

Chapter 2

Method

The study, which commenced in 2004 and is still ongoing, is supported by a research environment that we call a Learning Community (LC). This is a novel concept and research tool that comprises an industry group which engages in collective action to create a novel information infrastructure. ‘Industry group’ is defined in terms of a value system which includes all value activities that are needed to provide a particular product or service, in this case the provisioning of pharmaceutical products to the population. This typically includes hospitals, manufacturers, pharmacies and various intermediaries such as wholesalers/distributors, logistics firms and others such as e-commerce intermediaries. The Learning Community is used to validate and extend results from interviews that were conducted between 2004 and 2012 and that constitute the main empirical basis for this study.

Our research collaboration in general and the Learning Community environment in particular were used to answer the research questions outlined above that constitute the subject of this book. The overall research collaboration is broader in focus and the Learning Community may be viewed as a kind of field laboratory which supports several study projects to be conducted simultaneously. Thus, the study, the results of which are reported here, is embedded in this larger effort. In the following we will refer to this more narrow study simply as ‘the project’ defined by our research purpose as given above.

Our research question was to be answered in several steps. Specifically, two joint discussions and meetings among the involved researchers were to be arranged to coincide with the bi-annual workshops that take place as part of the Learning Community (LC) project (in May and November respectively). Moreover, further discussions and collaborations were undertaken for mutual extended visits. The first meeting in Beijing on the occasion of the LC workshop in November 2011 was used to discuss and determine the range of theories to be used for our project. A research stay of Prof. Xunhua Guo in Aachen was devoted to discussing intermediate results. An extended research stay of Prof. Kai Reimers in Beijing in May 2012, which coincided with a congregation of the Learning Community on May 25, was used to further discuss our intermediate findings and to set up a process for rigorously coding our data. Prof. Bin Xie visited Aachen in the summer of 2012 to further discuss our findings and interpretations. Moreover, the research

team has held weekly teleconference meetings throughout the period of study to facilitate a joint interpretation and common conclusion of our results.

Our main research method was a longitudinal case study of an emerging information infrastructure within the Chinese pharmaceutical distribution industry. This covered the period from 2004 to 2012 and involved interviews, meetings with industry participants, and the workshops of our Learning Community (from 2009 onwards). In addition, content analysis of published documents was performed. This mostly referred to rules, guidelines, and laws issued by several government agencies. In total, 48 documents about interviews, meetings, and workshops were carefully coded and tabulated.

The unit of analysis is China's market for pharmaceutical distribution comprising all distribution stages and relevant organizations (as described below) over the period of observation (2004 to 2012).

Interviewees covered all relevant actors in the industry; specifically, they included wholesaler-distributors (the top three distributors in Beijing), retailers, manufacturers, e-commerce intermediaries, third party logistics service providers (3PLs), hospitals, trade associations, a leading trade magazine, government agencies (including the Ministry of Health and the State Food and Drug Administration, SFDA), a government body responsible for the centralized bidding system in Beijing, and a prominent individual in the industry who was instrumental in implementing an e-commerce initiative of central government.

We conducted two kinds of analyses. First, we constructed a time line of government actions concerning the industry in general and information infrastructure development in particular. Second, we coded our primary data according to our theoretical framework. Specifically, we derived indicators for company level development as well as for industry level development as defined by the life cycle theories from which we constructed our framework as described above. We then carefully read all transcripts and interview minutes and extracted statements that pertained to our indicators. All these statements were recorded in a spreadsheet. In addition, we allowed further indicator categories to emerge which we ultimately labelled intended and unintended effects of government action and institutional context. Subsequently, we prepared a synthesis for each indicator based on all the extracted statements pertaining to that indicator. The detailed results of our data analysis are contained in Appendix I. We have also compiled a timeline of government actions as a separate narrative (see Appendix II). This gives a detailed account of government actions focussing on the introduction of Electronic Patient Records (EPR) and Tracking & Tracing technologies. While these technologies are different from the electronic bidding platform discussed here, the evolution of EPRs and the tracking infrastructure creates the background against which government and firms were discussing and responding to the electronic bidding initiatives. This appendix can be read as a complementary text to our study here or, alternatively, as a separate text if one is predominantly interested in how the informatization of the healthcare and pharmaceutical industry in China proceeded in general.

For our discussion, we also rely on findings from our earlier study (Reimers et al. 2004) in which we developed our multi-level approach as well as collected some first data concerning firms and industries in China. Specifically, we found in that earlier study that the IT provider industry in China generally was able to offer network era products and services. We concluded that the IT provider industry did not represent a significant bottleneck for information infrastructure emergence and therefore did not analyse our data for evidence regarding the development stage of the IT provider industry but relied on these earlier results for an estimate.

Reference

- Reimers, K., Li, M., & Chen, G. (2004). A multi-level approach for devising effective B2B E-commerce development strategies with an application to the case of China. *Electronic Commerce Research*, 4(3), 287–305.

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