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E-Commerce Business Models and Search Engine Dependency

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ABSTRACT

E-Commerce business models attracted a great deal of attention in the last years. An increasing number of bargains are realized via online transactions. However, some business models suffer distinctly under changes of search engine algorithms while others experience continuous stable traffic. This paper sheds light on the drivers of the unpunished e-commerce businesses based on a case-by-case analysis of 43 business models in the German Internet market. The analysis reveals that more stable business models are characterized by diversified customer arrivals which are obtained by a focused product management, multiple marketing channeling, freemium registration strategies and a subtle way to attract customer trust.

Keywords: E-Commerce; Digital Business Models; Search Engine Optimization; Transaction Costs

1. Introduction

The digitalization of markets sets the stage for the evolution of new e-commerce platforms, sales channels, and services. Academic research accompanied this evolution with plentiful insights on advices for the best practices of business models[1]. However, the multitude of propositions and the increasing environmental dynamism awakened a certain degree of uncertainty about the design and management of those businesses [2].

Frequently, the success of digital businesses depends on their listings in search engine result pages (SERP) [3]. These result pages represent more than pure information and frequently build awareness and push brand strength [4]. Unfortunately, SERP are frequently affected by changes in the particular search algorithms, such as the mysterious Panda updates by Google. In the consequence to these updates, some businesses suffer immediately while others experience stable traffic or even benefit from these changes.

This article addresses the uncertainty associated with changes in SERP listings. Evidence on the effects of changing search algorithms and strategies to reduce the dependency on SERP are revealed within an initial interview round with SEO experts and a follow-up case analysis of 43 business models in the German Internet market.

The following section outlines the research back ground which focuses on SERP importance and changes in transaction costs caused by adjustments in search al-go-

rithms. Section three is dedicated to the case analysis and discusses the implications. Section four gives conclusions, limitations and goals for further research.

2. Theoretical Background

2.1. SERP Importance and Control

Search engines have developed from a disregarded mediating role into one of the most prominent pages in the web. Today, they represent the gate to the Internet in the presence of multitudinous forums, platforms and shops [5]. More than half of all visitors to websites arrive there from search engines rather than through a direct link [6]. Consequently, search engine advertising (SEA) becomes increasingly important. This channel will soon capture a lion's share of the online advertising pie [7].

The importance of search engines increases, furthermore, with the spill-over of branding effects and customer trust in the ranking of SERP. The rank of web pages in the search results influences directly consumer click behavior [8]. Studies have shown that users have even more trust in organic listings with higher conversion rates than in SEA campaigns [9]. Consequently, companies push the rankings of their websites higher in organic search results through different techniques of search engine optimization (SEO).

However, these SEO activities are frequently equalized by adjustments in search algorithms. These changes are made for ambiguous purposes, such as technological im-

provements or for suspending low utility pages. Nevertheless, each adjustment changes the SERP and the related branding and transaction cost effects.

2.2. A Transaction Cost Problem

Search engines grew to support the access to the enormous information on the Internet by crawling, retrieving, and presenting relevant information for users based upon their search algorithms [10]. These engines thereby directly impact on the user's search costs which represent one aspect of the costs involved in online transactions of e-commerce business models.

Transaction costs are one if not the critical factor that companies doing business over the Internet try to reduce [11]. Besides information costs, search engines also affect agency costs and transaction uncertainty.

Agency costs emerge in the presence of various vendors that seem to offer nearly the same product or information. Unknown brands benefit in the presence of assimilation effects that stipulate users to reshape their perceptions and elevate unknown brands along the primed brand attributes [12]. In these cases, changes in the ordering of search results can simply change transaction partners.

This randomness of customer choices creates a certain level of transaction uncertainty for digital companies. Online businesses can not rely on certain click-through and subsequent conversion rates of customer arrivals from SERP. Therefore, adjustments in search algorithms represent a substantial risk to those business models that mainly rely on conversion from SERP.

3. Case Analysis

3.1. Consequences of Search Algorithm Changes

Preliminary interviews with SEO experts confirmed the significance of search algorithm changes. Search engines use continuous as well as drastic updates of their search algorithms, such as the most prominent Jagger, Panda or Penguin updates. Generally, experts assume more than 500 incremental algorithm changes per year and only the striking ones are reported in the community [13].

The impact of these updates on website traffic is uncertain. Some SEO experts reported traffic drops of more than 50 percent in their company while other businesses were not affected. Similarly, the rebuilding of the affected websites is an art in itself. Even experienced SEO specialists have to find new ways in the presence of uncertainty about the direction of algorithm changes. Bing's webmaster comes straight to the point of this uncertainty and emphasizes the necessity for a broader understanding of website construction:

"You cannot control when a search engine makes an update, or what that update will impact. That much is obvious. But what many websites fail to take action on is forecasting change, preventative work and exercises in the obvious." [14]

The following case analysis reveals evidence about strategies of digital businesses that perform such a preventative work better than businesses which are more affected by changes in SERP.

3.2. Research Design

The analysis is based on a longitudinal case research design of different e-commerce business models. E-commerce companies are defined as firms that derive a significant proportion of their revenues by participating in transactions over the Internet [15]. This study tightens this definition and considers only pure plays, i.e. digital businesses in terms of delivering either physical or virtual goods and services to the customer purely based on transactions facilitated by the Internet.

Furthermore, the selection is restricted to e-commerce firms founded in Germany. This regional focus should avoid biases from institutional differences and time lags owing to the regional focus of search algorithm updates which are launched at different times over the world.

Initially, a set of the ten most affected companies from the prominent Panda 2011 update were chosen according to the analysis of searchmetrics [16], see **Table 1**. Their business models are contrasted against the 33 most prominent German digital businesses judged by the German entrepreneurship community [17], see **Table 2**. Data about the 43 companies were acquired from public sources and analyzed using standard within-case and cross-case analysis [18].

Notes were taken on the business focus, the segment and the used marketing channels during the initial within-case analysis. In the cross-case analysis the results of the 10 affected companies were contrasted with the results of the 33 successful companies.

Table 1. 10 most affected companies by Panda update[a].

Company	Business	Segment	Marketing Channels[b]
Ciao	Price check	Retail	A, B
Cosmiq	Community	Network	A, B
Dooyoo	Price check	Retail	A, B
Gutefrage	Community	Network	A, B, C
Helpster	Community	Network	A, B
Ladenzeile	Price check	Retail	A, B, C
Suite101	Magazine	Media	A, B
Wer-weiss-was	Community	Network	A, B
Wikio	Price check	Retail	A, B
Yopi	Price check	Retail	A, B

[a]According to Searchmetics [16]. [b]Using SEO (A), SEA (B), other forms of massive online advertising (C), print advertising (D) and radio and TV campaigns (E).

Table 2. 33 most successful digital companies in Germany[a].

Company	Business	Segment	Marketing Channels[b]
Amiando	Ticketing	Retail	A, B, C
Barcoo	App	Services	A, B
Betterplace	Community	Network	A, B, C, D
Bigpoint	Gaming	Network	A, B
Brands4Friends	Clothing	Retail	A, B, C, D
Buch.de	Books	Retail	A, B, C, D
DaWanda	Uniques	Retail	A, B, C
Direktzu	Community	Network	A, B
Dress-for-Less	Clothing	Retail	A, B, C
GameDuell	Gaming	Network	A, B, C
Gameforge	Gaming	Network	A, B, C
Groupon	Shopping	Retail	A, B, C, D, E
Immoscout	Real estate	Retail	A, B, C, D, E
Internetstores	Deliveries	Retail	A, B, C
Mymuesli	Cereals	Retail	A, B, C, D
Niiu	News	Media	A, B
PaperC	Books	Retail	A, B
Parship	Dating	Network	A, B, C, D, E
Pizza.de	Food	Retail	A, B, C, D
Qype	Community	Network	A, B, C
SchülerVZ	Community	Network	A, B, C, D
SoundCloud	Music	Retail	A, B, C
Spickmich	Community	Network	A, B
Sport1.de	Information	Media	A, B, C, D, E
Spreadshirt	Clothing	Retail	A, B, C
Teekampagne	Tea	Retail	A, B, C
Travian	Gaming	Network	A, B
Trivago	Price check	Retail	A, B, C, D, E
Web.de	Information	Services	A, B, C, D
Wooga	Gaming	Network	A, B
Xing	Community	Network	A, B, C, D
Zalando	Clothing	Retail	A, B, C, D, E
Zanox	Marketing	Services	A, B, C, D

[a]Assessed by the German entrepreneurship community on the basis of economic success, innovativeness, utility, reach and pioneer [17]. [b]Using SEO (A), SEA (B), other forms of massive online advertising (C), print advertising (D) and radio and TV campaigns (E).

3.3. Results and Implications

The company overview shows at first sight a heterogeneous picture among the business models. Social communities, such as SchülerVZ or Direktzu, have little in common with ticket stores, clothing shops or the affiliate marketing network Zanox. Nevertheless, the cross-case comparison reveals some striking differences among the two company sets which allow for some insights on drivers of search engine independency and successful strategizing in e-commerce business models.

Diversified arrivals: Most of the 33 successful companies rely on diversified customer arrivals. More versatile market cultivation activities seem to attract more customers from third-party websites and direct links, thereby. In contrast, the ten affected companies were hit that severe by the Panda update because of their high dependency on customers following SEA and SEO campaigns from SERP. An option to avoid this risk is to diversify customer arrivals through the following best practices. These strategies are in line with the advice of Bing's webmaster who recommended preventative work as an antidote to search engine dependency.

Focused products: Most of the successful companies are characterized by one or few distinctive products. Even communities, such as the career network Xing or the student community SchülerVZ, clearly address a particular customer sub-category in contrast to general communities that try to address everyone, such as Gutefrage or Wer-weiss-was. The prominent paradigm of focusing on core competencies holds as well for e-commerce business models.

Multiple channeling: The successful companies use a multitude of information channels to reach customers. They address potential consumers mostly through a wide range of marketing channels. Furthermore, regular customers are continuously informed about new services, frequently through customized newsletters, and special offers. Continuous information help to stay in contact with customers, shape trends and promote new brands.

Subtle trust. Confidence in online shops and communities is a core problem of newcomer businesses. However, the within-case analysis revealed that the successful e-commerce businesses use a subtle way to cause consumer trust. A frequently used instrument is the abandonment of advertisements on their websites. Companies use this simple principle to create a trustful platform for their product sales, such as the tea seller Teekampagne. The punished companies, by contrast, exhaust the revenue stream opened by skyscrapers and other ads.

Freemium registrations: This business model is not a new insight but it still possesses strong power to avoid search engine dependency. Communities, such as Betterplace, Qype or Spickmich, use a simple and short free registration form to tie customers within their platform. Some companies even try to skim revenue through offering premium registration upgrades, e.g. Xing. In contrast, the punished companies, such as Ciao or Ladenzeile, offer their price check service without any registration and try to earn money solely through advertisements and cost-by-click.

Recommended references: A further simple instrument to attract customer arrivals via other sources than search engines rests in customer recommendations. Successful companies are characterized by simple and un-

disturbing hints for posting and sending recommenda-
tions or inviting friends. The punished companies skip
the recommendation opportunity for the price of ad-
dressing the whole Internet community openly which
seems an inadequate strategy in times of increasing com-
petition and specialization of e-commerce business mod-
els.

4. Conclusions

This case analysis reveals evidence on strategies to avoid
a strong dependency on search engine arrivals and the
consequent risk of traffic losses due to changes in search
algorithms. Based on SEO expert interviews and a longi-
tudinal case study in the German e-commerce market
insights on best practices of successful digital companies
are presented. Besides the general strategy of customer
arrival diversification, the case analysis shows that suc-
cessful e-commerce companies use multiple instruments
to comprehensively attract customers through direct links
and third-party websites.

These strategies help to reduce transaction and agency
costs and transaction uncertainty. Of course, stronger
effort and even higher marketing costs are necessary to
grow businesses following these strategies. And of course,
there are still examples for other e-commerce models that
remain unaffected by search algorithms changes despite
ignoring the strategies. However, they may be affected by
the next search engine updates.

Further research should concentrate on detailed dis-
tinctions of new e-commerce business models and asso-
ciated competitive strategies. We can expect that the
digital market will further differentiate and create new
sales channels. Moreover, a new research stream is at the
starting blocks to reveal insights on e-commerce via
smartphones and special offers for tablets which require
different marketing channels and business models.

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REFERENCES

[1]   A. Osterwalder and Y. Pigneur, "An Ontology for E-
      Business Models," In W. Currie, Ed., *Value Creation
      from E-Business Models*, Butterworth-Heinemann, Ox-
      ford, 2004, pp. 65-97.

[2]   J. Johannson, M. Malmström, D. Chroneer, M. E. Styven,
      A. Engström and B. Bergvall-Kareborn, "Business Mod-
      els at Work in the Mobile Service Sector," *Journal of
      iBusiness*, Vol. 4, No. 1, 2012, pp. 84-92.

[3]   M. P. Evans, "Analyzing Google Rankings through
      Search Engine Optimization Data," *Internet Research*,

Vol. 17, No. 1, 2007, pp. 21-37.
      doi:10.1108/10662240710730470

[4]   W. Dou, K. H. Lim, C. Su, N. Zhou and N. Cui, "Brand
      Positioning Strategy Using Search Engine Marketing,"
      MIS Quarterly, Vol. 34, No. 2, 2010, pp. 261-279.

[5]   D. Laffey, "Paid Search: The Innovation that Changed the
      Web," *Business Horizons*, Vol. 50, No. 3, 2007, pp.
      211-218. doi:10.1016/j.bushor.2006.09.003

[6]   R. Telang, U. Rajan and T. Mukhopadhayay, "The Market
      Structure for Internet Search Engines", *Journal of Man-
      agement Information Systems*, Vol. 21, No. 2, 2004, pp.
      137-160.

[7]   J. Garside, "Google Phobia (Noun): A Rational Fear of a
      Search Engine Seeking to Dominate Internet Advertis-
      ing," *The Sunday Telegraph*, April 12, London, 2007.

[8]   B. Pan, Z. Xiang, R. Law and D.R. Fesenmaier, "The
      Dynamics of Search Engine Marketing for Tourist Desti-
      nations," *Journal of Travel Research*, Vol. 50, No. 4,
      2010, p. 365-377.

[9]   B. J. Jansen and M. Resnick, "An examination of
      Searcher's Perceptions of Nonsponsored and Sponsored
      Links During Ecommerce Web Searching," *Journal of the
      American Society for Information Science and Technology*,
      Vol.   57,   No.   14,   2006,   pp.   1949-1961.
      doi:10.1002/asi.20425

[10] M. R. Henzinger, "Search Technologies for the Internet,"
      Science, Vol. 317, No. 5837, pp. 468-471.
      doi:10.1126/science.1126557

[11] J. H. Dyer, "Effective Interfirm Collaboration: How Firms
      Minimize Transaction Costs and Maximize Transaction
      Volume," *Strategic Management Journal*, Vol. 18, No. 7,
      1997, pp. 466-467.
      doi:10.1002/(SICI)1097-0266(199708)18:7<535::AID-S
      MJ885>3.0.CO;2-Z

[12] W. Dou, K. H. Lim, C. Su, N. Zhou and N. Cui, "Brand
      Positioning Strategy Using Search Engine Marketing,"
      MIS Quarterly, Vol. 34, No. 2, 2010, pp. 261-279.

[13] See for an Example of Updates in Google's Search Algo-
      rithm: Seomoz,   "Google   Algorithm   Change
      History," 2013.
      http://www.seomoz.org/google-algorithm-change

[14] Bing Webmaster Blog, "Penguins & Pandas Poetry,"
      2012. http://www.bing.com/blogs/site_blogs/b/webmaster
      /archive/2012/05/18/are-you-the-hunter-or-the-prey.aspx

[15] R. Amit and C. Zott, "Value Creation in E-business,"
      Strategic Management Journal, Vol. 22, No. 6-7, 2001,
      pp. 493-520. doi:10.1002/smj.187

[16] Searchmetrics, "Google Panda Update in Germany," 2011.
      http://blog.searchmetrics.com/de/2011/08/13/goog
      le-panda-update-in-deutschland-gewinner-und-verlierer/

[17] Gründerszene, "Success Made in Germany," 2011.
      http://www.gruenderszene.de/allgemein/internetunterneh
      men- deutschland.

[18] K. M. Eisenhardt, "Building Theories from Case Study
      Research," *Academy of Management Review*, Vol. 14, No.
      4, 1989, pp. 532-550.