

SMEs and IT: Evidence for a Market for “Lemons”

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Abstract: It is well known that Small- and Medium-sized Enterprises (SME) suffer from a lack of IT proficiency and therefore depend heavily on external IT expertise. The acquisition of a strategic IT artefact by an SME is mainly initiated in a market where Independent Software Vendors (ISV) and customers meet. This complex process is dominated by information asymmetry and leads to the ‘lemons’ problem, where low-quality vendors drive out high-quality vendors as predicted by the Lemon Market Theory (LMT). The diversity in quality makes it difficult for prospective buyers to evaluate a product or service with complete certainty and makes the decision to acquire risky. According to LMT, there is incentive for vendors selling poor quality, where quality of services is linked to an entire group rather than to an individual vendor. Although many scholars refer to this phenomenon in their work, empirical evidence is scarce. In this paper, we present the results of an enquiry into the ‘lemon’ problem within a group of 484 Belgium ISVs that target the SME market. A survey of the websites of the selected ISVs was conducted, in which we examined the way the products and services were presented. This was followed by six case studies, in which Chief Information Officers (CIOs) of SMEs were interviewed about the way they perceive the services of the ISVs. Our findings suggest that there are elements of a ‘lemons’ market present. However, there are also indications of a self-cleaning mechanism present in the market within the group of ISVs, leading to a globally higher degree of quality and leading to positive filtering from ‘the buy side’. However, the strongest conclusion is that some SMEs are encouraged by ISVs to withdraw from progressing further with their software acquisition process due their inferior IT capabilities and practices.

Keywords: SMEs, IT/IS, lemon market theory, ISV

1. Introduction

Small- and Medium-sized Enterprises (SMEs) tend to focus on their core business and do not always have the necessary resources and capabilities to govern an internal, professional information technology (IT) department or an information systems’ (IS) function. It is said that SMEs suffer from resource poverty, not only financially but also in the amount of their internal IT/IS expertise (Thong 2001; Thong, Yap & Raman 1996; Verhees & Meulenbergh 2004). Therefore, SMEs depend heavily on external IT/IS expertise delivered by Independent Software Vendors (ISVs) to develop and implement their strategic IT artefact and conduct the indispensable IT projects (Dibbern & Heinzl 2009; Thong, Yap & Raman 1996; Yap, Soh & Raman 1992). Large Enterprise Resource Planning (ERP) developers have already been shifting their attention toward SMEs by offering simplified and cheaper solutions, such as SAP Business One and Microsoft Dynamics (Microsoft 2011; SAP 2011). The SME market is very attractive for small ISVs as well as for the business partners of the formerly mentioned ERP and Customer Relation Management (CRM) developers. This is due to the large number of the SMEs all over the world and especially in Europe (Commission 2010). However, the implementation of strategic information systems like ERP and CRM is a complicated task, particularly in SMEs, where the evaluation of the potential benefits are more uncertain (Levy & Powell 1999). The capability-maturity level of the ISV’s organisation is often inadequate to match with the demands and complex challenges of an IS implementation in an SME environment. Since SMEs are not well informed on the correct IT/IS capabilities of the ISVs and on the broad functionalities of the ERP and CRM software packages in concert with the efforts needed to adapt the software to their specific requirements, a situation of severe information asymmetry occurs, making room for opportunistic market behaviour and moral hazard. SMEs do not have sufficient internal managerial capabilities and practices to recognize the true intentions of ISVs in the market. This is an ideal environment for a ‘lemon’ market, since there is incentive for adverse selection on behalf of the SME, and a potential for opportunistic or even unethical behaviour on behalf of the ISV. The ‘lemon’ problem was initially posed by Nobel Prize winner in economics, Akerlof, in his seminal article of 1970 and showed how a market with unbalanced information or information asymmetry, can eventually complete disappear or offers products with poor quality where bad products (lemons) wipe out the good ones (Akerlof 1970).

It would be ideal to clearly define a SME before going into research where the unit of analysis is the SME. Unfortunately, this is not easy, since there are many characteristics that can identify a SME. A widely accepted working definition of a SME emanates from the 1971 Bolton Committee Report and has both qualitative and quantitative elements (Bolton 1971). The qualitative elements (e.g., the number of employees and the turnover) differ amongst countries. The European Commission took the initiative to

define a SME in terms of microeconomic characteristics, such as turnover (not exceeding €50 million), annual balance sheet total (not exceeding €43 million) and headcount (fewer than 250 persons) (Commission 2003). We used the European definition of a SME in this work.

In this paper, we present the results of an enquiry to the 'lemon' problem within a group of 484 Belgium ISVs that target the SME-market. We conducted an examination of the websites of the selected ISVs, looking at how ISVs present their products and services. This was followed by six case studies where CIOs of SMEs were interviewed about the way they perceive the services of the ISVs in an outsourced IS project environment.

In the next section we present a literature overview, relating to the theory of the market for Lemons (LMT). In Section 3, we outline the research methodology used to collect data and to illustrate the proposed framework. We present our results in Section 4, followed by a discussion of the findings. In Section 5, we present the conclusions and a summary of the main points raised by this research.

2. Literature overview

The market for lemons (LMT) is a widespread economic theory developed by Akerlof in his seminal paper of 1970 (Akerlof 1970). According to this theory, there can be incentive for sellers to market poor quality, resulting in a reduction of the average quality and leading to a death spiral and eventually, to complete deterioration of the market. The phenomenon of a lemon market arises in markets where there is information asymmetry between buyer and seller and where the overall quality of the goods and services offered is reflected on the entire group of sellers rather than on individual sellers. Lack of differentiation between the sellers can force high-quality sellers to flee the market because their quality and reputation cannot be rewarded. Akerlof demonstrated his theory with examples from the used car market. Most of the empirical data for bringing evidence to the theory has come from the used car market (Bond 1982). The theory has certainly gained attention in the strand of research on e-commerce, with research topics such as e-markets and auctions (Dewan & Hsu 2004; Lee et al. 2010; Pavlou & Gefen 2004).

Devos et al. developed a nomological network for the LMT, which reveals the constructs and the measures used to validate the theory (Devos et al, 2010). This network is presented in figure 1.

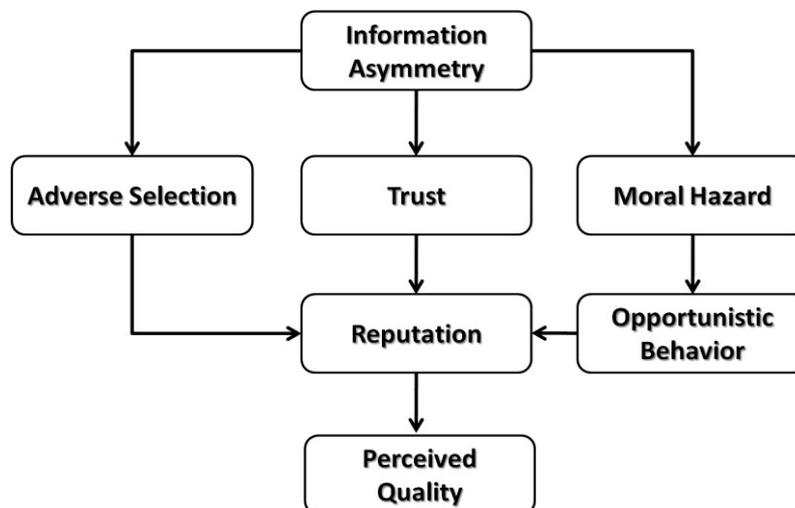


Figure 1: The nomological network for the Lemon Market theory.

The level of analysis for the LMT is a market (external or internal) where two transacting parties meet. The parties can be firms or individuals. The basic independent construct for the LMT is information asymmetry. Information asymmetry is a condition which is well understood and a very frequent occurring phenomenon in all sorts of human and organizational interactions (Stiglitz 2000). Since a situation of asymmetric information can emerge in several ways it is also well researched in a broad variety of situations. For example: insurance markets, management (shareholders versus management) (Chiang & Venkatesh 1988), organizational activities (Aboody & Lev 2000), professional expertises (doctor-patient, lawyer-client) (Nayyar 1990) are different sources of information asymmetry.

The authors consider two groups of transacting parties: buyers (SMEs) and sellers (ISVs). The buyer is the less informed party and the seller is the more informed party. The buyer interacts with the seller and a

contract of the transaction is negotiated. Christozov et al. see information asymmetry as a natural property of any communication process between a sender and a receiver, when both actors have different backgrounds and expertise, use different "jargon" or possess different information regarding the content of the communication session (Christozov, Chukova & Mateev 2009). Due to this information asymmetry, the distribution of information between the transacting parties is unbalanced, resulting in an imperfect market. This puts one party (the seller) at an advantage while placing the other (the buyer) at a disadvantage and makes the choice of a product risky for a prospective buyer (Afzal, Roland & Al-Squri 2009). Information asymmetry depends upon the different capabilities and intellectual levels of the transacting actors and is, therefore, considered as an independent construct for the LMT. Dependent constructs from information asymmetry are trust, adverse selection, and moral hazard.

The concept of trust is subtle, diffuse and elusive. Although there is agreement on the importance of trust there also appears disagreement on a suitable definition of the construct (Bigley & Pearce 1998). Trust is a dependent construct and can be seen as a co-ordinating mechanism based on shared moral values and norms supporting collective co-operation and collaboration within uncertain environments (Reed 2001). Trust is the degree to which one party has confidence in another within the context of a given prospect, decision or collaborative project. Blois gives a number of definitions of trust appearing in frequently quoted papers (Blois 1999). Trust/control relations between organizations can be seen as highly complex structures of social relations and processes which are needed for the generation and maintenance of collective action. The concept of trust is crucial in business interactions that are characterized by mutual dependency combined with a lack of mutual control. Some researchers argue that trust is also reciprocal. According to Reed: '[...] the essential character of all trust relations is their reciprocal nature. Trust tends to evoke trust, distrust to evoke distrust.... As trust shrinks, distrust takes over.' (Reed 2001). The notion of trust is latent present in the seminal article of Akerlof as dishonesty. Information asymmetry may result in a misunderstanding or even erode existing trust between the participating actors.

Trust is related to reputation. The concept of reputation is commonly used in social life and economy. Wilson (1985) defines reputation as: "a characteristic or attribute ascribed to one person (or organization) by another person (or organization)". Reputation theory indicates that uncertainty about the seller's honesty will affect the buyers' behavior (Kreps & Wilson 1982). Reputation can be formed by means of ratings by different buyers and can be seen as a measure that brings evidence a posteriori about the missed information or the hidden information and quality of the seller. When there is no proper reputation signaling mechanism on a market, there is incentive for a lemon market where it is preferable to offer low quality products and services (lemons) or no participation in the market at all in case of high quality sellers. In both cases the overall perceived quality is going down. According to Yamagishi & Matsuda (2002) reputation can provide an effective solution to the lemons problem when 1) it is shared by all or most traders in the market, 2) traders in fact base their behavior on it, and 3) the market is closed such that the trader who is excluded from it cannot find an alternative market.

The adverse selection is the second dependent construct of information asymmetry and is the process of selecting the wrong seller and consequentially the least product quality. Adverse selection is a pre-contractual condition. Hidden information is sometimes used as a more practical term for the adverse selection. From the buyers point of view there is lack of knowledge on the features of the product or service and the real capabilities of the seller which may result in a wrong decision to select and leading to failure. From the seller's point of view a wrong selection may result in the buyer's dissatisfaction and eroding the reputation and consequently a drop of perceived quality.

Moral hazard as the third dependent construct is a post-contractual condition and can arise from the seller's fraud or incapacity to deliver the real quality of the offering. Hidden action or hidden intention are sometimes used as more practical terms for moral hazard, although we see these terms more as metrics for opportunistic behavior which can arise from moral hazard. We take the moral hazard construct into account because even if the problem of adverse selection is overcome by selecting a good seller with fair quality offerings, post contractually the seller may start to shrink on quality. This can be the case in markets where service offerings are traded. With IS moral hazard happens when a seller can gamble on a so called vendor lock, in which the buyer is confronted with high switching costs and is forced to use the services of the existing IS vendor. Opportunistic behavior can erode reputation leading to a drop in perceived quality.

A lemon market must be seen as a dynamic process involving positive and negative feedback coming from closed transactions. Like a cybernetic system negative feedback can stop a market becoming a lemon market and eventually stop the death spiral. Positive feedback enforces the lemon market dynamics which drives the good ones out of the market and accelerates the death spiral. New entrants can enter the market and eventually stop the spiral. This can also be done by better informed buyers or more honest sellers. The market mechanism can eventually be regulated by exogenous triggers like governmental corrective initiatives.

For a market to become a lemon market there are constraints and an igniting condition is needed. The constraints for obtaining a lemon market are: 1) information asymmetry, a condition in which not all relevant information is known to all parties involved so prospective buyers can not accurately assess the value of a product or service before sale is made and sellers can more accurately assess the value of a product or service prior to sale, 2) Sellers have no credible ways of disclosing the real quality to buyers, 3) the seller's quality is assessed by buyers acting as von Neumann-Morgenstein maximizers of expected utility. The igniting condition for a lemon market is that an incentive exists for the seller to market low quality products and services.

Devos et al also found that Agency Theory (AT) and Prospect Theory (PT) are closely related to the LMT (Devos et al 2010). This is shown in figure 2.

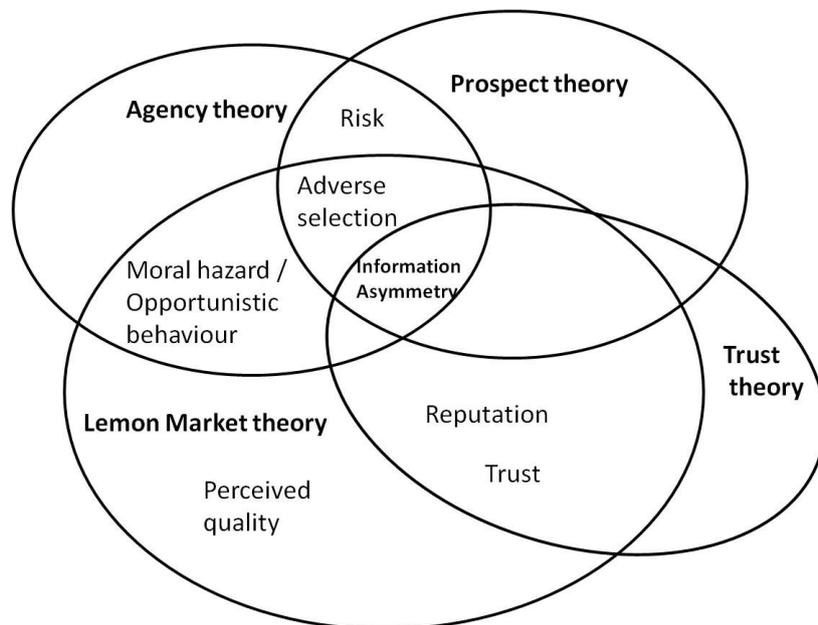


Figure 2: The links of the Lemon Market theory with Agency theory, Prospect theory and Trust theory.

AT is a well-known theory, largely used in the strand of research on IS and outsourcing (Dibbern, Goles & Hirschheim 2004). However, problems of behavioural differences in risk-taking are also important in addition to asymmetric information and goal differences. The implementation of a strategic IT artefact is highly risky since the outcomes are only partly verifiable and not always expressible in easily measurable outputs. The likelihood of failure looms large because of the uncertainty of the outcome. This gives rise to entrepreneurial risk, situated initially with the principal. The transfer of that risk to the agent is not straightforward, since both parties exhibit differences in risk behaviour. The principal is assumed to be risk neutral (the entrepreneurial risk) and the agent to be risk averse (Eisenhardt 1989). However, it is also assumed that the principal is risk averse when choosing for a 'buy' option. When principals are faced with adverse possibilities there is an overweighting of certainty, also known as the 'certainty effect' (Kahneman & Tversky 1979). The PT offers some explanation of this situation. PT was developed by Tversky and Kahneman (Kahneman & Tversky 1979) as a falsification for the Expected Utility Theory (EUT). PT states that decision making is a two-phase process. The first phase is an editing phase, in which a proposal or tender is framed in either a positive or negative way. The actual decision making is done in the second phase, which depends largely on the framing of the proposal. In decision making under risk, where losses loom larger than gains, people tend to search for certainty. Thus, the positive framing of proposals can greatly influence the decision and is assumed to be noticeable in a lemon market. The implementation of a strategic information system is an endeavour with a considerable

amount of risk involved and often leads to a failure (Bartis & Mitev 2008; Goldfinch 2007; Lyytinen & Robey 1999). Since most SMEs depend largely on external agents for adoption of IT/IS, a process of selection is conducted. SMEs tend to explore the market by RFPs (Requests for Proposal). Due to information asymmetry, SMEs cannot screen the proposals of ISVs on their real content and quality sufficiently. We argue that the proposals of ISVs are, therefore, usually framed in an extremely positive way to comply with the certainty effect of the SME-principal.

Devos et al. built a framework to explain the outsourced information system failure (OISF) in a typical setting of an SME-principal buying a strategic IT artefact from a ISV-vendor (Devos, Van Landeghem & Deschoolmeester 2009). This framework is shown in Figure 3.

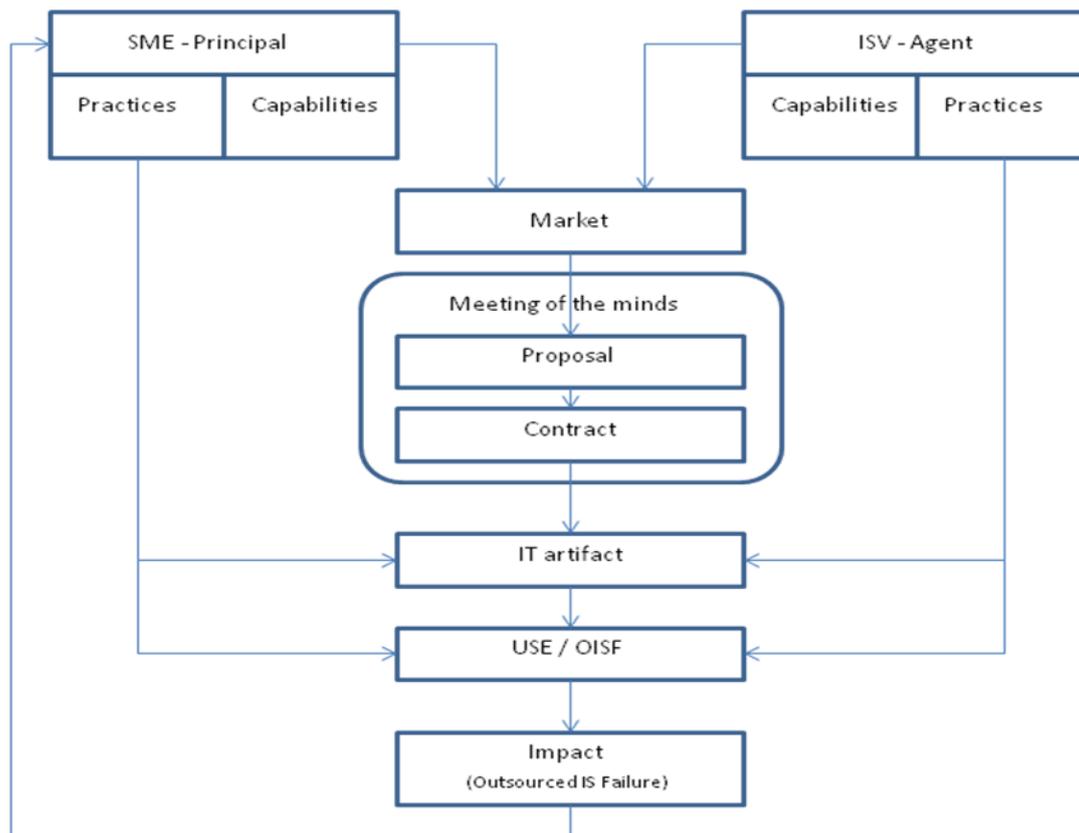


Figure 3: The framework of an outsourced IS failure (Devos et al. 2009)

The interrelated constructs of the framework are:

- A risk neutral SME-principal with managerial, methodological and technological capabilities and practices for planning, designing and implementing IT artefacts;
- A risk adverse ISV-agent with managerial, methodological and technological capabilities and practices for planning, designing and implementing IT artefacts;
- A market where SME-principals and ISV-agents meet each other;
- A meeting of the minds where SME-principals and ISV-agents establish a contract;
- An IT artefact, which is a human construction, utilitarian and not neutral;
- The use of the IT artefact, including a development and implementation trajectory;
- The impact of the IT artefact, be it direct or indirect, intended or unintended on the organisation. An outsourced information system failure (OISF) is considered to have an impact on the organisation.

3. Research methodology

Our research was focussed on the quest for indications of a lemon market in a setting where a SME-buyer buys a strategic IT artefact (ERP, CRM) from an ISV-seller.

The research methodology consisted of a mixture of two data sources. The first data collection was the screening of the websites of a group of 484 Belgium ISVs that are targeting the SME-market. This was followed by six case studies in which the CIOs of SMEs were interviewed about the way they perceive the services of the ISVs.

The group of ISVs was derived from the business directory ICT TOP 1000, edited and published by Datanews in 2008 (Coenjaerts 2008). The directory contained the 1000 largest IT/IS suppliers and ISVs in Belgium, according to their published revenues in 2007. We extracted a list of 484 ISVs from the directory who were appropriate for our research purposes. Only ISVs or business partners from large software developers, such as Microsoft, Oracle and IBM were selected. Telecom operators and pure equipment vendors were excluded from the list. Our final list contained a total of 484 ISVs.

3.1 Screening of websites

We choose to investigate the nature of the offerings from ISVs in the way they present themselves and their services on their websites. For each screened website, we defined five checkpoints, which were scored on a four-point Likert scale. The values followed the scale: 0 - not present; 1 - minimally present; 2 - moderately present and 3 - maximally present. Detailed criteria were defined for each checkpoint.

The screening was done in two phases. The first phase was individual scoring, prepared by three researchers, each of them scoring independently. In the second phase, the scoring process was redone in a group where all of the individual scores of the researchers were brought together. Via group discussion and stepwise refinement, a group score was given on every checkpoint for all investigated websites. The checkpoints and scoring system are shown in Table 1.

The first checkpoint (CP1) investigates the level of targeting of a specific SME audience by the ISV. The criteria for the score were as follows. Score 0 was given if no trace was found indicating that the ISV is targeting an SME audience. Score 1 was given if traces were found indicating that the ISV is targeting an SME audience, but these traces are not reflected in the mission statements nor in specific product or service offerings. Score 2 was given if traces were found that the ISV is targeting an SME audience in their product or service offerings but not in their mission statements. Finally, score 3 was given if traces were found indicating that the ISV is targeting an SME audience in its mission statements.

Table 1: Checkpoints and scores used to evaluate the websites

score		0	1	2	3
Nr	Checkpoint	Not present	Minimally present	Moderately present	Maximally present
CP1	Direct focus to SMEs				
CP2	Positive framing				
CP3	Negative framing				
CP4	References				
CP5	Use of formal methodology				

CP2 en CP3 are derived from the PT and indicate whether the website of the ISV is framing product and service offerings in a positive way (CP2) or a negative way (CP3). Examples of signs of positive framing are the mention of the immediate benefits after the implementation of the IT artefact, without mentioning how these benefits will be measured and the offer of fixed prices for projects without taking into account knowledge of the scope and denying the burden of (organizational) change during the implementation process. Examples of negative framing are the mention of one or more of the numerous risks that comes along with the implementation of a strategic information system and the necessary maturity level of management needed to conduct such complex projects (Schmidt et al. 2001). However, there are no simple and objective rules to define a positive framing nor a negative one. Therefore, we screened the websites in two converging phases and under the supervision of a very experienced researcher and practitioner. We also assumed that within a regular commercial activity, and certainly within a public context, such as a website, the positive framing of products and services is common practice and part of the commercial game by which ISVs present their daily business. However, we noticed that some ISVs tend to slow down on the sales talk in their websites and establish a more serious and well-balanced image of how they conduct these complex and delicate projects.

We attached different scores to CP3 than to CP2. Score 0 was given if no trace was found indicating a positive/negative framing and was identical for both checkpoints. Score 1 was given for CP2 if one trace

(for example, in a sentence, a quote, a header or a paragraph.) of positive framing was found, score 2 for two traces and score 3 for more than two traces. For CP3, score 1 was given if no trace (for example, in a sentence, a quote, a header or a paragraph.) of an IS risk was found; score 2 for one trace and score 3 for more than one trace.

CP4 investigated if the website of the ISV uses references of successful projects conducted with SMEs in the past. Score 0 was given if no trace was found of a sales reference. Score 1 was given if a reference was given without mentioning the nature of the project and a contact person. Score 2 was given if a reference was given that mentions the nature of the project but does not mention a contact person. Score 3 was given if the conditions of score 2 are fulfilled with a mention of the name and address of one or more contact persons. All references have to be to SME organisations.

Finally CP5 investigated the suggestion from the ISV to use a formal project management methodology (PMM) for conducting IS projects. A score 0 was given if no trace was found indicating the use of a PMM; score 1 if the website indicates that an IS project has to be conducted in a controlled environment; score 2 if there are traces on the website telling the user how to conduct an IS project without mentioning an explicit formal PMM; and finally, score 3 was given if the use of a formal PMM is mentioned by name.

3.2 Interviews related to the case studies

As a second source of data collection, we conducted six interviews with CIOs of SMEs who recently finished an outsourced, strategic IT project in their organisation. The questions used in the interviews covered four areas: 1) strategic importance of IT/IS in their organisation, 2) the use of a formal PMM, 3) the success (or failure) of the IT project and 4) the relationship of the organisation with the ISV. In addition to these four areas, we asked questions that were focussed on general company information and on the job content and roles of the interviewees.

The interviews were conducted by two people: the interviewer and a secretary, both of whom are researchers. The interviews were tape recorded for backup reasons, written down and then sent to the interviewees for correction and feedback. The average time for the interviews was two hours.

4. Findings and discussion

The results of the screening of the websites of the ISVs are summarized in Table 2. The scores are given as percentages. In the last column the median is given of the scored checkpoints. From the observations of CP1, we have learned that less than half of the ISVs (38.9%, being the sum of the scores 1, 2 and 3) have a direct focus on SMEs. Only one out of ten ISVs (11.0%) focus only on SMEs and state this in their mission statement. Considering the large number of SMEs in Europe and in Belgium, this indicates that the SME sector is not well serviced by ISVs. It appears that most ISVs do not want to profile themselves as ‘SME-only’ sellers. It was also noticed that large ISVs do not target MEs. Since the list of 484 ISVs contains only the largest ISVs, microenterprises, small businesses, one-man companies and freelancers are not included. Apparently, one can assume from the results that many SMEs are served by the latter organisations.

Table 2: Results of the screening of the websites

	Checkpoint	Score 0	Score 1	Score 2	Score 3	Median
CP1	Direct focus to SMEs	61.1%	12.7%	15.2%	11.0%	2
CP2	Positive framing	37.8%	40.3%	12.7%	9.2%	1
CP3	Negative framing	96.8%	2.5%	0.7%	0.0%	0
CP4	References	22.6%	28.6%	14.5%	34.3%	1
CP5	Use of formal methodology	41.7%	20.5%	20.1%	17.7%	1

For CP2, ‘Positive framing’, the sum of the scores 1, 2 and 3 is 62.2%, indicating that a positive framing of products and services offerings is a common practice within the ISV community. However 37.9% of the websites of the ISVs show no trace of positive framing. This could indicate that large ISVs fled already from the SME market and show themselves on their websites certainly not as Lemons.

Almost one out of ten (9.2%) use an intense form of positive framing in which the commercial message on the website tends to mislead the potential buyer.

Concerning the negative framing, only a very small percentage (3.2%) scored 1 and 2 that indicate that conducting a strategic IS project implies some risks and that an effort on behalf of the customer is needed to succeed. One can expect such a small percentage, keeping in mind that a website is a tool in the marketing strategy of ISVs.

The use of references is common practice with ISVs. 34.3% of the ISVs use references of former projects conducted within SME-organisations, giving detailed information about the customer and the project. These references can be checked almost directly since they include the name of a contact person and the necessary contact information (such as, telephone number or e-mail address). The 'good' differentiate themselves here substantially from the 'lemons' in the market, on the basis of honest and verifiable information.

The use of a formal PMM is not a common practice in SMEs. Almost half of the ISVs (41.7%) do not even indicate the use of a PMM. The larger the ISV, the more the use of a formal PMM is promoted on the website. Some of the ISVs even centre their services around the use of a formal PMM. For the good, the use of a formal PMM is a necessity, but the lemons do not even mention the concept. This finding corroborates with the expectation that SMEs are mainly served by small companies and freelancers that offer services with low quality and that are mainly focussed on technology (programming, installing, configuring, etc.).

From the interviews in the cases studied, we could deduce that the CIOs consider IT/IS for their organization more important than the CEOs. Thus, the IS function in their organization does not get as much attention by the CEO as other major business processes, such as marketing, manufacturing or sales. Although we used the title of CIO for the interviewees, such a function does not really exist in most SMEs. Our interlocutors were mainly performing some roles or partial roles of CIOs, such as IT project management, and budget and expenditure control. The IT management role of the CIO in a SME can be seen as a temporary role, often combined with the role of operator/programmer. In the latter role, they keep track of the daily IT issues (e.g., backups). The managerial level of the CIOs in a SME can also vary from the strategic level, as the assistant of the CEO and involved in important decision making to the operational level. This is not always straightforward since both levels of competence are needed in SMEs. For strategic IS projects, the managerial skills of the CIO are challenged. However, such complex systems also give rise to the need for more advanced technical skills. Some of the CIOs try to fill in these technical needs by themselves, since this is something the CEO is expecting from his CIO. However, the need for external, specialized IT expertise was expressed by all of the interviewees.

All outsourced IT projects were managed by the CIOs in collaboration with a project leader from the ISV. Four of the six interviewees were not familiar with a PMM to conduct an IT project in their organisation. Only one (of the six) actually used a PMM and only the basic concepts were respected, such as the establishment of a steering committee and the organisation of periodic progress meetings. The CIOs clearly lacked sufficient knowledge to use more of the tools and concepts of a PMM.

All of the interviewees had past experiences with failed IT projects. However, only one of the CIOs had terminated a project before it was finished. The main reason mentioned by CIOs for failure – and then becoming an OISF - was the erroneous proposal the ISV made before the project began. Promises on budget, time and quality were made that could not be kept in reality. During the course of the project, it became clear that all of the ISVs had underestimated the budget and the timing of the project. Some of them even lacked the necessary skills to complete the project. The majority of the CIOs had less severely negative experiences, but made complaints that all ISVs offered proposals that were too optimistic in terms of budget and time needed to implement the IT artefact. One of the CIO's negotiated a contract with his ISV in which he anticipated problems from a previously failed IT project and included penalties for late deliveries.

Trust between SME and ISV is considered to be one of the most important factors for IT success. Three of the interviewees chose to do business in the future with their ISV on the basis of trust that was carefully built up during a past project. However, the other three CIO's chose not to work in the future with the ISV who conducted their last IT project. A lack of trust and a feeling of deception were given as reasons.

All of the interviewees had their own way of selecting an ISV, but all of them went to colleagues (and sometimes even to competitors) to ask for real references for the selected ISVs. The interviewees were

all aware that the market is not transparent and that these checks are necessary to reveal the real capabilities of an ISV.

5. Conclusion

The marketplace where SMEs buy IT is striking for small ISVs acting as business partners of large ERP and CRM systems suppliers, like SAP, Oracle and Microsoft. These companies often set up worldwide marketing campaigns leading to a broad visibility in media, on the web, universities and enterprises but are not so enthusiastic to direct approach an SME market to sell their products with smaller margins. ISVs on the other hand often try to capture parts of the perceived quality of their main supplier. Since most ISVs are also SMEs they work mainly on a domestic market, however they perform on a far less mature capability level than their large ERP and CRM systems suppliers. It is however well known that the implementation of such mission critical software depends profoundly on the technological, functional and managerial skills of the personnel of the ISV and on the commitment of the CEO of the SME to the project rather than on the software itself.

The evidence from this study leads us to the following conclusions. First, we have confirmed the expectation that ISVs and SMEs meet each other on a market that reveals elements of a lemon market. Although many ISVs focus specifically on SMEs, others, mostly larger ISVs, do not. Thus, SMEs are mainly serviced by small ISVs. The more sophisticated the services offered, the larger the ISV organization, implying that a well matured SME organisation is essential to the capture the real value of these services. SMEs partly incite a lemon market by entering the market with less managerial and technical IT capabilities. Lemon-ISVs are attracted to these buyers.

This study has some major limitations. First, data has been collected only in Belgian ISVs. However, Belgium is a country with many SMEs, and is in that sense, quite representative of most of the European countries. Cultural differences could play a role but were not investigated in this research. In addition, government initiatives taken by many European countries to support SMEs could lead to different behaviour of ISVs in the different European domestic markets. In the Benelux and in France, regional governments have already started to introduce ethics charter programmes for ISVs that target the SME market (eTIC 2010).

Another very important issue that should be raised is the size of the organization of the SME. Since Europe, and particularly Belgium, uses a more limited definition of a SME in terms of size of the organisation than the United States, the phenomenon of the lemon market may appear differently on the two continents. We hope that our findings stimulate others to investigate these related research questions.

Second, it is difficult to reveal relevant data that investigates signs of a lemon market. ISVs are not cooperative in sharing information about their (possibly unethical) behaviour in the SME market. We are fully aware that websites possibly offer a biased picture of the services and quality of the ISVs. This is the reason why we decided to use multiple sources of data and to include data from the interviews.

Finally, it could be observed that there are indications of a self-cleaning mechanism present in the market within the group of ISVs, leading to a higher degree of quality and also leading to positive filtering from 'the buy side'. However, the strongest conclusion is that some SMEs are indirectly encouraged by ISVs to withdraw from the finalisation of the software acquisition process due to their inadequate inferior IT capabilities and practices. This indicates that the lemon market for outsourced strategic IS projects is steered by a bidirectional mechanism, contributed to by both the buyer and the seller.

References

- Aboody, D & Lev, B 2000, 'Information asymmetry, R&D, and insider gains', *Journal of Finance*, vol. 55, no. 6, pp. 2747-66.
- Afzal, W, Roland, D & Al-Squri, MN 2009, 'Information asymmetry and product valuation: an exploratory study', *Journal of Information Science*, vol. 35, no. 2, pp. 192-203.
- Akerlof, GA 1970, 'Market for Lemons - Quality Uncertainty and Market Mechanism', *Quarterly Journal of Economics*, vol. 84, no. 3, pp. 488-500.
- Bartis, E & Mitev, N 2008, 'A multiple narrative approach to information systems failure: a successful system that failed', *European Journal of Information Systems*, vol. 17, no. 2, pp. 112-24.
- Bigley, GA & Pearce, JL 1998, 'Straining for shared meaning in organization science: Problems of trust and distrust', *Academy of Management Review*, vol. 23, no. 3, pp. 405-21.

- Blois, KJ 1999, 'Trust in business to business relationships: An evaluation of its status', *Journal of Management Studies*, vol. 36, no. 2, pp. 197-215.
- Bolton, JE 1971, *Small Firms: Report of the Committee of Inquiry on Small Firms*, Department of Trade and Industry, London.
- Bond, EW 1982, 'A Direct Test of the Lemons Model - The Market for Used Pickup Trucks', *American Economic Review*, vol. 72, no. 4, pp. 836-40.
- Chiang, R & Venkatesh, PC 1988, 'Insider Holdings and Perceptions of Information Asymmetry - A Note', *Journal of Finance*, vol. 43, no. 4, pp. 1041-8.
- Christozov, D, Chukova, S & Mateev, P 2009, 'On Two Types of Warranties: Warranty of Malfunctioning and Warranty of Misinforming', *Asia-Pacific Journal of Operational Research*, vol. 26, no. 3, pp. 399-420.
- Coenjaerts, T 2008, 'ICT TOP 1000'.
- Commission, E 2003, 'Commission Recommendation 2003/361/EC', *Official Journal of the European Union*, vol. 46, no. L 124, p. 6.
- 2010, *Fact and Figures about the EU's Small and Medium Enterprise (SME)*, viewed 2/11/2010 2010, <http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/index_en.htm>.
- Devos, J, Van Landeghem, H & Deschoolmeester, D 2009, *IT Governance in SMEs: A Theoretical Framework Based on the Outsourced Information System Failure*, Proceedings of the 3rd European Conference on Information Management and Evaluation.
- 2010, 'The Theory of the Lemon Markets in IS research', in YK Dwivedi, M Wade & SL Schneberger (eds), *Information Systems Theory: Explaining and Predicting Our Digital Society*, Springer.
- Dewan, S & Hsu, V 2004, 'Adverse selection in electronic markets: Evidence from online stamp auctions', *Journal of Industrial Economics*, vol. 52, no. 4, pp. 497-516.
- Dibbern, J, Goles, T & Hirschheim, R 2004, 'Information Systems Outsourcing: A Survey and Analysis of the Literature', *The DATA BASE for Advances in Information Systems*, vol. 35, no. 4, pp. 6-102.
- Dibbern, J & Heinzl, A 2009, 'Outsourcing of Information Systems Functions in Small and Medium Sized Enterprises: A Test of a Multi-Theoretical Model', *Business & Information Systems Engineering*, vol. 1, no. 1, pp. 101-10.
- Eisenhardt, KM 1989, 'Agency Theory: An Assessment and Review', *Academy of Management Review*, vol. 14, no. 1, pp. 57-74.
- eTIC 2010, <http://www.charte-etic.be/eTIC-Handvest.html>.
- Goldfinch, S 2007, 'Pessimism, computer failure, and information systems development in the public sector', *Public Administration Review*, vol. 67, no. 5, pp. 917-29.
- Kahneman, D & Tversky, A 1979, 'Prospect Theory - Analysis of Decision Under Risk', *Econometrica*, vol. 47, no. 2, pp. 263-91.
- Kreps, DM & Wilson, R 1982, 'Reputation and Imperfect Information', *Journal of Economic Theory*, vol. 27, no. 2, pp. 253-79.
- Lee, B, Cho, H, Chae, M & Shim, S 2010, 'Empirical analysis of online auction fraud: Credit card phantom transactions', *Expert Systems with Applications*, vol. 37, no. 4, pp. 2991-9.
- Levy, M & Powell, P 1999, 'Information systems strategy for small and medium sized enterprises: an organisational perspective', *Journal of Strategic Information Systems*, vol. 9, no. 1, pp. 63-84.
- Lyytinen, K & Robey, D 1999, 'Learning failure in information systems development', *Information Systems Journal*, vol. 9, no. 2, pp. 85-101.
- Microsoft 2011, <http://www.microsoft.com/belux/nl/smallbusiness/>.
- Nayyar, PR 1990, 'INFORMATION ASYMMETRIES - A SOURCE OF COMPETITIVE ADVANTAGE FOR DIVERSIFIED SERVICE FIRMS', *Strategic Management Journal*, vol. 11, no. 7, pp. 513-9.
- Pavlou, PA & Gefen, D 2004, 'Building effective online marketplaces with institution-based trust', *Information Systems Research*, vol. 15, no. 1, pp. 37-59.
- Reed, MI 2001, 'Organization, trust and control: A realist analysis', *Organization Studies*, vol. 22, no. 2, pp. 201-28.
- SAP 2011, <http://www.sap.com/sme/solutions/businessmanagement/businessone/index.epx>, viewed 1/4/2011 2011.
- Schmidt, R, Lyytinen, K, Keil, M & Cule, P 2001, 'Identifying software project risks: An international Delphi study', *Journal of Management Information Systems*, vol. 17, no. 4, pp. 5-36.
- Stiglitz, JE 2000, 'The contributions of the economics of information to twentieth century economics', *Quarterly Journal of Economics*, vol. 115, no. 4, pp. 1441-78.
- Thong, JYL 2001, 'Resource constraints and information systems implementation in Singaporean small businesses', *Omega-International Journal of Management Science*, vol. 29, no. 2, pp. 143-56.
- Thong, JYL, Yap, CS & Raman, KS 1996, 'Top management support, external expertise and information systems implementation in small businesses', *Information Systems Research*, vol. 7, no. 2, pp. 248-67.
- Verhees, F & Meulenbergh, MTG 2004, 'Market orientation, innovativeness, product innovation, and performance in small firms', *Journal of Small Business Management*, vol. 42, no. 2, pp. 134-54.
- Wilson, R 1985, 'Reputation in games and markets', in A Roth (ed.), *Game-Theoretic Models of Bargaining*, Cambridge University Press, Cambridge., pp. 27-62.
- Yamagishi, T & Matsuda, M 2002, *Improving the Lemons Market with a Reputation System: An Experimental Study of Internet Auctioning*, viewed 5/9/2011 2011, <http://joi.ito.com/archives/papers/Yamagishi_ASQ1.pdf>.
- Yap, CS, Soh, CPP & Raman, KS 1992, 'Information Systems Success Factors in Small Business', *Omega-International Journal of Management Science*, vol. 20, no. 5-6, pp. 597-609.