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SME Selection Criteria for External IS/IT Consultants, including Swiss Universities of Applied Sciences

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SME SELECTION CRITERIA FOR EXTERNAL IS/IT CONSULTANTS, INCLUDING SWISS UNIVERSITIES OF APPLIED SCIENCES

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Abstract : It does not matter whether *small and medium-sized enterprises* (SMEs) have good, bad, or no IS/IT competencies. Almost all enlist the services of an external consultant at some point. External consultants can handle a wide range of tasks, from fixing an existing bug, to choosing new software or adapting a business strategy in line with state-of-the-art technology. While there is some evidence that external assistance with IT projects is an effective course of action, so far no information has been available on what SMEs pay attention to when choosing their consultants. The aim of the preliminary study was therefore to establish SMEs' selection criteria for hiring IS/IT consultants, to determine what competencies SMEs look for in their external consultants, and to find out if *Swiss universities of applied sciences* (UAS) are included in their selection process. For this purpose, interviews were conducted with 15 SMEs, most of which are based in the Swiss cantons of Zurich and Schaffhausen. Findings indicate that selection criteria vary considerably according to the size of the SMEs. The majority have never consulted a UAS.

Key words: IS/IT competencies, IT projects, external IT consultant, Swiss university of applied science, small and medium-sized enterprise

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INTRODUCTION

Due to their lack of expertise, SMEs often turn to external experts when faced with an IS/IT problem. There are studies that suggest that external expertise is a major predictor of IS/IT success for SMEs (Cragg & Zinatelli, 1995; de Guinea, Kelley & Hunter, 2005; Thong, 2001). However, before addressing the question of what SMEs pay attention to when choosing an external consultant and whether universities of applied sciences (referred to as UAS from now on) are considered as potential consultants, it was examined how the two types of consultancies, i.e. UAS and private IT consultants, assess themselves and their services. A survey of six IT consultancies was conducted, which included Zurich University of Applied Sciences (ZHAW) as representative of the UAS. At this point, it should be mentioned that this preliminary study focuses on small and medium-sized IT consultancies. Big consultancy firms like The Boston Consulting Group, Deloitte Consulting, Accenture, or IBM were not taken into account.

An empirical preliminary study was carried out to examine what SMEs pay attention to when choosing an external IT consultant and whether UAS featured in their selection. This included interviews with a total of 15 SMEs. Since there is no standard definition of what an SME is in terms of size, and to avoid misunderstandings, the term SME has been defined as follows for the purpose of this study: small enterprises (1 to 100 employees) and medium-sized enterprises (101 to 700 employees).

The paper is structured as follows: Chapter 1 contains a literature review as well as a comparison of universities of applied sciences and IT consultancies. This is followed by the analysis, including methods and results, in Chapter 2. It concludes with Chapter 3, the discussion and conclusion.

LITERATURE REVIEW

Earlier research has shown that some IS/IT competencies are critical for the success of SMEs. Unfortunately, not all SMEs have such skills at their disposal. Several papers cover this subject. They arrange the criteria along dimensions of competence. Eikebrokk & Olsen (2007) examined seven competencies needed in e-business. Based on empirical analysis, they identified three competencies needed to realize the potential value of e-business: e-business strategy on a strategy and vision level, IT business process integration, and information systems and infrastructure in the dimension of other competencies.

Scupola (2008) distinguishes between important competencies at the management and at the individual level. Management-level competencies include vision, i.e. “an understanding of how […] a system could add value to the company and contribute to the company’s business strategy”; value, i.e. “finding out what value the […] system could bring to the company”; and control, i.e. the ability “to encourage and enforce assimilation at individual level.” Individual-level competencies, on the one hand, refer to technical skills, i.e. the methods, techniques, and processes of handling a specific activity and the ability to use the tools and equipment necessary to explain that activity. On the other hand, individual-level competencies also include interpersonal skills, i.e. social competence and communication skills, as well as the ability to cooperate with and feel empathy for others. They also comprise conceptual skills, such as analytical competence, creativity, efficiency in problem-solving, and being able to understand opportunities and problems. Additional competencies were identified and, finally, Cragg, Caldeira & Ward (2011) established six macro-

competencies, comprising a total of 22 competencies, including, e.g., the ability to define IS requirements, access IS knowledge, manage change, and handle project management functions. Table 1 provides an overview of the above-discussed macro-competencies.

Author / Dimensions of competence	Eikebrokk & Olsen (2007)	Scupola (2008)	Cragg et al. (2011)
Strategy and vision	• Concept of e-business • Strategic planning		
Management level		• Vision • Value • Control	
Individual level		• Technical skills • Interpersonal skills • Conceptual skills	
Relationship	• Sourcing alignment		
Macro-competencies			• Business and IS strategic thinking • Define IS contribution • Define the IS strategy • Exploitation • Deliver solutions • Supply
Others	• IT-Business process integration • IT management • Systems and infrastructure		

Table 1: IS/IT competencies from SME literature, separated into competence dimensions

Unfortunately, little has recently been published on the competencies that SMEs require. Some of what is available is more than 10 years old. In view of the rapid development of technology, that literature has not been included for the purposes of this study.

Consulting Approaches

Swiss business consulting distinguishes between three different consulting approaches: expert, process, and systemic advice. A consultant giving expert advice provides a professional solution for the problem at hand. His or her rational-analytical approach is based on a linear understanding of the problem at hand: Part A of a problem can be improved, which leads to status A+, which in turn can be modified in some aspect. The consultant often applies standardized analyses in order to, e.g., analyze competitors, identify target groups, or establish how well the company is positioned (Fink, 2000: 15).

A consultant providing process advice, on the other hand, does not offer any solutions. He or she develops a problem-solving process to enable the client to find the best solution for him- or herself. In workshops and coaching sessions the consultant and the client go through the problem-solving process together. In order to be effective, the consultant requires good facilitation skills as well as the courage to be critical and ask constructive questions (Fink, 2000: 15; Glasl, Kalcher & Piber, 2005).

A consultant who gives systemic advice, sees him- or herself as a change expert. He or she considers the organization as a whole and regards it as a mechanism consisting of mutually dependent elements. In other words, he or she treats the whole system rather than focusing on linear sequences of individual aspects like a consultant giving expert advice. Instead, the systemic consultant tries to identify these mutually dependent elements and discusses them with the client in order to facilitate new decision-making as well as new behavior patterns and changes. The consultant thus collects information and impressions of the company; he or she hypothesizes behavior patterns and discusses them with the client. The big difference to providing expert advice is the neutrality, or rather the transparency of the consultant's own assumptions as opposed to the client's point of view (Ellebracht et al., 2003; Boos, Heitger & Hummer, 2005).

Universities of Applied Sciences vs. IT Consultancies

Switzerland has eight UAS. With the exception of one, they are all subject to Swiss public law. The fields of activity, or mandates, of Swiss UAS can be roughly divided into three categories: education, applied research & development (aR&D), and consultancy.

UAS offer Bachelor's and Master's degree programs and a variety of continuing education programs (including CAS, DAS, and MAS programs, as well as continuing education courses and seminars). aR&D is an interesting field of activity for SMEs because it covers a wide spectrum of scientific disciplines. The high level of expertise of UAS researchers and the good infrastructure of their facilities provide ideal conditions for carrying out projects to solve the increasingly complex problems affecting science, business, politics, culture, and society. As a consultancy, a UAS provides services for companies and institutions. These include activities whose main purpose is to convert acquired knowledge into working practice, or to transfer such knowledge to third parties. In particular, it involves consultations, expert opinions, measurements, and the provision of laboratories.

Staff and students contribute know-how to a broad spectrum of projects. The UAS foster interdisciplinarity, for example, by cooperating with networks or exchanges with other universities and research facilities at home and abroad.

Switzerland has a great number of consultancy firms. This preliminary study focuses on small and medium-sized IT consultancies. As IT projects are becoming more strategic and complex, a lot of SMEs make use of external help from IT consultants (Beaumont & Costa, 2002; Gable, 2006; Yoon & Suh, 2004). According to earlier research, there are a variety of reasons why firms hire IT consultants. These include a lack of knowledge or expertise in-house. There may be time or budget pressures (Barthelemy, 2001; Gantz, 1990; Nevo, Wade & Cook, 2007; Sengupta &

Zviran, 1997). In addition, it is hard to recruit IT staff (Nevo et al., 2007; Sengupta & Zviran, 1997). Some firms draw on the accumulated expertise of IT consultants in the hope that they will transfer this knowledge to their internal IT staff (Barthelemy, 2001; Nevo et al., 2007; Koh, Ang & Straub, 2004; Willcocks et al., 2004). This preliminary study is based on a survey conducted to examine if SMEs in Switzerland have the same reasons for hiring external IT consultants as the ones mentioned in the literature above.

Nowadays, IT consultancies use expressions like “maximization of customer satisfaction”, “wealth of experience”, “high degree of flexibility”, “analytical skills”, “cost optimization”, and “strategy formation”. Their services are offered in several languages. The following table shows the advantages for SMEs to collaborate with a UAS or with an IT consultancy, respectively, based on a survey of five small and medium-sized IT consultancies:

	UAS	**IT consultancies**
Advantages	• Comprehensive knowledge / experience • Independence and neutrality • Scientificity along with honesty, combined with customer focus • A large pool of experts from various disciplines	• Comprehensive knowledge / experience • High flexibility • Short reaction time • Sharp focus on customer and on customer satisfaction • Single point of contact

Table 2: Advantages of collaboration between SMEs and a UAS or other IT consultancy

The question arises if one of the specific roles defined by Champion et al. (1990) can be applied to a UAS. It might be reasonably assumed that due to the services offered by a UAS (degree programs, aR&D, and consultancy), in addition to knowledge transfer and knowledge processing the most appropriate role may be that of a coach, facilitator, or even teacher. However, the roles discussed in the first part of the analysis reflect the options the consultant has in a given situation. Thus, the efficiency and the nature of a role depend on the specific project the consultant has to support.

ANALYSIS

THE CONSULTANT’S ROLES

Several books and articles in journals and magazines have analyzed and defined the consultant’s role in a company (Schein, 2000; Nees & Greiner, 1998; Bradshaw, Cragg & Pulakanam, 2012). The fact that various roles have been defined shows that a consultant has a certain scope depending on the situation, which makes him or her more effective in working with the client. The reason for this is evident: A consultant who is able to correctly assess the situation at hand will choose the role he or she considers will be the most effective (Champion, Kiel & McLendon, 1990).

1. Model-Based Roles

Schein (2000: 25 ff.) has defined three advisory models: the purchase-of-expert model, the process-advice model and the doctor-patient model. These, and the roles associated with them, are described below.

The purchase-of-expert model: The consultant acts as an expert. The client expects the consultancy to have independent, cross-industry experts with the problem-solving competence to carry out well-defined, measurable tasks. The consultant does not involve the client excessively in the problem-solving process, nor does he or she disregard the sensitivities of the client’s employees.

The process-advice model: The consultant acts as a mentor or facilitator. It is assumed that the client and its employees contribute their own technical expertise in order to improve the situation as defined by the client.

The doctor-patient model: The consultant acts as a doctor. The consultancy carefully analyzes the client's problems and removes all bottlenecks and blockades. There is a relationship of trust between the consultant and his or her client.

The purchase-of-expert model, and the role of the consultant as the expert, is in line with the expert-advice approach mentioned above. The process-advice model, where the consultant assumes the role of the mentor or facilitator, corresponds to the process-advice approach. The last model, however, does not match any of the consultant approaches mentioned above, as the doctor-patient model, where the consultant takes on the role of the doctor, is too extensive and it is not applicable to a single consultant approach.

2. Strategic Roles

Nees & Greiner (1985) have defined five consultant roles. *The mental adventurer* analyzes deep-seated, global problems by employing established methods and procedures. *The strategic navigator* brings to the table experience in analyzing market activity and competitive dynamics. His or her recommendations are usually made without considering the client's view. *The management physician* examines the internal dynamics of the client's company and makes his/her recommendations based on his or her diagnosis. *The system architect* predominantly works in close cooperation with the client in redesigning processes, routines, and systems. *The friendly co-pilot*, finally, acts as a mentor at management level rather than as a consultant. He or she neither has the will nor the ambition to teach the client new knowledge.

3. Consulting Roles

In contrast to Schein (2000), Champion et al. (1990) differentiate between nine roles: *counselor, facilitator, reflective observer, coach, teacher, technical advisor, partner, modeler and hands-on expert*. The counselor, facilitator, reflective observer, coach, and teacher roles can be compared with Nees' & Greiner's (1985) co-pilot and match the concept of process advice. The technical advisor can be compared best with the management physician and is also associated with the concept of process advice. The partner role is a mix between process advice and doctor-patient model and some of its features match those of the systemic advice approach. The most appropriate roles, according to Nees & Greiner (1985), would be those of the management physician and the system architect. The modeler is a mix between expert advice and doctor-patient model and can be compared with the strategic navigator role. Finally, the hands-on expert role can be compared with the mental adventurer and the strategic navigator. This role is associated with the expert advice concept.

4. IT-Specific Roles

According to Bradshaw, Cragg & Pulakanam (2012), the main role of an IS consultant in an SME is that of mediator. Thong (2001) emphasizes the role of consultants and IT vendors in small business as mediators who compensate for the company's lack of IS skills and expertise. On the one hand, they provide consultancy services, such as performing information requirement analyses, recommending suitable computer hardware and software, and managing IS implementation. On the other hand, they provide computer hardware, software packages, and technical support, as well as training for users. IT consultants can also be seen to have an intermediary role. Howcroft & Light (2008) believe that IT consultants can be "neutral conduits", who act as go-betweens between IT suppliers and SMEs. Carey (2008) confirms this approach by stating that consultants act as bridging intermediaries by disseminating knowledge.

According to Nevo et al. (2007), hiring external IT consultants is recommended when internal IT capabilities are low. Companies should only rely on the knowledge and expertise of their internal IT staff if these are of equal or better quality than those of external contractors. In this context, the question arises why SMEs hire external IT consultancies and what they particularly pay attention to in hiring them. According to Thong, Yap & Raman (1994), the relationship

between client and consultant is an important predictor of IS effectiveness, and “long-term relationships are likely to result in lower cost and higher quality of IT products and services.” For this reason, the subjects were asked if they take into account social competence and if they prefer a short-term or a long-term relationship.

METHODS

Fifteen interviews were conducted with experts working at Swiss SMEs. The companies were chosen with the aim to cover a broad range of IT sectors and based on a current or past working relationship with the ZHAW's Institute of Business Information Management. They varied in size between six and 700 employees. Interviewees were selected based on their expertise and insight into their companies' respective IS/IT consultancy needs and their experience with external IS/IT consultants. They had a technical background and held an executive IT services function (head of IT services or higher). There were eleven male and four female interviewees.

For the purpose of this study, companies between 1 and 100 employees were considered as small, those between 101 and 700 as medium-sized.

Semi-structured interviews were conducted in person (twelve) or by phone (three). The following interview questions were asked:

1. What are your company's in-house IT competencies, and for what reasons would you hire an external IT consultant?
2. What competencies, criteria, or properties do you look for when hiring an external consultant, and what type of consultant role do you prefer?
3. Are any UAS included in the pool of external IT consultancies from which you choose your consultants?

RESULTS

In-house IT competencies and reasons for the employment of external IT consultants

Based on the interviews, SMEs with 100 employees or more can be said to have sufficient in-house experts with IT competencies. Smaller companies, however, have no in-house experts. This is because the workload for an expert would be too small, which makes it too expensive for the company to hire one. There is agreement among the SMEs who were interviewed as to the IT competencies required. They include: expert knowledge of networks, application management/development, (SQL) servers, IT architecture, software development, client management, Microsoft operating systems, and/or system engineering. Answers to the question of why they hire external IT consultants included: focus on core business, non-existent know-how, and cost.

Competencies, criteria or properties of hired consultant and preferred type of consultant role

Answers to the second question differed depending on the size of the enterprise. Small enterprises primarily consider a potential contractor’s geographical location and size. They prefer smaller companies that are located in their immediate vicinity. Medium-sized enterprises find it more important for IT consultants to have professional competences and good references. If these two criteria are not met, and if there is no evidence of social competence, the candidate will not be hired.

The question regarding the roles that an IT consultant should assume could not be answered generally; the answer depends on the project and the project phase for which a consultant is needed. However, 12 out of 15 SMEs think that the IT consultant should take the part of a partner or technical advisor. Five out of seven small enterprises want a technical advisor, while seven out of eight medium-sized enterprises want a partner. Medium enterprises emphasized that cooperation is very important to them. They want knowledge transfer and expect the result to be achieved in collaboration with their own people and within their company.

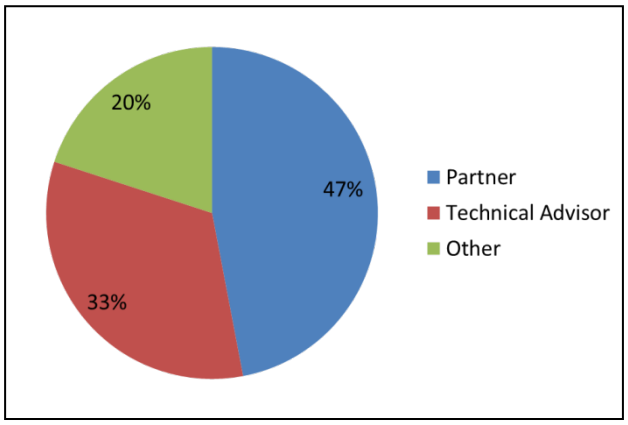

Diagram 1: Preferred Role of Consultant

All of the interviewees, with one exception, attached great importance to the social competence of their external IT consultants. All four interpersonal skills defined by Scupola (2008) were mentioned. One interviewee stated: “What is the use of having the know-how when this know-how can’t be made comprehensible.”

The interviewees who mentioned social competence also stated that they preferred a long-term relationship with their consultants and gave the following reasons:

- It enables them to get to know each other better and it enables the consultant to understand the company as a whole system.
- It builds trust.
- (Learned) knowledge can be transferred.
- It ensures that certain working steps become automatic.
- Tedious recruitment can be avoided.

Only one interviewee gave a negative answer to the question of whether external consultancies should have some social competence. The subject also stated that his company only establishes short-term relationships.

UAS included in the selection of external IT consultancies

The answers to the last question, whether the SME takes UASs into account when looking for external IT consultants, show that 10 out of 15 SMEs have never considered a UAS as a consultant. Eight of them explained that they had simply never thought of consulting a UAS. One SME, a company with 98 employees, stated that in the past they had only had very specific IT problems and had therefore never needed to consult a UAS. One SME, a company with 25 employees, explained that they felt reluctant to consult a UAS. However, one third of the participants stated that they had consulted a UAS before. Three of the five subjects stated that they had been impressed with the working relationship. They appreciated the detailed concept, the high level of expert knowledge, the neutrality, the pleasant working atmosphere, and the attractive price. Two subjects made negative statements about working with a UAS. They stated that the cooperation was too complicated and complex. The lacking practical relevance did not match their requirements so that the cooperation was broken after a short time.

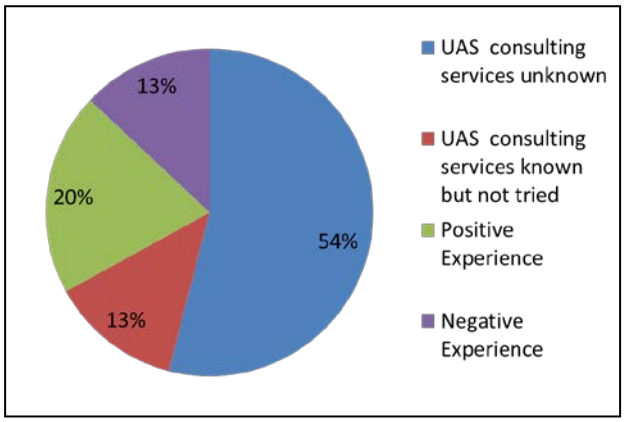

Diagram 2: Cooperation of SME with a UAS

DISCUSSION AND CONCLUSION

As the preliminary study shows, there are clear differences in the selection criteria applied in hiring an external consultant. These vary depending on the size of the SMEs. The smaller the enterprise, the greater the importance of a consulting company's geographical location and size. On the other hand, the bigger the enterprise, the more important it is for a consultancy to have professional competence and good references.

The answers to the first question, i.e. why SMEs hire external IT consultants, reinforce the contention by Barthelemy (2001), Gantz (1990), Nevo et al. (2007) and Sengupta & Zviran (1997): SMEs hire IT consultants because they may not have sufficient knowledge or expertise in-house, or due to time or budget pressures. Thus, the suggestion by Nevo et al. (2007) that SMEs should only hire external IT consultants when internal IT capabilities are low, must be qualified in the context of the situation.

Important qualities for a potential IT consultant are professional competencies and good references. Therefore, candidates must take meticulous care to provide sufficient evidence of professional competence and suitable references at the acquisition stage. In this regard, medium-sized enterprises have an advantage over smaller enterprises because they already have some IT expertise in-house. This allows them to assess their candidates' professional competencies and references better than small enterprises. It could also be argued that since small enterprises have little or no in-house IT expertise, they will not pay a lot of attention to professional competencies and references.

Answers to the question concerning the consultant's role varied depending on the size of the SME. Most of them favor a partner or technical advisor. Five out of seven small enterprises want a technical advisor. According to Champion et al. (1990), the technical adviser role is a "back-up role". The client uses the adviser's expertise for specific purposes. The focus is on helping the client with a specific problem which the technical advisor can solve due to his or her knowledge and experience. If this statement is applied to a small enterprise, e.g., a garage or carpentry, small enterprises mostly only consult an external expert when they have a problem with a specific software program. Thus, the answers given by the interviewees of small enterprises are in line with the role described by Champion et al. (1990) and also with Bradshaw et al. (2012) and Thong (2001), who say that the main role of an IS consultant in a small enterprise is that of mediator. The partner role assumes, according to Champion et al. (1990), that both the client and the consultant have the capacity to successfully perform aspects of the task and that both will share responsibility for the results. The partner role suggests that the client is willing to learn in a hands-on way. In addition, the consultant can effectively pass on some of his or her knowledge, while accomplishing the task at hand successfully. The findings of this study are therefore in line with the literature discussed above. A long-term relationship between IT consultants and SMEs is welcomed because it leads to cost savings and a higher service

quality, which confirms similar findings by Thon et al. (1994). Results in the context of the desired relationship between the SMEs and the consultants seem to indicate a correlation between social competence and the length of the planned relationship.

Our hypothesis had been that the last question, whether or not the SMEs consider a UAS as a consulting partner, would be answered in the negative since most people perceive UASs as educational institutions, without taking into account their other activities. The findings confirmed this hypothesis. Two thirds of the interviewees had never considered a UAS as a potential consultancy partner. Nevertheless, the preliminary study showed that a total of three out of five companies collaborated with a UAS in the past. The feedback on this experience was both positive and negative. UASs could benefit from further studies to examine where UASs should improve their consultancy services and what sectors to offer their services to. This might enable UASs to become more effective in offering their services to suitable business partners. Inter alia, it might be worthwhile for UASs to more actively promote their aR&D and consultancy services.

Further, the present preliminary study concludes that it is difficult to assign a specific role to a UAS or an IT consultancy because the roles reflect the options the consultant has in a given situation, and generalization is therefore counterproductive. The question which role best fits a UAS consultancy would be an interesting subject for further study.

In conclusion, it should be emphasized that the purpose of this preliminary study was to interview different companies from different service or manufacturing sectors. One of its limitations is the theoretical sampling of the chosen SMEs and interview partners. The sample was not big enough to make empirically validated statements. However, the findings of this study confirm the results of previous studies and provide a solid foundation for future studies.

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TABLES and Figures