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Thomas P. Walter

Institute of Information Management, University of St. Gallen, thomas.walter@unisg.ch

Andrea Back

Institute of Information Management, University of St. Gallen, andrea.back@unisg.ch

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**Crowdsourcing as a Business Model:
*An Exploration of Emergent Textbooks Harnessing the Wisdom of
Crowds***

Thomas P. Walter

Institute of Information Management, University of St. Gallen, Switzerland
thomas.walter@unisg.ch

Andrea Back

Institute of Information Management, University of St. Gallen, Switzerland
andrea.back@unisg.ch

Abstract

The process of writing textbooks is still very traditional regarding the status of authorship and expert opinions. Recently we observe the emergence of authors who follow a different approach, taping the wisdom of crowds as key resource of their own publications. In this paper, we explore business model innovation which leverages value propositions of textbooks by applying crowdsourcing. We use case study research methods to analyze four textbooks written collaboratively. Essential findings indicate occurrence of user-communities fulfilling peer-reviewing, editing or co-authoring despite a lack of monetary incentives. We further detect a tendency towards wiki software providing a community hub. This paper enters the field of partially crowdsourced textbooks and derives future questions of research.

Keywords: crowdsourcing, business model innovation, collaborative writing, textbooks, case study research

1 Introduction

Within studies of Management or Information Systems textbooks are still state of the art. Approximately 30 % of US book sales can be traced back to textbooks, which include academic and management books. Even though the book-selling industry was hit by the recent crises, the textbook sector and the US college book in particular were least affected. 22.6 million single copies (Nielsen 2009), bringing in US\$ 3.8 billion net sales state best growing category of US resellers. (The Association of American Publishers 2009). Furthermore 2010 should be the year when book trade begins a recovery (Key Note 2009). However, production of textbooks still is mainly due to past restrictions regarding authorship and expert opinions. Commonly a group of self-constituted experts or single thought leaders write and publish textbooks. But more recently we find outstanding exceptions to this common practice. Some authors start

breaking out of the common business model by harnessing the wisdom of crowds. Next to their own knowledge these authors utilize crowdsourcing as a key resource to their business model.

The crowdsourcing of textbooks has not been analyzed from an Information Systems perspective yet. During a literature search in titles or abstracts on Ebsco Host, no results were found including the terms crowdsourcing, textbook, management books, wisdom of crowds, business model innovation or any combination of these. Even though the idea of crowdsourcing is established in Information Systems and various forms of online collaboration also exist for years, the observed phenomenon of application is new, innovative and maybe disruptive. Hence, harnessing the wisdom of crowds as input of own publications states major changes to the industries common business model. Up to now professional crowdsourcing campaigns are more likely set up by companies and concerning technological aspects. Hence, established case studies discuss idea contests, open innovation (Chesbrough 2006), lead-user co-development of products (von Hippel 1986) or open source software products. Now pluralities of questions remain due to observed phenomena. How did the authors apply crowdsourcing? What triggered and spurred the crowds' participation? Which roles did the crowds fulfill? Which old business models are affected and which new business models are occurring?

Within this article we attempt convergence of the phenomenon by using case study research methods. (Yin 2009) Analyzing authors who partly crowdsourced the composing of textbooks enters the field and shapes further questions of research as suggested in Eisenhardt (1989). We make use of business model theory as a constitutional perspective and focus on textbooks. Hence, we exclude collaboration projects in writing fiction or consumer books such as www.webook.com or www.bookbymany.com which are platforms of hobby authors. We also exclude collaborative online projects which were not published such as the www.wikibooks.com project. Last, we do not differentiate between channels of publishing, i.e. print versions, ebooks or audiobooks. Unlike Wikipedia had disruptive impact to printed encyclopedias we do not see evidence that ebooks will have medium-term consequences on the textbook industry. Chapter 2 provides basic literature of business models and the aspect of crowdsourcing. Furthermore, we deduce a grid to describe case studies. In chapter 3 we specify four descriptive case studies and chapter 4 includes a brief cross-case analysis (Yin 2009) by adopting the grid of chapter 2. Finally chapter 5 provides a critical reflection and a short conclusion.

2 Crowdsourcing as Business Model Innovation

2.1 Business Model Definition as Framework

With their efforts of harnessing the wisdom of crowds as input to their publications authors have deviated from the default business model of book writing. Since business model is a frequently relevant (Magretta 2002) but strained term we initially have to give our understanding of it. Numerous business model definitions include the terms "value" or "revenue stream" (Al-Debi, El-Haddadeh and Avison 2008) and subject areas of business model research are mostly "e-business", "strategy" or "information systems" (Pateli and Giaglis 2003, Pateli and Giaglis 2004). In regard to this papers topic we follow the business model definition of Rajala and Westerlund (2005) which includes the factor of collaboration:

“A business model describes ways of creating value for customers and the way business turns market opportunities into profit through sets of actors, activities and collaborations.”

Similar definitions which also include the aspect of collaboration can be found in Torbay, Osterwalder and Pigneur (2001), Camponovo and Pigneur (2003), Afuah and Tucci (2001) or Andersson et al. (2006). We see this paper as initial step to adjust further research. Therefore, we see business model theory as convenient because it is conform to broaden the topic in continuing research. However, within this paper we neither do want to evaluate if the observed business models fit in with defined standard e-business models as developed in Clemons (2009), Rappa (2005) or Timmers (1998) nor do we want to develop a new canvas to describe business models as Johnson, Christensen and Kagermann (2008) or Osterwalder and Pigneur (2009). Basically, we will apply the definition to set up a simple framework of cross case analysis and hence, make our cases comparable. Yin (2009) calls this to develop a case study protocol.

Value creation is often set as core of a business model. (Johnson, Christensen and Kagermann 2008, Magretta 2002, Timmers 1998, Afuah and tucci 2001) We restrain our focus on the aspect of crowdsourcing as a way to create value for customers which in our cases are readers of textbooks. Hence, we will provide brief descriptions on how crowdsourcing is applied in the different cases by analyzing which part of value creation is taken by the crowd. The second part of the definition focuses on actors, activities and collaboration as factors of value creation. Hence, we will provide brief descriptions of how the crowd is assembled, which incentives of participation are offered, which hurdles exist, which tasks are fulfilled by the crowd and how collaboration is technically supported. Business model definitions also strongly focus on output and revenue streams. (Rappa 2005, Magretta 2002, Timmers 1998) With crowdsourcing as major topic we concentrate on the production aspect of textbooks. A focus on the revenue streams would include the entire value chain from publishing houses to resellers, lectorship and customers and should be done in follow-up research. Table 1 summarizes our business model description framework of crowdsourced textbook writing.

Table 1: Characteristics of business models using crowdsourcing as a key resource

Characteristics	Focus within case studies
Value creation by crowdsourcing	How does the crowd add value to the product (textbook)? Which tasks do crowds fulfill? Does action match with the definition of the term crowdsourcing?
Crowd description	What size is the crowd? How is the crowd assembled? Are there aspects of lead-users?
Incentives	Which incentives are set up by the main authors to spur participation? What types of incentives (monetary, acknowledgement, fame, learning, etc.) are set up?
Hurdles	What are hurdles of participation? How easy can the collaboration process be joined? Are there any strict limits to participation?
Technical Solution	How is the crowdsourcing process backed up technically? What web-solution to leverage collaboration is applied?

2.2 Crowdsourcing as Key Factor of a Business Model

Howe (2006) introduced the term of crowdsourcing in Wired Magazine and offered a deepened definition in his book (Howe 2008):

“Simply defined, crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. This can take the form of peer-production (when the job is performed collaboratively), but is also often undertaken by sole individuals. The crucial prerequisite is the use of the open call format and the large network of potential laborers.”

As we intend to evaluate the degree of value creation by crowdsourcing within the described case studies more classification of related topics is required. Consequently, crowdsourcing can be described as the process of harnessing or leveraging the wisdom of crowds. Wisdom of crowds state that the aggregation of information in groups results in decisions which are often better than made by any single member of the group. (Surowiecki 2004) Moreover, the term crowdsourcing reintroduces open innovation (Chesbrough 2006). Using crowdsourcing as key resource in a business model can also be found in various case studies on open innovation. (Brabham 2008, Howe 2008) Differentiating time and amount of crowd involvement, idea contests and co-development of products can be distinguished.

Idea contest state that a company (or a problem seeker) announces a monetary reward to motivate customers (or potential problem solvers) to contribute their proposal for a problems solution. (Chesbrough, Vanhaverbeke and West 2006) Among many, prevalent cases include the projects of Cisco iprize, IBM Jamming, or MyStarbucksidea. Also new business models containing and selling crowdsourcing as value proposition have developed out of the concept of idea contests. Companies such as InnoCentive or InnovationXchange function as intermediaries between problem seekers and potential crowds of problem solvers (Brabham 2008). Research also focuses on how to set up incentives, rules and technical platform of idea contests. (Leimeister et al. 2009, Ebner et al. 2008) The concept of idea contests also has to be circumscribed from intermediary platforms selling user generated contend such as istockphoto. Co-development of products was described as the lead-user concept by von Hippel (1986). Roughly the concept indicates to include best and technologically well proved customers into

companies' innovation process. Dependent on the intensity of the crowds' involvement the lead-user concept can vary from co-development and advancement of existent products (as in the case of Lego factory) to the simple rating of internal ideas as market study (as in the case of threadless.com).

3 Case Studies

In this chapter we deliver brief descriptions of the applied case studies, following the characteristics of the simple framework given in Table 1. There has not been a pre-selection underneath a plurality of possible case studies. However, we see these case studies as representative first mover examples of crowdsourced textbooks. Additionally to adopting the framework, we provide brief descriptions of the textbooks content and which initial material was brought into the crowdsourcing process by the main authors. Finally we describe the various outcomes and to which degree the case study represents a business model innovation.

3.1 Charles Leadbeater – “We think”

Leadbeater (2008) explores the ways in which mass collaboration is dramatically reshaping our approach to work, play, and communicate. The author took the success of Wikipedia as a prime example and initiated a process of collaborative writing and editing of his book. Therefore he posted as a first draft of the book chapter by chapter to the web using a wikia wiki in 2006. (Leadbeater 2009a) During a time period of 12 month his initial version was downloaded thousands of time, edited and new information was added by unpaid and widely unknown collaborators (Leadbeater 2009b). By putting up an entire first draft of the book rather editing and peer-reviewing processes were crowdsourced than the actual writing of the book. However, regarding to the author at some parts there was not much left of the initial draft. There were no restrictions to participation and the wiki is still editable by everybody. (Leadbeater 2009b) Due to his “no barriers policy” Leadbeater was not able not track the real size of the crowd. But the authors proposition of “hundreds” of useful comments but “thousands” of downloads tells its own tale. The definite amount of free-riders which only consumed but did not review or edit content was not measured either. To spur participation Leadbeater announced, that all editors and comment providers are acknowledged in the print version of the book, which are 237 contributors. There were no monetary incentives.

Consequently, this case study meets the requirements of the crowdsourcing definition, as Leadbeater invited everybody to contribute to the wiki. But the focal point has to be adjusted. Rather than crowdsourcing the content of the textbook, the value proposition arises from comments and feedback. Hence, Leadbeater sets a prime example how a first draft of a textbook can be peer-reviewed by applying crowdsourcing.

3.2 Osterwalder and Pigneur – “Business Model Generation”

Osterwalder and Pigneur (2009) present a business model framework, based on nine building blocks. The production of the book was based on the phd-thesis of Osterwalder (2004), which had been accessible in the web for free. As the topic of the book is on business model generation the authors clearly pointed out that also during the process of creating a textbook they want to practice what they preach and hence, generate a new business model of textbook production. Based on www.ning.com they created a hub for a rising community of co-authors. His community grew to a final size of 470 co-authors. Especially strategy practitioners and business model experts responded to the authors

open call for participation. Interested collaborators had to pay an initial participation fee of US\$ 24. As the community grew, the authors stepwise raised fees until a final amount of US\$ 250. (Osterwalder 2009) Main tasks of co-authors were to criticize chapters and contribute sample applications of business model innovation from practice. Additionally the authors organized a workshop, where the entire community of co-authors also met physically to discuss potential topics of the textbook. According to the authors, incentives to co-authors were to be the first to read and discuss new content on the topic of business model generation. Co-authors also paid to be part of the collaboration process during which they learned from each other. Finally all co-authors were mentioned within the textbook. As hub of the community the authors set up a social network service on the basis of www.ning.com. They unlocked nings' premium services to enable their own URL www.businessmodelhub.com and remain free of advertisement.

Summed up, the case study meets most requirements of crowdsourcing a textbook. However, asking for community subscription fees and thus, creating an additional revenue streams do not go along with the idea of an open call. Furthermore, the authors' demand of best practice insights can be characterized as co-development of the textbook content by the crowd. Therewith the value proposition shifted away from core content of the textbook. On the contrary the authors exceeded crowdsourcing requirements as they not only addressed a crowd but also built up a persistent expert-community.

3.3 Crumlish and Malone – “Designing Social Interfaces”

Crumlish and Malone (2009) present social web design principles and interaction patterns thus capturing user-experience best practices and emerging social web customs for web 2.0 practitioners. The authors set up a patterns wiki as a companion site to their book. They opened a major wiki category for each chapter of their book and various sub-categories equaling sub-chapters respectively. They shared content from the minute of production by providing it in the wiki based on MediaWiki software. Hereby they intended to collect community feedback and enhance discussions particularly during the stage of writing. (Crumlish and Malone 2010) Their intention was to strengthen the content with a variety of opinions and elevating reliability and representativeness. Hence, their open call addressed the community to make use of the wiki in a forum way, by adding opinions underneath an entry and not overwriting the same.

Next to the wiki the authors set up a photo stream on the flickr platform to provide illustrations which possibly could be included in the textbook. Contributions by the crowd concerning insights to business best practices were included as essays in separate boxes. Only contributors who added content by mentioning of their names were kept. Anonymous contributions or by nickname were deleted. 21 best practice insight essays found their way into the final textbook. This states half of all active contributors to the wiki and a tenth of all signed in users. There was no participation hurdle. Everybody was and still is allowed to enter information into the wiki. (Crumlish and Malone 2010) The authors did not announce any other kind of direct incentives as the aspect of learning from and discussing with each other. It was not announced that 21 “essayists” are thanked with reference to their specific contribution until near completion of the textbooks content. Summarized this case study provides a solid reference how crowdsourcing can be applied to harness best practice insights for a textbook. Once again, the value proposition is not producing key content of the textbook but rather peer-reviewing and giving insights to best practices.

3.4 Williams and Tapscott – “The Wikinomics Playbook”

Wikinomics written by Tapscott and Williams (2006) consists of 12 chapters of which only eleven are written. Within the twelfth chapter the authors invite readers to write it for themselves collaboratively: “Join us in peer producing the definitive guide to the twenty-first-century corporation.” As Wikinomics already deals with the power of mass collaboration transforming economy and society the authors intended crowds to collect references from practice regarding propositions made during the first 11 chapters of the textbook, called the Wikinomics Playbook (Tapscott and Williams 2008). Hence, they set up a wiki on the technical platform of socialtext as a community hub. As initial content the authors placed a reduced chapter outline to narrow down topics of interest. (Williams 2010) Thereby they provided a framework of potential questions and tasks of which they called for response. Over the course of 2007 a community of readers and experts formed a life of its own. As the authors did not anticipate the amount of participation they decided to transform the former twelfth chapter into a self-contained book. As wiki owners the authors initiated a role concept. They separated so called “researchers” which contributed most of the content from so called “writers” which mainly reformulated initial content and “editors” which shaped, trimmed and reorganized the content. Furthermore and on voluntary basis, wiki contributors who strongly felt responsible for a specific article were asked to become “lead-authors”. This role additionally included linking articles to own user profiles and supervising changes within these specific articles. Since the decision to publish wiki entries as book the authors additionally set up an editorial board. Next to Williams the board consisted of three more members chosen from the community. Every contributor was asked to link to an own user page where real name, an institution and experiences were provided. Anonymous contributions were not allowed. The 20 most valuable contributors to the wiki are noticed on the cover of the textbook as authors, all contributors are acknowledged in the book. The authors measured top contributors by number of pages contributed to, whether the edit was the current (last) edit on a page and by significance of all contributions. Contributions from lead-authors were also published on a companion blog under a guest author column. (Tapscott 2010) The authors also announced that the opportunity to continue the dialogue is by no means over. The Wikinomics Playbook should be considered as version 1.0 and the wiki still should be filled. They offered the book in print, ebook and as audio version.

With their repeated open call to join the community and produce the last chapter of the Wikinomics collaboratively Williams and Tapscott provide a solid example of crowdsourcing content of a textbook. The value proposition of the crowd is set by contributing insights to industry adoptions. But here, the crowdsourcing approach is set as post-production-processes of textbooks to avoid outdated practice insights.

4 Analysis and Shaping Hypothesis

Following Eisenhardt (1989), in a next step we analyze the data applying a brief cross-case pattern search. Initially, Table 2 provides a summary of observed characteristics within the cases. Following, we discuss each topic separately, intending to shape hypothesis and enter the field of further research.

Table 2: Findings of characteristics of business models using within case studies

Character-istics	Leadbeater (2008)	Osterwalder and Pigneur (2009)	Crumlish and Malone (2009)	Williams and Tapscott (2008)
Textbook-topic	mass intelligence and mass collaboration	business model generation	social media patterns	mass collaboration
Crowd-sourcing part	editing, commenting, re-writing an initial textbook-draft	discussing textbook-topics in a social network	contributing and commenting to textbook content	writing, editing, reviewing and editing a textbook
Crowd	237 acknowledged contributors, 1 lead author	470 collaborators called co-authors, 2 lead authors, 1 lead designer	21 essayists in the book, 41 active wiki contributors, 219 users signed in, 2 lead authors	2 initiators, 4 editorial board members, 20 lead-authors, 344 signed in
Participation hurdle	none (free to edit)	Subscription fee (US\$ 24 -250), Subscription fee for workshop	none (sign in by name)	none (sign in by name)
Incentives	read free book-drafts, be the first	be part of an expert-community, be co-author of a book, receive free copy of the book	be part of the project, learn from the community	20 best contributors as authors, lead authors as guest columnists on blog
Technical solution	wikia wiki as discussion hub	social network as hub on Ning.com, corresponding blog for PR	MediaWiki as community hub, flickr for illustrations	Socialtext wiki as community hub, blog for articles and PR

4.1 Book Topics

Within all cases authors practice what they preach. The textbook on business model generation states a new business model of book production, the textbook on mass intelligence leverages the wisdom of crowd as a reviewing resource and the book on designing social interfaces obtains practice examples of wiki adoption from users of a companion wiki to the textbook writing process. Justifiable questions remain: Can these business model innovations be transferred and deployed to write textbooks on more classical topics such as marketing, human resources or even controlling? Or is crowdsourcing of textbooks only possible if a textbook itself also deals with a related topic? Examples of collaborative written fiction found on www.webook.com or www.bookbymany.com prove that collaborative writing is possible. However, textbooks state a special issue. A major buying incentive of textbooks is to understand complex issues and achieve comparative advantage by comprehending expert knowledge. Hence, a preliminary answer derived from our case studies would be that crowdsourcing a textbook only is possible if the textbook concerns a related topic. At least our research does not show any counterexample, e.g. why one should buy a crowdsourced textbook concerning atom physics or electrical engineering?

4.2 Crowdsourcing as value proposition

All case studies show that crowdsourcing approaches do not work from scratch. Correspondent authors provided initial material to spur the participation of crowds, i.e. we found no example of crowds providing innovative content out of nowhere. Crowds

more likely fulfilled reviewing, editing and commenting tasks but core messages still were provided by main authors. However, value propositions of crowds were to provide insights into daily business routine and to deliver use cases. Hence, we see this also as lead-user and customer co-development approaches. Another unmeasured value proposition is the degree to which authors leveraged network effects and hence, set off viral marketing campaigns by establishing communities. (Shapiro & Varian 1998, Rosen 2005) Two questions derive: Is it also possible to crowdsource an entire value creation, i.e. content production process, or is initial input by main authors required as incentive and basis of discussion? Here, the case of Tapscott and Williams (2008) can be seen as a first approach. A second question is, whether standard strategies for applying crowdsourcing throughout several steps of value creation can be derived? E.g. using a wiki to let the crowd peer-review a textbook, or setting up a community of experts to provide use cases and best practices?

4.3 Crowds

Crowds can vary significantly and hence, have to be measured whether they are adequate to the software which is used as community hub and the task which is expected to be fulfilled. Within all cases the active crowd consists of hundreds of people, i.e. 219 to 470 signed in users. Few statements of main authors evaluating the amount of active users show that approximately a tenth of the crowd accounts for nearly its entire value proposition. As educational and working experience backgrounds have not been measured by the main authors it remains difficult to profile crowds. According to Osterwalder and Pigneur (2010) mainly strategy practitioners and business model experts felt allured by their call for participation. But this also has to be considered as marketing statement to strengthen the value of the textbook. However, the case of Leadbeater (2009) showed that an open approach implicates a free-rider problem. How to deal with crowds implies issues of trust. Questions are about how open access to initial content is provided and what authors expect the crowd to share. Also the question what kind of contributors are necessary to provide value propositions remains. If authors primary focus on harnessing business insights then crowd members should at least have related job positions. Otherwise main authors run the risk of devaluing the content.

4.4 Participation Hurdles

Basically, two attitudes towards participation hurdles can be found in our case studies. Authors which used wikis as technical hub of the community set the participation hurdle to sign-in and contribute labor time at most, whereas Osterwalder and Pigneur (2010) set a monetary hurdle by demanding a participation fee. Clearly their approach of “asking crowds to pay if they want to do the authors’ work” appears to be contradictory. But according to the authors, the monetary hurdle was understood as a seal of quality for the community of business model innovators. From the authors’ perspective, participation fees involve the additional advantage of an early stage revenue stream. Last, with increasing crowd the amount of participation fee can be adjusted as the value of the network raises (Shapiro and Varian 1998). Hence, Osterwalder and Pigneur started with initial fee of US\$ 24 per participant but were able to ask for US\$ 250 at a crowd-size of 400+ due to classical network effects. From this single case perspective it seems like a prime example of setting up participation hurdles. Solely experts are attracted and accomplished plus additional revenue is generated which can be taken as funding of production costs. But the case also elevates the question of transferability.

Once again, the question derives if open access to textbook content can be counterproductive because it is strongly associated with the “free credo” (Anderson 2008) and not noticed as a valuable textbook.

4.5 Incentives

Although we did not research for incentives specifically the cases show that crowds spur of participation does not compulsory have to be of monetary kind. Instead of attracting with potential dividends authors traded off crowd participation against the potential of getting noted as expert or being part of a community of experts. (Framke and Shah 2003) However, also free-riding and collecting expert-knowledge must be considered as incentive. The case of Osterwalder and Pigneur (2009) shows that people even are up to pay fees to participate in crowdsourcing campaigns if they want to be a part of something bigger, discuss a topic with experts or recognize chances of enriching individual networks. Still questionable is, if and how long “to be part of something big and have your name mentioned in a textbook” will remain as incentive? Here, recent case studies surely had a first mover advantage. Further research should focus on incentives separately. Are incentives dependant on the content of a textbook or correspondent to main authors or can they stand autonomous? What are the indicators to measure these incentives? Another task is to determine since when incentives cause negative effects, such as project free-riders and if hurdles are necessary to avoid these problems.

4.6 Technical solutions

The amount of only four cases does not allow general propositions on suitable technical solutions for crowdsourcing initiatives. However, we see a tendency, as within three cases authors used three different wiki solutions to create a hub for the community. This seems to be convenient as wikis support a collaborative but still sequential editing of text and can be filled with initial content by the main authors. The tendency towards wiki solutions diverges from the ways of wiki usage within the cases. Crumlish and Malone (2009) prohibited the overwriting of content and commentary. Technically, they converted the wiki into a forum. Williams and Tapscott (2009) provided a prime example how to apply wiki software and set up clear policies of usage. Leadbeater (2009) left behavior rules completely open and trusted crowds’ behavior to only overwrite parts they think they know better. From technical perspective Osterwalder and Pigneur (2010) established the only real community underneath our case studies. Their premium community on ning.com is the only platform requiring rich user profiles from the crowd, and maintaining their own blog within the community. Furthermore Osterwalder and Pigneur (2009) as well as Tapscott (2010) and Leadbeater (2009) ran a companion blog, posting about the project and hence, handling marketing and public relations. It remains questionable if wikis can be taken as a standard tool to apply crowdsourcing approaches of textbook-production, or a text of common derivation respectively?

5 Conclusion

The studies illustrate that former business models and role allocations during a book writing process can be turned upside down by applying crowdsourcing approaches. People who were considered as readers (customers) in former business models can become reviewers (lead-users), editors or co-authors (co-developers). The wisdom of

crowds can displace reviewers or paid lectorship or even add new content and offer valuable insights to best practices or business scenarios. Our analysis of business model characteristics of crowdsourced textbooks led us to questions of further research which are finally summarized in Table 3.

Table 3: Questions of further research derived from case study research

Pattern	Research-Question
Book topic	Can prime examples of case studies be transferred and applied in books on topics not related to crowdsourcing or business models?
Crowd-sourcing part	Is value proposition of the crowd limited to providing best practice insight and use cases? Are there standard strategies for applying crowdsourcing throughout several steps of value creation?
Crowd	Are there optimal crowd sizes? How should projects deal with free-riders?
Participation hurdle	Are monetary hurdles necessary to avoid free-riders and allocate an ambitious crowd of experts? Are there standard entrance fees of participation and should they be raised as the network value grows?
Incentives	Are incentives dependent on the topic or authors or autonomous? What are the indicators to measure these incentives? Since when do incentives cause negative effects?
Technical solution	Can wikis can be taken as standard tool to apply crowdsourcing approaches of textbook-production? Is a compaignon blog the new standard to provide marketing?

Further research will originate findings regarding these questions. For the moment open issues remain. One main critical self-reflections, that authors did not measure data during the main production phase. Hence, it is not able to draw conclusions on impacts of certain incentives. Finally, we have to deal with the issue that all four case studies state successful projects. Hence, we lack of information about failed approaches to apply crowdsourcing in textbook writing. A first instance could be Guy Kawasaki's intention to "tap the wisdom of the crowd" for his next book and for which he opened a wiki. (Kawasaki 2006). Another example could be Kiruba Shankar's (Shankar 2009) failed approach to write a book on crowdsourcing, including 140 opinions of users sent via the microblogging service twitter. Unfortunately these authors were not open for a case study.

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