly, constant monitoring is a necessary step in the execution phase.

**Communication to the Stakeholders**

To keep the stakeholders and an extended circle of interested parties within Valora Retail informed on the activities of the moderator team, a monthly report was generated and sent out. The “Social Media Report” consisted of the following items:

- Number of users
- Impressions
- Number of moderator posts, listed by content (e.g. general information, questions, polls, contest)
- Average number of user reactions per moderator post
- Result of any polls or contests
- Demographics
- Usage statistics from Facebook Insights
- Screen shots of the ok.- Facebook brand page to show example interactions
• Examples and best practices from competition and related brand pages (e.g. Coca-Cola, Pepsi, Swiss Airlines)

• Preview of upcoming activities and campaigns

The report was a useful tool for the moderator team as a communication medium to stakeholders and line managers, though its impact, judging by the lack of responses from the target audience, was limited. This was probably due to a lack of understanding of the meaning of the different measures on the part of the audience.

For the moderator team, moderating and monitoring the ok.- Facebook brand page were tightly coupled activities throughout the duration of the case study. As the moderator team gained experience and the number of users who were members of the brand page increased, the importance of more high-level analysis and evaluation became apparent. This analysis is discussed in the next section.

4.3.4. Evaluation of User Contributions and Moderator Effect

Successfully moderating the ok.- Facebook brand page required the moderator team to daily monitor and moderate the content and activities of the users. A tight loop was required between moderation and monitoring of the basic indicators, such as user numbers, and activity described above.

However, over the course of the case study, the moderator team increasingly realized that the numbers provided by the Facebook Insights tool were too high-level for some of the questions that were becoming increasingly relevant, such as what was the effect of posting photos in comparison to posting entertainment questions. To answer such questions, a more detailed analysis was necessary. Steps were taken to increase both depth and breadth of analysis: more data was gathered, and existing data was analyzed in more detail. These activities are described in this section.

Evaluating User Posts Based on Content

To add depth to the analysis of the existing data, posts from the ok.- Facebook brand page were analyzed for their content and categorized. The work described here has been submitted for publication as “Understanding Social Media Marketing: A Case Study on Topics, Categories and Sentiment on a Facebook Brand Page” (Pletikosa and Michahelles 2011b). A total of 759 posts
were gathered from the ok.- Facebook brand page, from which the 134 moderator posts were removed, as well as 3 unintelligible posts and 11 spam posts. The remaining 611 posts were coded for analysis by 1) tagging the content based on key concepts in the post and 2) grouping the tags to define groups of topics.

Initial tagging and grouping was done manually by a single reviewer, in order to remove the bias of different interpretations of the content in the posts. To confirm the validity of the assigned tags and categories, a reexamination of the data was performed by two additional reviewers. The following aspects of the posts were analyzed based on (1) topics, (2) categories, (3) used language and style, (4) Internet slang usage and (5) emotions representation present in the content. Based on the tagging results, grouping of similar tags was performed in order to define the topics and categories, as detailed below (Pletikosa and Michahelles 2011b).

**Post Topics**

The tagging activity identified seven major topic groups: Product (318 posts, or 59% of total), Sales (79, 13%), Brand (46, 8%), Competitor (26, 3%), Facebook Contest (20, 3%), Company (11, 2%) and Environment (3, 0%) (see Figure 28).

![Figure 28: Posts of the ok.- Facebook brand page analyzed for semantic content revealed seven major topics, of which the dominant one was “Product” which is highly desirable for a brand page (Pletikosa and Michahelles 2011b)](image)

For the moderators, this analysis provided proof toward the stakeholders that the content of the ok.- Facebook brand page fulfilled the expectations of the stakeholders.
The desire of the stakeholders to have consumers use the brand page for brand-related conversations was fulfilled by having the top three categories be “Product”, “Sales” and “Brand”, which together made up 73% of the posts.

**Post Categories**

Similarly, the grouping of the posts revealed the intention of the posts, of which there were eight: Suggestions & Requests (170 posts, or 27% of the total), Affect Expression – such as excitement about a product (169, 27%), Sharing – e.g. advice, information, need (165, 27%), Information Inquiry (98, 16%), Complaints & Criticism (23, 4%), Gratitude (22, 4%) and Praise (5, 1%). See Figure 29 below for a visualization of this data.

![Figure 29: Posts of the ok.- Facebook brand page analyzed for semantic content revealed eight major categories (Pletikosa and Michahelles 2011b)](image)

In contrast to the topics identified, the post categories on their own were not as meaningful to the moderators or as useful in understanding the users. The exceptions were the two topics “Information Inquiry” and “Complaints and Criticism”, which together make up 20% of the posts and require moderator action. Thus, this number can be used in planning (see next section for more on using content evaluations to plan moderation activities).

**Understand Focus of Posts**

The research team recognized that the identified topic and post categories were orthogonal and could thus be placed on a grid. The result is a striking overview of the post types, with many fields completely blank and clearly dominant pairs (see Table 3 below).

The blank fields, as well as the pairs with a low number of posts, need to be examined for their potential and interest. This was not done by the moderator team, but would be a natural next step in the evaluation.
### Table 3: Combination of post topic and category pairs. Of interest are both the empty spaces which might indicate potential for development, as well as the dominant pairs which indicate the highest need for moderation (Pletikosa, Dubach Spiegler and Michahelles 2011a).

<table>
<thead>
<tr>
<th>Topic / Category</th>
<th>Product</th>
<th>Sales</th>
<th>Brand</th>
<th>Competitor</th>
<th>Contests</th>
<th>Company</th>
<th>Environment</th>
<th>General</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requests &amp; Suggestions</td>
<td>149 (24%)</td>
<td>20 (3%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 (0%)</td>
<td></td>
</tr>
<tr>
<td>Expressing Affect</td>
<td>122 (20%)</td>
<td>43 (7%)</td>
<td>4 (0%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>165 (27%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Inquiry</td>
<td>29 (5%)</td>
<td>49 (8%)</td>
<td>3 (0%)</td>
<td>10 (2%)</td>
<td>3 (0%)</td>
<td>4 (0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complaints &amp; Criticism</td>
<td>16 (3%)</td>
<td>4 (0%)</td>
<td></td>
<td>1 (0%)</td>
<td>2 (0%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressing Gratitude</td>
<td>2 (0%)</td>
<td>6 (1%)</td>
<td>10 (2%)</td>
<td>2 (0%)</td>
<td>2 (0%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Praise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 (1%)</td>
<td></td>
</tr>
<tr>
<td>Comparison</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22 (4%)</td>
<td></td>
</tr>
</tbody>
</table>

Similarly, the two pairs of topic and category with the most posts were:

- Requests & Suggestions about Products (149 posts, 24% of total)
- Expressing Affect about Products (122 posts, 20% of total)

These could be used by the moderator team for planning: Since responding to requests and suggestions about products is the key reason for having the Facebook brand page, the moderators can assume that almost a quarter of the posts need active moderation.

Importantly, this metric can be used to assess future work load for the moderator team, based on projected growth of the number of brand page users.
A finer-grained analysis of the types of requests and suggestions offered could be used to identify knowledge gaps in the moderator team and thus prompt the need for a panel of experts which the moderators are given access to. For example, at the launch of the ok.- Mobile Phone products, the moderator team was insufficiently knowledgeable to respond to the detailed technical questions. This would also cover the related topics “Information Inquiry” identified above.

The second largest topic and category pair, “Expressing Affect about Products” does not require responses, but since a stated goal of the moderator team was to encourage positive contributions by users, many of these would require some moderator action. A next version of the moderator guidelines could, for example, set a ratio of how many posts in this topic and category pair would require responses. A similar metric could be set for the “Complaints and Criticism” topic identified above as being of importance.

Overall, these numbers confirmed that Facebook can be used as a suitable platform for social media marketing, since the dominant categories, topics, and their pairings were all in line with the stakeholder’s expectations for the ok.- Facebook brand page.

**Sentiment Analysis**

A final view on the existing data was an analysis conducted to determine how users feel about the ok.- brand or the ok.- products. This understanding was gained by categorizing the sentiments shared within the posts from the “Affect Expression” category identified above, since that is where users shared their sentiments.

The results show that positive sentiment is shared far more often compared to negative sentiment (see Table 4 below). This result was of interest to the stakeholders, but was not further used. Future analysis could track this number over time, or be used to measure improvements in positive mentions.

Further analysis was performed on use of Emoticons such as :) or :D, as well as interjections, e.g. “hmmm” or “mmhh”. These are linguistically interesting but were not of use for the moderation of the brand page, but is examined in more detail in “Understanding Social Media Marketing: A Case Study on Topics, Categories and Sentiment on a Facebook Brand Page” (Pletikosa and Michahelles 2011b).
### Table 4: Analysis of the sentiment occurring in the “Affect Expression” category shows that positive sentiment is shared more often than negative sentiment (Pletikosa and Michahelles 2011b)

<table>
<thead>
<tr>
<th>Sentiment</th>
<th>Occurrences (all)</th>
<th>Percentage (all)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>150</td>
<td>25%</td>
</tr>
<tr>
<td>Negative</td>
<td>11</td>
<td>2%</td>
</tr>
<tr>
<td>Neutral</td>
<td>450</td>
<td>73%</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>611</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

In addition to the deeper analysis on the existing data set that was described in this section, the research team also expanded the data set to gain a better understanding of the effect of moderator posts and to begin comparison to other brand pages. These activities are described in the next section.

### Measuring Moderator Impact

The data and analysis provided by Facebook Insights proved to be useful to the moderator team in the first months after launch of the ok.- Facebook brand page. However, as described in 4.2.2 “Quantitative Data” above, the shortcomings became increasingly frustrating: Facebook data is not always reliable and it does not cover all the activities of users.

To deal with these issues, the research team began collecting the activities visible on the ok.- Facebook brand page through the Facebook Graph API and storing them in a relational database.

The relational database provided independence from Facebook and allowed a deeper analysis. For example, it became possible to measure the user interactions as a result of moderator posts or to measure user activity not just in absolute numbers as before but also in terms of percentage of all users (see also Pletikosa, Dubach Spiegler et al. 2011a).

**User Activity in Response to Moderator Posts**

The first overview of moderator posts came from inspecting the number of daily active users charted against the moderator posts. This simple analysis immediately visualized that the moderator posts did have a clear effect on the amount of user interaction (see Figure 30 below).
Figure 30: Daily active users charted against moderator posts over a sample 2 months show a clear increase in activity in response to moderator posts (DAU=Daily Active Users)

This analysis prompted the research team to further examine the relationship between moderator posts and user activity. From the activity of tagging the posts of the ok.-Facebook brand page, described above, a categorization of monitor posts emerged, as is listed in the Table 5 below.

These post categories, together with the variables of 1) post type (status, photo, etc.) 2) day of post, 3) likes ratio, 4) comments ratio and 5) Interaction duration were analyzed in more detail, as described in “Understanding Social Media Marketing: A Case Study on Topics, Categories and Sentiment on a Facebook Brand Page” (Pletikosa and Michahelles 2011b). The results are summarized here.

The analysis showed a statistically significant difference for the post types used, the categories of posts, as well as the posting days. For the post category, there was a significant effect for all three interaction types measured: the like’s ratio, the comments ratio and the interaction duration (how long a post generated responses).
<table>
<thead>
<tr>
<th>Post Category</th>
<th>Abbr.</th>
<th>Explanation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Announcement</td>
<td>AN</td>
<td>Announcement of new product</td>
<td>“4 new ok.- chocolate bars are here!”</td>
</tr>
<tr>
<td>Information</td>
<td>IN</td>
<td>Information regarding a sales location, number of page fans, etc.</td>
<td>“Two k kiosk Shops opened today in Egg. Have fun shopping!”</td>
</tr>
<tr>
<td>Designed Question</td>
<td>DQ</td>
<td>Posts in form of questions with a goal to engage users in a dialogue</td>
<td>“Is it ok never to grow up?”</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>QU</td>
<td>Using the Facebook Poll to obtain answers on a specific question.</td>
<td>“There is a new questioner under &quot;Polls/Quizzes+&quot; on a topic...”</td>
</tr>
<tr>
<td>Competition</td>
<td>CO</td>
<td>Posts related to competition, i.e. announcements, rules, winners, etc.</td>
<td>“Do you want to be an ok.- star? Our displays wait for your post...”</td>
</tr>
<tr>
<td>Advertisement</td>
<td>AD</td>
<td>Advertisement of existing products.</td>
<td>“ok.- products, 5 new photos” (photo post)</td>
</tr>
<tr>
<td>Statement</td>
<td>ST</td>
<td>Posts in form of statement, stating opinion on certain topic.</td>
<td>“The fact that sun and rain are changing at the moment is not ok.-”</td>
</tr>
</tbody>
</table>

Table 5: Categorization of moderator posts on the ok.- Facebook brand page (Pletikosa and Michahelles 2011b)

Advertisements (AD) had the greatest level of interaction for the likes and comments ratio as well as interaction duration. Astonishingly, the only other significant post type for interaction was announcements (see Figure 31 below).
Next, the three post types (status, photo, and link) were analyzed for the same three interactions (likes, comments and interaction duration). As Figure 32 below shows, photos created by far the most interaction, followed by status and links.
The research team also inspected the data to find out if the weekday of a post made a difference in responses, finding a statistically slightly higher comment ratio on moderator posts that appeared on Tuesdays. In contrast to the other findings described above, this one was not considered useful for the daily moderation of the brand page.

**User Activity Relative to Total Number of Brand Page Members**

A further area of interest for the research team was the question of absolute numbers of daily active users, versus active users as a ratio of total number of fans. These two measures are of a fundamentally different nature, as the absolute number of active users dictates the activity on the brand page wall: the more users that are active, the more posts, comments and likes appear on the wall per day.

Calculating the ratio of active users as percentage of the total number of members on the brand page is indicative of the portion of users who feel passionate enough to act (see also discussion regarding lurkers in Chapter 2 “Related Work”).

Figure 33 above shows the interaction of daily active users to be very low for the first 6 months after the launch of the ok.- Facebook brand page, with the exception of the reactions that coincided with the early placement of the social ads. In comparison, the interaction level after November 2010 shows strong participation by the users, though in an irregular pattern, i.e. a few days of high activity is always followed by low activity.
In comparison, the interaction pattern in Figure 34 below shows a very large reaction to the first social ads, with almost 50% of the users actively participating on the brand page by posting, commenting, liking or going to view the page.

**Figure 34: Daily active users in terms of active user participation and impressions of the ok.- Facebook brand page as ratio of total number of members**

This level of interaction was never reached again and is probably indicative of the passion of the early members who felt they were part of a small group. Later, from November 2010, a relatively steady percentage of users participated. Keeping this level steady was suggested as a possible metric to be added to the key performance indicators that the moderator team would aim for.

Between evaluating user posts based on their content and measuring the moderator impact, as described in the sections above, the research team had exhausted the available data from the ok.- Facebook brand page. In an effort to validate the findings and to provide a basis for comparison, the research team started gathering data from related brand pages. The findings from this are described in the next section.
Comparison to Related Brand Pages

The moderator team and research team examined the data gathered from the ok.- Facebook brand page in great detail, as described above. However, with increasing sophistication in the analysis methods and capabilities, the desire arose to compare the performance of the ok.- brand page to similar or related Facebook brand pages. For this purpose, 14 such pages were defined, based on region (Switzerland), brand (private label and low-cost brands), category (fast-moving consumer goods) and the top-seller items (energy drinks) (see Table 6 below).

For these 14 pages, data was gathered with the same method as described above for the ok.- Facebook brand page: the posts, likes and comments on the walls of the different brand pages were fetched daily through the Facebook Graph API and stored in a relational database. This was performed for three months, from January 2011 to February 2011, and resulted in a dataset of 1494 posts which allowed high-level comparisons of the ok.- brand page with the comparison brand pages.

The initial discoveries described below were incentive to continue gathering this comparison data and to perform extended analysis. However, this work is the subject of future research.

The initial goal of the research team was to define competition sites against which to benchmark the ok.- brand page and to understand industry best practices. For this, known competitors were chosen, as well as brand pages with perceived similarities, i.e. same target group, same style of interaction, same nationality, comment type and frequency, community size, product type or moderator style and frequency.

More formally, the criteria applied to selecting the extended set of comparison brand pages consisted of finding: (1) sponsored brand/retail pages, (2) consumer goods pages, (3) regional (Swiss) pages, (4) similarity in product range and (5) number of fans, i.e. “popular pages”. The pages were selected using the Fan Page List\(^\text{18}\) web page which ranks brand pages (see also Pletikosa, Dubach Spiegler et al. 2011a). The names of the 14 brand pages chosen are listed in the first column of Table 6 on the next page.

\(^{18}\) http://fanpagelist.com/category/products/
Further columns of Table 6 list different metrics gained from the gathered data (from left to right): number of members of the brand page, number of users posting to the brand page, percentage of posters who post more than once, total number of posts on the brand page, total number of moderator posts, and the maximum number of posts by one user.

These numbers were used by the moderator team and the research team to gain a general understanding of the brand pages of competition brands and
related brands, but as mentioned, no formal analysis has been conducted yet. Some sample insights were:

- The range of number of members varies greatly, with Cocoa-Cola being one of the biggest on Facebook, with over 26 million users. However, since the ok.- brand is only a regional brand, this number is not a realistic basis for comparison. Instead, the equally local “m-budget”, with a relatively low member number of 25’228, was taken to indicate that the ok.- Facebook page was more successful.

- In terms of user loyalty, as measured by users posting more than once, the ok.- brand page showed a high number of posters as posting more than once (26%), almost three times as many as on the Cocoa-Cola brand page.

- Red Bull, whose energy drink is the biggest competitor to the ok.- Energy Drink, only has a return posting rate of 2%, meaning that their fans usually only post once. Additionally, the users do not post very often, i.e. the brand page does not have very active users: only 122 members posted at all during the 3 months the data was collected, even though the brand page has almost 19’000 users.

- In the three months of data gathering, the moderator team posted 44 times. In comparison, the moderators of Monster Energy – another competitor to the ok.- Energy Drink – were very active with 267 posts, averaging almost 3 posts per day (2.9). The moderator team estimated that this would be too much information for the users to receive, but a formal analysis of user responses to these frequent posts would be of interest to determine the effectiveness of such an active post frequency by the moderators.

This data will serve as the basis for further investigation and as a source for gathering “best practice” moderation methods from similar and related brands.
The ongoing nature of the moderation tasks that a Facebook brand page brings with it, and the related learning that occurs over time, are the main features of successfully moderating a Facebook brand page. Upon completion of the case study, this insight, along with the lessons learned detailed in the next section, have been captured in the brand page management model which is presented as a result below.

4.4. Discussion

The case study described in this chapter presented the different steps taken by Valora Retail in setting up the Facebook brand page for the ok.- brand, from initial deliberation of the project, through preparation, execution and analysis of results. While Valora Retail considered the ok.- brand page a success – mainly due to the steadily increasing number of members and frequent member interactions – the moderators and research team identified gaps in the process which would need to be considered in the future. This section details these insights and observations: measurements, moderation, analysis and the maturing role of the moderator.

4.4.1. Defining Measurements

As mentioned above, the brand page described in the case study lacked formal objectives and goals, as it was seen as an experiment in SNS, a field in which Valora Retail needed to gain experience. Formulating such objectives and providing information systems to measure the relevant metrics is necessary for controlling the marketing efforts (Greenley, 1986).

Thus, as a lesson learned from the case study, a “formulate objectives” step could take different forms, for example defining key performance indicators (KPI’s) for such number as total members on the brand page, or daily user posts. However, a big gap currently exists in all current discussions about Facebook brand pages: various measurements are useful in tracking changes in user numbers or activity levels, but currently no research exists which proves that any of these metrics make a difference in product sales. As a proxy, a study on the relationship between social media and Millennials (the generation born around the millennium) revealed several insights: 1) They require constant interaction, fresh and timely content. 2) Spam does not work; they prefer to be fully engaged. 3) Millennials help build the brand credibility.
4) A relationship with a brand via social media produces a favorable perception of that brand (Agozzino, 2010).

These insights present companies and brand owners with a “prisoner’s dilemma” of potentially losing out on sales if their brand is not represented on a SNS, but at the same time not being able to prove that their participation (and the resulting costs) will result in an improvement in sales. Regardless, most brands have chosen to present themselves on SNS.

In the absence of certainty that a brand’s efforts on a SNS are effective, monitoring the competition in an effort to keep up with them is a possible alternative. For this, defining related brand pages, as was done at the end of the case study, can provide valuable data against which to benchmark the brand’s efforts, and they can be used to identify successful brand pages whose moderating style or practices can be emulated.

4.4.2. Active Moderation to Encourage Participation

Data from our case study clearly shows that moderator activities increase user participation. As discussed in the section on measurement above, there currently are no proven correlations between level of activity on a brand page and sales of products. In absence of this, findings show that daily users exhibit significantly more interest in brand profiles (Li 2007). Therefore, improving the level of user activity is a worthy goal, and for this, three options exist:

- Brand page members who are not active (lurkers) make up 97% of the brand page members, which is high compared to the 90% predicted (Nonnecke and Preece 2000). An attempt could be made to converted into active users through mentoring (Köhler, et al. 2011) and active moderation to prevent aggressive and mocking comments as recommended (Nonnecke et al. 2004).

- Already active users can be encouraged to become more active through positive enforcement. The goal is to convert as many active users to “Superfans” as possible, since they are considered to be the core of online marketing, i.e. “customers who are so positive about a brand that they do much of its marketing and sales themselves – and for free” (Harris and Rae, 2009).
• Since the number of active users is within a steady range at about 3% of the total number of users, one method to improve participation is to increase the overall number of members of the brand page through traditional advertising or social ads.

Achieving this will take a combination of analysis and tactical controlling during the execution phase (e.g. encouraging posters and preventing aggressive and mocking comments), as well as deeper analysis during the evaluation phase (e.g. to understand the nature of the “Superfans” and devise a plan to address them).

4.4.3. Insights from Analysis of Content and Patterns of User Posts

During deliberation and preparation for a brand page, many risks can be anticipated through experience with the brand and the retail domain, as well as by using “worst case” examples such as the Nestle case (see 4.1.2 “An Overview of Facebook and Facebook Brand Pages”). Similarly, projections can be made as to what kinds of questions might arise from users that the moderator team needs to answer, which can be used as the basis to set up a board with experts who are available to the moderators. Neither of these initial preparations is likely to prove complete, as was seen during the case study.

Setting up the board of experts was initially based on past experience with call centers and help desks and in part based on brand manager’s intuition and personal experience. However, as the example analysis of the user posts and questions by category shows, a rigorous understanding of the type of questions and their relative weight can be gained (see 4.3.4 “Evaluation of User Contributions and Moderator Effect”). This in turn can be used to fine-tune the assignment of experts that a moderator of a brand page needs to have access to. Performing this loop will reduce the impact of missing initial preparations, by allowing the moderator team and the stakeholders to learn the true requirements and set up processes and systems as needed.

As an example, the analysis of post categories shows clearly what types of questions and comments require responses. In the case of ok.-, the launch of mobile phones, which was a new product type, was not sufficiently prepared for. Specifically, the brand and product managers set up call center procedures for the new products, but failed to anticipate the volume of technology-related questions that were posted to the Facebook brand page, such as “What is the screen resolution of the San Francisco phone?”. This shortcoming would need
to be addressed in two ways: tactically by immediately giving the moderator the tools necessary to answer the questions, as well as strategically, by anticipating the increased volume of questions and the expertise needed by increasing staffing. The recommendation in this case was that both the board of experts is expanded and a procedure is put into place to anticipate such demands on the moderator in the product development phase, analog to the preparations made for call centers and help desks.

4.4.4. Maturing of the Moderator Role

The case study describes a project which began as a “bottom-up” initiative by two engaged employees of Valora Retail, in an environment where Facebook was a novel communication channel for brands. Characteristically for such a setting, the processes were immature, with the result that no formal objectives were gathered, nor was there a formal organizational planning process. The lead for the project was given to the strategic marketing department as a natural result because they had taken the initiative. It can be expected that with the professionalizing of brands’ marketing efforts on SNS, the process will mature. Evidence of this can be seen in the appearance of courses, conferences and book on the topic in increasing numbers (e.g. a Google search for “social media manager training” returns 61M results).

A key observation of the case study was that the amount of learning that took place in the moderator team and with the stakeholders over the course of the duration was significant. Even with a maturing of brand page management, the SNS environment is likely to remain a very volatile one due to the innovations from the many different established and startup SNS competing for users (see 2.3 “Social Networks”).

4.4.5. Need for a defined process model

The maturing of the moderator role described above, is mirrored by a need for a mature process by which a brand page can be moderated. In examining the steps described in the case study, several software development or software engineering and strategic marketing planning models exist that can be drawn upon, though none specifically address the needs of retailers and brand owners who aim to set up and operate a Facebook brand page.

This section details two models from software engineering and strategic marketing planning which most closely resemble the moderation process as described in the case study.
Organizationally as well as in terms of process, setting up and operating a Facebook brand page touches both the world of software engineering as well as marketing. Since these two worlds have only recently started to intersect, no pre-existing model can be drawn upon for the case described in this chapter. As a starting point, the assumption is made that any process model for Facebook moderation needs to draw on both the software engineering and marketing fields. For this purpose, two models are described below: the “spiral model” (Boehme 1988) is well established in IT literature and practice, and an overview is given of the “basic marketing planning model” (Brooksbank 1996). Upon closure of the case study, the two models were reflected upon and as a result, a new “Facebook Brand Page Management Model” (BP-MM) is proposed and then discussed (see 4.5.2 “Proposal for a Brand Page Management Model” below).

**Spiral Model**

The spiral model was proposed by Boehme in 1988 as a software development process with iterative characteristics from prototyping that aimed to improve on the static nature of the waterfall model commonly used at the time.

Diagrammed as a spiral to indicate the cyclical nature of the process, its strength lies in the incremental refinement of the product as development progresses around the spiral, as illustrated in Figure 35 below.

The spiral model defines four distinct task regions that are cycled through iteratively:

- Determine objectives, alternatives and constraints of the new iteration.
- Evaluate alternatives, identify, and resolve risks.
- Develop, verify the product for this iteration.
- Plan next iteration.
Figure 35: The iterative spiral model software development process (based on Boehm 1988)
This model allows a fast deployment and continuous refinement and learning. At the same time, following the model helps manage risk and uncertainty through the frequent evaluations and by acknowledging that learning is ongoing and can be applied in the next iteration. While the spiral model is a standard software development process, it is equally applicable to related IT projects, including web development (McDonnal and Welland 2001) and can be extended to the development of Facebook brand pages (Kazman and Chen 2009). Thus, this model serves as a basis for the IT aspects of developing a Facebook brand page.

While Facebook brand pages do not require releases in the same sense that software does, the spiral model’s main contribution to the setup and moderation of a Facebook brand page as opposed to a waterfall model is the repeated or even continuous evaluation and subsequent refinement. Similarly, the iterative and incremental software development methodology “Agile Software Development” supports these necessary features (Beck et al. 2001), as well as others. Of particular interest for the development of a Facebook management and moderation model is their increased emphasis on the ongoing nature of evaluation and improvement. However, since the crucial feature of iteration is incorporated in the spiral model, the discussions following will focus on the spiral model.

**Basic Marketing Planning Model**

Basic marketing management has been established since the thorough work of Kotler in the 1970’s that linked marketing to the classic functions of management: analyzing, planning, organizing, and controlling (Kotler 2010). Kotler organized the marketing planning activities along these functions, but in addition to these cornerstones, Brooksbank (Brooksbank 1996) observed that in the fast-changing business and marketing environment, any model must be continuous and support an evolving process. From these insights, he proposed the basic marketing planning model shown in Figure 36 below:
Figure 36: The basic marketing planning process (Brooksbank 1996)
In this model, the first step is for the organization to become more focused on customer satisfaction. Following this, the core marketing planning activities are organized along the functions defined by Kotler and elaborated as follows (Brooksbank 1996):

1) **Analyzing marketing opportunities:**
   - the marketing concept, markets, market segmentation, and buyer behavior.

2) **Strategizing for marketing activity:**
   - goals, planning, decision making, research, models, and creativity.

3) **Implementation:**
   - theory of marketing programming, product decisions, price, channels, promotion.

4) **Controlling the marketing effort:**
   - marketing control, sales and cost analysis, the marketing audit.

In this model, the addition of the two control loops provides the iterations necessary to continuously adapt the measures taken. Tactical control refers to short-term iterations and is described as being “concerned primarily with securing operational efficiencies at the level of the marketing mix”, i.e. “doing things right”. This allows feedback from one advertising campaign to be used to improve the next advertising campaign. In contrast, strategic control provides a longer iteration and has a longer horizon. In this loop, high-level objectives and strategies are checked and validated or must be altered.

The emphasis in this model on tactical control and the distinction to strategic control is the key feature that makes this model applicable to moderating Facebook brand pages. These two loops provide the model with the iterative nature which is the feature identified as crucial in moderating Facebook brand pages, and which is also present in the spiral model.

However, organizationally as well as in terms of process, setting up and operating a Facebook brand page touches both the world of software engineering as well as marketing and ultimately, neither of the two models presented completely describe the current process needed for moderating a Facebook brand page. The following section integrates the applicable aspects of the two presented models and enhances it with the lessons learned from the case study to propose a new Brand Page Management Model (BP-MM).
4.5. Result: Brand Page Management Model

Upon conclusion of the case study and the discussion in the previous section, we now examine the fit of the two models described above. The format chosen is to first present a short analysis of the strengths and weaknesses of each model when applied to the data, followed by direct comparison and identification of gaps. Finally, a new “Brand Page Management Model” (BP-MM) will be proposed, which is specifically adapted to the challenges of moderating a brand page.

4.5.1. Strengths and Weaknesses of Existing Models

Comparing these two models shows both strengths and weaknesses in each and will lay the groundwork for arguing the need for a new model.

The Spiral Model

The spiral model begins with setting specific objectives (performance, functionality, etc.) and defining alternative implementation options. These activities assume that prior approval has been gained for the project, which means that the model leaves out important steps that an organization must take in deliberating whether or not the project should be started. This omission is a weakness in applying the spiral model to brand page moderation.

A general weakness of the spiral model is the lack of organizational and management aspects. Since the case study repeatedly showed the importance of these aspects for successful brand page management and moderation, they will be included in the BP-MM.

In preparation of the ok.- Facebook brand page, close attention needed to be paid to content policy, integration of existing user-generated content, and similar communication topics. None of these steps fit neatly into the spiral model, though they might best be placed into a requirements or design step. Similarly, the steps taken in the execution phase are largely of a communicative nature and are difficult to place in the spiral model. However, the basic marketing planning model covers these aspects and they are included in the BP-MM.

Finally, the strength of the spiral model of iteratively evaluating, planning and executing was only partially performed in the case study, but will be an important aspect of the BP-MM and included there together with the concept
of “tactical” and “strategic” control taken from the basic marketing planning model described next. This fulfills the important requirement that any proposed model needs to be able to adapt to the fast-changing nature of SSN by “providing a continuous, ever-evolving process” (Brooksbank, 1993).

The Basic Marketing Planning Model

In contrast to the spiral model, which begins with project objectives, the basic marketing planning model begins with a sweeping “Business-customerizing” phase, requiring a company-wide cultural change. For the launch of an ok.-Facebook brand page, some education and convincing of stakeholders is necessary due to the newness of SNN as a medium, but the assumption can be made that the brand page will be aligned with current marketing plans. Thus, the strength of the basic marketing planning model of having an initial phase for deliberation is at the same time a weakness, since it is too broad and designed for whole-company transformation, which is not required in order to launch a Facebook brand page. The BP-MM will adopt the idea of this “Business-customerizing” phase, including the step of gaining buy-in from senior management, but tailoring it based on lessons learned from the case study.

In the preparation phase, the case study showed the need for close alignment with marketing, communication and brand owners. The basic marketing planning model, however, does not list this step, since the model is designed to produce the overall marketing plan, not just a part of it, which is what a brand page is.

In the basic marketing planning model, the analysis and strategizing phases are separate, though they were intertwined in the case study. No apparent benefit comes from having the activities in two separate phases; they will thus be merged in the BP-MM into the “Preparation” phase.

Another of the characteristics of the case study is the tight coupling of the moderating and monitoring activities. The basic marketing planning model does highlight the need for monitoring, but places the tracking and information systems only in the “evaluation” phase. The lessons learned from the case study show a need for regular monitoring already during the execution phase.

Finally, the great strength of the basic marketing planning model is not only the iterative nature of the model, which fits well with brand page management, but especially the distinction between “tactical” and “strategic”
control, where the tactical control matches well to the tight coupling of moderating and monitoring seen in the case study. The strategic control was seen as an important step that was missing from the activities performed during the case study. These two types of control are crucial features for a brand page management model and will be integrated into the proposed BP-MM.

### 4.5.2. Proposal for a Brand Page Management Model

The final step in developing a model for brand page management is to merge the strengths of the two models examined and supplement any gaps with lessons learned from the case study. This section will first provide an overview of this final step in table form, followed by the proposal of a brand page management model (BP-MM).

The following table (Table 7 below) summarizes the steps identified as necessary for successfully setting up and moderating a brand page. The individual steps in each phase are derived from the case described in this chapter; the steps combine both the successful actions taken, as well as lessons learned from necessary actions not taken. These steps are mapped against the spiral model and the basic marketing plan. In addition, the table shows whether the necessary step was taken by Valora Retail during the case study and how the step will be incorporated into the proposed BP-MM.

<table>
<thead>
<tr>
<th>Necessary Steps</th>
<th>Spiral Model</th>
<th>Basic Marketing Plan</th>
<th>Step present in case study</th>
<th>Brand Page Management Model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deliberation Phase</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Commitment</td>
<td>n/a</td>
<td>yes, but too broadly defined</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Definition of stakeholders</td>
<td>n/a</td>
<td>gaining buy-in from senior management</td>
<td>yes</td>
<td>defining stakeholders, incl. senior mgmt and moderator team</td>
</tr>
<tr>
<td>Setting Objectives</td>
<td>yes</td>
<td>develop mission statement</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td><strong>Preparation Phase</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Analysis</td>
<td>yes</td>
<td>yes, as part of SWOT</td>
<td>Yes, incl. counter-measures</td>
<td>yes</td>
</tr>
<tr>
<td>Operations</td>
<td>no</td>
<td>yes in “implementation”</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Necessary Steps</td>
<td>Spiral Model</td>
<td>Basic Marketing Plan</td>
<td>Step present in case study</td>
<td>Brand Page Management Model</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>--------------</td>
<td>----------------------</td>
<td>---------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Guidelines</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Integration with marketing and branding</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Integration of existing UGC</td>
<td>no</td>
<td>yes as part of “marketing research”</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Preparation for launch</td>
<td>yes</td>
<td>yes in “implementation”</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

**Execution / Implementation Phase**

<table>
<thead>
<tr>
<th>Necessary Steps</th>
<th>Spiral Model</th>
<th>Basic Marketing Plan</th>
<th>Step present in case study</th>
<th>Brand Page Management Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderation</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Campaigns</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Monitoring</td>
<td>yes in “verify”</td>
<td>yes in “controlling”</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Technology and policy of SNS</td>
<td>yes in “risk analysis”</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Communications to stakeholders</td>
<td>no</td>
<td>yes in “controlling”</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

**Evaluation / Controlling Phase**

<table>
<thead>
<tr>
<th>Necessary Steps</th>
<th>Spiral Model</th>
<th>Basic Marketing Plan</th>
<th>Step present in case study</th>
<th>Brand Page Management Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content analysis</td>
<td>no</td>
<td>yes in “performance tracking”</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Moderator analysis</td>
<td>no</td>
<td>yes in “performance tracking”</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

**Iterative improvements**

<table>
<thead>
<tr>
<th>Necessary Steps</th>
<th>Spiral Model</th>
<th>Basic Marketing Plan</th>
<th>Step present in case study</th>
<th>Brand Page Management Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tactical control</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Strategic control</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

*Table 7: Comparison of two iterative models, supplemented by lessons learned from the case study, which together form a basis for the brand page management model.*

The spiral model and the basic marketing plan differ in when certain steps are to be taken (e.g. at what point in the process the risk analysis should take place). The author has chosen to place such steps into the phase that most closely matches the lessons learned from the case study, arguing that 1) this approach most closely models the situation in a real-world project and 2) that the exact placement of a specific step in a phase is less important than making sure that constraints and dependencies are observed.
In summary, the BP-MM can be presented as a model that contains four phases and two types of iteration: tactical and strategic. A visualization of the model is presented in Figure 37:

**Deliberation Phase**

The initial steps towards setting up a brand page are organizational, in that management commitment is needed and the stakeholders need to be defined. The initiators of the project may also remain active in the project as stakeholders or even moderators, as described in the case study.

An important step during the initial considerations is defining the objectives. A formal goal with marketing objectives, measurements or key performance indicators (KPI) helps guide the project and the team.

**Preparation Phase**

In the preparation phase, risks need to be analyzed and countermeasures defined for these risks. Policy questions, such as operational hours, conversational tone and content guidelines require discussions with all stakeholders and sign-off before the brand page can be launched. Similarly, the case study showed the need for a tight integration of the content plans and policies with existing marketing plans and brand concepts.
Finally, the moderator team and stakeholders need to understand the existing environment in terms of competitor sites but also related sites that require a plan for action or inaction.

**Moderating and Monitoring Phase with Tactical Control**

The case study shows in great detail how the moderator activities during the execution phase are both proactive (i.e. the moderators post different kinds of content, polls, contests, etc.) and reactive (i.e. monitoring user posts and reacting to them). A key activity during this phase is the tactical control, which takes the form of closely monitoring member numbers and activity at a frequency described in the policy, and reacting by altering or maintaining moderator activity.

Since by definition a brand page is part of a larger SNS, the moderators have dependencies regarding the technology and policy decisions made by the SNS. Since these can change unexpectedly, constant monitoring is a necessary step in the execution phase. Additionally, this phase may contain advertising campaigns such as buying social media ads and should have fixed and regular reporting to keep stakeholders informed.

**Evaluation Phase with Strategic Control**

While frequent monitoring during the execution phase is a necessary requirement for successful moderation, this type of monitoring necessarily needs to be kept to metrics that are easily obtained and interpreted. A deeper analysis of post content or moderator impact, as well as comparisons to related brand pages, requires significantly more effort. In return for the effort, the understanding gained from the analysis can be used for strategic control, which means altering policy, metrics or larger strategic or organization aspects of the management of the brand page.

In summary, the proposed model combines the strength of the spiral model of iteratively evaluating, planning and executing with the concept of “tactical” and “strategic” control taken from the basic marketing planning model. Two aspects not covered by either model but demonstrated as being important steps during the case study were the integration with marketing and branding, as well as the need for continuous moderation. These were added to the PB-MM to form a complete model for managing a brand page.
The proposed BP-MM reflects the strengths of the two existing models (Spiral Model and Basic Marketing Planning Model), as well as incorporating lessons learned from the case study presented in this chapter. The following section concludes the chapter with implications, lessons learned, limitations and recommendations.

4.6. Conclusion

The case study described in this chapter explained the steps taken by Valora Retail in launching and operating a Facebook brand page for their private label ok.- brand of low-cost and high quality products. In examining the early deliberations that took place, the preparations and launch of the ok.- Facebook brand page, as well as showing the connected nature of moderating, monitoring and evaluating the brand page activities, data was gathered that could be compared to existing literature as well as used to extend current knowledge. Particularly, the case study served as a basis for proposing a new model for the management of a social media brand pages. The implications, lessons learned and limitations of these activities are described in this section, followed by an outlook for future research and an overall summary with recommendations.

4.6.1. Implications

The research performed provided new insights regarding the importance of measurements, communication and professional moderation. Additionally, the proposed brand page management model (BP-MM) introduces two formal iterative loops into the process of managing a brand page, which takes advantage of the learning taking place and the adaptations that are necessary for the brand page to be successful.

Importance of Measurements and Comparisons

The importance of accurate measurements and corresponding reactions in management and moderation of the brand page were shown both in the case study and the literature review. The measurements described in this chapter focus on daily activities, such as monitoring membership numbers and post activity. They also include the deeper analysis that needs to be performed on the data from the brand page to understand patterns in topics or sentiment. In addition, comparisons with related brand pages (such as competitors or brands
with a similar volume or tone) provide a basis for benchmarking key metrics (e.g. number of users, user activity), as well as learning best practices (e.g. number of posts per week, ratio of text posts to photos).

**Risk analysis, Countermeasures and Communication**

Since social networks are still an immature and not fully understood communication channel, setting up a brand page in the context of an existing organization with an established marketing plan might require additional organizational effort. The case study showed the value of discussing possible risks and credible countermeasures in detail with the relevant stakeholders. Similarly, a regular update about the status of the brand page for the stakeholders and interested parties proved a valuable tool for building trust in this new medium.

**Professionalizing Brand Page Moderation**

Over the course of the case study (January 2010 to February 2011), the role of the moderator noticeably changed, not only for the ok-. brand page, but also for other brands present on the social network. While the improved look and interaction on brand pages was visible to any user of the social network, the introduction on the backend of new tools, best practices, metrics and other support for moderators noticeably professionalized the moderator’s job. This trend is likely to continue with the result that social media brand pages will become a standard channel in communicating with consumers, and as such will have a fixed place in any company’s marketing department. Which platform or platforms this will be, is subject to change over time.

**Iterations: Accounting for Learning and Environmental Changes**

The final implication of the research performed is embodied in the brand page management model (BP-MM) proposed in this chapter in the form of iterations built into the normal process of operating any brand page. Despite the professionalization described above for the moderation of a brand page, the medium of social networks is still new and frequently changing. Thus, any team dealing with brand pages is likely to undergo constant learning for themselves on the one hand, and, on the other hand, be required to frequently adjust to any changes in technology or policy introduced by the social network. Iterations in the process allow the organization to benefit from both the learning and to comply with any necessary changes.
These implications lead to the descriptions of lessons learned in the next section below.

4.6.2. Lessons Learned

Working closely with Valora Retail and being able to follow all aspects of setting up and operating a brand page provided important benefits as well as a few challenges.

Relevance to Retail

The findings of the research are based on experience gathered with an existing brand in a live setting. As such, they are highly relevant and applicable for retailers in general. The proposed model (BP-MM), the methods described, and the implications detailed in the sections above are of practical relevance to any brand or retailer setting up a new brand page or interested in improving the performance of an existing brand page.

Academic Relevance

In using existing process models as a basis, the case study showed their inadequacy for the new social-media realm. As a result of the research, a new model has been proposed, which is an addition to the body of existing knowledge. Additionally, the analysis performed on the brand page data set required the use of methods that had not yet been published in literature and will be the subject of a future publication.

Constraints in Industry-Based Research Projects

Overall the benefits of being able to work with an industry research partner far outweighed the constraints. The benefits included being able to use an existing brand with a strong following (especially among Millennials, which is also the Facebook target group), and having a dynamic and interested team at Valora Retail with which to work and exchange ideas.

As with any research project outside the academic or laboratory environment, the research team had to work around constraints imposed by the industry partner. Among those was the lack of control of timing, since the project stakeholders determined decisions such as the launch date. Also, management decisions were not always transparent to the researchers, since they were
often made in multiple discussions within the stakeholder team and in exclusion of the research team.

The constraints discussed in this discussion are closely related to the limitations of the research described in the next section.

4.6.3. Limitations

The following limitations in the research need to be considered when judging the results presented in this chapter.

Data Based on a Local Brand

The Facebook brand page described in this case study was based on the Valora Retail private label brand ok.-. By the nature of this brand, which is only available in German-speaking Switzerland, the reach is highly local. This had implications for the brand page which might also affect the results of the research. For example, the brand page only needed to operate in one time zone and in one dominant language. This lent itself to having the moderation take place largely during normal office hours. Similarly, the consumer posts overall followed a daily and weekly rhythm that might be particular to German-speaking Switzerland and not generally applicable.

These factors might well have influenced the measured effects of the Facebook moderation, and therefore the reported results might not be applicable for a global brand operating on a 24-hour schedule in order to accommodate all the time zones and consumer patterns of their global markets.

Focus on Retail and Fast-Moving Consumer Goods

The focus of this chapter was on retailers and consumer-good brands, particularly fast-moving consumer goods. The applicability of the research for other types of consumer brands, e.g. luxury brands or cars, is not certain. Similarly, the different methods of data analysis or the proposed BP-MM might not produce the same results for companies outside the retail industry in general, such as for example airlines or banks. And the B2C focus of this research might not translate to a B2B environment.

Using Facebook Brand Pages

Many different social networks exist, but for the research presented, only data from Facebook was considered. As explained earlier, Facebook was chosen due
Management of a Social Media Brand Page

to the size of its user base and its importance to advertisers (see 1.4.3 “Facebook as an Example of Social Network Sites”). As such, the results are applicable to other Facebook brand pages, but might not automatically translate to other social networks. These limitations are opportunities for future research, which are presented next.

4.6.4. Future Research

From the descriptions above of the limitations of the presented research, three suggestions for future research follow from the work described in this chapter:

The results of the research should be verified against a) global brands which operate over multiple time zones and languages and b) brands presenting themselves on social networks other than Facebook.

Additionally, the methods and model presented might be applicable to industries other than retail and fast-moving consumer goods, but this would need to be verified through future research. Specifically, the patterns of interaction from the consumers as well as the reactions to moderator posts could be compared to an analysis of global consumer brands, or brands outside the consumer-goods and retail industries.

4.6.5. Summary and Recommendations

Summary of Findings

The ok.- Facebook brand page now counts over 56’000 users¹⁹ and is considered an unqualified success within Valora. The case study describes the beginnings of this brand page and one year of moderation (January 2010 to February 2011). In that time, a deep understanding was gained of both the processes and methods necessary for the management, as well as the criteria for moderation of a successful brand page.

The management of a brand page requires an iterative process model. Using two existing models, and supplementing them with data from the case study, the following BP-MM was proposed, with both tactical and strategic iterations as the key feature (see Figure 37).

¹⁹ www.facebook.com/okPunktStrich the status “56,833 people like this” as of 18 September 2011
The case study data also provided a detailed understanding of the different aspects of moderating a brand page, showing the importance of high-level and detailed measurements with corresponding analysis, organization-internal communication that takes the immaturity of social networks as a channel into account and, finally, an emphasis on learning.

**Recommendations**

Following a proven process in setting up and operating a social network will reduce the uncertainty inherent in operating in such a new medium. Once the brand page is operational, the activities of daily monitoring and moderating move into the forefront. To increase the success of the brand page, the research presented in this chapter strongly supports the general implications:

- Moderator and user activity on the brand page need to be measured daily. High-level metrics should be assessed daily to allow tactical control, and deeper analysis needs to be performed regularly to support strategic control.

- Data gathered daily from related brand pages serve as a basis for comparison as well as providing a source for gaining an understanding of “best practices”.

- The newness of social media as a communication medium, as well as the brand page’s dependency on technical or policy decisions taken by the owners of the social network, require continuous learning and adjusting by the moderators. To best profit from the knowledge thus gained, an iterative approach to managing the brand page is necessary.

In summary the case study provided a rich base of data upon which a model for brand page management could be developed, as well as a deep understanding of the types of measurements and actions necessary for operating a successful social network brand page.
5. In-Store Advertising with User-Generated Content

Of the three dominant Web 2.0 technologies in retail defined in Chapter 1 “Introduction”, the final one to be examined in this dissertation is the use of user-generated content (UGC) for advertising. As described in Chapter 2 “Related Work”, the current uses of UGC in advertising are found either online in the form of advertising alongside UGC or as statements and quotes used in advertisements in advertising campaigns, both online and offline.

This chapter explores a form of advertising that has not been treated in literature: using UGC in the context of pervasive, in-store advertising, i.e. on public displays shown at the point of sale, a form of advertising that falls into the domain of “Pervasive Advertising”.

The research described in this chapter will be published in the “Pervasive Advertising and Shopping” book, edited by Müller, Alt and Michelis, which will appear as part of the “Springer Human-Computer Interaction Series”. This dissertation chapter contains excerpts from the contributed article “Social Networks in Pervasive Advertising and Shopping” (Dubach Spiegler et al. 2001c), which are not further demarcated in the text.

5.1. Introduction

With the proliferation of public displays in the retail environment and the simultaneous rise in social networks, a new opportunity presents itself to show social network comments in stores. This chapter bases its ideas on the use of social networks in relation to word of mouth marketing (WOM) and will apply this concept to the role of social networking in advertising and retailing, particularly focusing on digital signage.

To deepen the understanding of this novel field, an experiment is presented in which Valora Retail, the chain of small-space retail stores described in Chapter 1 “Introduction”, measured the effect of pervasive advertising with UGC in a controlled field study using sales data.

The retail industry is one among many that is trying to understand what the incredible rise of social networks (Shankar et al. 2010) – such as Facebook –
means for their business. The force of word of mouth (Agarwal et al. 2008; Chevalier and Mayzlin 2006; Godes and Mayzlin 2009) and opportunity to precisely direct messages to an audience have large appeal for the retail business. In parallel, retailers are investing more and more heavily in a better-understood pervasive technology to convey marketing messages: digital signage. These screens show sales and brand-related content, such as advertisements, tailored content, or brand building information.

Small-space retail stores have a particular interest in better understanding the combination of these two technologies, since they often function as meeting points and social hubs in the areas where they are located. At the same time, as described in Chapter 1 “Introduction”, the basic business model of these kiosks is facing serious business challenges from electronic tablets replacing magazines, regulations squeezing the sales of tobacco and sweets, and more lottery gambling moving online.

In an effort to counter these threats and take advantage of the new technological opportunities, Valora Retail conducted a large, in-store digital signage experiment. This allowed us to conduct a field experiment to explore the impact of showing social network comments to consumers in a buying situation. The experiment offered the opportunity to collect measurable sales data and to detect if social network elements on digital signage have a systematic effect on sales.

This chapter describes the background and method of the field experiment, the data gathered, and the results obtained. In the final section, the findings are summarized and particular focus is placed on implications for digital signage in retail stores.

5.2. Justification for the choice of methodology

Retail stores have a particular interest in better understanding the combination of digital displays and UGC from SNS, since retail stores often function as meeting points and social hubs in the areas where they are located. This is especially true for kiosks, which explicitly include this social aspect Valora Retail’s vision for the future of kiosks.

However, when attempting to translate the store as a physical meeting point to the digital world, or when attempting to define an intersection between the physical and digital worlds, many questions arise. One of these is how to use
public displays to show the customer comments from Facebook to the customers who are physically in the store in such a way that people can relate to these “digital” consumers without feeling that their privacy has been invaded.

More important, from the viewpoint of a retailer, is the question of profitability of such an action. Does the effort of placing and maintaining digital displays and the cost of managing digital content result in an increase of sales? To answer this question using as much of a real-world setting as possible, the method of a field experiment was chosen.

The goal was to understand the effect of social networks on public displays using a field experiment, as described by A.J. Brush in “Ubiquitous Computing Fundamentals”:

“People and their use of technology are at the center of [the ubicomp] vision, necessitating an understanding both of people’s needs and their reactions to new ubicomp applications and experiences. [...] Field studies are a particular type of user study conducted outside a research laboratory or controlled environment (i.e. “in the field”). Field studies offer the opportunity to observe people and their use of technology in the real world.” (Brush 2009, p163)

This view that field studies are an appropriate method to gather understanding of people’s interaction with pervasive technologies is supported by other research, which sites the value of in-situ settings (Consolvo et al. 2007; Rogers et al. 2007). The main arguments are that field studies present users with a natural environment which can have a significant impact on the user experience and show up unexpected or even surprising experience problems.

While this method of research allows for a wealth of data to be gathered, it has drawbacks which need to be accounted for, namely the loss of control over the subject’s experience. In choosing this method, the numerous uncontrollable factors that a real-world environment entails must be acknowledged and accounted for as well as possible.

A further issue to be considered is the considerable effort that a field study requires, both in preparation as well as in data gathering and post-processing. Despite these drawbacks, a field study is appropriate for the research question
at hand, since a laboratory experiment would not allow a realistic assessment of the consumer buying behavior that is the final measure for retailers.

In pervasive computing, three types of field studies are applicable (Brush 2009):

- **Studies of current behavior**: Understanding what people are currently doing with existing devices and technologies.

- **Proof-of-concept studies**: Exposing a new technology to a real-world environment that will show if and how it functions in the hands of users.

- **Experience using a prototype**: Discovering how a prototype changes people’s behavior or finding what new things can be done thanks to the technology.

It is this third type of field study that is applicable to the research question, since the goal is to determine a change in buying behavior. Experience-focused field studies tend to run longer – weeks or months – in an effort to truly capture behavior changes. Also, the technologies being used do not necessarily need to be a novel contribution but might be an existing technology used in a novel way. This is an apt description of the public displays used by Valora Retail, where UGC represented a new type of content, though the technology itself was not novel.

The field study is a good match to the research question, allowing for real-world experiences with measurable assessment of how the technology will affect sales. Additionally, the technology type is suitable to an experience-focused field study as described above. Accordingly, this method will be selected for gathering the data to answer the research question’s hypotheses. This next section describes the hypotheses and experimental design.

### 5.3. Hypothesis and Experimental Design

As companies like Valora Retail invest substantially in digital signage infrastructure, it is important to quantify the effectiveness of such digitization strategies and to test for measurable effects in terms of sales. Depending on the content being shown on the digital signage, the effectiveness might differ. In keeping with the overall question that retailers are trying to answer, namely the applications and effectiveness of web technologies, the focus here is
In-Store Advertising with User-Generated Content

placed not on traditional advertising or “infotainment” but rather on UGC. The following hypothesis and experimental design aim to formalize this basic question.

5.3.1. Hypothesis

The awareness and therefore the effect of digital signage in a retail environment is improved by showing particular and domain-related content, rather than general content (Huang and Koster 2008). Thus, the hypothesis stipulates that such specific and domain-related content is positively related to sales in contrast to unspecific or random content:

H1) Showing specific domain-related content information leads to higher sales volume than showing random, unrelated content.

Next, the assumption is that presenting specific product information shows a stronger effect on sales compared to showing more general brand-related content (i.e. showing a specific product from a brand, rather than just the brand). The rationale behind this is related to findings from consumer-behavior research that found that the more specific the given information is, the better it can be mentally processed by a consumer, which in turn leads to specific formative buying behavior (Trusov et al. 2009):

H2) Product-related content yields higher sales than brand-related content.

Finally, while many companies actively engage in community activities on social networking sites like Facebook (MacInnis and Price 1987), it still remains unclear if presenting comments from members of a company-led community reveals specific effects on sales. Arguably, in the environment of a dynamic kiosk, consumer behavior is more time-pressured than time-abundant and more information-overloaded than lacking in visual information stimuli. Therefore, due to these retail environment conditions, the sales impact of traditional advertising will be stronger than social network comments, as these advertising stimuli can be processed faster and demand less cognitive effort:

H3) Traditional advertising yields higher sales than social network comments.
5.3.2. Dependent and Independent Variables

To prove the above hypotheses, different content needs to be shown and the effects measured. Choosing which content to show in which location and choosing the timing was based on a completely randomized experiment design to minimize the impact of the different influences that come from the “natural” setting of this field study (Michelis and Send 2009).

The independent variables are based on the experimental variations where five different types of content are displayed on the in-store digital signage: within the first condition we varied product- or brand-specific content. Secondly, we either presented traditional advertising or social network comments of the day from the ok.- Facebook fan page. For this, the three latest comments were collected every evening at 8 pm, including the author's first name and the initial of her last name.

In summary, this resulted in the following content types shown on the digital signage:

1) Traditional advertisement of the ok.- brand (see Figure 38)

2) Traditional advertisement of the lead ok.- product: ok.- Energy (see Figure 39)

3) Social network comments from “okPunktStrich” of the ok.- brand (see Figure 40)

4) Social network comments from “okPunktStrich”: ok.- Energy (see Figure 41)

5) Control condition: no ok.- content was shown

Overall, this produced a final 2 (product vs. brand) $\times$ 2 (traditional advertising vs. social network comments) experimental design, and in addition, every kiosk was treated with a control condition where no experimental manipulations were shown. In keeping with scientific experiment design, every kiosk was randomly assigned to one of the five conditions lasting for one week each.

The study’s dependent variable is the financial data of daily sales, as captured by the cash register of each of the 16 experimental kiosks. Since the effect measured the general sales for the duration of the experiment, and in order to control for any spurious effects of a possible underlying trend component, a common time-series method was applied to trend-adjust the sales data first.
In-Store Advertising with User-Generated Content

(Box et al. 2008). This allowed running a linear model on the longitudinal sales data while subtracting the least-squares trend, as a general procedure in time-series analysis. All statistical models were applied to this final, trend-adjusted, stationary time series.

5.3.3. Experimental Design and Procedure

In order to test these hypotheses, the field experiment was run in 16 kiosks distributed all over German-speaking Switzerland. These were located in airports, hubs of public transport, inside shopping centers and in rural areas. The content was systematically manipulated to smooth the uncontrollable variations that are characteristic of in-situ studies.

Initially, Valora Retail had assigned 16 parallel (twin) kiosks to act as a control for each experimental kiosk, but upon inspection, the matched pairing did not meet the requirements for a scientific study and were dropped. Specifically, the analysis of the kiosks revealed major differences in terms of location, sales area size and sales volume.

The digital signage in the experimental stores consisted of one 40” screen per kiosk, mounted above eye level. Since the layout of each kiosk was unique, the exact location of the screens varied from kiosk to kiosk. However, they were all placed to be highly visible either from the entrance or from the cash register. Figure 43 below shows an example of the digital signage placed within the kiosk environment.

The content of the digital signage, as defined by the five independent variables, was in stores for 5 weeks from 5th of May to the 8th of June 2010. Of the systematic and randomly generated experimental conditions, each condition was run for one continuous week. Since there were five conditions, the duration of 5 weeks allowed for an ideal amount of data gathering, resulting in one full week of data per experimental condition. The UGC on the screen was shown within a pre-defined 2-minute loop and was visible for 15 seconds in each loop.
Figure 38: Still frame from video advertisement for the ok.- brand

Figure 39: Digital signage screen with social networking comments for the ok.- brand
Figure 40: Still frame from video advertisement for the ok.- “Energy Drink” product

Figure 41: Digital signage screen with social networking comments for ok.- “Energy Drink”
The participants in the study consisted of the normal kiosk customers, who were not advised or instructed in any way but were left to conduct their normal purchases. The monitoring of their behavior was in the form of measuring product sales at the sales register. There was no specific control group of shoppers assigned, but rather the control condition was built into the experimental conditions as a within-subject design, i.e. week-by-week shoppers were shown different UGC content or control-content (regular advertising) and sometimes no brand content at all, as described above.

The buying behavior was captured by the cash registers of each of the 16 experimental kiosks and fed nightly to a central “Business Intelligence” database at Valora Retail. This database provided the data used for the analysis described in this chapter and was part of the experiment preparation, elaborated on in the next section.

5.4. Experiment Preparation

In an effort to increase sales and gain third-party advertising revenues, Valora Retail conducted a large digital signage experiment involving a total of 50 locations over the course of 3 months from April to June 2010. Fortunately, this experiment proved flexible enough to accommodate the UGC field experiment described in this chapter. Gaining approval from Valora Retail to design part of this larger digital signage experiment proved to have three major advantages: 1) Technical setup of digital signage was planned and executed by Valora Retail, 2) a content management system was in place and supported by an agency and 3) daily collection of the sales data gathered by the cash registers in the individual kiosk locations had been automated and the data was being collated in the Valora Retail business intelligence system.

The exact setup of the field experiment in the context of this larger digital signage experiment, plus the details of the content generation that was necessary for the UGC field experiment, is described below.

5.4.1. Digital Signage Setup

As part of the digital signage experiment, Valora Retail installed a variety of screens in the kiosks: small screens placed just above the sales register, medium screens located above products, or large screens placed in high-visibility locations. Of the 50 kiosks in the trial, 16 contained the kind of large 42” screens that were suitable for the UGC field experiment in planning.
A larger screen was necessary, since the UGC text needed to be easily legible to busy shoppers.

The kiosks were all located in German-speaking Switzerland and were distributed in urban and rural areas, in shopping centers, airports and train stations. See Table 8 below for an overview of kiosk locations participating in the Valora Retail digital signage pilot with the identifier, kiosk name, type, cluster, and sales area.

<table>
<thead>
<tr>
<th>VST#</th>
<th>VST-Bezeichnung</th>
<th>Typ</th>
<th>Cluster</th>
<th>VF m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>10353</td>
<td>KIOSK MMM in BRUGG</td>
<td>K1</td>
<td>Agglomeration</td>
<td>12.55</td>
</tr>
<tr>
<td>11710</td>
<td>KIOSK LADENZENTRUM, MM in LANGENDORF</td>
<td>K3</td>
<td>EKZ</td>
<td>96.34</td>
</tr>
<tr>
<td>15902</td>
<td>PC Airport Shopping in Zürich-Flughafen</td>
<td>K3</td>
<td>Flughafen</td>
<td>93.80</td>
</tr>
<tr>
<td>21230</td>
<td>BAHNHOFKIOSK in HINWIL</td>
<td>K2</td>
<td>ÖVK</td>
<td>26.30</td>
</tr>
<tr>
<td>24424</td>
<td>KIOSK STATION BLT in BOTTMINGEN</td>
<td>K3</td>
<td>Agglomeration</td>
<td>42.43</td>
</tr>
<tr>
<td>26800</td>
<td>KIOSK BEIM MIGROS in TURBENTHAL</td>
<td>K2</td>
<td>Agglomeration</td>
<td>22.30</td>
</tr>
<tr>
<td>25859</td>
<td>KIOSK FLECKEN in ROTHENBURG</td>
<td>K3</td>
<td>Agglomeration</td>
<td>20.60</td>
</tr>
<tr>
<td>25863</td>
<td>KIOSK BEIM MIGROS-MARKT in SCHLIEREN</td>
<td>K2</td>
<td>Agglomeration</td>
<td>13.20</td>
</tr>
<tr>
<td>25920</td>
<td>KIOSK RUDOLFSTRASSE in WINTERTHUR</td>
<td>K1</td>
<td>ÖVK</td>
<td>10.10</td>
</tr>
<tr>
<td>27806</td>
<td>KIOSK EKZ ZUGERLAND in STEINHAUSEN</td>
<td>K3</td>
<td>EKZ</td>
<td>105.00</td>
</tr>
<tr>
<td>31432</td>
<td>KIOSK PERRON 1 in BASEL</td>
<td>K2</td>
<td>ÖVK</td>
<td>49.20</td>
</tr>
<tr>
<td>31635</td>
<td>BAHNHOFKIOSK HB in BERN</td>
<td>K3</td>
<td>ÖVK</td>
<td>117.00</td>
</tr>
<tr>
<td>25726</td>
<td>KIOSK SCHUETZEN in BELP</td>
<td>K2</td>
<td>Agglomeration</td>
<td>24.50</td>
</tr>
<tr>
<td>35582</td>
<td>KIOSK BAHNHOFSHOPPING in LUZERN</td>
<td>K3</td>
<td>ÖVK</td>
<td>84.67</td>
</tr>
<tr>
<td>25839</td>
<td>KIOSK POST in DENSINGEN</td>
<td>K1</td>
<td>Agglomeration</td>
<td>10.20</td>
</tr>
<tr>
<td>11156</td>
<td>KIOSK BEIM MM in DOETTINGEN</td>
<td>K3</td>
<td>EKZ</td>
<td>26.85</td>
</tr>
<tr>
<td>38913</td>
<td>BAHNHOFKIOSK in WANGEN A/AARE</td>
<td>K3</td>
<td>ÖVK</td>
<td>54.10</td>
</tr>
<tr>
<td>39526</td>
<td>BK PERRONUNTER?HRUNG in ZUERICH</td>
<td>K3</td>
<td>ÖVK</td>
<td>77.40</td>
</tr>
<tr>
<td>39544</td>
<td>BAHNHOFKIOSK in ZUERICH</td>
<td>K3</td>
<td>ÖVK</td>
<td>61.10</td>
</tr>
<tr>
<td>39688</td>
<td>BK LOEWENPASSAGE in ZUERICH</td>
<td>K2</td>
<td>ÖVK</td>
<td>24.45</td>
</tr>
<tr>
<td>39725</td>
<td>BAHNHOFKIOSK WELLE in BERN</td>
<td>K1</td>
<td>ÖVK</td>
<td>9.70</td>
</tr>
<tr>
<td>39798</td>
<td>BK TIEFENBRUNNEN in ZUERICH</td>
<td>K3</td>
<td>ÖVK</td>
<td>48.51</td>
</tr>
<tr>
<td>29789</td>
<td>k kiosk Hofacker in Muttenz</td>
<td>K3</td>
<td>Agglomeration</td>
<td>75.20</td>
</tr>
<tr>
<td>10050</td>
<td>KIOSK AEROPORT in BASEL</td>
<td>K3</td>
<td>Flughafen</td>
<td>63.30</td>
</tr>
<tr>
<td>29763</td>
<td>KIOSK ABFLUG T2 L1 in ZUERICH-FLUGHAFEN</td>
<td>K3</td>
<td>Flughafen</td>
<td>87.85</td>
</tr>
</tbody>
</table>

Table 8: List of kiosks with large screens participating in the digital signage pilot (Typ=classification of kiosk, Cluster=location, VF=Verkaufsfläche / sales area)

Upon request by the research team, all 16 locations with the large screens were also available for the UGC field experiment, and the proposal to conduct this experiment received approval from Valora Retail. Since the larger digital signage pilot was planned and executed by Valora Retail, the installation and maintenance of the screens was taken care of. This was fortunate for the research team of the UGC field experiment, since the technical maintenance of
the screens proved to be very time-consuming and costly for Valora Retail, but placed no further burden on the research team.

5.4.2. Social Network Content

In addition to gaining access to the physical infrastructure needed for the UGC field experiment, the research team needed access to content for the screens. For this, they gained management support from Valora Retail to use their private-label products recently launched under the brand name of ok.- (described in detail in section 1.2. “Research Idea and Context”). Use of this private-label brand allowed for far greater control and manipulation of brand and marketing messages than would have been possible with a national or global brand not owned by Valora Retail.

In effect, any proposed brand activities, such as starting a Facebook “Brand Page”, advertising the Facebook Brand Page, etc. could quickly be signed off by Valora Retail without having to involve further manufacturing companies or brands.

The Facebook “Brand Page” for ok.- was planned and set up ahead of the UGC field experiment for the express purpose of providing a platform to harvest UGC from, in addition to serving as a pilot project for Valora Retail. The activities around the ok.- Facebook Brand Page are described in detail in Chapter 4 “Moderation of a Facebook Brand Page”.

The Facebook Brand page launched in March 2010 and served as the exclusive source for the social network comments that were used on the digital signage. An example screen shot of the ok.- Facebook brand page is shown below if Figure 42.

To ensure high-quality UCG, a guideline of conduct was formulated for the posts and placed on a separate “tab” within the Brand Page, labeled “Netiquette”, explaining that personal attacks and comments that violate the law would be removed. In parallel, Valora Retail defined an “escalation path” that would be taken if comments on the Facebook fan page violated these guidelines.

Another crucial part of the experiment setup was defining whether comments would be edited, shortened or censored. The decision was taken by Valora Retail that the comments would not be edited except for length if they did not fit the public display template. One exception was made for the case if posts violated specific guidelines that were set up to exclude offensive content.
(including porn, racism, sexism, personal ads, etc.). However, in the course of the field experiment, no censoring of comments was necessary. Importantly, since comments that were merely negative were not censored, the result was that in some posts shown on the digital signage the customers were actually being critical of the ok.- products.

Figure 42: Screen shot of Facebook Fan Page for the private label ok.-

The content for the field experiment was taken from the live Facebook ok.- Fan Page daily. Harvesting the UGC once per day represented a compromise between the theoretical ideal of posts appearing in the kiosks immediately on the one hand, which would have also been in line with relevant literature, and practicality on the other hand. The proven need for timeliness is discussed in Chapter 2 “Related Work”, where timeliness of the content has been shown to be crucial, since a delay might invalidate the content (DiFerdinando et al. 2009).

With regard to the realities of implementation, several constraints due to staffing emerged: 1) immediate and automatic display of posts from the ok.- Facebook Fan Page would expose Valora Retail to the risk of potential abuse (e.g. people posting lewd, illegal or commercial messages). Maintaining the immediacy while eliminating the risk would require a full-time editorial staff.
2) The UGC field experiment was conducted daily over 10 weeks and since the content had to be manually processed, any chosen frequency would require consistent, daily staffing. Since no budget was available to hire additional staff, the research team agreed to a compromise of harvesting and displaying the UGC on a once-daily basis, providing a steady frequency without imposing an excessive work load.

As a result, for the duration of the UGC field experiment, every day at 8pm, the three most recent brand comments and three most recent ok.- Energy drink comments were copied from the ok.- Facebook Brand Page, edited for length and to ensure the poster’s anonymity and transferred to the content-management system of the digital displays. From there, the system relayed the content to all relevant kiosks based on the pre-defined schedule, ensuring that the updated content appeared on the digital displays when the kiosks opened in the morning. Since the Facebook posts shown on the digital display contained a time and date stamp, the freshness of the content was apparent to the viewer.

5.4.3. Customer Privacy

Transparency toward the customers has a high priority for Valora Retail, and correspondingly, the intent to use the fans’ Facebook comments for commercial uses was openly declared at the top level of the fan page, a statement that was specifically drafted to include the UGC field experiment.

During the UGC field experiment, and also later, no concerns regarding privacy were raised by any of the posters, nor from any other source. As an indication of the high comfort level that Facebook posters have with the public nature of their posts, the vast number of participants in a follow-on contest agreed to have their post appear on a public display. The contest asked users of the Facebook fan page for one week to mark posts with an asterisk (*) if they wanted their posts to be published on the public displays. About 80% of the comments posted during the week of the “ok.- star” contest were marked with an asterisk, indicating the high willingness of fans to have their comments used in public.

Nonetheless, the Valora Retail communications team requested that in taking the Facebook posts and preparing them for the UGC field experiment, the user’s photo and last name were removed for privacy reasons. This resulted in consumers being able to recognize themselves since the first name and first letter of the last name were retained, but otherwise the post would not be
able to be traced back to them from the content on the screen. Of course, any member of the ok.-Brand Page, which was public, would be able to see the full name on the Facebook Brand Page.

5.4.4. Screen design

While the high-footfall kiosk locations offer any pervasive application exposure to many eyes, the challenges for pervasive applications in this kiosk environment are numerous: the customers are exceptionally mobile, heading to or from somewhere, and are usually in a hurry. The environment is often very busy with crowds of people, dense information signage (e.g. train time tables, direction signs), conventional advertising and the usual, visually stimulating shopping environment. All this makes for a very intense visual experience against which any pervasive application will need to compete.

Valora Retail commissioned an agency with the design for the digital signage experiment. All digital signage in the kiosks consisting of 40" screens were designed with an identical layout by this agency. It featured an upper bar with time and date, a lower bar with news headlines and a side bar with infotainment, such as weather and horoscopes. The design was part of all of Valora Retail’s digital signage experiments and could not be changed for the UGC field experiment, even though the visual business of the design was a source of concern for the research team from the beginning.

See Figure 43 on the next page for an example of the screen design that was pre-defined by the agency hired by Valora Retail.
The same agency assisted the research team in designing the part of the digital display that was available for the UGC field experiment. The left side either contained the ok.- logo with no reference to a product (see Figure 39 above) or alternatively, it contained an image of the ok.- Energy Drink (see Figure 41 above). In the text area, room was provided for three customer statements with their first name and first letter of the last name. For each post, a time stamp was added and there was a field for both the number of Facebook “Likes” and Facebook “Comments”.

Apart from the change of how the name was shown and the lack of a customer photo, the Facebook look and feel was kept so that passers-by could quickly identify where the content originated from. Along the bottom, the Facebook logo and the Facebook URL in large font were added to help the recognition, as well as to promote the ok.- Brand Page.

5.4.5. Data collection

As with the digital signage setup described above, being part of the larger Valora Retail digital signage experiment proved beneficial to the research team for the data collection. The larger experiment had set up the necessary processes to gather sales data from each one of the kiosks involved in the
experiment. The data was collected daily and sent to a powerful “Business Intelligence” system (Cognos), which was set up to analyze the data through pre-defined queries (e.g. to identify the best-selling products per kiosk, or the frequency with which two products might be bought together). Valora Retail also possessed the skills to define new queries and was thus able to customize searches for the UGC field experiment.

For analysis of the data gathered during the UGC field experiment, Valora Retail generated a Business Intelligence report which produced sales data for the kiosks involved in the experiment as well as the “Control” kiosks for all the ok.- products for the duration of the whole UGC field experiment. Additionally, data on the sales of Red Bull (the leading energy drink and main competitor to the ok.- Energy Drink) was provided for comparison, and sales data for five months prior to the UGC field trial to allow for baseline setting. This data was delivered to the research team in a MS Excel spreadsheet format and prepared for statistical analysis. The results obtained from this analysis are described in the next section.

5.5. Results

The data collected during the UGC field experiment was analyzed using a linear mixed model. This section presents the results of this analysis, while the next section discusses the implications of the results presented here.

5.5.1. Method of Analysis

In order to test the respective hypotheses, a repeated measures linear mixed model (LMM) was applied to the data. This model family expands more traditional model assumptions and allows us to explicitly model correlated and non-constant error terms over time and the underlying covariance structure (Box et al. 2008). For the given data set, this is of major importance as this additional flexibility allows us to account for the store-to-store variation and store heterogeneity inherently present in the kiosks chosen for the UGC field experiment.

Additionally, the chosen LMM model specification takes into account repeated effects on single kiosks over time, such as marketing campaigns or other external factors that could not be controlled by the research team. The respective error terms are assumed to be independent between different stores.
Since all stores can be assumed to be randomly selected from a larger population, we specified the specific stores as a random effect within our model. This is important since we were not interested in specific effects of single kiosks but rather aimed to understand the hypothesized effects of our experimental variations in a general manner. Additionally, since we have repeated measurements of single stores over time that will be probably correlated with each other (sales volume in one week is not independent of sales volume in the following week), we had to find the optimal covariance matrix first. Therefore we started with a minimal first-order autoregressive covariance structure and expanded the model complexity by applying an autoregressive moving-average, a toeplitz-based covariance matrix, as well as a more complex unstructured covariance matrix.

In order to choose the most appropriate model specification we conducted likelihood-ratio (LR) tests between every nested model. Overall, the best fitting model was based on the unstructured covariance matrix. It outweighs its higher number of the to be estimated parameters (e.g., testing unconstrained (UN) vs. autoregressive (AR) model with a chi-square distributed LR test of \(-2LL_{UN} = 842.25\) vs. \(-2LL_{AR} = 890.66, \chi^2(13) = 48.41, p < .001\).

5.5.2. Analysis of Data

The LMM described above was applied to the data, the results of which are described in this section and summarized below in Table 9.

**Hypothesis 1**

As expected, and in support of hypothesis one, the experimental variation of the screen content yielded a significant positive effect on sales in contrast to the control condition, where only random and unspecific content was displayed (\(F(1,91) = 4.12, p < .05\)). Thus, this supports hypothesis one.

**Hypothesis 2**

Furthermore, the experimental conditions revealed two significant main effects, the first one in support of hypothesis two: The strongest positive effect was found for product-specific content in contrast to brand-specific content (\(F(1,601) = 9.628, p < .01\)). This suggests that product-related content reveals a much stronger and more behaviorally stimulating, even compulsive, effect than the presentation of the brand alone. Thus, hypothesis two is supported as well.
Hypothesis 3
Most importantly, the second main effect found in our analysis supports hypothesis three since it revealed a strong negative effect for Facebook comments compared to traditional advertising ($F(1,357) = 28.641, p < .01$). This finding has to be seen in context with the general nature of a kiosk: Actively reading social network comments requires cognitive capacity as well as motivation to process textual stimuli, whereas the visual cues of classical advertising are comparatively easy to process. The revealed main effects were not qualified by a significant interaction ($F(1,206) = .399, \text{n.s.}$). Hence, hypothesis three is supported.

Control Variables
Regarding the control variables, we found a significant effect for the respective geographical sales areas ($F(3,1411) = 5.267, p < .01$). Follow-up contrasts revealed that the significant effect was attributed to the difference between airport and public transport locations ($M_{\text{Airport}} - M_{\text{Public Transport}} = -26.62, SE = 8.21, p < .01$).

Most importantly, we found no significant effect for the degree of urbanity ($F(1,774) = .004, \text{n.s.}$). This finding underlines that the general effect of digital signage is not dependent on highly urban areas in contrast to non-urban areas.

Note that although airport locations are usually in more urban areas, the general effect between urban and less urban places is less crucial - thus, retailers promoting national brands should focus more on panel installations on the right target location regarding the sales place than on looking for or distinguishing between urban and less urban places.

Finally, and as expected, larger kiosks yield significant higher sales volume than smaller kiosks regarding the ok.- energy drink brand ($F(1,2947) = 21.936, p < .01$).
Summary of Results

The results presented in this section are summarized in the Table 9 below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>S.E.</th>
<th>t-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-22.67</td>
<td>15.47</td>
<td>-1.47†</td>
</tr>
<tr>
<td>Experimental Condition(^1)</td>
<td>24.5</td>
<td>12.06</td>
<td>2.03*</td>
</tr>
<tr>
<td>Brand Presentation(^2)</td>
<td>-33.88</td>
<td>10.89</td>
<td>-3.11***</td>
</tr>
<tr>
<td>Traditional Advertising(^3)</td>
<td>30.69</td>
<td>10.51</td>
<td>2.92**</td>
</tr>
<tr>
<td>Brand × Traditional Advertising</td>
<td>9.74</td>
<td>15.42</td>
<td>0.63</td>
</tr>
<tr>
<td>Small Kiosk Type(^4)</td>
<td>-40.43</td>
<td>8.63</td>
<td>-4.68***</td>
</tr>
<tr>
<td>Sales Location(^5) = Public Transport</td>
<td>26.62</td>
<td>8.21</td>
<td>3.24**</td>
</tr>
<tr>
<td>Sales Location(^5) = Local Retail</td>
<td>21.04</td>
<td>15.95</td>
<td>1.32†</td>
</tr>
<tr>
<td>Sales Location(^5) = Shopping Mall</td>
<td>-1.57</td>
<td>17.00</td>
<td>-0.09</td>
</tr>
<tr>
<td>Urban Area(^6)</td>
<td>0.88</td>
<td>14.58</td>
<td>0.06</td>
</tr>
</tbody>
</table>

\(^1\) Reference Category = Control Condition \(^2\) Reference Category = Product Presentation \(^3\) Reference Category = Facebook Messages \(^4\) Reference Category = Large Kiosk Type \(^5\) Reference Category = Airport Location \(^6\) Reference Category = Non-Urban Area

Table 9: Parameter estimates of fixed effects from repeated measures LMM

5.6. Discussion

The experiment described in this chapter allowed a comparison between standard advertising and displaying comments from a social network on digital signage, both for brand-centric content and product-centric content. The effects were measured using sales data gathered from kiosks and analyzed using repeated measures LMM. From this, several core conclusions can be drawn.

5.6.1. Increase in sales

Digital signage showing comments from social networks increases sales, though not as much as advertising (but more than showing unrelated content).

This finding has to be seen in context with the general nature of a kiosk: consumers tend to selectively process given information at the point-of-sale (Pieters et al. 2010) and due to consumers’ time constraints, retailers have to choose digital signage strategies that allow for very fast information processing with low cognitive involvement. Actively reading given social network
comments requires cognitive capacity as well as motivation to process textual stimuli whereas easy-to-process visual cues of classical advertising are not dependent on this assumption.

Specifically, the text-based nature of social network comments imposes an additional cognitive load on shoppers when compared to traditional advertising. This might be especially true in a busy retail environment which means that screen design must take this into account and aim to minimize the cognitive load.

5.6.2. Content of Social Network Comments

Displaying product-specific social network comments is more effective than showing general brand-related comments.

This suggests that product-related content reveals a much stronger and more behaviorally stimulating, even compulsive, effect than the presentation of the brand alone. This could be in support of the findings that show an increase of interest when content on digital signage is more specific rather than general (Müller et al. 2009).

5.6.3. Store Location

Digital signage showing the local ok.- brand increased sales in local transportation areas, but did not for locations that are frequented by more international consumers. This is easily explained by Swiss-German being an obscure language and the posts shown, therefore not being intelligible for the international consumers.

This effect suggests that retailers should strongly account for location-specific effects that are dependent on the general target audience: while airport area stores are probably more frequented by international consumers that aren't familiar with a specific national brand such as ok.-, this effect is reversed for locations with a high local awareness, such as local public transport areas or shopping centers.

5.6.4. Issues Faced

Implementation and execution of the UGC field experiment was greatly simplified by being part of the larger Valora Retail digital signage trial.
However, this situation at the same time produced circumstances that were not ideal for the UGC field experiment.

**Constrained Choice of Kiosk Locations**

For one, the choice of kiosks for the UGC field experiment was pre-determined. The research team took advantage of every kiosk with a large screen, resulting in the experiment being conducted in 16 kiosks. The location of these kiosks was thus pre-determined and any imbalances had to be accounted for in the experiment design. For example, there were far fewer rural locations than urban ones.

Of note is the geographical distribution of the experiment kiosks, which heavily favored cities, but not evenly (see Figure 44 below). In the case of the density of kiosks in and around Zurich, the argument can be made that this city is the economic capital of Switzerland. In contrast stands the over-representation of kiosks in Basel with four kiosks, in comparison to the similarly-sized Bern (the capitol of Switzerland), with only one kiosk participating in the digital signage pilot. This probably reveals a bias based on the fact that the headquarters of Valora Retail are located in Basel. Future research would need to choose the locations scientifically.

![Figure 44: Geographic distribution of kiosks participating in the UGC field experiment](image)
Unscientific Choice of Control Kiosks

Another issue with the choice of kiosks was the selection of the control kiosks: they had been selected based on criteria set internally by Valora Retail and upon closer examination by the research team it became clear that the selection did not display the scientific rigor necessary to act as a control group. So instead of being able to use the chosen control kiosks without screens, the control variable had to be built into the selection of 16 kiosks with the large display screens.

Duration of Customer Exposure to Social Network Comments

Thirdly, the experimental content was grouped together with advertising content from different brands which were all shown in the main window of the screen. The 15 advertisements played in a pre-determined sequence which repeated in a loop every 480 seconds. In effect, each advertisement showed for 15 seconds, though this was repeated throughout the opening hours of the kiosk.

Pre-Determined In-Store Screen Placement

Since the UGC field experiment was part of a larger digital signage pilot and relied on the pre-installed screens of this pilot, the placement of the screens was not under the control of the research team.

Specifically, neither the sample of all screen placements nor the placement of the individual screens were done according to any formal plan. Rather, the placement was chosen based on location of power outlets, available space, other signage already present in the store and visibility from either the entrance or the cash register.

This meant that some of the screens were located in an academically ideal situation above the products in question (see Figure 45 and Figure 47 below), but many were placed in a completely unrelated context.

In one case the screen was even partially obscured by other signage (see the examples in Figure 47 below).
Figure 45: Example of screen placements with screen ideally placed above the ok.- Energy Drink

Figure 46a: Example of screen placements in two different kiosk locations with screens placed in different variations
Pre-Determined Screen Design with High Cognitive Load

The last issue the research team faced was the pre-determined screen design, which ultimately had the highest impact on the outcomes of the UGC field experiment. Valora Retail hired an external agency that specializes in moving-image and electronic advertising by the name of Ultra. Together with Valora Retail, they produced a design that split the screen into four separate content windows: Below a static logo bar across the top with day, date and time, the main window displayed moving image advertisements in a loop and the side bar showed “infotainment”, i.e. information presented in an attractive way, such as horoscopes, weather, lottery numbers and similar content. Along the bottom, a news-ticker, branded with a logo from the newspaper that provided the content, switched at a high frequency (which varied during the duration of the pilot). See Figure 48 below for a graphical layout of the screen design.

20 www.ultra.ch
This design produced a visually busy screen and at the end of the Valora Retail digital signage pilot, this design was widely accepted as being too cluttered for the already busy environment of kiosks. This corroborates our findings described above, and previous research (Huang and Koster 2008), that the cognitive load must have been too high for the customers to process the social network information and the additional content on the screen almost certainly contributed to this.

5.6.5. Summary

Overall, the experiment produced results that significantly enrich our understanding of digital signage and underline the efficiency as well as the effectiveness of digital signage that rely on social network comments. While we found that product-related cues yield stronger positive effects than brand presentations, the more important finding is due to the decreasing effect of social network comments in comparison to traditional advertising. We believe that this finding is attributed to the more cognitive, as well as time-consuming processing of text-based messages, in contrast to visual stimuli of classical advertising.
5.7. Conclusion

This chapter showed that stores with digital signage displaying comments from social networks were able to increase sales, though not as much as those showing traditional advertising. Additionally, the data revealed that displaying product-specific social network comments a more effective than showing general brand-related comments. The chapter concludes with the implications of the UGC field experiment, recommendations for placing social network comments on digital signage, limitations and future research.

5.7.1. Implications

Our field experiment revealed new insights regarding the effectiveness of pervasive computing applications on digital signage. Our statistical analyses showed that the integration of social network comments on digital signage results in measurable effects in sales. This was true especially for social network comments on specific products and less so for general brand-related comments.

Social Network Comments vs. Traditional Advertising

Since traditional advertising content still trumped in this context of busy small-space shops selling low-involvement products, the use of social network comments needs to be carefully evaluated in the context of the ability of customers to process textual stimuli in a given shopping environment. Specifically, the text-based nature of social network comments imposes an additional cognitive load on shopper when compared to traditional advertising.

Thus, one clear finding from the data implies that screen design must work to minimize the cognitive load. We suggest two basic approaches:

- Remove and minimize visually distracting screen elements, such as side bars or news tickers, focusing instead only on the social network comments.
- Present the social network comments in a clear design that is simple, as well as familiar and recognizable. Ideally the design would, as closely as possible, follow the look and feel of the social network where the comments are harvested from.
The evident success of traditional advertising, as evidenced in this experiment and the omnipresence of advertising indicates that a clever design would mix social media comments with the format of traditional advertising. This would allow a brand or product to benefit from the experience of traditional advertising while adding the elements of innovation and word-of-mouth.

Beyond the effect on sales, the social network comments are likely to provide the consumer with an impression of innovation for the product or the brand in question, as well as for the retailers themselves. Again, a carefully designed mixture of traditional advertising and social network comments would maximize the benefits of both advertising and social networks’ ability to generate word-of-mouth.

**Benefitting from Qualitative effects of Advertising with Social Network Comments**

Though not measurable in the data collected, showing social network comments appears to add benefits of perceived “coolness” or innovation to the image of the brand or product.

The social network comments on public displays are likely to provide the consumer with an impression of innovation for the product or the brand in question, as well as the retailers themselves. Further research is necessary to solidify this impression that the research team gained during the UGC field experiment, specifically this requires further research at a consumer level, including qualitative data from customer interviews.

**Advertising a Regional Brand on Public Displays**

The data showed a clear difference in effect based on the location of the kiosk. Specifically, the internationally-focused locations of the airports did not significantly respond to either the social network comments, or the advertisements of the ok.- brand, meaning that the advertisement space was wasted. Therefore, the decision of where to show the content should be based on careful analysis of the shopping environment and target group. In this case, focusing the advertisements on locations with a higher proportion of national customers, such as train stations or malls, would be a better choice.
Taking Advantage of Daily Consumer Patterns

Further, the sales data could be inspected for insights regarding the sales density on a weekly basis. A first visual analysis of our data shows increased density of our control condition at the beginning of the week while the highest density for the traditional and product specific advertising condition shifts toward midweek days. This raises questions about the nature of the consumer structure; it might be suspected that the buying patterns of special consumer groups (e.g., adolescents) could be taken into account by for example showing social network comments in mid-morning when they are most likely to be in the store.

5.7.2. Lessons Learned

Working closely with the industry partner Valora Retail provided many benefits for the research team.

Relevance to Retail

Foremost was the relevance of the research, which was clearly expressed by Valora Retail from the outset of the UGC field experiment as well as in the conclusion. Additionally, the external agency which designed the digital signage pilot repeatedly inquired about the progress and results of the experiment.

Academic Relevance

Not only did industry show an interest in the UGC field experiment but also academic sources. The close collaboration with Valora Retail allowed a much larger experiment, resulting in deeper and more realistic data than would have been possible if only the resources of the research team had been available. This proved to be of interest to the academic community, such as giving the opportunity to present the experiment setup at a workshop of the Pervasive Conference 2010 or the invitation to contribute the chapter “Social Networks in Pervasive Advertising and Shopping” (Dubach Spiegler et al. 2011c) to the “Pervasive Advertising and Shopping” book, edited by Müller, Alt and Michelis, which will appear as part of a the “Springer Human-Computer Interaction Series”.
Constraints in Industry-Based Research Projects

While the advantages of setting a field experiment in the context of an ongoing industry-led pilot are numerous, the constraints faced by the research team were significant and required adjustment in design, process, method and analysis models (see 5.6.4 “Issues Faced” above for details on the adjustments necessary).

The biggest constraint turned out to be the pre-defined screen design. In discussions with designers, users and reviewers of the screen design used in UGC field experiment, the screen design was repeatedly criticized. The design most likely placed such an additional burden on the cognitive load of the customers, that a follow-up study with a clearer design would be highly valuable.

In summary, industry constraints – e.g. regarding placement of displays, layout of content, other content showing simultaneously on the public displays – must be planned for and built into the design.

The constraints discussed in this discussion are closely related to the limitations of the research described in the next section.

5.7.3. Limitations

Due to the live setting of the UGC field experiment, several limitations need to be noted in detail.

Since an existing and active consumer brand was chosen as the object of both the Facebook Brand Page and thus the UGC field experiment, activities around the brand might have influenced the results. For example, ongoing local promotions as well as external events might had relevant, spurious and hard-to-quantify effects for the respective kiosks of the UGC field experiment, though a very careful, fully randomized and balanced experimental design was applied with the expectation that this would control for this external variability.

Ideally, to be extensively processed by customers, the loop of the experimental variations should have been longer than the above noted 15 seconds within a 480 second loop.

In addition, the sample of 16 kiosks was highly unequal in terms of location, sales volume, type and size. Although the LMM statistical model is ideal and
state-of-the-art to account for such variability, future work could attempt to gain access to a larger sample size.

Most importantly there was no possibility to control the experimental setup of the digital signage at the point-of-sale, nor the basic screen layout. Since we were working within an existing experiment of Valora Retail, the recommended factors for placement of the digital signage, the content mix or format (Huang and Koster 2008), unfortunately could not be implemented. Any future experiment would need to attempt to control these crucial factors, though as was the case with the UGC field experiment described in this chapter, the constraints of working with industrial partners may not allow that.

The next section discusses future research in detail.

5.7.4. Future Research

The research presented in this chapter was based on an UGC field experiment performed in close collaboration with an industry partner. This imposed several constraints that could be removed in future research. Additionally, the research showed interesting options for expanding the findings.

Future Research could investigate if reducing the cognitive load and volume of visual stimuli on the screen would lead to a stronger result in absolute number of sales, and also improved sales in comparison to traditional advertising. Specifically, a simpler screen-design could be used as a basis to measure this effectiveness.

The social network comments on public displays are likely to provide the consumer with an impression of innovation for the product or the brand in question, as well as the retailers themselves. This requires further research at a consumer level, including qualitative data from customer interviews.

Finally, the product domain could be considered more closely to determine if whether the effects of showing social media comments on digital signage are stronger for high-involvement products or low-involvement products.

5.7.5. Summary and Recommendations

Advertising agencies and retailers are experimenting on how to use social networks in advertising, hoping to harness the new medium to increase sales. The background is the meteoric rise of social networks and the large number of users active on these websites. With their trusted connections between users,
and users placing a high value on word of mouth for making buying decisions, brands are increasingly ensuring and professionalizing their presence on social networks.

In the context of pervasive advertising, social networks might influence buying behavior in two settings: 1) users may access social networks on their mobile phones while shopping in a store location. 2) Social network comments would be displayed either statically on digital signage in the store (e.g. selected by the marketing department) or actively updated as new comments arrive on the social network site.

Retailers and brands are just starting to understand how to utilize social networks to support their businesses. Simultaneously, digital signage is becoming ubiquitous in public places. Small-space retail stores, referred to as kiosks, have a particular interest in better understanding the combination of these two technologies, since the kiosks often function as meeting points and social hubs in the areas they are located.

**Summary of Findings**

This chapter described a field experiment to determine the effect of social network comments on digital signage, which revealed new insights regarding the effectiveness of pervasive computing applications on digital signage.

The results of the statistical analysis, which used repeated measures linear mixed models (LMM), show that the user-generated product comments reveals measurable effects on sales. This was true especially for social network comments on specific products and but also for general brand-related comments, though to a lesser extent.

Since traditional advertising content still trumped in this context of busy small-space shops selling low-involvement products, we conclude that the ability of customers to process textual stimuli in a shopping environment is limited. Thus the use of social network comments needs to be carefully evaluated.

The findings lead to the following recommendations.

**Recommendations**

Showing comments from social networks – especially if they are product-related – enhances sales. However, classical advertising still has general
advantages due to a lower cognitive load regarding the route of information processing.

The research presented here strongly supports the general implications:

- Present product-related rather than global brand-related content
- Assess consumers' capabilities to and motivation to process textual social network comments within the specific retail domain
- Present consumers with a mix of classical advertisements and user-generated comments

These conclusions can be generalized for other situations and may help business practice to reflect the most appropriate digital signage strategy.

In summary the concluding recommendation, supported by the findings of our UGC field experiment, is to use product-specific comments and integrate them into a mix of the classical and UGC advertising strategies. This would take advantage of the increased sales shown and open new opportunities for digital signage in retail environments.
6. Conclusions and Implications

Through the rise of the Internet, retailers have gained an additional communications channel through which to reach their consumers in an effort to advertise and promote their products. While the communications previously were mostly one-sided, emanating from the retailer still, the activities of users were tracked and analyzed to better understand consumers’ behavior and opinions and to forecast buying trends. With the advent of user-generated content (UGC), the communication between consumer and retailer has become a dialogue, providing the consumer with a previously unheard voice, and the retailer with the opportunity to gain an entirely new view on the consumer. However, this new form of communicating with users and consumers brings with it many questions for the retailer as to how best to apply it to their business and what the implications are for them.

The work presented in this dissertation specifically examined the question of the applications and implications of user-generated content in retail. A review of the literature and common practices among retailers revealed three types of UGC most relevant for retail in their application: social networks, crowdsourcing and advertisements. From this basis, the research question was formulated:

**How can user-generated content be applied by the retail industry, and what are the implications?**

In answering the overarching question, first each one of the three identified types of UGC had to be examined in turn. Thus, three separate research projects were conducted to account for the different characteristics of each type of UGC, in terms of interaction level with consumers, duration and effort required from the retailer.

The research conducted for this dissertation was performed in the context of an academic-industry partnership with Valora, a large retail holding company based in Switzerland. The work focused on the k kiosk brand of Valora Retail, which operates approximately 1000 kiosks (small-space convenience stores)
throughout German-speaking Switzerland. The collaboration lasted 14 months, from inception of the first project – crowdsourcing – in January 2010, through the field experiment with UGC in advertising, to the conclusion of the social network case study in March 2011.

This chapter continues with a synthesis that answers the overall research question and conclusions about the research problem, ending with implications for research and practice and an outlook for future research.

6.1. Conclusions about the Research Problem

Answering the research question required three steps: identification of the relevant UGC, examination of the applications and implications of each type of UGC and, finally, bringing the individual results and conclusions together.

The following sections summarize the work performed for each of the UGC projects on CS, social media, and UGC in advertising, and details the main conclusions arrived at. In summary, these are the basis for answering the research question, which follows next.

6.1.1. Types of User-Generated Content Applicable to Retail

By conducting a literature search and observing retail industry best practices in the use of UGC, three types of UGC were identified as being of primary interest to the retailers:

1) Crowdsourcing

2) Social media brand pages

3) Advertising with UGC.

Each type of UGC features different characteristics in terms of how it needs to be applied in retail, from duration of the project, involvement of the organization, and the ultimate outcome or results for the retailer. Thus, the research presented in this dissertation examined each of the three UGC types as separate lines of inquiry and each was approached as a separate research project with its own research question, method, analysis and conclusions.
From this, the following sub-questions to the research question were formulated as:

What are the applications and implications for retail of:
1. Crowdsourcing
2. Social media
3. User-generated content in advertising

The three projects resulted in 1) a case study examining the process and results of using crowdsourcing to generate ideas for “the kiosk of the future”, 2) a case study of initiating, operating and analyzing a Facebook brand page for the private label ok.-, from which a new brand page moderation model was proposed, and 3) insights from a field experiment conducted in 16 kiosks which measured the effect on product sales of showing UGC on public display screens in stores.

The results of these individual lines of inquiry are presented in their respective chapters above, and this section summarizes the work performed for each of the three projects and the insights gained.

6.1.2. Using Crowdsourcing as a Method for Idea Generation

As a form of open innovation, crowdsourcing (CS) enables the retailer to ask consumers directly for innovative ideas regarding products, services or business models. The case study described in Chapter 3 “Crowdsourcing for “Kiosk of the Future””, covers the overall CS process, beginning with deliberations about the choice of platform, through idea generation over seven weeks (from 21.1.2010 to 16.3.2010) with Atizo, a Swiss intermediary CS platform, and finally to post-processing (see Figure 49 below).
Through the idea generation, an existing community of innovators submitted 626 ideas of which ultimately 19 top ideas were chosen. These were refined in the post-processing phase, resulting in 4 ideas ready for implementation in the “Kiosk of the Future”, though in the end, a top-level management change halted the project and the ideas were not further developed.

For this dissertation, the project was described as a case study, and analyzed in detail, demonstrating how successful the CS approach can be as part of an open innovation process that produces ideas that would not have emerged from within the company due to internal barriers. The steps detailed in the case study and the lessons learned are of immediate relevance to retailers (see below), and the work contributes to the research field by showing that the established process for crowdsourcing, although developed for service industries, also applies to the retail industry.

### 6.1.3. Managing a Social Media Brand Page

Participating in social media as a form of word-of-mouth (WOM) marketing was shown to be a common practice for brand owners. In an effort to gain an understanding of this new medium, Valora Retail chose to create a Facebook brand page for their private label brand ok.-. This dissertation detailed a case study of that brand page from initial deliberation to implementation and operation, lasting from January 2010 to March 2011.

In addition to examining the steps Valora Retail took in the process, special emphasis was placed on the analysis of the social media brand-page data both for daily improvements of the moderating process, as well as for more strategic adjustments to the operations of the brand page.

Since no appropriate process model was applicable for the activities performed, the observed steps and lessons learned from the case study were used, together with a synthesis of two existing processes, from software engineering and marketing, to propose a new “Brand Page Moderation Model”
Conclusions and Implications

The BP-MM includes the necessary steps for managing a brand page, from deliberation, preparation, moderation and monitoring through evaluation. Crucially – and derived from the lessons learned from the case study – the BP-MM integrates two key iterative steps: tactical control. These two factors which allow for frequent adjustments to the moderating process as well as ensuring that the learning that must take place in the social media environment, are then incorporated into the overall strategy of the brand page. The contribution to the social media research field is this new BP-MM model. For practitioners in the retail industry, the model and analysis methods described can be applied to improve process and performance of their social media brand pages.

6.1.4. Advertising in Stores with User-Generated Content

In using UGC for advertising, retailers are extending traditional advertising by giving the consumer an active part. In order to test the effectiveness of advertising with UGC in comparison with traditional advertising, a field experiment was conducted that showed different types of content, including UGC, on in-store public display screens in 16 kiosks. To compare the effects of classical advertisements to advertisements with UGC, sales of products from the private label brand ok.- were measured.

The analysis of the sales data showed that advertisements with UGC did increase sales of the target brand as compared to showing no advertisements. However, the effectiveness of classical advertisements was still higher than advertisements with user-generated content. The findings contribute to the field of pervasive advertising as well as for retail practitioners by providing guidelines on how to improve the results of advertising with UGC: This is achieved by presenting consumers with a mix of classical advertisements and user-generated comments, and at time of design taking into consideration the consumers' context in the complex retail environment. Finally, the experiment showed consumers’ preference for product-related rather than general brand-related content.

The following two sections give a larger overview of the conclusions that can be drawn for UGC in research and in retail.
6.2. Implications for Research

Two case studies and a field experiment provided the data to closely examine UGC in retail. The work was performed to discover aspects of different types of UGC. The applications discussed can be attributed to three different academic fields: open innovation, social media marketing, and pervasive computing. For each of these, the work in this dissertation contributes to their respective fields, as shown below.

6.2.1. Open Innovation

The CS case study described in this dissertation followed the process model proposed by Muhdi et al. (2010), which was originally developed based on research conducted in the services industry. The analysis of the Valora Retail case study showed that this existing CS process is also applicable to the retail industry.

With this documented case of crowdsourcing in retail, following an established process model, the research performed for this dissertation has contributed to the research field of open innovation.

6.2.2. Social Media Marketing

The process of initiating and operating a Facebook brand page provided the basis for the second type of UGC examined in this dissertation. The case study analyzed the process steps taken by Valora Retail, as well as the specific methods of analysis used for successfully moderating a social media brand page.

In the course of this work, two contributions were made to the field of social media marketing. A new “brand page moderation model” (BP-MM) was designed, based on two existing process models, but which took into account the process iterations necessary to adjust both tactical and strategic questions (see Figure 50 below).
Conclusions and Implications

Secondly, the research resulted in new methods for the analysis and evaluation of Facebook user and moderator data that examined moderator impact and post content categories and topics. Both of these contributions advance the field of social media marketing.

6.2.3. Pervasive Computing

Finally, the field experiment showing UGC on public display screens in stores measured the effect on product sales. The screens containing UGC, were compared to traditional advertising of the products and to showing advertising of unrelated products. The research demonstrated that the advertisements with UGC did have an effect on sales, but less than traditional advertising. Additionally, showing product-related UGC proved more effective than showing brand-related UGC.

The research identified several limitations in the study that might have influenced the results, such as issues with screen design and placement of the public display screens. Additionally, the benefits of collaborating with industry are described, but also the limitations of working within the constraints that this type of project imposes.

This was the first study of this kind in the field of pervasive computing, and more specifically, the field of pervasive advertising and shopping. The research

Figure 50: Proposed Brand Page Management Model (BP-MM) with four main phases and two types of iteration: tactical control in the moderating and monitoring phase and strategic control emerging from the evaluation phase.
contributed to a better understanding of the effects of UGC on public displays and lessons learned for future research.

6.3. Recommendations for Retail

The research question addresses the retailers’ concerns as to which types of UGC are relevant to their industry. As such, the literature search performed in this dissertation and the best practices documented in the retail industry identify three types of UGC that are of primary interest to retailers: crowdsourcing, social media brand pages and advertising with UGC.

Each one of the identified types of UGC was examined in turn, since each displays different characteristics in terms of application, consumer involvement, as well as duration and management effort required by the retailer. Based on this work, the following recommendations for retailers can be given, considering the implications of UGC and the applications of UGC in retail.

6.3.1. Implications of User-Generated Content for Retail

The Internet provides retailers with new opportunities for communicating, and interacting with customers and different platforms for UGC give consumers a voice that can be used by retailers in different ways. The main implication of the research in this dissertation is that while different types of UGC exist and are in use today, each type has its own characteristics and its own applications and implications for retailers. Thus, while certain aspects of UGC can be compared across different applications – such as consumer motivation for creating UGC, or the demographical or technological enablers – the applications of UGC must each be examined separately. Specifically, there are two:

- UGC provides insights into consumer behavior and enables a dialogue that was previously unavailable to retailers.
- Retailers need to understand the different types of UGC and their specific characteristics and applications in order to use them to their best advantage.
6.3.2. Applications of User-Generated Content in Retail

Crowdsourcing

CS projects are of use in the early stages of idea generation and are limited in their duration. Retailers get the opportunity to directly involve consumers in answering a question about product ideas, services or business ideas. Best practices and intermediaries exist to guide a retailer through the different steps of the process, making it a low-risk form of open innovation. Thus the recommendation for retail practitioners:

- Crowdsourcing is an established process and is recommended to enable consumers to participate in a retailer’s open innovation effort

Social Networks

Conducting word-of-mouth advertising through a social network brand page is a common practice in retail, but as of yet without established processes or tools. In comparison to CS, which is a project constrained to a few weeks, moderating a social network brand page requires ongoing operational effort with an organization to support the activities. For retailers, a “prisoners’ dilemma” situation exists that compels retailers to join social media in response to similar or competing brands becoming active, even though the benefits of engaging consumers through social media have not yet been quantified satisfactorily. And once started, a brand page with even a modest amount of success will force a retailer to continue with it so as not to leave a negative impression on the social network users and thus their consumers. The research conducted leads to the following main recommendations:

- Participating in social media involves an ongoing organizational effort beyond the first initiation phase of a brand page. Moderating, monitoring, data analysis and repeated evaluation of performance are essential tools for success.

- Moderator and user activity on the brand page need to be measured daily. High-level metrics should be assessed daily to allow tactical control, while deeper analysis should be performed regularly to support strategic control.
Data gathered daily from related brand pages serve as a basis for comparison as well as providing a source for gaining an understanding of “best practices”.

Following a process with tactical and strategic iterations is necessary, such as the Brand-Page Moderation Model (BP-MM) proposed in this dissertation.

**Advertising with User-Generated Content**

Finally, of the applications of UGC presented in this dissertation, harvesting UGC for advertising is the one that is least established in retail. Though research in this thesis shows the potential of UGC to increase sales, this application of UGC is far from fully explored. Correspondingly, there is a lack of research on the potential forms and the effectiveness of UGC in advertising.

- User-generated content in advertising was shown to increase sales, but lags in effectiveness behind traditional advertising.

- A mixture of traditional advertising with UGC should be experimented with in order to gain the advantages of both. The final conclusion to be reached is that while the different types of UGC can be discussed for their similarities in how the content is created, the applications of that content for retailers differ widely depending on type. While the type and application of UGC determine the effort involved for a retailer applying UGC, the research on the three presented types of UGC show a clear benefit for retailers in their respective domain.

### 6.4. Limitations and Further Research

This dissertation describes research performed in three distinct projects, each of them investigating a different type of UGC. They were all conducted in collaboration with an industry partner, Valora Retail, and in addition to academic relevance, also demonstrate high practical relevance. The strengths that come from collaboration with industry, also present inherent limitations. Those, as well as further limitations of the projects, are detailed below. The chapter concludes with suggestions for further research in the field that could be conducted in the future.
6.4.1. Limitations

The research presented in this dissertation followed three lines of inquiry to cover each of the three types of UGC identified as relevant to retail. As such, each individual project had its own limitations that are detailed in the respective chapters (see Chapter 3 “Crowdsourcing for “Kiosk of the Future”, Chapter 4 for “Management of a Social Media Brand Page” and Chapter 5 for “In-Store Advertising with User-Generated Content”). Instead of repeating the limitations of the individual projects, this section examines the limitations faced overall.

Region, brand and retail sector

The data collected for the research stems from the collaboration with Valora Retail, a Swiss company operating in a Swiss market. Additionally, for the two UGC topics of social media and advertising with UGC, the focus was on the Valora Retail private label brand ok.-. With these preconditions, certain limitations were inherent in the research, such as a potential regional bias of the results or an effect present in the small market that Switzerland represents.

This regional focus had implications for the Facebook brand page which might also affect the results of the research. For example, the Facebook brand page only needed to operate in one time zone and in one dominant language. This lent itself to having the moderation of the social network brand page take place largely during normal office hours and, similarly, the consumer posts overall followed a daily and weekly rhythm that might be particular to the region. As such, the results might not be generally applicable to global brands operating in multiple languages or on a 24-hour schedule in order to accommodate all the time zones and consumer patterns of their global markets.

Furthermore, within the large domain of retailing, Valora Retail is active in the fast-moving consumer goods sector. With the data gathered from this sector, the findings might reflect a bias towards fast-moving consumer goods and may potentially not be valid for other parts of the retail industry, such as clothing, luxury goods or electronics. Similarly, the different methods of data analysis or the proposed BP-MM might not produce the same results for companies outside the retail industry in general, such as airlines or banks.
Choice of Facebook

For the two projects researching social media and advertising with UGC, Facebook was chosen as the source to gather data from. As argued earlier, Facebook was chosen due to the size of its user base and its importance to advertisers (see 1.4.3 “Facebook as an Example of Social Network Sites”). Additionally, care was taken to avoid examining features particular to Facebook, focusing on more generally applicable features, e.g. examining moderator frequency instead of the user interface in which posts are presented by Facebook. The results obtained are applicable to other Facebook brand pages, but might not automatically translate to other social networks.

Social media is a very dynamic domain, of which this dissertation can only hope to offer a snapshot. For example, even over the course of the research conducted on social media brand pages (January 2010 to February 2011), the role of the social media moderator noticeably changed, not only for the ok.-brand page, but also for other brands present on the social network. While the improved look and interaction on brand pages was visible to any user of the social network, the introduction on the back end of new tools, best practices, metrics and other support for moderators noticeably professionalized the moderator’s job. This trend is likely to continue, with the result that social media brand pages might soon no longer be a topic of research at the level presented here, but will become a standard channel in communicating with consumers, and as such will have a fixed place in any company’s marketing department.

Industry-Based Research Projects

Overall the benefits of being able to work with an industry research partner far outweighed the constraints in providing relevance and applicability. Through the collaboration, the research was able to use an existing brand with a strong following (especially among Millennials, which is also a highly relevant group for UGC) and was able to work with a dynamic and interested team at Valora Retail.

As with any research project outside the academic or laboratory environment, the research team had to work around constraints imposed by the industry partner. Among those was the lack of control of timing for the research, since this was determined by the different project stakeholders. For the research conducted on UGC in advertising, the lack of control over screen design or
positioning of the public displays in the stores, and the pre-determined selection of kiosk locations posed challenges in the analysis of the data.

Finally, management decisions taken by Valora Retail were not always transparent to the researchers, since they were often taken in multiple discussions within the stakeholder team and in exclusion of the research team, or were taken outside the context of the collaborative projects. For example, a few weeks after conclusion of the CS project and during the planning phase for concept development and implementation, the CEO of Valora Retail who had been supportive of the “Kiosk of the Future” project left abruptly and was replaced by a CEO who terminated the entire “Kiosk of the Future” project. While this did not invalidate the results obtained, it also did not allow the researchers the opportunity to watch their ideas be implemented or measure their effects, e.g. on sales or consumer behavior.

6.4.2. Future Research

The work described in this dissertation answered the research question posed, but at the same time uncovered further areas worth exploring in future research. As such, some of the suggestions below stem directly from the limitations of the research which are described above. Others are opportunities that have become visible through the methods developed in the course of the research performed. Below are the suggestions for further research in the three categories of 1) validating and extending the research presented in this dissertation, 2) conducting further experiments, and 3) Exploring aspects in marketing.

Validating and Extending the Presented Research

Some of the limitations to the dissertation described above, represent opportunities for further research. Additionally, certain aspects of the research could productively be validated for industries other than retail. A few suggestion follow below:

- The regional limitation of Valora Retail and the focus on a private label brand both open the opportunity to extend and validate the research using other regions or global brands.

- Similarly, the findings based on data gathered from Facebook as the representative social media site might be validated by using a different social media site.
• The data gathered from Facebook was in the form of text and photos, and though audio, video and games are supported by Facebook, they were not part of the ok.- brand page, and thus were not included in the analysis. Future research could measure the effects of the different types of media.

• Future research could measure the applicability of the findings for companies outside the retail industry, such as airlines or banks.

**Conducting Experiments**

Conducting experiments in the field and with an existing brand provided benefits but also constrained the types of experiments that could be conducted. Future research could pursue further experiments, both in the field but also in a lab setting:

• Future research might examine how external events, such as promotions, sporting events or news, affect the activities on a social media brand page.

• Instead of just measuring the effects of a moderator’s posts on the activities of members of a social media brand page, a controlled experiment could be set up to build a model of the effects of moderator activities.

• To reduce the limitation posed by conducting research in the field, the experiments, especially for measuring the effectiveness of UGC in advertising, could be duplicated in a lab setting, which would allow for greater control of the variables, e.g. the impact of a post’s sentiment, or the date of posts.

**Exploring Marketing Aspects**

The crucial question regarding effects of UGC on sales is the lack of understanding of the mechanisms that link online user behavior with purchasing behavior, and vice-versa. As such, future research could pursue these interesting questions in different dimensions:

• The social network comments on public displays are likely to provide the consumer with an impression of innovation for the product or the brand in question, as well as for the retailers themselves. This requires further
research at a consumer level, including qualitative data from customer interviews.

- The research presented focused on in-depth analysis of one brand page, but a high-level comparison to related brand pages showed that the data-gathering methods developed for this dissertation allow for interesting conclusions about both the brand page in question, as well as the related pages. With the presented tools and by developing new ones, future research could extend the range of brand pages to be compared and deepen the analysis.

- Finally, arriving at a model that describes how the online behavior of users correlates with purchasing behavior would represent both a significant academic achievement, as well as providing high practical relevance to retailers attempting to quantify the usefulness of their investments in the online presence of their brands.

### 6.5. Summary

To answer the research question of “How can user-generated content be applied by the retail industry, and what are the implications?”, this dissertation identified crowdsourcing, social media and user-generated content in advertising as three types of user-generated content applicable to the retail industry. Each one was examined in separate lines of inquiry for its applications and use in retail, resulting in contributions to research and practice.


X. Lur, “If Facebook were a country, it would be the 3rd most populated,” *TechXav*, 2010, available: http://www.techxav.com/2010/03/19/if-facebook-were-a-country/ (accessed July 2011).


