

ONLINE AND OFFLINE SALES CHANNELS FOR ENTERPRISE SOFTWARE: CANNIBALIZATION OR COMPLEMENTARITY?

Completed Research Paper

Francesco Novelli

Technische Universität Darmstadt,
Chair of Software Business &
Information Management
Hochschulstraße 1, 64289 Darmstadt,
Germany
novelli@is.tu-darmstadt.de*

Stefan Wenzel

SAP AG
Dietmar-Hopp-Allee 16,
69190 Walldorf,
Germany
stefan.wenzel@sap.com*

Abstract

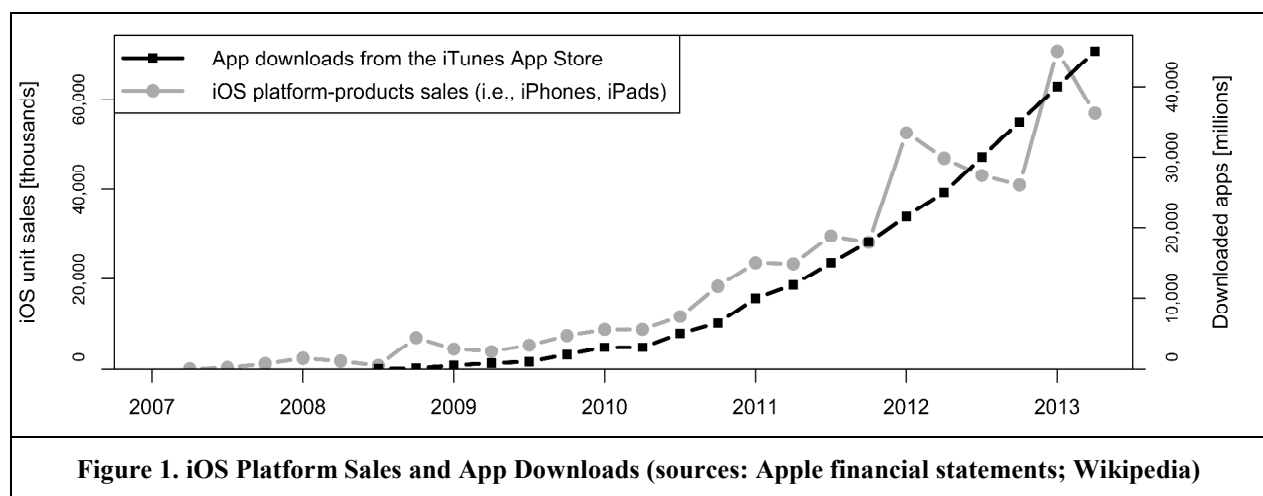
Lured by the success of online sales channels in the consumer software market, enterprise software vendors have launched proprietary online channels alongside their traditional offline ones. However, it is disputable whether the online purchase of a software application is as compelling for an organizational buyer as it is for an individual consumer. Relying on a qualitative research strategy and a cross-sectional research design, we have explored the channel adoption decision made by organizational entities when they purchase business software applications. We have constructed a qualitative channel adoption model which takes into account the relevant drivers and barriers, their interdependences, and the buying process phases. Our findings suggest that offline channels will not be cannibalized unless some peculiar characteristics of enterprise software applications change. We have also derived recommendations for the design of multichannel sales systems according to the main classes of enterprise software products and services.

Keywords: Channel adoption, sales cannibalization, enterprise software, app store, qualitative research, electronic marketplace

* Authors have contributed equally to the publication and are listed alphabetically.

Introduction

Online sales channels have shaped competition between and within platforms in consumer software markets (e.g., Novelli 2012). As a case in point, the success of the Apple iOS platform is intertwined with the fortunes of the online store serving that platform's ecosystem, as Figure 1 illustrates, with cumulative downloads of "apps" as a proxy for the online sales channel success.¹ The diffusion of online sales channels for consumer software has acted as a catalyst for the launch of analogous channels in the enterprise software market. Enterprise software vendors are resolute to nurture their own platform businesses by offering complementary software and services on proprietary electronic marketplaces. Software-as-a-Service vendors Salesforce.com and NetSuite introduced their online sales channels, respectively called AppExchange and SuiteApp.com, in 2006 (Burkard et al. 2011). Several other proprietary marketplaces have followed: SAP Store, Deutsche Telekom Business Marketplace, Microsoft Pinpoint, Fujitsu Cloud Store, SugarCRM SugarExchange, and Google Apps Marketplace.²



However, it is disputable whether online software purchases are as compelling for organizations as they are for individuals, and whether drivers and barriers of online channel adoption are the same in these two different contexts. Moreover, while in consumer software markets sales channels have started to "dematerialize" as soon as e-commerce established itself, in enterprise markets traditional offline channels based on intermediaries and sales professionals still represent the dominant approach. The channel adoption decision by organizational software buyers and its strategic repercussions for enterprise software vendors are the focus of this work.

We hereby define an *online sales channel for software applications* (abbreviated to *online channel*) as a set of organizational and technological means constituting a centralized e-commerce infrastructure serving a software consumer (i.e., individual consumer or organizational entity) throughout the buying process from information search to purchase and software delivery, with minimum and possibly virtual and asynchronous human interaction. In the consumer software market, online "apps" marketplaces such

¹ We have also run some statistical tests to explore the interrelationship of the two time series in Figure 1. In particular, we have estimated a Vector Autoregressive Model with unitary lag on both variables. As cautiously as estimations from such a small sample (25 quarterly data points per series) should be taken, in the calibrated model downloaded apps in the precedent quarter are a significant (at the 0.1% level) factor for platform sales and, interestingly, the opposite relationship is not significant.

² SAP Store (www.sapstore.com); Microsoft Pinpoint (pinpoint.microsoft.com); Salesforce.com AppExchange (appexchange.salesforce.com); Netsuite SuiteApp.com (www.netsuite.com/portal/suiteapp); Deutsche Telekom Business Marketplace (apps.telekomcloud.com); Fujitsu Cloud Store (cloudstore.ts.fujitsu.com); Google Apps Marketplace (www.google.com/enterprise/marketplace); SugarCRM SugarExchange (www.sugarexchange.com).

as the iTunes App Store or the several available Android stores represent the quintessence of such an online channel and boast a purely automatized software delivery to the purchaser's own system.

An *offline sales channel for software applications* (abbreviated to *offline channel*) is instead based on the deployment of a direct sales force and/or a partner ecosystem and heavily relies on personal interactions between the buying company's employees and the salesmen from the vendor or its intermediaries (i.e., system integrators, value added resellers, etc.). In the enterprise market offline channels still play a fundamental role in most software purchases. Given the complexity of organizational buying behaviors and the novelty of enterprise online channels, it is difficult to assess whether offline channel will be resilient or end up cannibalized, and how factors such as the increasing adoption of cloud applications can affect these developments.

We have fundamentally addressed two research questions. The first (explanatory) research question is the identification of the relevant factors influencing the channel adoption decision throughout the buying process conducted by an enterprise software buyer (that is, by the buying center of an organizational entity). It can be decomposed into three sub-questions: the identification of the relevant variables influencing the channel adoption decision, the identification of their interrelationships, and the identification of possible changes in the importance of factors in the course of the buying process. In other words, we have investigated at which stage of a software acquisition process and under the influence of which factors the online channel will cannibalize (i.e., be preferred to) or complement (i.e., enhance or be enhanced by) the offline one. The second (normative) research question is whether an enterprise software application vendor ought to exploit a multichannel (online plus offline) system, and how it should be configured. Sales channels are indeed among the major choices in designing a vendor's sales system (Buxmann and Diefenbach 2012). This question is put in perspective with the diverse set of enterprise software products and services, which may imply different optimal strategies.

We deemed a qualitative research strategy the most suitable for our endeavor. An online channel for enterprise software represents a novel and peculiar socio-technological context for which the applicability of preexisting theories ought to be verified. Moreover, it is as yet unclear which channel designs and technologies might establish themselves in the enterprise software market. Therefore, we opted for an open-ended, nomothetic, and inductive approach by combining a qualitative research strategy with a cross-sectional research design to capture the phenomenon's general traits at this stage.

Our empirical results highlight the key role played by software solution attributes (such as specificity, price, implementation/integration effort, scope, and evaluability) in the channel adoption decision. Besides, factors such as contractual aspects and the existence of an already established relationship with the vendor exert an influence which is only thoroughly understood when taking into account the interdependences among factors and their varying relevance in the course of the buying process. Contrarily to consumer software markets, we have found that online channels for enterprise software applications should only limitedly cannibalize offline channels and will rather complement them in multichannel systems with appropriate handover points along the buying process.

Our findings contribute to multiple streams of research at the crossroad between IS Research and Industrial Marketing. From an IS perspective, an online channel is the pivot of today's software ecosystems and a pillar of the "app economy". Moreover, the technology adoption process *by organizations* is a scarcely explored topic. From a marketing point of view, we supplement the empirical research on organizational buying behaviors – where software buying is rarely considered – and contribute to the literature on online channel adoption (which, however, mainly neglects enterprise markets in favor of consumer ones). Therefore, we repute our inquiry academically relevant and able to spur further inter-disciplinary developments among scholars in the above-mentioned fields. Moreover, we offer a novel methodological alternative based on qualitative research to detect cannibalization in a market phase in which econometric methodologies cannot be applied due to the uncertainty produced by the ongoing innovation process.

Through our study, enterprise software vendors can have a glimpse into their customers' complex channel selection process. On the one hand, our results may allow practitioners to design more effective multichannel sales systems and to diagnose hindering factors for the adoption of online and offline channels. On the other hand, they allow them to understand the interdependence between sales channel adoption and product characteristics, and thus to ascertain which multichannel configuration best suits

the different classes of products and services in the portfolio of an enterprise software vendor.

This work is organized as follows. We first review the multidisciplinary literature relevant to our topic of inquiry. Subsequently, we present our research methodology and the data we have collected. Next, the main empirical results are illustrated and we detail the channel adoption model we have constructed. Strategic repercussions for enterprise software vendors and validity and limitations of our research endeavor are discussed before concluding.

Related Work

Organizational software buying from a multichannel sales system is a complex and multifaceted topic spanning fields of study beyond IS Research (IS domains such as technology adoption, diffusion of innovation, design of electronic/online channels, software procurement). For that reason, our multidisciplinary literature review considered also research streams in Industrial Marketing (organizational buying behavior) and Marketing Science (sales cannibalization, multichannel system design). Given the abundance and range of articles identified this way, and the space limitations of a conference publication, this section will only sketch each stream's most important contributions from the specific point of view of our research questions. Please refer to the cited articles for a more thorough treatment of each subtheme.

The online channel can be seen as an information technology (IT) innovation and, therefore, adoption and diffusion of technological innovations are relevant fields of research. Venkatesh et al. (2003) comprehensively analyzed the most important available technology acceptance theories to define a Unified Theory of Acceptance and Use of Technology (UTAUT). Most of the models they examined, like the Technology Acceptance Model (TAM; Davis 1989), the Theory of Planned Behavior (TPB; Ajzen 1991), and the UTAUT itself, focus on the individual, i.e., on the single user's acceptance of IT. The process of buying enterprise application software is, however, conducted by multiple interacting individuals in different roles and ought to be analyzed at an organizational level. The Theory of the Diffusion of Innovations (DOI) by Rogers (1995) tackles the innovation adoption process by social systems and can be applied to organizational domains. Though Rogers provides a generic framework of factors influencing the adoption of the innovation, the universality of the DOI is also a disadvantage, since it does not recognize the peculiar technological context. Lyytinen & Damsgaard (2001) came to a similar conclusion by applying the DOI to the adoption of EDI technology. Finally, the Technology-Organization-Environment framework (TOE) by Tornatzky and Fleischer (1990) states that innovation adoption decisions are influenced by the technological, organizational and environmental context. The TOE model has been widely applied within IS Research (Baker 2012). However, as Baker points out, most researchers who applied the model had to identify unique factors specific to their object of investigation within each of the three afore-mentioned contexts.

From an Industrial Marketing point of view, software procurement is a particular instance of organizational buying. Robinson et al. (1967) devised a comprehensive framework to identify organizational buying situations based on three dimensions (newness of the problem, information requirements, and consideration of alternatives) and introduced three "buying classes" or specific patterns of purchase behavior (new task, modified rebuy, and straight rebuy). The model by Webster and Wind (1972) identifies four variables influencing the buying decision process: individual, social, organizational, and environmental. The buying process is carried out by a buying center – the set of all the individuals from the buying organization taking on a role in the decision (e.g., influencer, gatekeeper, approver, etc.). Based on those seminal publications, many authors have investigated factors of influence in the organizational buying process. Sheth (1973) has distinguished individual, environmental, and group-organizational aspects. The influence of organizational actors is the focus of the analysis by Ronchetto et al. (1989). An extensive literature review on the topic by Johnston and Lewin (1996) has ascertained that the most investigated constructs among the determinants of organizational buying behavior are the characteristics of the purchase, organization, group, participants, process, seller, and information. Recent publications have analyzed the change of buying center structures between different situations and phases (Järvi and Munnukka 2009).

Few scholars have focused on organizational buying in the context of software purchases. Based on Webster and Wind (1972), Verville and Halington (2002) have investigated the acquisition of an

Enterprise Resource Planning (ERP) system and classified influencing factors into environmental (e.g., technological, cultural), organizational (e.g., project management approach), group/interpersonal, and individual (e.g., acquisition team's composition, individual leadership). In a second study (Verville and Halington 2003) they have decomposed the ERP acquisition process into the phases of planning, information search, selection, evaluation, choice, and negotiation. Loebbecke (2010) has identified information-related drivers (i.e., customer references, expert network recommendations, and demonstration team presentations) and feature-related ones (i.e., price performance, functionality, sales team service) impacting organizational software purchases. Palanisamy et al. (2010) have uncovered five factors influencing the enterprise software acquisition process: enterprise-systems strategy and performance, business process re-engineering and adaptability, management commitment and users' buy-in, single vendor solution, and consultants, team-location, and vendor's financing.

Another relevant stream of research is that on the phenomenon of sales cannibalization, i.e., intra-organizational sales diversion due to competing products or channels belonging to the same vendor (Novelli 2013). The introduction of an online sales channel could beget such a sales diversion indeed. Some IS Research scholars have estimated cannibalization rates following the introduction of an online channel through econometric analysis of historical data, but focused on information goods from the media and entertainment industries only (DVD, books and newspapers). Detected cannibalization rates ranged from insignificant (Deleersnyder et al. 2002) to noteworthy (Filistrucchi 2005). From a strategic point of view, the "willingness to cannibalize" established assets – such as preexisting sales channels – is a distinguishing trait of enduring market leaders (Tellis and Golder 2002) and higher-than-average cannibalization rates have been found to be a distinctive feature of successful software vendors (Hoch et al. 2000).

With regard to the design of online/offline multichannel sales systems, one key success factor is the "Supplement and Support Channel Strategy" (Heinemann 2010): to complement or support the online channel with the other (offline) sales channels. An optimal multichannel sales system ought to let individual sales channels cross-fertilize each other and exploit each other's strengths (Cespedes and Corey 1990; Schögel et al. 2004). A key design parameter is whether the sales channels should complement each other by supporting different tasks along the sales process or remain independent. In case of an interdependent sales system, the sales channels are supporting the sales process as an integrated system. Tasks are assigned to one or both with dedicated handover points. If the channels are independent, each sales channel can support every task along the sales process. Dependencies are avoided by restricting each channel to a certain domain (such as a geographical region or a product category).

Research Methodology and Data

We have opted for an open-ended, nomothetic, and inductive research approach by combining a qualitative research strategy with a cross-sectional research design. A cross-sectional study relying on qualitative interviewing and qualitative content analysis is a typical instance of such a combination (Bryman & Bell 2007, p.71). A simplified representation of our research process is depicted in Figure 2.

During the pilot phase of our research project, a tentative set of questions was assembled drawing from the relevant literature through some preliminary deductive categorization. A first version of the interview guide was tested at the renowned ICT trade fair CeBIT in March 2012. There, ten test interviews of about 30 minutes each were conducted with four customers and six providers from the enterprise software market, and allowed us to optimize the questions' order, phrasing, and graphical support ahead of the actual data collection phase. A revised version of the interview guide was thoroughly discussed with an experienced and high-ranked enterprise-software sales executive as well. Thereafter, the interview guide was only subject to minor adjustments in wording and appearance.

Semi-structured interviews were our chosen means of primary data collection. On the one hand, relying on an interview guide with predefined questions and illustrations guaranteed a shared understanding between interviewer and interviewee of the numerous aspects to be considered in the discussion: the sales channels' distinctive characteristics, the buying-process phases, and the various enterprise software products and services (the schematizations we employed are detailed at the end of this section). On the other hand, open-ended questions let each interviewee free to enrich the discussion with elements of enthusiasm or concern peculiar to his/her profile and organizational environment. Interviews were

scheduled between March and September 2012. Seven were conducted face to face, the other nine telephonically. Every conversation took place in German – the mother tongue of all participants – and was digitally recorded (for a total 939 minutes of recording) and subsequently transcribed by German native speakers familiar with the subject matter and terminology. The transcribed qualitative material amounted to about 111,000 words.

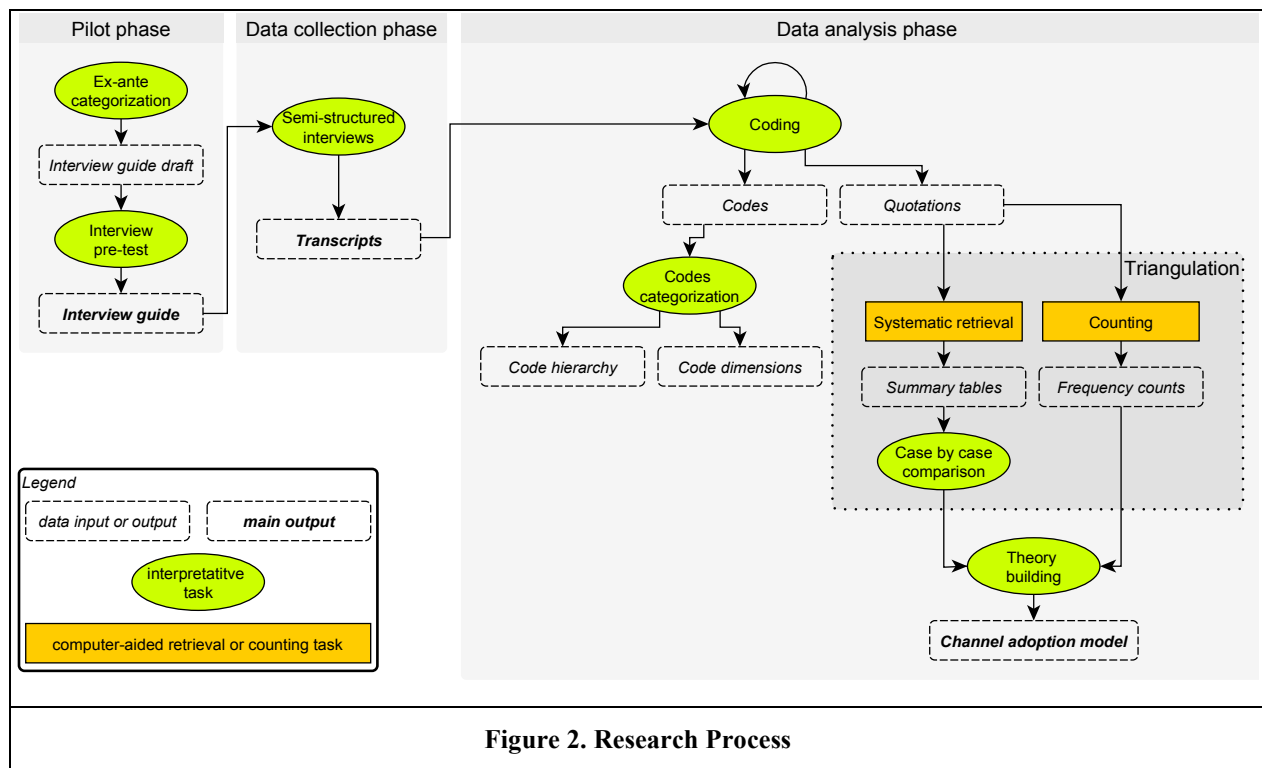


Figure 2. Research Process

Repeated coding iterations of the transcripts (represented by the recursive arrow for the coding task in Figure 2) were at the core of our analysis phase. In particular, we employed the following first-cycle coding methods (Saldaña 2009, pp 45-101): *attribute* coding (to annotate the interviewee's profile and that of his/her organization), *structural* coding (to index the different macro-parts constituting an interview), *descriptive* coding (to index relevant text passages, with *subcoding* when necessary), *values* coding (to label the participants' attitudes and values). Second-cycle coding methods (those applied to portion of text coded previously) were *magnitude* coding (to formalize aspects such as the perceived marginal impact of a change in a previously identified variable, or to enable counting – cf. below) and *evaluation* coding (to denote participants' judgments and evaluative comments). *Simultaneous* coding was employed throughout as well, i.e., multiple codes and coding methods were applied to the same portion of text when necessary. Three researchers coded the same interview in parallel and compared coding decisions until a common codebook was finalized. Subsequently, different interviews were randomly assigned to the researchers and independently coded. At the end of the research project, the codebook consisted of 62 codes used to index more than 1,500 quotations (viz., coded textual passages).

Notwithstanding the importance of the coding act itself as an analytical tool, codes and quotations were employed as input for further analysis steps. Descriptive and values codes were categorized to produce a coding hierarchy, and, as our research progressed, we developed code dimensions, that is, properties of a code representable on a continuum, such as frequency or intensity (Gibbs 2007, p. 76). Quotations were systematically retrieved to fill qualitative summary table for case-by-case comparisons.

In addition to this purely qualitative form of interpretation, we conducted counting – the process of assigning numbers to non-numerical data (cf. Hannah & Lautsch 2010 for a survey on the use of counting in qualitative research). The production and use of quantitative data in qualitative research is

controversial and debated within the qualitative research community itself. However, we believe that, as stated by other scholars as well (Maxwell 2010), there are noteworthy reasons to make use of it: “internal generalizability”, identification of patterns not apparent in the unquantified qualitative data or even to participants themselves, and as means to synthetically present evidence for the researchers’ interpretations (“to counter claims that you have simply cherry-picked your data for instances that support these interpretations”, as Maxwell puts it). We applied different forms of counting to the quotations. Proximity analysis – the analysis of the spatial relations between quotations – was the most prominent form thereof and allowed us to discover relevant patterns of code co-occurrence. Please note that, since we employed non-random sampling, frequency counts presented throughout this work are not accompanied by any indicator of statistical significance.

Table 1. Coding Methods Employed in the Study and Code Examples		
Coding Method	Code Example*	Quotation Example³
Attribute	PROFILE INFO: ORGANIZATIONAL ROLE	<i>“I am in global sourcing [...] and I do strategic projects on how to further develop our sourcing department.”</i>
Structural	PROCESS PHASE: INFORMATION SEARCH	<i>“I believe information search somewhat depends on the need of explanation of the respective products.”</i>
Descriptive (with subcoding)	SOLUTION DEPLOYMENT ON-PREMISE	<i>“For an on-premise solution, one has probably still the traditional mindset and will raise a request directly to the company.”</i>
Values	BARRIER OF ADOPTION	<i>“On-premise rather via the traditional channel because the initial investment is higher and the scope is more complex. This does not fit very well for the electronic channel.”</i>
Simultaneous	PRODUCT TYPE: CORE PRICE	<i>“Yes, the price does have a significant impact, especially when we talk about large and expensive solutions like ERP.”</i>
Magnitude	NUMBER OF USERS EFFECT DIRECTION (-)	<i>“If I had to buy 2000 Windows licenses, I would definitely try to reach out to the sales person and negotiate the price.”</i>
Evaluation	IMPLEMENTATION- INTEGRATION EFFORT BARRIER OF ADOPTION EFFECT DIRECTION (-)	<i>“If you must customize the software highly, you will have intense personal contact and this will not work in an automated fashion.”</i>

* The pipe character “|” separates multiple codes applied to the same datum; the colon “:” separates a code family label (e.g., process phase) from the specific code instance in the quotation (e.g., information search)

Counting and interpretation were combined depending on the specific research question. We sometimes exploited a triangulation approach by addressing the same research question with both techniques in parallel (referred to as “corroborative counting” in Hannah & Lautsch 2010). However, the researchers’ interpretative tasks (such as the perusal of qualitative tables) always preceded counting to avoid that the results of the latter may influence the researchers’ judgments involved in the former. In other contexts, counting was used to select a subset of cases for further interpretative tasks. In fact, we argue that an interviewee’s view on a complex topic can be thoroughly understood and faithfully interpreted by the researchers only if sufficient textual material is available to them. Case selection was based on the number of occurrences or co-occurrences of certain codes (an example is detailed below where we describe how we have investigated the interdependences among adoption factors). We believe this to be an exemplary use

³ Quotations throughout the article were translated from German to English (and anonymized) by the authors.

of numbers to ensure that interpretations are grounded in the data and not just the result of selectively picking data to support them.

Finally, all along the research process, memos tracked methodological and conceptual developments: methodological notes focused on coding issues; theoretical notes recorded the emergence of relevant variables and their interrelationships. Most analytical tasks were performed with the (precious) support of a Computer Aided Qualitative Data Analysis Software (CAQDAS) application.

Sample Design

We employed a combination of convenience sampling and snowball sampling to exploit our networks of professional relationships within a globally operating enterprise application software vendor (from now on referred to as “ESV”). Potential interviewees were identified – directly among our acquaintances or indirectly by inquiring them for further contacts – and subsequently approached via e-mail and telephone. As exhibited in Table 2, the first four interviews were conducted with sales executives from the ESV organization, the following twelve with managers from a highly diversified set of organizational contexts (in terms of area of responsibility, company size, and industry), mostly at the middle and top management level. All interviewees were German but from international organizations. A governmental agency was also part of the study. All participants declared themselves familiar with organizational software purchases and have participated in organizational software buying processes in one or more of the following buying center roles: influencer (focusing on specifications and information gathering), decider (selecting the supplier and the offering), or buyer/approver (with formal authority to negotiate and close deals). The ESV sales executives (interviews I1-I4) were all experienced account managers responsible for one or more customer accounts.

#	Personal Profile		Organizational Profile			Date	Sampling
	Level	Role*	Relationship with ESV	Industry	Size		
1-4	Interviews with ESV sales executives					March-April 2012	Snowball
5	Middle manager	LoB	Customer	Manufacturing	LE	April 2012	Snowball
6	Middle manager	LoB	Customer	Manufacturing	LE	May 2012	Snowball
7	Top manager	C-level	Partner	IT product and services	SME	May 2012	Snowball
8	Middle manager	IT	Partner	IT product and services	LE	May 2012	Convenience
9	Middle manager	IT	Customer	Retail	LE	May 2012	Snowball
10	Full-time employee	LoB	None	Consulting services	SME	May 2012	Convenience
11	Middle manager	IT	Customer	Financial services	LE	June 2012	Snowball
12	Middle manager	IT	Customer	Public administration	LE	June 2012	Snowball
13	Top manager	C-level	None	IT product and services	SME	Aug. 2012	Convenience
14	First-level manager	IT	Customer	Telecommunications	LE	Aug. 2012	Convenience
15	Middle manager	IT	Customer	Financial services	SME	Aug. 2012	Convenience
16	Middle manager	LoB	Customer	Manufacturing	LE	Sept. 2012	Convenience

*Abbreviations for organizational roles: LoB = Line of Business (i.e., any non-IT department, for example, procurement or sales&marketing), IT = Information Technology department, C-level = CEO or equivalent.

Interview Design

Our semi-structured interviews consisted of four sections. The first one was an ice-breaking round of presentations and introductory questions on the interviewee's familiarity with online purchasing of software, both in the private and professional spheres. The second part dealt with the buying decision process and investigated the possibility of relying solely on an online channel to complete it. The third section explored the factors influencing the channel decision. In the concluding part, the interviewee was prompted to think of any overlooked aspect he/she had deemed worth including in the discussion. The two central blocks regularly amounted to about two thirds of the interview time. To support the discussion we employed visual representations of the buying process and of the product portfolio. Participants were preliminarily made aware of the study's goals (including the publication of a scientific contribution) and guaranteed of the anonymous treatment of any personal and organizational reference.

The wide range of products and services offered in the enterprise software market and the high diversity of organizational buying processes are potential sources of complexity in the channel adoption decision. Therefore, we have taken them into account when drafting the interview guide and included appropriate schematizations to tackle them effectively during the discussion.

We have devised a stylized product & service portfolio comprising four classes: core solutions, on-top solutions, usage enhancements, and IT services. *Core solutions* are either company-wide information systems (such as Enterprise Resource Planning) or systems spanning one functional area (such as Customer Relationship Management). *On-top solutions* are software components which provide core solutions with additional functionalities, business-process support, or front-ends. *Usage enhancements* are post-purchase goods enhancing a solution without modifying its code base, such as user licenses, usage contingences, and service level agreements. *IT services* are professional services related with the solution (e.g., implementation, data migration, training).

Furthermore, we have conceived a generic buying decision process with five phases: problem recognition, information search, evaluation, negotiation and purchase, and aftersales. In the *problem recognition* phase, the organization gains awareness of an opportunity or threat which can be dealt with by acquiring an enterprise solution. The *information search* covers the acquisition of information material and it is followed by the *evaluation*, where selected solutions and vendors are ranked. The *negotiation and purchase* phase encompasses finalizing the terms of the transaction, stipulating contracts, and executing the purchase. Furthermore, the *aftersales* phase covers additional purchases (i.e., the above-mentioned usage enhancements).

Empirical Analysis

In this section, we report the empirical results obtained analyzing the semi-structured interviews. We first detail the three components of our qualitative channel adoption model, which answers the explanatory research question (on the factors influencing the channel adoption decision). We then take the different classes of enterprise software products and services into account, and see how they relate to the channel adoption decision.

Channel Adoption Model

Consistent with the way in which we decomposed the first research question, and given the nature of a qualitative research strategy, we have constructed our channel adoption model progressively: (I) we have identified the relevant variables influencing the channel adoption decision, (II) we have investigated their interrelationships, and (III) we have verified whether a factor's relevance may change in the course of a typical buying process. We first describe how the factors influencing the online channel adoption decision have emerged from the data through coding and case-by-case comparison.

A list of tentative factors devised from the relevant literature was part of the interview guide we employed. However, to let additional decision criteria emerge, it was discussed with the participants only in the interview's last section. The final list of factors is reported in Table 3 and comprises three categories of attributes (column A): those characterizing the purchased software solution, those inherent in the buying

organization, and those reflecting the peculiarity of the transaction with the vendor in a given setting. All factors are well-grounded in the data, as shown by the frequency counts of how many participants judged the factor relevant for the channel adoption decision (column D). Using proximity analysis, it was also possible to determine how many participants mentioned a factor without being prompted by an interviewer's explicit question (the numbers in brackets in column D). The fact that more than half of the participants autonomously mentioned most of the factors is *another* proof that the list is grounded in the data and should accurately reflect the interviewees' perspective.

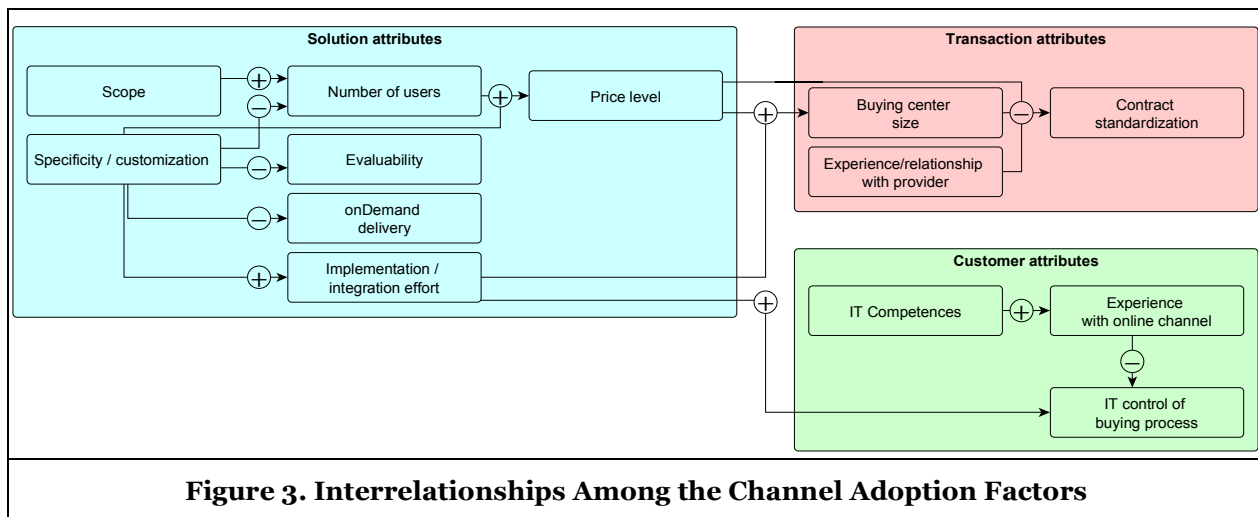
A	B	C	D	E	F
Factor	Description	Grounded-ness*	Impact on...		
			online adoption	offline adoption	
Solution attributes	Criticality	Importance of the supported business processes for the organization	11 (11)	Barrier	Driver
	Evaluability	Extent and easiness to evaluate the solution relying on the online channel's capabilities	12 (11)	Driver	Barrier
	Implementation/integration effort	Effort (in terms of time and financial investments) needed to have the application wholly implemented and integrated with pre-existent systems as needed	16 (8)	Barrier	Driver
	On-demand delivery	Possibility to deliver the application on-demand	10 (5)	Driver	Barrier
	Price level	Price of the purchased application	14 (10)	Barrier	Driver
	Scope	Breadth and depth of the supported functionalities.	11 (9)	Barrier	Driver
	Specificity / customization	The degree to which the supported functionalities are peculiar to a specific organizational domain or need to be adapt to it	13 (8)	Barrier	Driver
Customer attributes	Number of end-users	End-users to which the application is delivered	10 (8)	Barrier	Driver
	Innovativeness	Customer's attitude towards innovation and technology	3 (3)	Driver	Barrier
	IT competences	Availability of in-house IT know-how and personnel	11 (5)	Driver	Barrier
	IT control over the buying process	Level of control exerted by the IT personnel on software purchase decisions	12 (10)	Barrier	Driver
	Prior experience with the online channel	Past experience with a similar channel	5 (5)	Driver	Barrier
Transaction attributes	Prior experience with the solution	Past experience with a similar solution	9 (9)	Driver	Barrier
	Involved agents' reputation	Reputation and trustworthiness of the involved agents (vendor, channel provider, etc.)	7 (7)	Driver	Driver
	Buying center size	Number of people playing a role in the software purchase decision	12 (10)	Barrier	Driver
	Prior experience and relationship with the provider	Past experience and pre-existent relationships with the channel provider	11 (11)	Mixed	Driver
	Contracts standardization	Level of standardization of the contracts formalizing the software purchase	9 (9)	Mixed	Barrier
Online purchase legal barriers	Breadth and depth of environmental legal requirements to be fulfilled in the online software purchase	7 (6)	Barrier	Driver	

* Frequency counts of the interviewees qualifying the factor as relevant for the channel adoption decision. In brackets the number of participants who mentioned the factor without being explicitly prompted by the interviewer.

An assessment of the factors' impact on the adoption of respectively the online and offline channel was performed using qualitative tables and proximity analysis, and is reported in column E and F in Table 3: the "barrier" and "driver" labels identify the effect – respectively negative and positive – of one

incremental unit of the factor on channel adoption. It was possible to elicit a clear tendency for most factors with regard to their perceived impact on the adoption of either channel. Since interviews dealt with the channel adoption decision *given* that a software purchase of some sort is to be conducted and *given* that the buyer is confronted with just the channel pair as choice set, the impact on the adoption of the two channels will go in opposite directions for each factor which does actually play a role in the channel adoption decision. Should this not be the case, the identified factor may actually be acting at some other level, for example, be a barrier or driver of software purchase in general. Therefore, the fact that most factors actually take on opposite roles with regard to the two channels further corroborates their relevance.

Only three particular cases in Table 3 cannot be explained as unambiguously. Although a positive direct experience with the channel provider may increase the attractiveness of the online channel, personal relationships developed in that context (e.g., the assignment of a dedicated sales account manager) are then seen as preferred means of communication and information gathering, and as a possibility for negotiating better prices and terms, thus possibly hindering the adoption of the online channel in favor of the offline one. In a related matter, mixed results were evident in the judgments expressed over contracts' standardization. While a standardization and simplification of contracts is seen as a prerequisite for completing online transactions, some interviewees stated that individually negotiated terms and conditions (for example, agreed volume-discounts) should be taken into account in online transactions, since, in the presence of standard contracts, the offline channel would be preferred in order to negotiate new terms and conditions. The involved agents' reputation and trustworthiness drive the adoption of both channels and is therefore to be interpreted as a factor in the vendor selection decision rather than in channel selection. However, building trustworthiness between the vendor and the buyer is easier through the activities involved in an offline (and often personal) interaction than through online transactions. Therefore, the entry barriers in terms of trust are higher for the online channel.



As the discussion of the individual factors lets imagine, the channel adoption decision is more complex and encompasses interdependences between the individual factors, which we tried to uncover to present a more thorough adoption model. Therefore, we have investigated the relationships between individual decision criteria further. This is an exemplary part of our research where counting was used to feed the interpretative work and not to corroborate it. We performed proximity analysis to obtain co-occurrence frequencies of all possible factor-pairs combinations and used these to select candidate pairs about which we had enough data (in terms of available quotations) to express a qualitative assessment. There were 101 factor co-occurrences appearing at least once in our data. We employed a threshold of four co-occurrences, that is, we selected factor-pairs for which quotations coded with one factor code overlapped to some extent with the quotations coded with the other factor code at least four times. We selected this threshold both to produce a manageable set of candidate relationships (37) and to ensure that we had enough

qualitative material (*videlicet*, at least four statements per relationship) to faithfully interpret the interviewee's opinion.

While Table 3 presents the adoption factors and their direct influence on the channel decision, Figure 3 illustrates the interrelationships among the channel adoption factors, which we now briefly discuss. Some factor relationships are not surprising. An increase in solution scope will likely increase the number of end-users served and, on the contrary, an increase in specificity will likely reduce it; in turn the number of users will likely impact the total solution price (pricing models in the enterprise market are usually per-seat). In-house IT competences are viewed as a proxy for familiarity with online channels and platforms.

More interestingly, maturing additional experience with the online channel is likely to reduce the IT department's influence in the software buying process, just as the level of integration and implementation effort is likely to increase it. Mitigating effects on the price as a barrier to online channel adoption are exerted by prior experiences with the online channel or with the channel provider. Contract standardization appears once more an interesting case, since it is negatively impacted by three other factors: a pre-existent relationship with the provider (as hinted at above already), the buying center size (proportional to the number and diversity of the requirements to be addressed in the contract terms), and the price level (which increases the need for direct off-line negotiations). Factors' categories are also highlighted to emphasize how solution attributes impact transaction and customer attributes without being affected by them.

Factors		Buying Process Phases				
		Problem Recognition	Information Search	Evaluation of Alternatives	Negotiation & Purchase	Aftersales
Solution attributes	Criticality	0	4	2	1	0
	Evaluability	0	8	7	1	0
	Implementation/integration effort	0	2	4	4	0
	On-demand delivery	0	2	3	2	1
	Price level	0	5	3	10	6
	Scope	0	4	4	1	1
	Specificity / customization	1	5	5	2	1
	Number of end-users	0	3	1	1	1
Customer attributes	Innovativeness	0	1	1	2	1
	IT competences	0	2	0	2	0
	IT control over the buying process	4	6	3	4	2
	Prior experience with the online channel	1	5	1	4	1
	Prior experience with the solution	1	5	2	1	2
Transaction attributes	Involved agents' reputation	1	2	1	1	0
	Buying center size	0	0	1	0	0
	Prior experience and relationship with the provider	2	6	3	6	3
	Contracts standardization	0	0	1	9	2
	Online purchase legal barriers	0	1	0	3	0

The last step in the construction of our qualitative adoption model was to investigate the factors' possible change in relevance along the buying process. We performed this step by applying proximity analysis to

detect the degree of overlap between codes for factors and codes for process phases. This allowed us to readily see in which phase or phases a factor was judged to play a relevant role (the co-occurrence with the values-codes “barrier of adoption” or “driver of adoption” was a criterion in the query). Results are detailed in Table 4, which presents the frequency counts of the participants in the sample for whom the specific factor-phase overlap was detected.

Table 4 reveals some interesting insight when read horizontally in terms of a factor’s relevance across the whole process. Past experiences with the vendor, the channel, and the solution, solution specificity, and the degree of control over the process by the IT department are the only factors which are judged relevant by at least one participant in each and every phase. Not very surprisingly, solution evaluability is a relevant factor only during the phases of information search and evaluation of alternatives. Legal barriers to online purchases, contracts standardization and price level are heavily influencing and rather specific to the negotiation and purchase phase, as intuition would suggest. Reading the table vertically (per phase), the tails of the process (problem recognition and aftersales) are less impacted by the set of factors than the body of the process, where the seven strongest factor-phase interdependences, detected in at least five interviews, are found.

Channel Adoption Profiles of Enterprise Software Products and Services

Figure 4 depicts the interviewees’ channel preference along the buying process – first overall and then per category of enterprise offering. This analysis was performed independently from the factor analysis in the previous section and can therefore serve as a test to corroborate it (triangulation). The vertical axis in the graphs indicates the percentage of the interviewees preferring the online or the offline channel, whereas the horizontal axis represents the buying process. Panel (a) shows that, for the initial three phases of problem recognition, information search and evaluation, the interviewees have a higher preference for the online channel, with a declining trend from problem recognition to evaluation. This trend continues in the negotiation & purchase phase where the interviewees have a higher preference for the offline channel instead. In the aftersales phase the trend reverses towards a higher preference for the online channel. The pattern of declining online preference towards the negotiation & purchase phase is largely shared across all product types; it differs only in magnitude and curve progression.

Panel (b) details the channel preferences in the case of core products. Whereas the online channel is still slightly favored in the information phase, the offline channel is preferred from the evaluation phase already. This can be due to the larger scope and lower evaluability of core products, partly resulting from higher customization needs (cf. Table 3 and Figure 3). As one interviewee puts it: *“For core solutions, the more broad and complex the scope, the more a physical meeting with physical sales staff is required, because the decision makers are not so knowledgeable to self-assess such a solution.”* For the negotiation & purchase phase, nearly all interviewees argued for the offline channel. Major barriers for online purchases are corporate guidelines that require contract customizations and the high price of core solutions: *“These are very individual agreements between customer and software supplier. We want our own clauses to be included. This is then a wrestling battle among lawyers”*. The results in Table 4, where contracts and price have been identified as the most important factors for a channel decision in this phase, are in line with these findings.

In the aftersales phase, the interviewees argued again for the convenience of an online channel: *“Additional user licenses and usage contingents – this is a very good assortment for online shops. [...] It is clear what you get, no technical customizations required, mostly just a license file to be uploaded or some contract value like SLA to be increased”*. Additional purchases of usage enhancements for already owned products do not require extensive decision-making; contracts are already in place, costs are often marginal compared to the initial purchase, and involved risk is reduced due to the matured experience with the solution and the provider.

The channel preference for on-top solutions, presented in panel (c), shows a preference for the online channel throughout the buying process, with a slight decline in the negotiation & purchase phase. Compared to core solutions, this is due to the smaller scope, customization need, better evaluability, lower price and therefore lower risk and need for contract customization: *“Add-ons – I can imagine this very well – to download them somewhere and ideally upload it to the system and it works. It is anyhow an encapsulated limited functional scope”*.

Panel (d) presents the channel preference for IT services. The information search phase would mainly be conducted online, whereas the evaluation and negotiation & purchase phases rather offline. Personal consultancy in these phases is required as services have often a broad scope and are highly customized. Furthermore, interviewees argued that the human resources involved in most IT services can be better evaluated in a personal, offline interaction.

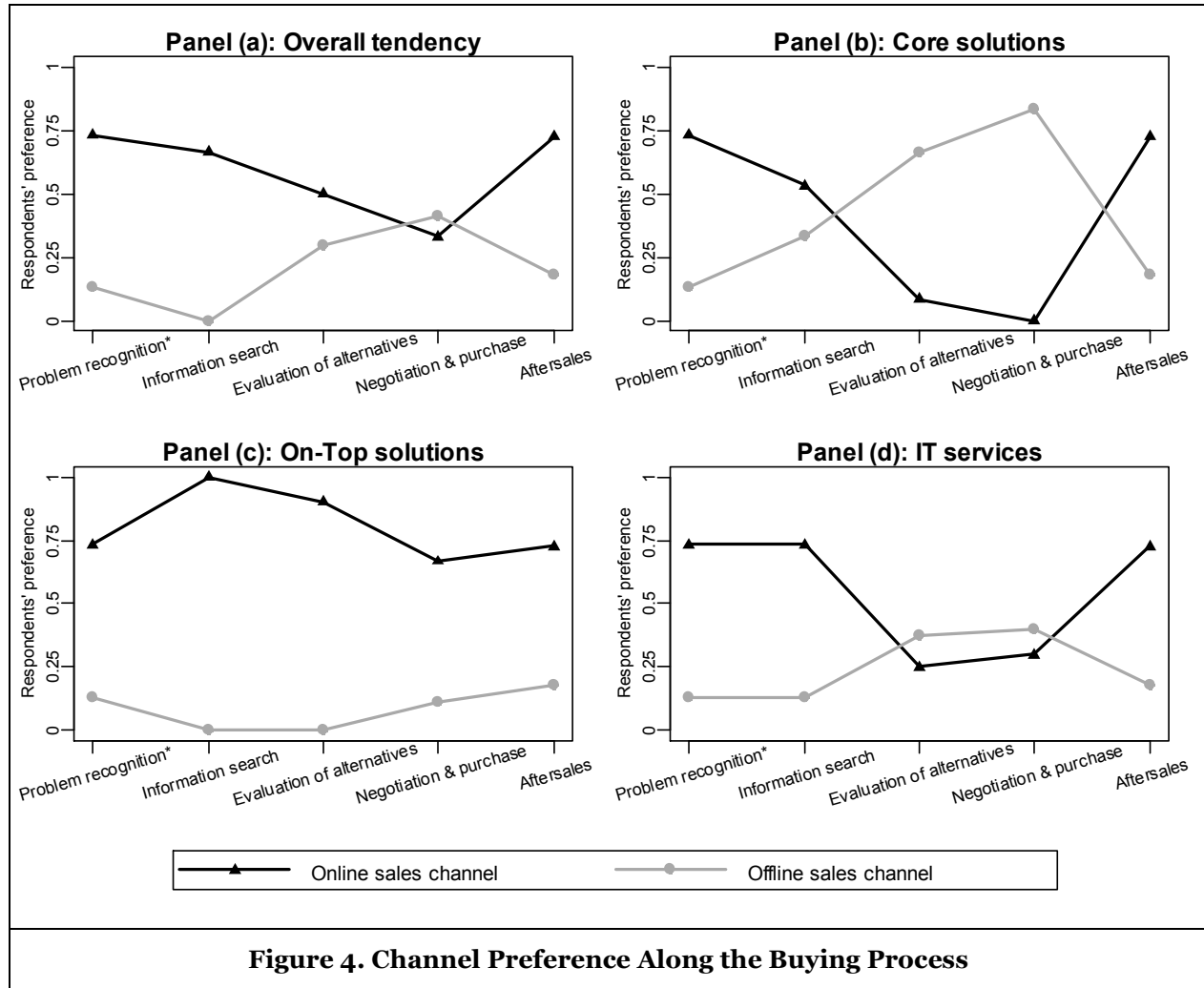


Figure 4. Channel Preference Along the Buying Process

* The limited available material on the problem recognition phase did not allow us to discriminate between product classes. The overall tendency for that phase is thus reproduced in all panels.

Discussion of Results

Multichannel Sales System Design

Based on our empirical results (cf. Figure 4), we can derive some basic design recommendations for a multichannel sales system for enterprise software and answer our second (normative) research question. Generally, we can state that the online channel is a highly relevant sales channel, especially for certain product types (i.e., on-top solutions), and at the beginning and ending stages of the buying process. At the same time, the offline channel is not only still needed due to certain complexities involved in the enterprise software purchase, but highly desired by customers due to its value-adding, consultative characteristics, especially for initial purchase scenarios (i.e., core solutions), and in the more formally

binding buying phases. Given the different preference patterns for the different product types, we propose an integrated sales channel system with individual channel strategies for each product group and a separate channel strategy for the after sales phase across product groups. This way the online and offline channels will best cross-fertilize each other and exploit their respective strengths.

Core solutions have the highest offline suitability across the buying process. Yet, most interviewees argued favourably for the use of an online channel in the early stages of the purchase. Therefore, initially online and offline channel should be setup with equal priority. The online channel should offer dedicated handover points towards the offline channel along the buying process: for example, via online reservations for individual product presentations (i.e., “channel hopping” in the evaluation phase), or via “quote requests” for switching the channel in the negotiation phase. The data we have analyzed suggest that mainly changes towards the offline channel are required (excluding the after sales phase). However, in the negotiation & purchase phase, major consulting support is required to align the terms of the contract via iterative quote requests and proposal generation. Thereafter, the actual transaction could again be done online, i.e., accepting the proposed quotation. Even if this phase is largely governed by personal sales staff, the online channel could contribute by conducting “non-consultative” tasks.

For on-top solutions, an exclusive online channel, largely replacing the offline channel, makes sense if the sales and distribution model of such on-top solutions supports a highly standardized contractual model and the deployment and implementation efforts are reduced to a minimum. Especially for new types of solutions, like mobile business solutions, there seems to be the desire for an “app-store” kind of model: *“Mobile, online apps, yes, you buy these online because they are standardized and use them right away.”* For premium customers or customers that cannot close the transaction online (e.g., due to customization needs for the contract in the public sector), there should be an exit path in the negotiation & purchase phase towards the offline channel to reduce drop-off rates.

In addition, deals for IT services can be initiated by the online channel. The high customization need and the involvement of human resources demand a traditional offline channel for many IT-services scenarios. Therefore, the online channel should support standardized, packaged IT service products or bundles for the entire transaction, and provide exit points towards the offline channel in the evaluation and purchase phase for buying scenarios that go beyond the standard service products (in terms of scope, price, customization need or where human resources need to be evaluated).

The aftersales phase is often a simple transaction without new buying decision parameters to be evaluated. Therefore, after sales products merely enhancing running contracts and/or usage scenarios should be supported by the online channel for the entire product portfolio. If the initial purchase was conducted offline, a process should be in place to handover the customer to the online channel for simple upsell scenarios. The offline channel can act as supporting channel when the initial deal is closed by personal sales staff and the customer is not inclined to change the channel, or in case of larger, more complex upsell scenarios requiring contract adjustments.

Comparison with Other Theoretical Models

When comparing our results with the buyclass model (Robinson et al. 1967), some of the factors we have elicited (“experience with provider”, “experience with solution”) identify the buying class, while others (evaluability, integration/implementation effort, as well as customization need) are determined by it. Though both our model and Robinson’s share similar factors, our findings do not fully support the deterministic relationships between the factors outlined by the latter. Our stylized product portfolio can be partly mapped to the canonical three buyclasses. Purchase of “Usage Enhancements” will mostly be classified as a straight rebuy while the acquisition of “On-Top Solutions” or “IT Services” can relate to either the new task or modified rebuy buyclasses. However, contrarily to the buyclass model, we have found out that the characteristics of the purchased product or service need be considered to thoroughly explain software buying situations.

As the target of our research is not only to understand the buying situation for enterprise application software, but how the buying situation impacts the adoption of an online or offline sales channel, we compared our results with the TOE-Framework (Tornatzky et al. 1990). Our attribute categories partially map to the TOE-framework’s contexts: customer attributes can largely be compared with TOE’s organizational context; solution attributes do have minor overlaps with the TOE’s technology context;

transaction attributes are only slightly related with TOE's environmental context. Although the TOE-framework might explain parts of the adoption process, in our case it does neglect the specifics of enterprise software purchases. These findings are in line with the conclusion of Baker (2012): the general framework has proven valid, but unique factors peculiar to the specific context studied are necessary to model the adoption there.

Evaluation and Limitations of the Study

Different frameworks for evaluating qualitative research have been proposed, either trying to adapt the meaning of existing criteria from the quantitative tradition or generating brand-new ones for qualitative research. We have selected one from each approach to have an overall and hopefully balanced assessment of our research study.

Wearing lenses closer to those of a quantitative researcher, we must confront the criteria of reliability and validity (Goetz et al. 1984). With regard to external reliability (i.e., the possibility to replicate our research endeavor), as commonplace in qualitative research, replicability is low, since our research process was influenced by the organizational context – the ESV – in which it was conducted from its earliest stages (e.g., the convenience and snowball sampling techniques). Nonetheless, we have tried to detail our research methodology as much as possible given the space constraints. Internal reliability (the consistency between researchers) was ensured by repeated daylong workshops where interpretative tasks were performed together, and by the use of standardized and agreed-upon coding-related artifacts. Among those: a common codebook and the same software tools (please review the research methodology section for details).

We took internal validity aspects into consideration during both the design and execution of our research. The interview guide was iteratively tested and discussed with subject-matter experts. The transcripts were produced by researchers' assistants who are native German speakers familiar with the themes and terminology. The interdependence between different research techniques was also taken into account: purely qualitative analysis tasks strictly preceded counting whenever possible to let the researchers' theoretical sensitivity unaffected during interpretative acts. External validity (i.e., generalizability) could be questioned because of our non-random-sampling design but, as no qualitative study is generalizable in the probabilistic sense (Marshall and Rossman 2006, p. 42), we believe our sample to be adequate, both in terms of size – it lies within the range of what is commonly considered acceptable for a qualitative study (Luborsky and Rubinstein 1995, p. 105) – and representativeness, given the range of personal and organizational profiles (cf. Table 2). On that respect, some sample members were experienced sales executives with a broad view of the topic beyond specific organizational boundaries.

Evaluation criteria conceived specifically for qualitative research are instead trustworthiness and authenticity (Guba and Lincoln 1994). Trustworthiness is made up of the four criteria of confirmability, credibility, dependability, and transferability. The latter three parallel the above-mentioned criteria of internal validity, reliability, and external validity. The same arguments thus apply. Confirmability (objectivity) could be put in question, since the authors are affiliated with a private organization with political interests in the research outcomes. Adhering to academically respected and well-known research standards and practices should mitigate that risk. With regard to authenticity, we believe to have represented different viewpoints (e.g., different buying-center roles were part of our sample) and to have provided some additional insight of a socio-technological context (“ontological authenticity”), which may be of interest to other members of such settings (“educative authenticity”). Since the research project was initiated and conducted in an organizational environment with stakes in the future development of the enterprise software market, catalytic and tactical authenticity (i.e., being spurred and empowered to engage in action) were assured.

Conclusion

In our research we have qualitatively investigated the channel adoption decision by organizational software buyers. We have identified and categorized drivers and barriers influencing channel selection and provided a qualitative adoption model which takes factor interdependences and buying process phases into account. Scholars in this area might be interested in verifying or extending our findings with

different qualitative or quantitative approaches. IT practitioners could, on the one hand, derive tangible recommendations for the design of a multichannel sales system. On the other hand, they could elicit how enterprise application software ought to be designed to fit an online sales strategy. As a closing remark, we believe that an online channel has the potential to enhance how enterprise software is being evaluated, purchased and ultimately consumed, to the benefit of customers and vendors alike.

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