Trust-Building Mechanisms for the Provision of Knowledge-Intensive Business Services

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Abstract: The term knowledge-intensive business services (KIBS) indicates private companies whose job consists of collecting, generating, analysing, and distributing knowledge with the purpose of delivering customized services to satisfy client's needs. KIBS firms rely on highly educated professionals, and supply knowledge resources or other knowledge-based services that clients are unable or unwilling to develop by themselves. The provision of KIBS entails a bilateral exchange of knowledge between the service provider and the end user along with the entire supply cycle. In this process, not only KIBS firms supply clients with precious elements of technical and applicative knowledge, but also client firms provide KIBS with pieces of knowledge that are necessary for designing a successful solution. As is well underlined in the literature, trust is an essential ingredient of client-provider knowledge exchanges, so that KIBS companies have deal with it properly. This is not simple, since trust has several dimensions that rely on different trust-building mechanisms. In light of this, the paper aims to analyse the different forms of trust and the related trust-building mechanisms that come into play during the delivery of a knowledge-intensive service. This is done by discussing the findings of a multiple case-study of a particular group of KIBS, i.e. computer service companies located in the Northeast of Italy. Specifically, the study: a) offers a knowledge-oriented description of the interactions that take place during the service delivery process between client and KIBS firms; b) analyses the role played by the different forms of trust, as antecedents and consequences of each interaction; c) makes some remarks about the trust building mechanisms that a KIBS company can exploit, and the resulting management implications.

Keywords: KIBS; knowledge interactions; trust-building mechanisms; computer services; case study

1. Introduction

The term knowledge-intensive business services (KIBS) was introduced by Miles et al. (1995) to indicate private companies whose job consists of collecting, generating, analysing, and distributing knowledge with the purpose of delivering customised services and solutions that client firms are not able or willing to develop by themselves. KIBS companies rely on highly educated professionals, experts on specific technical disciplines or functional domains, and supply knowledge resources or other knowledge-based services to clients. They work in different sectors such as business and management consulting, marketing and advertising, labour recruitment, legal activities, accounting and auditing services, research and development, architectural and engineering activities, computer and related services, technical testing and analysis. KIBS companies are usually subdivided into two broad categories, referred as P-KIBS (pure professional KIBS) and T-KIBS (technology-based KIBS), which include the additional category of C-KIBS (computer and software-related services) indicated by Martinez-Fernandez et al. (2004). The latter is the object of our investigation.

KIBS companies have been the centre of the interest of many research works in recent years, especially for two reasons. Firstly the sector has been one of the main sources of job creation in Europe; secondly its development is closely linked to the technological progress and economic growth of a country (Pro Inno Europe, 2009). In particular, KIBS firms are deemed to be a crucial component of the regional innovation system where they are located, since they act as key producers and diffusers of new knowledge (Doloreux et al., 2008; Rodríguex and Camacho, 2009). In point of fact, KIBS are not only innovators by themselves (Ojanen, 2007), but they also support and promote the innovation activities of other industries (Miozzo and Grimshaw, 2006). Since they "shuttle" between various business clients, KIBS can carry new ideas, technologies and best practices from one firm to another, thus becoming a "vehicle" for the transmission of innovative knowledge (Smedlund and Toivonen, 2007).

According to Strambach (2008) three core features denote the KIBS sector: a) knowledge is both their key production factor and the kind of "goods" they sell; b) the delivering of knowledge-intensive services generally requires an in-depth interaction between supplier and client, so that they become co-producers of supplied services and are involved in mutual learning processes (Bettencourt et al., 2002); and c) all KIBS firms perform an activity of consulting in the form of a process of problem solving, in which they adapt their expertise and knowledge to the specific problem of individual client. To sum up, the provision of knowledge-intensive services entails a bilateral exchange of knowledge between the involved actors

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along with the entire supplying process - from problem formulation, to delivery of solutions and ongoing after-sales support (Miles, 2005). During this process, not only KIBS companies provide clients with precious elements of knowledge (for instance how to implement a specific application, how to re-engineer a process, how to use a new technology), but also client firms provide KIBS with pieces of knowledge that are necessary for designing, developing and delivering a successful service solution.

Such cognitive interaction requires a trustworthy environment to be effectively accomplished, since both parties must be ready to exchange sensible information and knowledge (Bagdoniene and Jakstaite, 2009). This is the reason why although trust is an essential ingredient of many economic transactions, it is even more crucial in the delivering of knowledge-intensive services (Weterings and Boschma, 2009), so that it can be considered a key element of marketing strategies of KIBS companies. Accordingly, KIBS companies need to implement mechanisms that allow them to establish and enforce trustworthy relationships with clients. The point here is that not only trust is a multidimensional concept that entails various aspects, but also the kind of trust that comes into play and its role may vary according to the type of service provided as well as to the nature and the stage of development of the client-provider relationship. Hence, KIBS companies have to be aware of the different kinds of trust-building mechanisms they can exploit, as well as of when and how to employ them properly.

In light of this the paper intends to analyse the different mechanisms of trust-building that a KIBS firm can exploit during the provision of a service. In particular it aims to outline and discuss their distinctive features and application fields. This is done by illustrating the findings of a multiple case-study of a particular pool of KIBS firms, i.e. computer service companies located in the Northeast of Italy. In particular the study: a) offers a knowledge-oriented description of the interactions that take place during the service delivery process between client and KIBS firm; b) analyses the role played by the different forms of trust, as antecedents and consequences of each interaction; c) makes some remarks about the trust building mechanisms that a KIBS company can make use of, and the resulting management implications.

The paper is articulated as follows. In the next section we discuss the nature of the business relationships and cognitive interactions that occur between KIBS providers and clients. Section three analyse the role of played by trust in the cognitive interactions that characterise the delivery of a knowledge-intensive service, and the related trust-building mechanisms. Section four gives some information about the empirical investigation, and section five summarises its main findings. The last section offers some concluding remarks about the managerial implications that can be derived from the study, and its limits.

2. Business relationships and cognitive interactions between KIBS companies and clients

In order to understand the role played by trust during the provision of a knowledge-intensive service, and investigate the trust-building mechanisms that KIBS firms can use to sustain their business activities, it is necessary to go into the topic of business relationships and knowledge exchanges among KIBS companies and clients.

It is widely agreed that interactions between customer and service provider are perhaps the most distinctive feature of service delivery processes (Kuusisto, 2008). This is particularly the case of knowledge-intensive services where service provider and customer may engage in a long process of working together. Especially in the initial stage, namely when the business relationship starts, the players need to achieve a mutual understanding of the situation. Such interactions involve a continuous exchange of information and knowledge that spans the whole delivery process, from the initial formulation of the problem by the client, to the delivery and implementation of the solution and the after-sale support (Figure 1), and strongly relies on the existence of reciprocal trust.

It is worth noting that clients can be involved in the production of business services in many ways. This means that the points of contact during the service delivery process, as well as the kind and depth of the interaction (Päällysaho, 2008), can vary depending on: a) the degree of customisation of the delivered service, and b) the nature and development stages of the business relationship.

Firstly it must be recalled that not all services are produced and/or delivered by means of an active participation of clients. Concerning this, Kuusisto (2008) affirms that clients can assume four different roles in services production (i.e. consuming, co-performer, co-creator, and co-designer) which require an increasing involvement. For example, the supply of a standard software package looks like a simple

service consumption and does not involve the customer directly with the provider, while the delivery of a personalised application can be regarded as a co-creation or co-design process, which requires an effective contribution by the end-user. Al things considered the role played by the client is strictly connected with the nature and the evolution of its relationship with the provider.

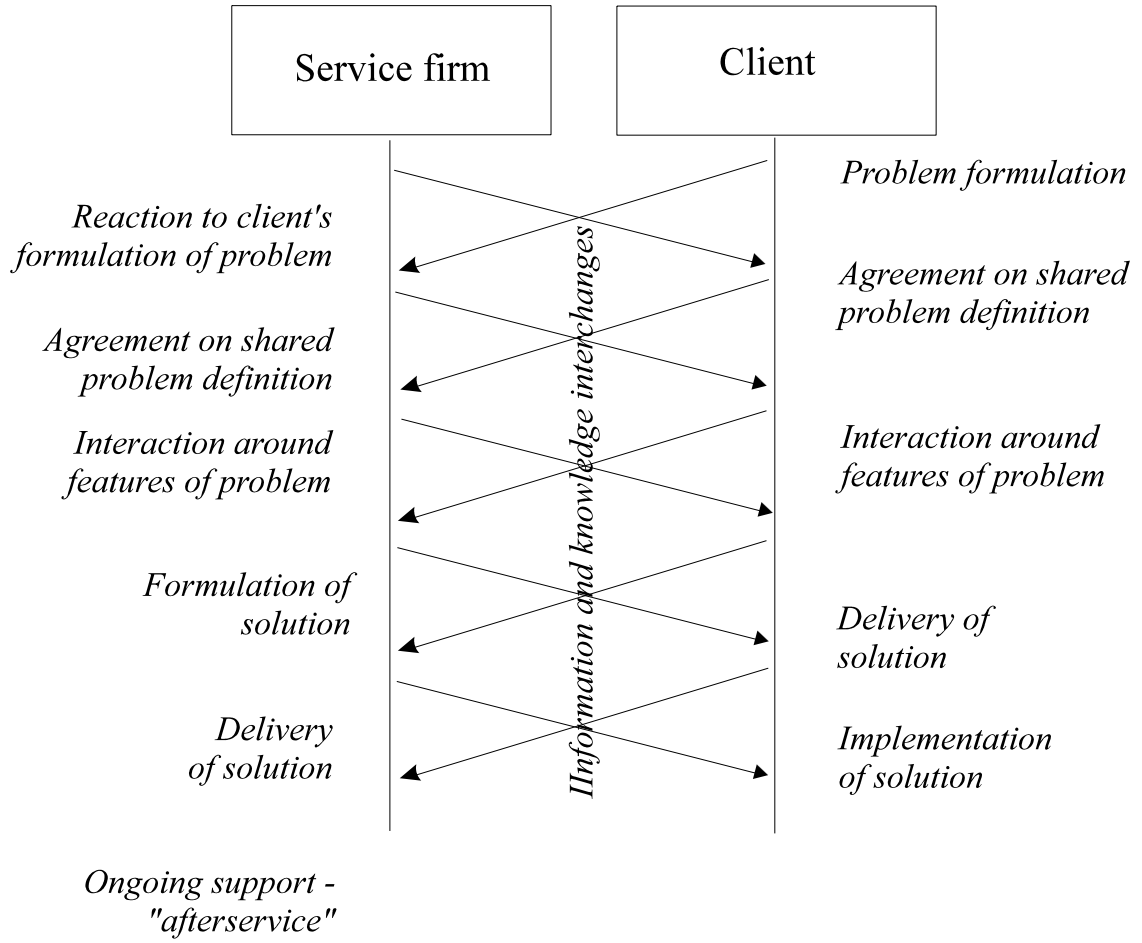

Figure 1: Cognitive interaction between KIBS and clients (from: Martinez-Fernandez and Miles, 2006)

Concerning the former, Miles (2003) identifies three main types of relationship, as follows:

- *Sparring relationships*, when the content of the service is negotiated between provider and client, communication as roughly being equal in status, knowledge and competence;
- *Jobbing relationships*, which involve less interaction and require the provider to perform a specialist and technical task, clearly defined by the client;
- *Sales relationships*, which imply (more) standardised services that can be designed before the transaction.

As regards the evolution of the relationship, Bagdoniene and Jakstaite (2009) distinguish four typical development stages, which characterise the different degree of maturity of the relationship itself:

- *Pre-relationship stage*. During this stage the client is looking for a service provider that could assist him/her to find a solution. So everything that could help to evaluate potential service provider and choose an acceptable one is useful;
- *Exploratory stage*. At this stage the first contact with potential provider is established and the relationship started. Clearly the two parties are still “distant”, since they have limited mutual experience and knowledge;
- *Developing stage.* This stage is denoted by the fact that both sides have increased their reciprocal knowledge, thus developing a common understanding of problems and opportunities. The provider expects the client has good awareness of offered services, willing to continue the relationship and recommend the used services to other firms; at the same time the client expects that the provider improve the quality of services, is more transparent, and the like;

- *Stable stage*. This stage characterises long term partnerships, where the two parties are accustomed to each other way of thinking and action. Reciprocal knowledge is at the top as well as the shared understanding of business.

The nature and length of the relationship is also affected by the fact that KIBS services/products are highly intangible, and this produces information asymmetry leading to clients being unable to fully evaluate the quality of service delivered. According to de Bandt (1995, quoted by Miles, 2003) five types of "information deficit" may concern the clients of KIBS providers:

- It can be hard to establish the KIBS' competence and experience in dealing with relevant problems;
- The client may not be able to accurately assess the kind or level of skills required to deal with specific problems it faces, nor to match these to the KIBS' offerings;
- The highly specific and complex nature of the service can make it hard to reach an agreement on the specific services to be rendered, or on the criteria for assessing their quality;
- Estimation of the effort required by the KIBS in supplying the service can be difficult;
- The impact and effectiveness of the service provided by the KIBS may be affected by many factors (some due to clients, some to unpredictable external circumstances), and consequently it is hard to determine the KIBS' responsibility in case of arising problems.

Generally speaking, the presence of relevant asymmetries favours the establishment of long-term relationships between provider and client that are based on bilateral knowledge exchanges and mutual trust (Bagdoniene and Jakstaite, 2009).

From what above said, it results that opportunities and needs for knowledge exchange vary in accordance with the different types of relationship at stake. In particular, while sales relationships offer little scope for cognitive interactions, sparring and jobbing relationships have potential for co-production and dissemination of new knowledge, and call for more reciprocal commitment. Furthermore, the content and the depth of the interactions vary along with the development stages of the relationship. In particular, while initially the parties need to develop a minimal mutual acquaintance and hence have to share a lot of information, later they have reached a common understanding of the business situation which makes the issue of knowledge exchange less critical.

To sum up, the kind of trust and trust-building mechanism that come into play vary in accordance to the kind of knowledge exchanges performed by provider and client, which are, in turn, affected by two important elements, namely: a) the different activity or task performed during a specific project, and b) the development stage of the provider-client relationship, i.e. its maturity. In the next section the different trust-building mechanisms that are at work in provider-client interactions are analysed in relation to their different effectiveness in the various possible situations.

3. Trust-building mechanisms

The role played by trust in knowledge interactions has been deeply analysed by the KM literature. In particular, it is commonly agreed that trust is a necessary condition to persuade people to share knowledge, particularly the tacit components (Ford, 2003). This is especially the case of interactions that involve different organisations, for instance in the context of inter-firms alliances or business networks (Panteli and Sockalingam, 2005; Becerra et al., 2008).

Before analysing the different mechanisms that KIBS companies can employ to create a trustworthy environment, it is necessary to recall what is intended by trust. Conceptualisations and explanations of the meaning of trust proliferate in current literature, so that a common definition of the term can't be found, as is well testified by the recent review made by Castaldo et al. (2010). A formal and often cited definition is that proposed by Gambetta (2000), who defines trust as the subjective probability with which a player agent assesses that another agent or group of agents will perform a particular action. In accordance with this view, when we say that we trust someone or that someone is trustworthy, we mean that the probability that he will perform an action that is beneficial or at least not detrimental to us is high enough for us to consider engaging in some form of cooperation with him.

Despite the lack of a shared definition, it seems to be ascertained that trust is a multidimensional concept consisting of several dimensions such as (Blomqvist, 1997; Şengün, 2010): dependability/reliability (confidence, loyalty, respect), honesty, competence, mutual orientation (altruism, congruence, motivation), and friendliness (acceptance, benevolence and liking). This means that trust involves many

subjective components, linked to how the individual perceives the reality in which he operates and the actions of the parties he interacts with. Thus the establishment of a trustworthy environment is based on a mix of "rational" assessments and social-psychological perceptions that are vague and hard to manage. In other words, as the real life experience shows, to create a trustworthy environment economic players can resort to different trust-building mechanisms, that can be classified as follows (Ford, 2003; Panteli and Sockalingam, 2005):

- *Institution-based mechanisms*, based on warranty, certification, safety nets, or other formal structures;
- *Deterrence-based mechanisms*, derived from the presence of costly sanctions for opportunistic behaviours;
- *Calculus-based mechanisms*, grounded on the rewards that come from pursuing and preserving a relationship, and fear of punishment for the violation of trust;
- *Knowledge-based mechanisms*, relying on the information about involved parties, which also develops thanks to repeated interactions. The assumption is that the more information is available about someone, the more easy is to predict his actions;
- *Identification-based mechanisms*, characterised by mutual understanding (i.e. empathy and a sharing of common values) among parties to the point that each can effectively act in favour of the others;
- *Personality-based mechanisms*, emerging from reciprocally sensitive, thoughtful and concerned relationships.

Given that the different types/dimensions of trust are not mutually exclusive, trust can rely on several mechanisms. The question is that these mechanisms can be more or less suitable depending on the type of cognitive interaction and business relationship that involves the two parties. For example, as stated by Roberts (2003), the type of trust needed for transferring tacit knowledge is different from the one required for codified knowledge. The former case (indicated as "hard trust") implies that the participants trust in a set of formal institutions (e.g. contracts, IPR regime, laws) that can facilitate the validation and protection of knowledge, while the latter case (denoted as "soft trust") is based on the existence of common social context, mutual understanding and long term relationships.

4. Empirical survey

In the following pages we illustrate and discuss the findings of an exploratory study aiming to examine the trust-building mechanisms that small local computer services usually resort to during the service delivery process. Given its exploratory aim, the research was carried out using a case-study methodology (Yin, 2003). Such approach, in fact, well fits the nature of the study and the complexity of the phenomenon under investigation (Leedy and Ormrod, 2005). The analysis focused on the delivery of customised services, developed through a project-based approach. In point of that, the study especially considered sparring relationships (see section two), where cognitive interactions (and, consequently, trust-building mechanisms) are more significant and relevant than in other types of provider-client relationship.

As said, the investigation regards how different trust-building mechanisms come into play in the different steps of a delivery process, and in relation to the maturity stages of the provider-client relationship. The aim is to point out the distinctive features of the various mechanisms, and their application domain. The questions addressed are as follows: what dimensions of trust come into play in the various steps of the service delivery process? What are the reasons for that? What type of trust-building mechanisms can be used in those steps? How the stage of development of the business relationship affects the kinds of trust involved and the relevant trust-building mechanisms?

A multi-case study methodology seems particularly useful to address these questions, because it allows to find regularities in the information collected and to classify variations and diverging cases or situations. Specifically, the survey involved 21 small firms (Table 1) in the Northeast of Italy (Veneto Region). The sample was mainly identified with the help of a local industry association.

The collection of information consisted of an in-depth semi-structured interview with executives and managers, and was based on a framework that was previously tested by means of a "pilot interview" with two company managers, which allowed adjusting it especially as regards language and terms used. For instance, concepts such as "trust" or "knowledge transfer" (that may have a clear definition for researchers but may be misunderstood by managers) were paraphrased into terms that are more understandable in business, or are indirect manifestations of them. Each interview aimed to examine how

the single company is able to generate economic value through the processes of external acquisition, internal processing (creation/elaboration, storage and retrieval) and finally transfer the knowledge needed to supply computer services to clients. Although each interview was flexible and open (meaning that it was possible to collect specific details in each case), the use of a common framework made the comparison between different situations easier, and allowed to highlight similar patterns.

To increase the validity of the analysis, information gathered though the survey was integrated with other elements coming from multiple sources (Yin, 2003), such as company documents, web sites, industry literature, and data collected by means of additional interviews with special observers and informed experts (clients or suppliers of the sampled firms, public agencies, and trade associations). The research was mainly conducted in 2008 and partly 2009. Further details about the empirical investigation that are not explained here for lack of room, can be asked to the authors directly.

Table 1: An outline of the cases examined (disguised names for reason of confidentiality)

Company	Specialisation	Main markets	Size
A	IT Infrastructure	SMEs	7
B	ERP	Retailing, Manufacturing	50
C	ERP	SMEs, Beverage	60
D	ERP; Business Intelligence	Manufacturing SMEs	110
E	IT Infrastructure	Finance; Insurance	50
F	IT Infrastructure	SMEs	20
G	ERP	Manufacturing SMEs	100
H	Test and measuring systems	Manufacturing; Laboratories	22
I	Network management	Large enterprises; Public org.	53
J	Software applications	Large manufacturing firms	40
K	Security; Business Intelligence	Manufacturing firms	26
L	IT Infrastructure	PA; Medium enterprises	30
M	Services; Connectivity	PA; Private companies	60
N	ERP; Consulting	Manufacturing SMEs	10
O	ERP	Manufacturing	250
P	MIS	Finance	273
Q	Information Systems	SMEs; Retailing; Hospitality	140
R	ERP; MIS	Large Distributors	70
S	ERP	Manufacturing SMEs	50
T	BPR	Large distributors	15
U	Consulting	Public org.; Large firms	9

First of all, we have to recall some features of the investigated firms that are important for our aims. The sampled companies provide highly personalised solutions developed through sparring relations. The core of their business is the capability to identify and analyse the problems of clients, and to find the proper solution. This makes knowledge exchanges with clients vital. These are, in fact, the final users of the services as well as the source of new knowledge that providers can use for future services. Although each provider makes use of specific working procedures, they usually follow some typical steps when developing and delivering a new service to a client. These steps are as follows: a) first contacts with the customer; b) preliminary analysis and requirement identification; c) feasibility study and formulation of an offer; d) negotiation, sign of the contract; e) technical development, release, test, and implementation; and finally f) post-sale assistance. Every step involves several cognitive interactions with the client, where trust can play a crucial role. For a provider, the duration of the relationship with clients is on average quite long (cases of loss of clients are rare).

5. Empirical evidence: trust-building mechanisms in the different steps of a computer service delivery process

In this section the different trust-building mechanisms that the surveyed companies usually adopt during the different steps of a service delivery project are illustrated and discussed. In addition, for each step of the project, the case of low maturity of provider-client relationship (i.e. with “new clients”) is contrasted with the case of high maturity (i.e. with “old clients”).

5.1 First contact with customer

First contacts are extremely critical especially when new business relationships are established, in that very often computer services will not have other chances to introduce themselves to potential clients. Even though technical reputation and "certifications" (i.e. official partnerships with a global technology vendor, memberships of an industry association) still represent a good "visit card", word-of-mouth suggestions coming from satisfied clients continue to play a significant role. First contacts are generally a responsibility of the provider's commercial staff.

Once the prospective client has been identified and contacted, the situation changes. The provider describes its offer in more detail, and the client provides some information about its interests. Generally speaking, this is a moment of mutual acquaintance between the two parties, and the success of this reciprocal exchange of knowledge can deeply influence the continuation of the business relationship. Very often customers are approached by showing a demo of the product/service that illustrates its main functions. Usually, the provider's technical team incorporates just standard elements of knowledge into this demo, and leaves the rest to direct explanations that are supplied by interacting with the client's buying team. Sometimes, the demo is configured using preliminary information about the specific requirements of the customer, collected by the sales force during preliminary contacts. In many cases, this step can go a long way especially with the most cautious new customers.

As said, *institution-based mechanisms* (i.e. all kinds of public and private certifications) can be useful here, especially during the first contact with prospective customers. However, *knowledge-based* mechanisms take the lion share, given the crucial role played by the reputation created by positive information passed by word-of-mouth.

The situation is different in the case of old clients, with which a stable relationship has already been established. On the whole, the preliminary step is skipped, since the two parties have been accustomed to the other way of working and thinking. This means that *identification-based mechanisms* are at work.

5.2 Preliminary analysis, requirement identification

After the prospective client has confirmed to be interested in the proposal, the service delivery process keeps on with the analysis of the specific issues at stake and the identification of the service requirements as more precisely as possible. Only the full understanding of the client's problems allows the provider to propose a complete and satisfying solution: hence in this phase client's contribution and active collaboration is decisive. Our investigation confirmed that such attitude prevails with old "long-lasting" clients. Problems can arise with clients lacking some minimal technical knowledge, which may found it difficult to appreciate the value of the proposed solution. Sometimes there may even be a "hostile" behaviour, for two main reasons: first, when the proposed technical solution has organisational impacts that can raise internal conflicts and negatively affect the project realisation; second, when the client's IT staff prefers a different technological standard or platform from the one suggested by the provider.

The preliminary phase may be long especially with new clients, since many interactions and knowledge exchanges are necessary to arrive to a satisfactory definition of requirements. Again, things are easier with old clients, since the provider knows their business processes, and clients are more disposed to assume a cooperative behaviour. Competence and willingness to collaborate on the client's side are vital for the success and the quality of the delivered service. In case of high-tech services, there may be the need to develop trustworthy relationships with the client's IT technical staff, given the influence that these people exert on the buying decision as well on the project implementation.

This is the reason why during this phase the capability to cultivate personal relationships is critical, and the willingness to collaborate by single individuals is essential. Especially in the case of a new relationship (where the relationship is still at an exploratory stage) the provider's staff has to be not only expert of the technical field but also capable of understanding the client staff's attitudes and behaviours. Excellent communication abilities and some elements of psychology clearly help. This is why *identification-based trust* and/or *personality-based mechanisms* are important here, both with new and old clients.

5.3 Feasibility study, formulation of an offer

The preliminary analysis provides inputs for the subsequent feasibility study that to goes into the technical aspects thoroughly. Such inputs are formalised into a document on which the two parties agree, and is fundamental for developing the offer, which consists of a technical part and an economic part, each of which can be articulated in several papers. A key aspect of this phase concerns how price is fixed. Two are the more diffused approaches:

- Upon final balance, i.e. on the basis of the effective use of some factors (especially manpower) whose unit price is contractually fixed;
- Turnkey (fixed price), i.e. when the economic aspects are all established ex-ante.

The surveyed companies affirmed that, in recent years, clients increasingly prefer the second option. This tends to transfer the risk of the business to the provider, especially in case of new relationships. In fact, it has to be noted that the execution of the project can start only after the contract has been signed. But before that moment the provider has had to show and transfer a pool of technical and managerial knowledge to the client about the ideas of the possible service, with no economic return. These ideas could be used by the client to compare the provider's proposal with those of competitors. The client can also try to use them on its own, without the provider's help. For the provider this is especially risky in the case of new clients: *calculus-based mechanisms* (concerning estimation of the risks and opportunities to engage in a new project) come into play here.

The same mechanism is at work when the provider considers it useful to cooperate with a particular client for jointly developing an innovative solution. In this circumstance, the provider often bears part of the project costs in order to encourage the client's participation in the project.

5.4 Negotiation, sign of contract

This step is characterised by the fact that the provider must be able to communicate the economic value of the proposal to the client which, in turn, has to understand and appraise it and possibly formulate counterproposals. Typically, supplier-client communication occurs through a combination of direct face-to-face interactions and transfers of contractual agreements. Again, communication is easier with "old clients" that are experienced with the provider's proposals. The choice of the contract format varies from case to case, typically in accordance with the size of the client. In general, bigger and organized clients use their own contractual formats and require the provider to follow them; the opposite occurs with smaller customers.

In principle, the resort to contracts implies that *deterrence-based mechanisms* are working. Instead, other forms of mechanisms prevail, for instance those based on *calculus of mutual convenience* or, even more important, those based on *reciprocal knowledge* of parties, especially with reference to the more intangible (and hence difficult to define) aspects of a contract. Indeed, the investigated companies consider a contract a "working tool" or a necessary act rather that a real warranty against the possible opportunistic behaviour of counterparts. Actually, the complex nature of the delivered services requires flexibility by both parties: cases of misunderstandings, requests of changes, delays and similar needs are usually faced by coming to an arrangement instead of taking legal steps. Sometimes, to be sure of having a "real time" validation of their job, the provider requests that an internal referent is designated, who has the responsibility for the project on the client's side and acts as interface with the provider's project team. The selection of the delegate is critical, because it can influence the level of trust between the parties. To sum up, in this phase there is prevalent use of *identification-based* and *personality-based mechanisms,* especially in case of old clients.

5.5 Technical development: Release, test, and implementation

This activity is largely accomplished by the surveyed companies internally, and does not involve many interactions with the client. Sometimes, the project schedule is shared with the client who can therefore control the progress of the work closely. This is a *knowledge-based mechanism* that increases the level of trust between the parties.

The project ends with the installation, test and implementation of the application/system at the customer's offices. In many cases, the client's workforce has to be trained to use the new application. This is another crucial point especially for the more customised solutions, whose functioning is difficult and complex to

learn, and cannot be done only through written handbooks. Hence the training of the client's employees concludes the knowledge transfer.

During the installation, the provider may need to be allowed to access the information system and database of the client. Consequently, it may come into possession and manipulate crucial information. While strict contractual agreements (i.e. *deterrence-based mechanisms*) may be of use with new clients, with old clients they are of less use than *knowledge-based* and *identification-based mechanisms* that derive from previous co-operative work.

Lastly, it is worth remembering that a successful project represents the best way to satisfy the client needs and to improve the provider's reputation. This also sets the ground for a continuous business relationship, and represents a good visit card for new clients.

5.6 Post-sale assistance

In principle this step may or may not be specified in the contract, but the continuous management of the customers' base represents, for many providers, a substantial part of their business. Nurturing relationships provides opportunities for acquiring new orders and upgrading the offer. Almost all the surveyed firms are very committed in cultivating the relations with their main clients, as testified by the periodical visits that their commercial staffs usually do. Such visits are denoted by mutual exchanges of knowledge concerning, on the one hand, the recent technical advancements and the provider's new applications and, on the other hand, the last news about the client and its business. Other ways to "cultivate" customer relationships are newsletters, workshops, Internet portals, and other indirect channels. Whatever it is, this "customer care" activity puts into action *identification-based mechanisms*, whose exploitation benefits from the proximity between providers and clients.

6. Conclusion

The empirical investigation confirms that the delivery of a knowledge-intensive service, as in the case of computer services, is a complex and articulated process that consists of a sequence of cognitive interactions by which the involved actors increase their knowledge about the problem and the ways to deal with it.

Trust proves to be an essential ingredient of the different steps of a project, and the establishment of a trustworthy environment is directly associated to the intense knowledge exchanges that are necessary. As the study shows, several forms of trust come into play in this process. The awareness of that is particularly important for managers of KIBS companies, and the selection of the appropriate mechanism of trust-building becomes particular critical.

In point of this, the survey confirms that the role played by the different mechanisms changes both with the step of the delivery process, and in accordance with the maturity of the provider-client business relationship. This is illustrated in Table 2 where the main outcomes of the analysis is summarised.

In any case, it is notable that soft forms of trust seem to prevail on hard forms. Actually, even though computer services imply technicalities and formal methods, codified knowledge assumes a minor role than informal or tacit components. Consequently, more than on formal trust-building mechanisms (e.g. contracts, certifications, laws), trust is based on the establishment of personal relationships even among individual employees of the two parties, and this increases the likelihood that provider-client relationships will last long. There is, however, a difference between old and new clients. While with new clients there is some room for hard trust-building mechanisms, with old clients the soft forms that involve empathy and mutual understanding (i.e. identification-based or personality-based mechanisms) are prevalent.

The prevalence of soft mechanisms raises an evident risk: while a trustworthy atmosphere takes a long time to be created, it may take a very short time to break it. Just one mistake or misbehaviour can destroy a reputation created in several years of fruitful cooperation. Furthermore, thanks to the word of mouth communication process, a disappointed client matters much more than a satisfied one.

The findings of our investigation allow to draw some managerial implications for marketing and human resource management strategies of KIBS.

Table 2: Use of trust-building mechanisms in relation to the different steps of a service project and to the different relationship maturity

	Project phase	
Type of mechanism	New clients (new relationships)	Old clients (mature relationships)
Institution-based	First contact	
Deterrence-based	Negotiation; tech development	
Calculus-based	Feasibility; negotiation	Feasibility
Knowledge-based	First-contact; tech development	Tech development
Identification-based	Preliminary analysis; post-sale	Preliminary analysis; negotiation; tech development; post sale
Personality-based	Preliminary analysis	Preliminary analysis; negotiation

As far as the former are concerned, providers need to develop marketing initiatives that allows to employ the proper trust-building mechanisms in the different steps of a service delivery project. This involves taking care of personal relations and assuming a transparent behaviour with the client. It also implies having updated information about the business situation of client. The use of Customer Relationship Management approaches and tools can support such activity. Also, specialising on specific markets or customer needs (this is particularly the case of many computer services companies) can allow providers to reach a deeper understanding of the client's needs, which reinforces the positive effects of identification-based trust-building mechanisms.

Furthermore, empirical findings show that employees need to have not only technical competencies (i.e. those strictly related to the delivered service), but also relational capabilities and skills. This is not always simple: for instance, in case of T-KIBS companies (as computer services providers), the technical background of many employees can be a limitation. In any case, the physical, "social" and cultural proximities between clients and providers may be of help here.

The main limitation of this study is that the findings are not easily generalisable to the entire KIBS sector, since they concern only a particular industry, whose knowledge base can be described as *synthetic* (Weterings and Ponds, 2009), i.e. denoted by the application or novel combination of existing knowledge, by low levels or R&D, and by an orientation to solving customers' problems. In the computer services sector, learning by doing, practical skills and tacit knowledge are crucial and generally lead to incremental innovations. Things may change when KIBS companies with an *analytic* knowledge base are considered, i.e. those characterised by a strong reliance on scientific inputs and codified knowledge (e.g., the life science industry). Here, knowledge generation processes are more rational and systematic, and outcomes are often documented. Hence, there is the need to extend the analysis to other KIBS sectors, especially with the aim to investigate how the different kinds of knowledge exchanged in a KIBS-client interaction may affect the role played by trust and trust-building mechanisms.

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References

Bagdoniene, L. and Jakstaite, R. (2009) "Trust as basis for development of relationships between professional service providers and their clients", *Economics and Management*, Vol 14, pp 360-366.

Becerra, M., Lunnan, R. and Huemer, L. (2008) "Trustworthiness, Risk, and the Transfer of tacit and Explicit Knowledge Between Alliance Partners", *Journal of Management Studies*, Vol 45, No. 4, pp 691-713.

Bettencourt, L.A., Ostrom, A.L., Brown, S.W. and Roundtree, R.I. (2002) "Client Co-Production in Knowledge-Intensive Business Services", *California Management Review*, Vol 44, No. 4, pp 100-128.

Blomqvist, K. (1997) "The many faces of trust", *Scandinavian Journal of Management*, Vol 13, No. 3, pp 271-286.

Castaldo S, Premazzi K and Zerbini F (2010) The Meaning(s) of Trust. A Content Analysis on the Diverse Conceptualizations of Trust in Scholarly Research on Business Relationships. Journal of Business Ethics, Vol 96, No. 4, pp 657-668.

Doloreux, D., Amara, N. and Landry, R. (2008) "Mapping regional and Sectoral Characteristics of Knowledge-Intensive Business Services: Evidence from the Province of Quebec (Canada)", *Growth and Change*, Vol 39, No. 3, pp 464-496.

Ford, D.P. (2003) "Trust and Knowledge Management: The Seeds of Success", in Holsapple, C.W. (Ed.) *Handbook on Knowledge Management*, Springer, Berlin, Vol 1, pp 553-575.

Gambetta, D. (2000) "Can We Trust Trust?", in Gambetta, D (Ed.) *Trust: Making and Breaking Cooperative Relations*, electronic edition, Department of Sociology, University of Oxford, pp 213-237.

Kuusisto, J. (2008) *Customer roles in business services production: implications for involving customers in service innovation*", Research Report 195, Lappeeranta University of Technology
Leedy, P.D. and Ormrod, J.P. (2005), *Practical Research – Planning and Design*, Pearson, Upper Saddle, NJ, 8th ed.
Martinez-Fernandez, M.C. and Miles, I. (2006) "Inside the software firm: co-production of knowledge and KISA in the innovation process", *International Journal of Services Technology and Management*, Vol 7, No. 2, pp 115-125.
Martinez-Fernandez, M.C., Soosay, C.A., Bjorkli, M. and Tramayne K. (2004) "Are Knowledge-Intensive Service Activities Enables of Innovation processes? – A Study of Australian Software Firms", *CINet Referred Conference Proceedings Conference*, pp 986-1000.
Miles, I. (2003) *Knowledge Intensive Services' Suppliers and Clients*, Ministry of Trade and Industry, Finland.
Miles, I. (2005), "Knowledge-intensive business services: prospects and policies", *Foresight*, Vol 7, No. 6, pp 39-63.
Miles, I. Kastrinos, N., Bilderbeek, R., and den Hertog, P. (1995) "Knowledge-Intensive Business Services: Users, Carriers and Sources of Innovation", *EIMS Publication*, n. 15.
Miozzo, M., Grimshaw, D. (Eds.) (2006) *Knowledge Intensive Business Services. Organizational Forms and National Institutions*, Edwar Elgar, Cheltenham, UK.
Ojanen V. (2007) *On the innovation capacity of technology-related knowledge-intensive business services. A case study of the technology and engineering (TEC) sector in Singapore*, Department of Industrial Management, Lappeenranta University of Technology.
Päällysaho, S. (2008) *Customer interaction in service innovations: a review of literature*, Research Report 195, Lappeenranta University of Technology.
Panteli, N. and Sockalingam, S. (2005) "Trust and conflict within virtual inter-organizational alliances: a framework for facilitating knowledge sharing", *Decision Support Systems*, Vol 39, pp 599-617.
Pro Inno Europe (2009) *Challenges for EU support to innovation in services*, Paper n. 12, Brussels
Roberts, J. (2003) "Trust and electronic knowledge transfer", *International Journal of Electronic Business*, Vol 1, No. 2, pp 168-186.
Rodriguez, M. and Camacho, J.A. (2009), "Are Knowledge-Intensive Business Services So "hard" Innovators? Sole insights using Spanish microdata", *Public and Private Services in the New Global Economy, XIX International Conference of RESER*, Budapest, 24-25 September
Şengün, A.E. (2010) "Which Type of trust for Inter-firm Learning?", *Industry and Innovation*, Vol 17, No 2, pp 193-213.
Smedlund, A., Toivonen, M. (2007) "The role of KIBS in the IC development of regional clusters", *Journal of Intellectual Capital*, Vol 8, No. 1, pp 159-170.
Strambach, S. (2008) "Knowledge-Intensive Business Services (KIBS) as rivers of multilevel knowledge dynamics", *International Journal of Services Technology and Management*, Vol 10, No. 2/3/4, 152-174.
Weterings, A. and Boschma, R. (2009) "Does spatial proximity to customer matters for innovative performance? Evidence from the Dutch software sector", *Research Policy*, Vol 38, pp 746-755.
Weterings, A. and Ponds, R. (2009) "Do Regional and Non-regional Knowledge Flows Differ? An Empirical Study on Clustered Firms in the Dutch Life Sciences and Computing Services industry", *Industry and Innovation*, Vol 16, No. 1, pp 11-31.
Yin, R.H. (2003), *Case study research: Design and methods*, Sage Publishing, Thousand Oaks, 3rd ed.