

# The Ability to Act Secure

## – A Key Success Factor for Local Internet-based Marketplaces

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**Abstract** – The impact of information technology (IT) is radically changing the reality for business actors and their activities. Today we see a trend towards local Internet-based marketplaces, where people, sharing interests and geographical location, meet virtually to, among other things, perform business. Doing business means to perform business actions. One important factor for successful performance of communicative actions through IT-based information systems is the trustworthiness mediated by the system – and hence its potential to create trust between partners. Within any virtual marketplace, security becomes an important aspect of trustworthiness. In this paper we will address the ability to act – the actability – of local Internet-based marketplaces in relation to technical and social trust. We argue that high degree of trust in the technology as such (technical trust) might in fact increase the degree of trust in our technology using business partners (social trust). Furthermore, if the technological solutions used are designed appropriately those solutions might help to increase social trust as well. That is, if we design for actability.

**Keywords:** Actability, information security, trust, local Internet-based marketplaces.

Also appearing in *Proceedings of the 23<sup>rd</sup> Information Systems Research Seminar in Scandinavia (IRIS 23)*, August 12-15, 2000, Lingatan, Sweden.

# 1 Introduction

The impact of information technology (IT) is radically changing the reality for business actors and their activities. The physical marketplace is supplemented with ‘marketspace’ and the arena is claimed to become more and more global as new markets evolve (Rayport & Sviokla, 1994). A complementary and seemingly contradictory development is the growth of *local electronic commerce* (Steinfeld & Klein, 1999).

Internet commerce with a focus on local markets is an increasingly common occurrence in Scandinavia. The platforms for these commercial activities seem to share a common pattern. This pattern outlines what we refer to as ‘Local Internet-based marketplace’ (LIM). This delimited part of the marketspace is utilized by local business actors, such as retailers and service companies striving to meet their old customers through a new channel.

Steinfeld & Klein (1999) argue that a number of factors speak for local electronic commerce. They claim that merchants with a physical presence have the lead when defending their old market from Internet-based competitors in going online themselves. There are mainly four different areas where considerable synergies between a physical and a digital presence can be obtained. The areas are: (1) improved trust, (2) reduced consumer risk, (3) broader coverage of diverse consumer preferences and (4) natural complementarities between the two channels (such as shared logistics).

In this context we believe that there is a need to focus the actual abilities of and the actions performed in interaction with the enabling technology. This leads to the concept of actability, which has been argued by Ågerfalk *et al.* (1999) to be the most important quality of any information system. Hence, a key issue in exploiting the prospective advantages would be the information systems’ and their users’ *ability to act secure*. The users’ need to feel secure (i.e. confident) when performing actions through information technology (i.e. trust in the technology) as well as trust in the party towards who they act.

## 2 Local Internet-based Marketplaces

‘Local Internet-based marketplace’ could be seen as a fusion of ‘Internet community’ and ‘local electronic commerce’, enabled by a shared web-based information system. The fusion is embodied by an Internet-site (here referred to as a LIM-site) and the motive power is a shared interest for a particular geographical location.

The following sections contain an outline of the shared pattern from a study of 30 Scandinavian Internet-sites with an explicit local focus. The exploratory study included conducting in-depth interviews with representatives from four of the examined sites. The interviewees represented the sites in capacity of LIM-providers (see below). A conceptual ordering of *essential features* and *actor roles* is the core of the outline. The different features of the LIM-concept can be explained by using three generic themes. The themes are community, commerce and content. Beside the essential features, different actor roles need to be examined for conceptual understanding. Different roles means different perspectives. To clarify and facilitate the conceptual understanding we will initially present a tangible case description.

## 2.1 Skaraborgswebben – A Case Description

Skaraborgswebben ([www.skaraborgswebben.com](http://www.skaraborgswebben.com)) is an Internet project that can exemplify what in this paper is referred to as a LIM. A firm of consultants in marketing and information systems communication operates the project. The firm offers local businesses an online presence. The offer includes services such as developing webpages and e-store information systems. A vital part of the offering is furthermore the access to a platform for presentation. The platform is based on an Internet site shared with other local businesses. The idea is to attract Internet users who have a relation to the geographical area Skaraborg in the mid-west of Sweden.

Skaraborgswebben contains a number of sections for different purposes. One of the sections forms an electronic shopping mall where the different electronic stores are being hosted. The visitors are able to place orders that result in one joint delivery. Other commercial sections are a local estate agent service and an online art gallery.

The site contains two different discussion forums. One is dedicated to discussions between business representatives and another is a forum for private individuals. The site providers specify different discussion topics but user specifications of sub topics are also allowed. The topics are suited for the target group and a representative example of heading is: 'What to do in Skaraborg'.

Besides the content described above there is more information to be found on Skaraborgswebben. The site also offers local news and weather forecasts. It provides trotting race tips and a facility to send online picture postcards. The visitors can also use a locally inspired categorisation of Internet resources.

## 2.2 Essential Features of LIM

'Virtual community' is a general concept related to the emergence of technology-enabled forums for communication. The forum constitutes a community of interest in which groups of people communicate with each other. The virtual element can in simplified terms be related to the absence of actual face-to-face communication (Romm *et al.*, 1997). A community presence with a close connection to a specific geographical area are sometimes referred to as a community network (CN) (Schuler, 1996). Regarding a LIM-site as a community network would be applicable after recognising some main differences. The focus on social empowerment and on-line democracy are crucial in CNs but not at all salient in LIM. The *community features* in LIM are more closely related to the adoption of electronic commerce (EC) solutions. The purpose is creation of customer value. Implementing possibilities for buyer-to-buyer communication strengthen EC-sites in promoting customers and building loyalty (Hagel & Armstrong, 1995; Hagel & Armstrong, 1997). The most frequent methods for obtaining LIM community are web-based discussion forums, chats, notice boards, mailing lists and visitor polls. The LIM-providers often manage the community features by presenting different themes and raising interesting questions.

The *commercial features* of LIM include both business- and consumer orientation. Most business activities are however of business-to-consumer type and the common segment is retailing. It is a question of local retailers exploiting the Internet as sales-channel. The dominating focus is a general dedication to local commerce where co-operation with national or global EC-actors is a rarity. LIM-commerce is, in most cases, implemented by providing some means of e-mall facilities (Turban *et al.*, 2000). The e-mall embodies electronic stores of which a majority can be regarded as storefronts. Storefront holders are actors with a multichannel presence whose businesses are mainly

built upon a physical store (Saarinen & Tuunainen, 1998). Steinfield *et al.* (1999) argues that synergies between a physical and a digital presence give possible advantages to local business actors of this category. There are mainly four areas where synergies can be obtained. These are improved trust, reduced consumer risk, broader coverage of diverse consumer preferences and natural complementarities between the two channels (for example after-sales services through the complementary channel). The LIM storefronts often relays on the physical stores' existing logistic solutions. The commercial features include services of mall-overarching character such as product search facilities and bundled ordering. The latter service is then complemented with a co-ordinated logistic solution where the idea is delivering the content of a joint shopping basket. Business between visitors, i.e. 'customer-to-customer' commerce, is also taking place in the LIM-setting usually by use of classified ads where individuals find interested buyers or sellers. This type of business is however considered peripheral in this particular paper.

*Content* is the third concept used to outline the essential features of LIM. The concept might seem a bit different from the other two and is also more difficult to define. Naturally much of the activities related to commerce and community contributes to the actual content of a LIM-site. There are however also other kind of content vital to the marketplace. That is mainly contents explicitly targeted to attract and stimulate visitors to keep coming back. This is a key aspect for value creation and the striving is often making the LIM-site attractive for visits and use on a daily basis. The local theme is also visible in this context and continuous updating and daily information feed are crucial. Examples of this additional content are services such as weather forecasts and the reporting of local sports results and events. Visitor interaction such as user polls and contests are also common ways to add additional contents.

### **2.3 Roles and Categories of Actors**

Actors with different needs and capabilities can be identified within the LIM context. Here we use the four main categories of provider, occupant, visitor and content supplier. The categories should be considered as roles and it should be stressed that the relation between actor and category is pluralistic. For example, one actor can adopt several roles and accordingly be associated to more than one category.

The *provider* is the co-ordinator of different services afforded. The role also includes providing access to the information system that enables the LIM-site. A main task is promoting, gaining occupants and attracting visitors. Actors in the provider category are mainly from the private sector and a business segment that is frequently represented is Internet consultant firms. Media actors such as local radio stations and newspapers are also actors found in this category. Looking at this diversity it is scarcely surprising that operating a LIM-site often is a sidetrack in the providing company's repertoire.

The *occupant* is in this context often a local merchant or a non-profit-making association exposed online. Commercial occupants can be both service and product companies but retailers with a consumer focus are, as discussed above, the most frequent ones. The exposure take different forms and includes EC features of a varying degree. The differences stem from both occupant needs and provider means. The commercial occupant is from the providers' point of view the main source of revenue but the actual services getting paid for varies in a corresponding way. Another sub-category of occupants is accordingly non-profit associations, such as athletic clubs. These actors are as suggested often LIM-occupants free of charge.

The actor role of *visitor* consists of Internet-users visiting the site. The visitor can

be a casual user or a regular member of the community. This category can be considered as containing the presumptive customers of the commercial occupants, the consumers. The motive power is as mentioned the local interest and a visitor may well be seeking information not at all related to commerce.

The category of *content supplier* is perhaps the most heterogeneous one. It is therefore important to recapitulate the categories in the sense of roles. Most of the content suppliers are namely actors that also can be categorized as providers, occupants and/or visitors. But there are also sheer content suppliers. Actors that are assigned to deliver agreed information. These actors are sometimes part of a mutual agreement with the provider. It is a strategic alliance where specific information is freely exchanged for advertisement.

### **3 Security and Trust in Electronic Commerce**

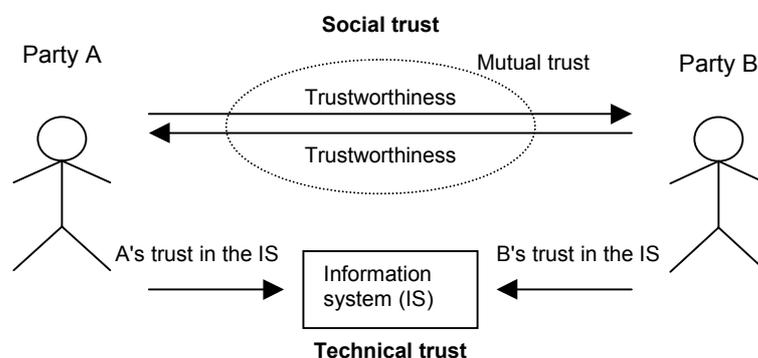
During the last few years, the 'centre of gravity' within electronic commerce has been dislocated from private networks to one single public network – the Internet. Since the Internet evolved as the major infrastructure for electronic commerce, security issues are often described as a bottleneck for the growth of electronic commerce. When organizations use the Internet as an infrastructure for business communication, information security is no longer an internal issue. An organization's information security affects not only the organization itself, but also its external parties (von Solms, 1999). Organizations are sharing infrastructure as well as information systems, information resources and security solutions. We believe that there are two sides of this problem: to technically *make* information systems secure, and to make actors involved *believing* that information systems are technically secure.

Information technology is getting increasingly technically advanced. Security issues in relation to the Internet are not an exception. Encryption, firewalls and virtual private networks (VPN) are examples of complex technologies and applications that are difficult to understand. Estimating their ability to secure information systems and resources are even harder. Consequently, it is hard for an organization to estimate the actual level of information security of a business partner. When organizations depend on shared information systems, they do not want to do business with other organizations that can not convincingly show secure IT environments. This means that weaknesses in an organization's information security will lead to decreasing trustworthiness. Thus, organizations need support to estimate a partner's information security. Von Solms (1999) argues that in the era of electronic commerce, not only proper information security, but also proof thereof, may be demanded among business partners. In the summer of 1999, the Swedish translation of the British standard BS 7799 was finished. The BS 7799 is a standard for information security management, and is expected to be an international standard and has already been accepted by a number of countries (von Solms, 1998). In Sweden, it will be possible for organizations to be certified according to BS 7799. This means that organizations can show the surrounding world, including present and potential business partners, that the organization has reached a reasonable level of information security. Standards in information security management, as well as standards in technical security applications and solutions can both be seen as supporting tools for organizations to reach a reasonable level of trustworthiness in electronic commerce.

### 3.1 Electronic Commerce and Trust

To do business means the performance of different business actions (communicative and material) by the parties engaged in the business (Goldkuhl, 1998). Successful communication, and hence business, is built upon trust (e.g. Eriksson, 1998). We have to trust our partners, who can be for example customers, suppliers or finance partners. Trust is the belief in matters beyond the subject's direct control (Cardholm, 1999). When you are unable to attain knowledge by verifying matters within your direct control, you need to believe in information presented by someone else (*ibid.*). Trust can be seen as confidence in characteristics, ability, strength, and truth of someone or something (Sanner, 1997). Karvonen (1999) claims that trust can be divided into trust in people and in trust in abstract systems. In the context of electronic commerce, trust is needed in business partners as well as in information systems. Trust in people can be seen as inter-personal trust. That is, trust built upon mutual involvement and in the faith in the integrity of the other person (*ibid.*). In electronic commerce, two types of parties are involved; one or several trust-building parties and one or several trusting parties. However, each party in a business relationship can be both the trusted and the trusting party (Cardholm, 1999). Sanner (1997) claims that mutual trust is a set of expectations shared by actors involved in an interaction, while trustworthiness is a set of expectations concerning one actor in the eyes of another actor. In business-to-business relationships, it is relevant to talk about inter-organizational trust rather than inter-personal trust since business, in that case, is performed between organizations. In business-to-consumer relationships, there is a need for trust between individuals and organizations. The information system can for the user appear as an abstract system, for example in the shape of a user interface through which the user has access to web-based services (Karvonen, 1999). Trust in information systems depends on the system itself, for example its functionality, characteristics and quality, but also on the user's trust in the developer of the information system.

Based on the discussion above, we have identified two types of trust, social trust and technical trust. Social trust is the trust between one or several actors. The actors can be persons or organizations. To reach mutual trust, which is a prerequisite for two or several parties in electronic commerce, each party needs to show a reasonable amount of trustworthiness. The technical trust is actors' trust in information systems used in electronic commerce. The distinction between social and technical trust is depicted in Figure 1.



**Fig 1: Social and technical trust.**

When doing business, it is possible to talk about *required trust*. The required trust is the degree of trust that must exist in order for the trusting party to feel confident in performing a business transaction with the trusted party (cf. Cardholm (1999) on ‘reasonable trust’). The degree of trust in any given business relation is the sum of social trust and technical trust. This implies that with high social trust, technical trust need not be as high, and *vice versa*. This yields the following ‘trust equation’:  $R \leq S + T$ , where R is the required trust, S is the social trust and T is the technical trust. Note that there might be a lowest acceptable level of either kind of trust that must always be reached. It is important to realize that the satisfactory level of trust vary depending on what kind of business the two parties are involved in. What might be considered as high required trust in one business setting, might be regarded low in another.

Furthermore, it is important to understand that technical trust can be an instrument for creating social trust, i.e. information systems can support actors increasing their trustworthiness. This means that if T is increased then S might increase as well. This should however not be mistaken for a technocratic view of IS usage. Rather there are two distinct aspects of technological change influencing the total trust. First, by showing convincingly that the technological solutions that we use are secure, trusting parties will feel confident and our trustworthiness will increase. Second, it is possible to design technological solutions in a way that their use will increase trustworthiness in the human-to-human-through-technology communication – that is, designing for actability.

## 4 Information Systems Actability

Information systems actability (e.g. Goldkuhl & Ågerfalk, 1998; Cronholm *et al.*, 1999; Ågerfalk, 1999) is a concept intended for the understanding of information systems as tools for business action and communication. That is, in contrast to the common misconception that information systems are used only as passive information providers. Actability is an attempt towards a synthesis of the human-computer interaction tradition (e.g. Preece *et al.*, 1994) and the language action perspective (LAP) (e.g. Winograd & Flores, 1986; Dignum *et al.*, 1996) in the light of the Scandinavian information systems tradition (cf. Iivari & Lyytinen, 1998).

‘Actability’ can be defined as: an information system’s ability to perform actions, and to permit, promote and facilitate users to perform their actions, both through the system and based on information from the system, in some business context (cf. Cronholm *et al.*, 1999). From this definition we see that a central concept within actability is the performance of actions. Actions should in this context be understood as *speech acts* (Searle, 1969; 1979) or *communicative actions* (Habermas, 1984), following the LAP. The main message of the LAP is that people *do* things while communicating. From this perspective, an action consists of two fundamental components: a *propositional content* and an *illocutionary force* (or *action mode*). The propositional content represents what the communicative action references in the real world (what is talked about), and the action mode represents what kind of relation the action establishes between the speaker and a hearer of an utterance. These two components of action, and hence of information, form the foundation of actability. It is important to be aware that different people might comprehend the actability of the same IS differently. Hence, what is important is actually the *perceived actability* of an IS and not an, possibly non-definable, ‘objective actability’ (cf. Norman (1999) on the distinction between ‘affordance’ and ‘perceived affordance’).

## 4.1 Information as Action and Communication

According to traditional (infological) information systems theory (Langefors, 1966; Iivari & Lyytinen, 1998) information can be analysed in terms of the fundamental concept of the *elementary message* (or *e-message*). There are two variants of e-messages. A property e-message  $e_p = (o, p, t)$  is used to predicate a property  $p$  to an object  $o$  and is valid at the point in time or time interval  $t$ . A relational e-message  $e_r = ((o_1, o_2, \dots, o_n), r, t)$  is used to assign the objects  $(o_1, o_2, \dots, o_n)$  to the relation  $r$  at the point in time or time interval  $t$  (Sundgren, 1973). Goldkuhl (1995) claimed that the e-message concept is insufficient if information is considered as action and communication. He argued that any e-message must have an augmented action mode, i.e. an illocutionary force following Searle (1969), so that its intended illocutionary intentions are reflected in the message structure. Building further on Goldkuhl's argument, Ågerfalk (1999) claims that the propositional content of a communicative action can be regarded as a collection of e-messages, i.e. as a *c-message* in the terminology of Sundgren (1973). This is due to the fact that the action mode of a communicative action might refer to a larger part of the universe of discourse than what a single e-message does. In essence this means that information, following the concept of actability, can be partly understood by applying traditional information systems theory concepts. We say 'partly' since it is important to be aware that understanding the action character of information goes beyond the traditional view and that traditional approaches need to be enhanced in order to design for actability.

## 4.2 Actability and Information Systems Usage

From an actability point-of-view, information systems are used to perform (communicative) business actions. From the definition of actability (see above) it is possible to distinguish three different types of IS usage situations:

1. *Automatic usage situations* occur when an IS's 'ability to perform actions' is considered. That is, when an IS performs actions without any direct human intervention, but according to instructions by, and on commission of, some human actor.
2. *Interactive usage situations* occur when an IS is used to 'permit, promote and facilitate users to perform their actions...through the system'.
3. *Consequential usage situations* occur when an IS is used to 'permit, promote and facilitate users to perform their actions...based on information from the system'

In all three types of IS usage, there are three basic entities involved: (1) an actor responsible for the communicative action performed (a user), (2) the communicative action as such (a task), and (3) the information system as a tool for the performance of the communicative action. These three entities participate together in a ternary relationship that forms the usage situation. Furthermore, a usage situation must be understood within the context of doing business with some other party. Let us consider an example.

An electronic record store (an occupant) at a LIM, is offering potential customers to buy a recently released compact disc. The price is SEK 129:-, which happens to be significantly below the ordinary CD retail price in Sweden. When a customer accesses the web-page containing this offer, it can be regarded as a communicative act performed by the record store directed towards the user. The propositional content of the act consists of, at least, information about the CD and the terms of payment. The action mode is an 'offer' – the store promises to deliver the CD at the offered price given the stated terms of

payment. If the customer decides to buy the record, she performs another communicative act towards the record store. The propositional content of this second act would typically be a reference to the offer and a shipping address, and possibly credit card information. The action mode is an ‘offer accepted’ – the customer promises to pay the agreed amount of money given that she receives the CD. From the record store’s point-of-view, this business interaction with the customer is an automatic usage situation occurring as soon as someone visits the web-page. From the customers point of view it is regarded as an interactive usage situation.

As discussed above, the actability of an interactive usage situation must be judged from the perspective ‘a user is performing communicative actions by use of an information system’. Basically there are two different ‘levels’ of IS usage. At the *action level* the task of the IS is to help performing a communicative action. However, as explained by Ågerfalk (1999), before being able to actually perform an action, its propositional content must be explicated and attached to an appropriate action mode. In the case of ‘natural language conversations’ face to face, this has to be done by a speaker before uttering a speech act. When using an IS as a tool, the IS can aid this process by helping a user to formulate the propositional content and be explicit about what action mode that is used. This is done by a series of interactions between the user and the system at the *interaction level*. To continue the above example, the system could, for example, fill in the shipping address automatically if the customer had registered it earlier and, by use of carefully selected button labels and help texts, make the customer fully aware of the commitments involved in performing the ‘buying action’.

From this we can conclude that in order for an IS to be regarded as actable it should be able to help an interacting user to:

1. decide what communicative action to perform (at action level); and help to
2. formulate the propositional content of the action, and attach it to an understandable and appropriate action mode (at interaction level); and finally help to
3. interpret, and evaluate the action and its business effect(s).

### **4.3 Actability and Mutual Understanding**

So far we have focused the communicator (or performer) of communicative action. However, in a business setting, the interpreter (recipient) of a ‘business message’, i.e. of the action, must trust what is said (and thus communicatively done) by a speaker (communicator). To understand this trust, we propose to use Habermas’ (1984) universal validity claims for successful communication. Those claims are raised by any communicator and presupposed by the communicator to be accepted by the interpreter. Successful communication implies that the listener must both comprehend, and accept, the action as valid. That is, the communicator and the interpreter must agree on the communicative act in order for it to be successful. To reach such mutual understanding a communicator raises four universal validity claims (*ibid.*): a claim of *comprehensibility*, a claim of *truth*, a claim of *rightness*, and a claim of *sincerity*.

The first claim, the claim of comprehensibility, means that a communicator must be able to formulate a grammatically correct, a comprehensible, sentence. In the context of web-commerce this means, for example, that a web-based offer must be expressed in a way potential customers can understand. This can be achieved in several different ways. For example by conforming to accepted standards, protocols, and user interface design guidelines.

The second claim, the claim of truth, means that an action must refer to the true state of affairs. In the web-commerce offer example, this would, for example, imply that there actually are merchandise to be delivered as expressed in the offer.

The third claim, the claim of rightness, means that a communicator must be able to establish an interpersonal relationship in the right way according to accepted social norms. For example, an electronic store must be able to act according to the cultural and social norms of its clients.

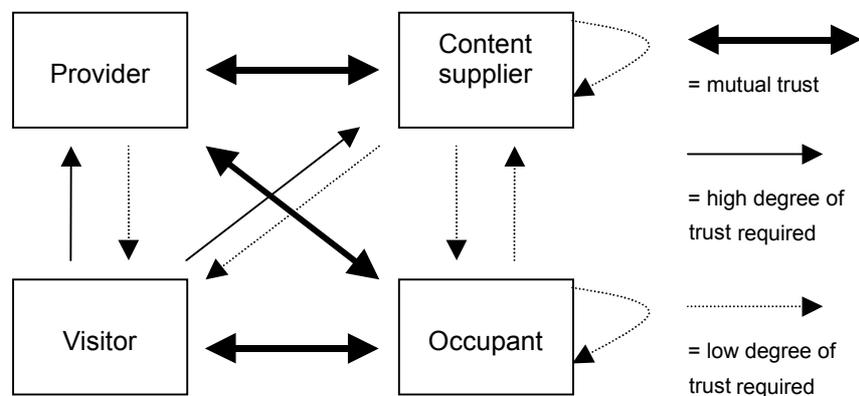
The fourth claim, the claim of sincerity, means that a communicator must have sincere intentions. For example, that an electronic store actually intend to sell its merchandise to a visitor.

From this we can conclude that if an IS should be regarded as actable its users must both comprehend it syntactically and semantically, and accept its underlying intentions as true, sincere and right. Of course it is not the IS itself that establish the social relationship with its users, but the human actor responsible for its actions.

## 5 Actability and the Trust in LIM

### 5.1 In LIM we Trust?

In a LIM context, we can identify a number of different needs of trust between the actors involved. As discussed above, the four types of actors in a LIM are provider, occupant, visitor and content supplier. Figure 2 depicts the four actors and their relationships in terms of degree of trust.



**Fig 2 LIM actors and trust relationships.**

As discussed before, higher or lower degrees of trust are required in different situations. When discussing trust between actors involved in a LIM context, we divide the identified existences of trust simply into high or low degrees. When a high degree of trust is required in both directions between two actors, mutual trust is required.

From the visitor's perspective, the provider and the content supplier must show high degree of trustworthiness. The visitor must believe in the characteristics, ability, strength, and truth of these actors. If a visitor conceives a LIM as non-serious, not truthful or technically unsecured, he might leave the LIM and visit some other Internet-site instead. On the other hand, the provider and the content supplier do not require a high degrees of trust in the visitors, since the LIM is built to serve the public. They are also not

doing business directly with the visitor. However, the relationship between the visitor and the occupant requires mutual trust, since they actually are doing business together. The degree of required trust vary depending on what products the occupant are trading. This relationship is built upon technical trust rather than social trust. The visitor and the occupant might not have an established social relationship, but the relationship will be established by the information system.

The occupant and the content supplier require the provider to show a high degree of trustworthiness. The provider is responsible for the provider's administrative ability to run the marketplace. If a provider neglects the administration, it can lead to badwill of the marketplace as a whole, which can affect the occupants and the content suppliers negatively. On the other hand, the provider must trust all parties that are hosted in the LIM. Bad performance from a content supplier or an occupant might affect the LIM negatively. Therefore, these actors require mutual trust. The requirement of technical trust in these relationships varies, depending on the degree of information system use, and whether the actors know each other in the physical world or not.

The relationships between occupants and content suppliers, between several occupants, and between several content suppliers, do not require high trustworthiness. The occupants and the content providers do not have any direct business relation, but can rather be seen as stores in a shopping mall. However, there are some requirements of trust in these relationships, since an occupant or a content supplier with a bad reputation can affect other actors in the marketplace.

Every actor in the LIM needs to trust the IS that are used within the LIM. Additionally, the supplier and/or the developer of the information system affect this trust. The supplier/developer can therefore be seen as a fifth actor in a LIM.

It is worth noticing that the incitement for an occupant joining a LIM is sometimes to increase that organization's trustworthiness in the physical world, since a mere 'web-presence' sometimes is considered as a trade mark of a pushing organization.

Most of the actors in a LIM are situated locally. The actors' trustworthiness has therefore often been established by their activities in the physical world before the origin of a LIM. For example, a book retailer or a local newspaper joins a LIM as a parallel activity to its physical activity. Their brand name, their reputation and their trustworthiness in the local area might be well known before their establishment in a LIM-site. An occupant or a content provider can therefore inherit their trustworthiness from their physical activity. These aspects can be an advantage for a LIM compared to a national or an international Internet marketplace, in which occupants and content suppliers might be anonymous for visitors. The LIM is thereby vitalised and strengthened with a foundation of *social trust*. This phenomenon is what, in more general terms, earlier has been pointed out by for example Steinfield & Clark (1999). It is an important aspect but deals, as we see it, only with one part of the vital question of trust – the social one, yet missing the important understanding of technological solutions as partly social phenomena.

## **5.2 On The Actability of LIM**

A conclusion to be drawn from the previous discussion is that a foundational aspect of any information system within a LIM context is its ability to mediate trustworthiness to the visitors. As suggested in the earlier discussion there is a need to complement the aspects of social trust with a focus on the abilities of the information systems. According to Eriksson (1998) trustworthiness should be evaluated with respect to the validity claims of truth, sincerity and rightness (see above). Additionally, the claim of comprehensibility

is an obvious prerequisite. If a visitor can not comprehend the content of a LIM, it will most certainly not appear trustworthy.

In a LIM there are several different kinds of communicative actions performed by the provider, occupants and content suppliers towards visitors. Of course, the action modes, and hence intentions, of these different actions differ, as do their propositional contents. However, they share the common property of being possible trustworthiness builders – or destroyers for that matter. If, for example, a web-page containing an offer from an occupant is unclear about the different action options provided for a visitor then the visitor is likely to lose her confidence in that occupant and hence the occupant's trustworthiness is decreased. On the other hand if the principles of actability is taken into account, and the visitor can accept the offer as valid (with respect to truth, sincerity and rightness) the occupant's trustworthiness is likely to increase in the eyes of that visitor. As indicated, the action mode and its visibility in the user interface is of vital importance for the actability of an information system. It is of vital importance that the user interface shows a predictable behaviour and that its action potential is legible. This can be regarded as the occupant's web-page's ability to assist the visitor in raising the validity claims when answering to the occupant. Thus, if a LIM usage situation involves interaction between a visitor and an occupant, it is the owner of the information system (e.g. the LIM-provider) together with the occupant in question that is responsible for the successful use of the system as a builder of trustworthiness.

## 6 Conclusions

A key concept for LIM is the various business actors' ability to act secure. This ability is affected by the trust users have in the technology as such (technical trust), as well as in the parties they are doing business with (social trust). In this paper we have argued for the importance of trust between the different actors involved in LIM and that trust is built when actors conceive each other as trustworthy. We have also identified different trust relations between different actor roles. The provider has a key-role in LIM, since the provider can be seen as the administrator and the organizer of a LIM. The provider depends on trustworthy content suppliers and a mutual trust is required between the provider and the LIM-occupants. The provider must also have a high degree of trustworthiness from a visitor-perspective.

The climate of the local electronic commerce setting has in this paper been pointed out as favorable in the aspects of social trust. We have however taken the discussion further and called the attention to the aspects of technical trust and the possibilities of creating social trust by designing technology appropriately. Actability has been argued to be a key factor to enable the use of information systems as builders of trustworthiness. By viewing the use of the information system as actors performing business actions through information technology, a better foundation for trust is laid.

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