Assessing Trustworthiness in the Providers of Online Goods and Services

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Introduction:

Assessing the trustworthiness of others is an essential part of the daily interactions that take place between individuals in various social settings. The level of uncertainty and the nature of what is at stake affect the risks involved in a given interaction situation. Furthermore, the mechanisms that are put in place to help individuals assess the trustworthiness of others typically vary according to the levels of uncertainty and risk in the setting. As it becomes progressively more common to interact and engage in exchanges using computer-mediated communication systems such as the Internet, the anonymity of individuals and the reduction in available social cues increase the risks as well as the possibilities for misjudging trustworthiness and thus increase the possibilities for significant loss or even harm.

In this chapter we examine the factors that individuals use when determining the trustworthiness of exchange partners who provide either *goods* or *services* in online environments. Following current theory and research, we argue that the competence and motivations of the exchange partner are two key bases of individuals' inferences about trustworthiness, particularly when there are no third-party or credible institutional devices in place to reduce uncertainty and manage risk. However, we demonstrate that the effects of competence and motivation have different relative degrees of importance in online goods markets compared to online service markets. We present the results of an exploratory study designed to examine how individuals assess the trustworthiness of others in online markets for goods and services.

One of the main contributing factors to trust relations is the degree to which each party to the exchange views the other as trustworthy. In fact the link between trust and trustworthiness is so strong that these terms are often confounded in the literature on trust (Hardin 2002, Cook, Hardin and Levi, 2006). The common argument that trust is good, can only be true under circumstances in which trust is warranted; that is, when the other party to the trust relation is *trustworthy*. A second common misunderstanding in the trust literature is represented by the frequent use of the term trust in one-shot or non-repeated interactions. Trust in such settings must be extremely rare. What is sometimes called an act of "trust" in such a context is best described as an act of risk-taking (Hardin 1993, 2002). When we speak of trust we never refer to someone we do not know or have interacted with on only one occasion. Much more common are iterated interactions in which trust emerges over time as the parties to the exchange prove themselves trustworthy, perhaps in an incremental fashion in order to build trust (see Blau, 1964; Cook et. al. 2005).

The literature on trust, while varied, seems to converge on several key elements. First, it makes little sense to speak of trust when there is no uncertainty or risk (Cook et al. 2005). Various types of exchange settings carry different levels of risk and uncertainty (see Molm 2003, Gerbasi, forthcoming). As Heimer (2001) reminds us, risk and vulnerability are central in situations in which trust and trustworthiness play an active role. Furthermore, the degree of uncertainty and risk in the setting often determines the nature of the mechanisms that are put in place to guard against defection, exploitation or harm. When the stakes are high we are unlikely to rely simply on trust relations. We are more likely to use institutional or organizational mechanisms to protect us against

betrayal or harm (for a review of such mechanisms or devices that facilitate reliability and cooperation in the absence of trust see Cook, Hardin and Levi, 2006). In new settings where third party enforcement or verification is not present, it takes time for the appropriate mechanisms to develop.

Relational Trust

Before we discuss how we go about assessing the trustworthiness of others under various conditions, we offer a specific relational definition of trust, building on the work of Hardin (2002) and Cook, Hardin and Levi (2006). In a two-party relationship actor A is said to trust actor B when A views B to be trustworthy with respect to the matters at hand. To use the encapsulated interest view of trust (Hardin 2002), this means that A views B as trustworthy because B's interests encapsulate her own. That is, B is viewed by A as taking her interests to heart and thus as likely to act in ways that would not harm or take advantage of her. While the term "interest" may seem out of place in discussions of trust relations, it is used here in the strong sense that when I trust you I believe that you have taken my interests as partly your own, significantly because you value our relation and its continuation. In the case of continued interaction, therefore, it is often in my interest to act trustworthy with respect to you.

To trust B, however, actor A must be able to make an assessment of B's likely trustworthiness with respect to her in particular situations and with respect to specific matters. We assume that it is very rare that A would trust any actor with respect to everything at all times. In the next section we briefly discuss how actors typically assess the trustworthiness of others in their social environments. Some individuals are more

likely to be "trusting" than others (Rotter 1967, 1980), most likely as a result of their individual propensity for risk-taking, their lack of cautiousness (which varies across cultures as well as individuals, Weber, Hsee and Sokolowska [1998], Hsee and Weber [1999]), or because they have had primarily benign past experiences with new people in new situations.[1]

There are also differences between those who are less cautious and/or more risk-taking and those who are not in their *capacity* to differentiate whom to trust from whom not to trust on the basis of specific cues. Yamagishi and his collaborators (2001, Yamagishi, Kikuchi and Kosugi 1999) call this capacity "social intelligence." Since those who are less cautious interact with strangers more often, they are more likely to confirm their expectations concerning the other's trustworthiness more frequently leading to greater opportunities for profitable interactions over time (Hayashi 1995). Those who are more cautious, on the other hand, typically end up with fewer beneficial transactions due to their lack of willingness to take risks on strangers (Orbell and Dawes 1993). These differences actually lead individuals to be better or worse at assessing the trustworthiness of their likely exchange partners and more or less likely to benefit from exchange under uncertainty.

Assessing Trustworthiness

There are a number of factors that affect our judgments of trustworthiness. These factors include the nature of the situation (e.g. online or face-to-face), features of the

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[1] Recently several studies have probed the roots of different levels of cautiousness or risk taking in various societies. See, for example, Weber, Hsee and Sokolowska (1998) and Hsee and Weber (1999).

object of the interaction (e.g. goods or services), and perceptions of the other party (or provider of the goods and services).

    If we view trust as *encapsulated interest,* the incentive for trustworthiness is built into the relationship itself if it is valued. The "shadow of the future" may be enough to ensure trustworthy behavior (Cook et al. 2006). However, it is difficult to determine whether people we come into contact with for the first time will be trustworthy in a particular interaction. If we enter a relationship with a complete stranger, typically we do so by first taking a minimal risk to gather more information through interaction before investing much in the relationship and eventually taking larger risks (Cook et al. 2006), especially if the interaction is initially computer-mediated and not face-to-face.

    But, how do we know when and with whom to take a risk of cooperating on initial encounter? Making inferences about another person is a general problem for both dimensions of assessing another's likely trustworthiness: competence and motivation. The traits that become salient for individuals who are assessing the trustworthiness of another person fall into two main categories. First, in judging others we tend to focus on cultural stereotypes or socially significant (socially valued) characteristics. Status characteristics such as age, gender, occupation, educational achievement, and race or ethnicity often form the basis for performance expectations and judgments about competence in specific situations, especially in task settings (see Ridgeway and Walker 1995). They may also form the basis of judgments about likely motivations to be trustworthy.

    Available cultural stereotypes and schemas fill in for the details we are missing in our efforts to evaluate others. When we are under time pressure, we use stereotype-based

inference strategies as cognitive short cuts (Andersen, Klatzky, and Murray 1990). Under cognitive overload we even prefer the use of stereotypes, tend to recall information that is consistent with our stereotypes (Macrae, Hewstone, and Griffiths 1993), and fail to process information that disconfirms them (Dijksterhuis and van Knippenberg 1996). We even generalize on the basis of such socially valued characteristics beyond the evidence at hand when making assessments of competence. Similarly, we often expect that others with these characteristics are more likely to be trustworthy in the sense that they are competent to manage the matter at hand. It is much harder to evaluate motivations on the basis of these socially valued characteristics, although under some circumstances we do so. For example, a mother might judge a middle aged female to be potentially more competent than a male to care for her infant while she runs into a store for a moment. However, she would be on riskier ground in making a judgment about whether someone might be motivated to harm the infant.

Besides relying on stereotypes, we may make judgments of the trustworthiness of others by assuming that those *similar* to us are trustworthy while those not similar to us are not. In many situations, similarity with respect to one or more statuses may be used "as a clue to probable similarity in opinion, attitude, ability or values" (Singer (1981:78). While we may not use these clues very often or when the risk is very great, in some settings such information suffices until better information can be obtained. In settings in which actors have other bases for their judgments of trustworthiness, similarity assessments may play only a minor role (McAllister 1995).

In addition to the presumption of high levels of trustworthiness in individuals with highly valued social characteristics and in similar others, Wason (1960) and others

present findings that support the argument that individuals often have a strong cognitive confirmation-seeking bias (Mitroff 1974; Good 1988, 40) in their judgments of others. Individuals seek evidence that confirms their actions, decisions, and judgments of others rather than weighing the evidence more carefully. This bias is an example of cognitive inertia (Good 1988, and others). Due to the existence of a confirmation bias, reputations[2] also can be self-enforcing. Reputations are more likely to be confirmed than disconfirmed even in the face of evidence to the contrary.

The greater likelihood for reputations to be confirmed than disconfirmed occurs because evidence that does *not* support the reputation (as it is initially perceived) is given less weight (Levin, Wasserman, and Kao 1993). For example, Huici et al. (1996) found that the effect of information that disconfirmed an individual's original evaluation of a group had little impact.[3] In addition, Standifird (2001) studied the impact of reputation in e-commerce. He investigated the importance of a trader's reputation on the final bidding price. While positive reputational ratings were found to be only mildly influential in determining the final bid price, negative reputational ratings were found to be highly influential and detrimental. Standidfird (2001:279) thus found "strong evidence for the importance of reputation…and equally strong evidence concerning the *exaggerated influence of negative reputation*" (emphasis added). Thus good reputations can become tarnished, but a bad reputation is difficult to overcome.

The two main aspects of trustworthiness that individuals assess when making judgments are competence and motivation. Evaluations of both of these aspects should be part of every judgment of trustworthiness. However, individuals may focus on

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[2] We will discuss the role of reputations more fully in later sections of the chapter.

competence more than motivation in some cases, as noted above, or they may focus mainly on motivation when competence is not particularly at issue. For example, when an individual relies on cultural stereotypes to assess the trustworthiness of another person, she may be focusing on competence, not motivation. Socially valued characteristics (race, age, gender) are often associated with beliefs about greater competence. Status characteristics theory is organized around the principle that individuals with high-status characteristics have higher "performance expectations" (Berger, Cohen, and Zelditch, 1966, 1972, etc) and are often perceived as more competent (though this may not be objectively true, Balkwell 1994). In contrast, when an individual relies on the degree to which the other person is *similar* to her, she may be focusing on the *motivation* of the other party Perhaps because actors know their own motivations and feel as though *their motivations* are cooperative and benign, a 'similar person' might be assumed to have similar motivations. Research on social cognition indicates that we frequently use cultural stereotypes as bases for judgments, especially as short cuts to more complex forms of information processing, and that these judgments can be wrong because they overemphasize characteristics of the actors involved that are stereotypic. Individuals may even exploit this tendency for their own ends by mimicking traits or manipulating the situation to appear to be trustworthy (see especially Bacharach and Gambetta 2001).

A primary task in the design of social systems is the design of mechanisms for ensuring, reinforcing and requiring the reliability or trustworthiness of the actors involved. This is also true in constructed social worlds, such as the Internet. We discuss a few of the mechanisms being developed in the world of online interactions to ensure such

reliability and to aid in the assessment of the trustworthiness of those we interact with online.

Determinants of Trustworthiness in Online Settings: Computer-mediated Interactions and the Internet

The problem of determining trustworthiness is a significant obstacle for developing interpersonal relationships, e-commerce transactions, and other forms of exchange in computer-mediated environments such as the Internet. Indeed, the question of how to build trust and encourage trustworthiness on the Internet has lead to a substantial amount of research in academia and business. Much of the current empirical work on Internet trust and trustworthiness can be roughly placed into three broad types. These categories include: website credibility from design and structure, interpersonal trust in computer-mediated environments, and online reputation systems as a mechanism for assessing trustworthiness. As one might expect, these three categories overlap and inform one another in a variety of ways. Furthermore, these areas are not necessarily exhaustive of the burgeoning research and literature on trust in online environments. Still, these three categories are useful because they help us distinguish between some of the major areas of research in trust, trustworthiness and computer-mediated interactions. In this section, we briefly describe some of the key empirical research and findings on each of the three topics.

Website Design and Structure

The research on "trustworthy" website design and structure deals with the features, layout, and the overall look of websites that promote or facilitate trust (or perceptions of reliability). Many individuals admit to making intuitive or emotional decisions based on their perceptions of a web site (Karvonen 2000, Fogg 2003). The specific features of websites that actually promote perceptions of trustworthiness, however, are of great interest to researchers. Current research demonstrates that graphic, structure, content and social-cue design is essential for establishing the trustworthiness of a website (see Wang and Emurian 2005 and Fogg 2003 for extensive reviews and research in this area). For example, Intel Corporation and the Center for eBusiness at MIT conducted several experiments to examine trustworthiness in website design.

The researchers examined several factors that are believed to be important to trust formation in an online business website. The most important aspects include: privacy, security, error-free website code, brand recognition, touch-and-feel, help availability, well-organized navigation, and the display of trust seals[4] (Intel 2003). The researchers used measurements of users' click-stream, or, objective data about the actual content that a given user clicks his or her mouse on during a website visit. In addition, users elected to answer survey questions about their experience on the website. Among the many findings of this study, researchers found that 3rd party trust seals slightly increase user perception of the site's security, especially when the user is a novice. Furthermore, ease of navigation increases overall trust in the website. One of the greatest contributions of a study such as this is its resourceful methodology. By using an adaptive experimental design on a commercial website, the researchers were able to reach thousands of

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[4] Trust seals are brandings for 3rd party companies who assure the trustworthiness of online content.

individual users in a relatively short amount of time, compared to the dozens of individuals that might participate in a comparable lab study.

In a review of online trust issues in business-to-consumer transactions on the Internet, Wang and Emurian (2005) describe four characteristics of online trust in e-commerce. First, the *truster* in this context is usually a consumer who is browsing the website of an e-commerce website. Second, consumers must deal with larger degrees of uncertainty in online transactions compared to analogous offline situations because the Internet environment leaves consumers open to both financial loss and potential privacy losses (see also Friedman, Howe and Kahn 2000). The third characteristic is that consumer trust leads to at least two specific actions: making a purchase and browsing additional website content. Thus, consumers who decide that a website is trustworthy will spend more time there and engage in financial transactions. Finally, Wang and Emurian (2005) argue that online trust is a subjective matter that varies between individuals. In this last regard, online trust is no different from trust in offline interactions.

Interpersonal Trust in Online Environments

The second primary area of research in online trust deals with interpersonal relationships on the Internet. Such environments may include, but are not limited to, online message boards (including web forums and the USENET), email discussions, and instant messaging systems. The development of trust in interpersonal environments is distinctly different from building trust in e-commerce settings (Friedman et al. 2000). Sproull and Kiesler (1991) argue that supportive interpersonal online relationships are

particularly important because the use of networked technologies increasingly brings people together (who may have never met before) to solve problems.

One line of research in interpersonal online trust investigates the effect of meeting individuals *before* interacting in online interactions. Not surprisingly, a face-to-face meeting before interacting in a computer-mediated social dilemma game helps to promote trust (Rocco 1998). Furthermore, if individuals are given the opportunity to get acquainted with one another over a computer-mediated computer network, trust increases in textual communication environments (Zheng et al. 2002). When analyzed separately, video, audio and face-to-face communication lead to higher levels of trust than pure text chat. And, video and audio communication are almost as good for building trust as face-to-face communication (Bos et al. 2002).

Feng, Lazar and Preece (2004) investigate the role of empathetic accuracy in the construction of interpersonal trust in online environments. Drawing upon Ickes (1993) definition, the researchers characterize empathetic accuracy as, "the ability to accurately infer the specific content of other people's thoughts and feelings" (Feng, Lazar and Preece 2004: 99). In addition, they examine the difference between supportive and non-supportive response types. The researchers find that empathetic accuracy alone does not guarantee trust in these online environments. To establish trustworthiness in an online setting, an individual must correctly infer the feeling of others and also provide supportive responses. One of the most intriguing findings from Feng, Lazar and Preece's (2004) research is that individuals with higher levels of generalized trust[5] may have more

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[5] In this study, Rotter's (1967) trust scale was used to measure generalized trust before the experimental manipulation.

difficulty developing trust in online environments. The reason for this discrepancy remains an open question for further investigation.

Another area of research examines how human warmth and social presence in web interfaces can affect online trust. Hassanein and Head (2004) vary the levels of socially-rich text and visual design elements to investigate how they might affect the development of trust in online settings. This empirical test shows that socially rich text and pictures on websites positively affects an individual's assessment of the website's trustworthiness.[6] This line of research draws links between the development of interpersonal trust as well as trust in website design and content. Individuals appear to identify and relate to content on the Internet when it triggers a social response. Thus, building environments that evoke social presence may be an essential part of establishing trustworthiness in online environments.

Online Reputation Systems

The third major area of research in online trust deals with reputation systems in computer-mediated communication. Kollock (1999) identifies online Internet auctions as a convenient environment for the study of risk management when there is little or no access to 3rd party enforcement. In many of these situations, no guarantees, warranties, or other third-party enforcement mechanisms are available. Thus, endogenous reputation systems are a potential solution to the risks created in these online environments. In these

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[6] The outcome of online trust was measured with four Likert-scale questions about the honesty of the online vendor, the trustworthiness of the online vendor, how much the online vendor cares about customers, and whether the online vendor would likely provide good service.

cases, risk is often the possibility of fraud, which is particularly common on auction sites.[7]

The type of reputation system used in a particular situation may affect the development of trust and trustworthiness in online exchange systems. Yamagishi et al. (this volume) examine the role of experience-based (endogenous) and third-party (exogenous) reputation systems in online interactions. In addition, they examine the advantages and disadvantages of both positive and negative reputation systems. When individuals have permanent identities, both experience-based and third-party reputation systems can help establish trustworthiness. However, the ability to switch identities (a common feature of most Internet environments) repeals the advantages of these reputation systems. Positive reputation systems appear to be more effective in *open systems* (where new participants can enter easily). On the other hand, negative reputation systems are more successful at establishing trustworthiness in *closed systems* (where new participants cannot easily enter the system). Yamagishi et al. (this volume) demonstrate how these reputation systems operate in a controlled laboratory experiment that emulates an online auction site.

Endogenous reputation systems have been cited as a means to determine trustworthiness in information asymmetric markets, such as the online market eBay (Kollock 1999; Snijders and Zijdeman 2004; Yamagishi, Matsuda, Yoshikai, Takahashi, and Usuiet al. this volume). In most cases, the term reputation has been used synonymously with status. Although they commonly converge in natural settings, reputation is conceptually distinct from status. For instance, a reputation is an evaluative

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[7] Bolton, Katok and Ockenfels (2004) cite several examples of the rise of such fraud, including evidence from a Department of Justice survey (2002), and the U.S. White Collar Crime Center and FBI (2001).

measure, commonly associated with a normative valuation of past behavior (Wilson 1985). For example, we may describe a particular seller as "always willing to go the extra mile for a buyer" or "being the most knowledgeable about the product". Status, on the other hand, is an ordinal ranking of actors based on resources and performance expectations, and not necessarily on past actions. Here we are concerned with the effect of reputations for trustworthiness.

Reputations help individuals overcome a lack of information about a potential partner. Information asymmetry occurs when one party, typically a seller, is privy to more information than another party, usually a buyer (Akerlof 1970). To guard against the risk of uncertainty in information asymmetric markets, actors may seek out signals that indicate partner trustworthiness and/or product quality (Kollock 1999; Podolny 1993). Spence (1973; 1994) defines a signal as an observable indicator of quality. Specifically, Spence's (1973; 1994) definition of signals must meet two criteria. First, the actor must be able to, at least in part, manipulate the signal. This ability is in contrast to other actor's characteristics that may be fixed, such as age or gender. Second, the difficulty of acquiring the indicator must be nonzero and inversely associated with the actor's quality grade (Spence 1973).

As stated, reputations represent information that is at least partially alterable by the individual. Generally, reputations are empirical statements about past behavior with a predictive quality, such as "This seller has always been honest in the past". In addition, reputations have different qualitative values, for example, individuals may have reputations for being honest or hard-working. This research focuses on reputations for trustworthiness because of its principal role in one-shot transactions. Assuming that

others in the market believe that past behavior strongly indicates or predicts future behavior, a reputation for trustworthiness indicates to others that in future transactions the actor can be trusted (Fudenberg and Levine 1992; Kollock 1994; Wilson 1985). In short, for information asymmetric markets, reputation acts as a signal that reduces uncertainty in exchange.

Online interactions such as buying and selling via internet auction sites can be conducted in anonymity, which makes assessing trustworthiness problematic for both buyers and sellers. Various studies have investigated the effects of reputation systems, especially eBay's feedback system, as a source of information to determine the trustworthiness of online partners and as a mechanism to deter opportunistic behavior (Dellarocas 2003; Livingston and Evans 2005; Lucking-Reiley, Bryan, and Reeves 2000; Resnick and Zeckhauser 2002; Resnick, Zeckhauser, Swanson, and Lockwood 2006). Predominantly this research has focused on buyers verifying the trustworthiness of sellers of products, such as guitars, vintage postcards and collectable cards (Eaton 2002; Lucking-Reiley, Bryan, and Reeves 2000; Resnick, Zeckhauser, Swanson, and Lockwood 2006).

As researchers begin to disentangle the effects of reputation for online transactions, it becomes apparent that buyer's on eBay and other online auction sites employ complex decision making processes for establishing seller trustworthiness. In general, an increasing positive reputation does have a measurable effect on increasing the item auction price and increases the likelihood of a sale (Eaton 2002; Lucking-Reiley, Bryan, and Reeves 2000; Resnick and Zeckhauser 2002).In addition, Resnick et al (2006) found that sellers with established reputations outperform new sellers. However, buyers

do not simply look to a cumulative or overall score to determine the trustworthiness of online sellers. Lucking-Reiley, Bryan and Reeves (2000)(Lucking-Reiley, Bryan, and Reeves 2000) found that buyers do not weigh negative and positive feedback equally and that negative feedback produced a greater effect on auction price than positive feedback. Moreover, research by Resnick et al (2006) shows that early negative points of one or two for a new seller did not dramatically affect buyers willingness to pay. In sum, these studies indicate that buyers use a sophisticated decision process to evaluate reputation information that researchers are just beginning to understand.

Assessing the Trustworthiness of Exchange Partners in Goods and Services Markets

In many types of interaction situations, individuals must make a single, one-shot decision about whether to engage in an exchange or not with someone else. For example, an individual who wants to purchase a good or service through an online system must decide whether or not to risk sending money to a given seller without the aid of information from previous interactions. Thus, the problem is not about the construction of trust (because trust-building requires iterated interactions), but whether the individuals correctly assess the *trustworthiness* of the other person (Hardin 2003). Since individuals are unable to collect information about their 'partner' through ongoing interactions, the assessment of trustworthiness must come from other information.

In one-shot decisions about trustworthiness in online settings, the *nature* of the object of exchange is an important factor. As our earlier discussion of research demonstrates, the relative risks involved in a given exchange (i.e., value of the good, uncertainty about the quality of the good) are intimately tied to the possibility of trust.

We argue that another key dimension is whether the object of exchange is part of a *goods* or *services* market. Goods and services are often grouped together as potential objects of exchange in offline as well as online environments. However, there is ample evidence that individuals treat goods and services differently—not just because of variations in uncertainty, but because of the very nature of the *relationship* between the individual and the good or service.

One early effort to create a typology of exchange goods is Resource Exchange Theory (Foa and Foa 1974). This theory attempts to identify the structure of the exchange interactions between individuals by classifying the nature of resources exchanged. These resources include a wide array of items such as love, services, money, goods, status, and information. This research focused on how these resources are exchanged in various patterns of rewards and punishments in interpersonal relationships. Foa and Foa's (1974) research focused on dyadic, reciprocal exchanges in an early attempt to investigate the importance of the nature of the specific resources (such as goods versus services) involved in exchange relationships. They also studied the norms regarding the extent to which specific types of resources could be exchanged (e.g. money for goods, but not for love, or status for information, etc.).

Physical goods are generally considered to be tangible and come with ownership rights (Hill 1999, Fuchs 1968, Sabolo 1975). Because of the transferability of ownership rights, physical goods can be exchanged from one owner to the next. Thus, a good is an entity that exists independent from its owner and can preserve its identity across time. On the other hand, services are generally considered to be intangible and do not come with ownership rights (Fuchs 1968, Sabolo 1975). Many services consist of material

changes in the persons or property of consumers (e.g., haircuts, surgery, house painting, web-page development, etc). Because the services do not create entities, it is either extremely difficult or impossible to transfer ownership rights for the service.

A crucial distinction between goods and services is that services entail an implied *relationship* between two or more individuals, while goods do not necessarily have this implied relationship. Specifically, services involve relationships between producers (service providers) and consumers (service recipients) because a service can not, by definition, exist without both parties.   The production of a service requires the agreement, co-operation and possibly active participation of the consuming unit(s). Since services imply an interactive process and a relationship between the producer and the consumer, the *motivation* to work with a customer may be of particular importance when an actor chooses a service provider compared to actors who choose a provider of goods. We examine this potential difference in the empirical study described in the following section.

Mills and Mobert (1982) point out two characteristics of service operations that derive from the intangibility of the output from different service providers. First, customers have few objective reference points to use when attempting to perceive the value of the services they use. The intangibility of services makes them difficult for both providers and consumers: services can be difficult to describe to new customers, and it is often challenging for customers to express precisely what they expect from the service (Oliva and Sterman 2001). There may not be an agreed objective standard about the service to be delivered; the only criteria available to evaluate service quality are subjective comparisons of customers' expectations to their perceptions of the actual

service delivered (Zeithaml et al 1990). To help ease the uncertainty that can arise from this discrepancy, service providers often try to socially construct value for the customer (Butler 1980).[8] For these reasons, the reduction of uncertainty through trust becomes increasingly necessary between the consumer and the service provider (Hasenfeld 1978). Reputation information about the service provider might be useful here, yet the ambiguity between what a consumer needs and what a given service provider offers makes it difficult to determine what *kind* of reputation information is beneficial in a given situation.

The second important issue is that the intangibility of services tends to put the burden on the service provider to make the relationships between customers and service providers satisfying to customers (Schneider 1991, Schneider, Parkington and Buxton 1980). Bitner and colleagues (Bitner et al 2000) find that customers appreciate services that allow providers to adjust and adapt to the customer's specific needs. But how is the 'ability to adapt' expressed to potential service consumers? Again, some kind of reputation information that a consumer can use when seeking a service provider seems like a logical answer. In the absence of comprehensive third-party reputation information that could meet all of a consumer's information needs, however, the burden falls on the service provider to supply relevant information to the consumer.

Given the many differences between goods and services, it is reasonable to believe that individuals are likely to use different information to assess the trustworthiness of goods versus service providers. Third-party reputations such as those found in online systems like Ebay (Yamagishi et al., this volume) and Rent-a-Coder

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[8] Social psychological theory and research has also demonstrated that perceptual cues are often ambiguous (e.g., Berger and Luckmann 1966, Festinger 1954). Like other similar environments, it is reasonable to assume that client perceptions are subject to several competing social influences in service markets.

(Snijders, this volume) are good examples of online reputation systems that help consumers make informed decisions about the trustworthiness of goods and service providers, respectively. In many online systems of exchange, however, no third-party reputations are available (or perhaps even possible). In online systems such as Craigslist.com, for example, sellers offer goods or services in a bulletin-board style setting without any structured reputation tracking system in place. In this kind of situation, consumers have extremely limited information to use when assessing the trustworthiness of sellers. Without built-in reputation systems, rating systems or extensive context cues, how do individuals evaluate the trustworthiness of potential exchange partners in online one-shot interactions? To investigate this question, we now turn to an exploratory study that examines how individuals assess the trustworthiness of sellers in online goods and service markets.

An Empirical Study of Trustworthiness Assessments in Online Goods and Service Markets

In this section we present some of the key findings from a study that examines how individuals assess the trustworthiness of those who provide goods and services in online environments without the aid of third-party reputation mechanisms. This study is a quasi-experimental survey that was distributed to undergraduates at Stanford University. Respondents rated, ranked, and made a single selection for "the most trustworthy seller" after reading various listings from online sellers of a good or service. The respondents also answered several general questions about assessing trustworthiness

in online goods or service markets. Finally, respondents answered a few open-ended

questions about how and why they made their choices.

Study Design

Sixty-four undergraduates at Stanford University signed up to take the short

online survey about "Online Sales". First, the respondents 'registered' to take the online

survey by completing a short sign-up questionnaire. One week after this pre-registration,

the online survey was distributed via email. Thirty-three respondents were given the

'goods' survey and thirty-one respondents were given the 'services' survey. In both

surveys, respondents were asked to read four different descriptions from sellers who are

attempting to sell the exact same product or service (an expensive camera valued at

$1,500 or a web design service valued at $1,500). Using only the textual descriptions

given by each seller, the respondents were then asked to rate and rank the sellers in terms

of their perceived trustworthiness. The actual descriptions varied according to the

competence and motivations of the sellers. Since the object for sale was a high-end

camera, competence was operationalized as "established professional photographer" or

"established web designer" (high competence) and "amateur photographer" or "amateur

web designer" (low competence). Motivation was operationalized as the degree to which

the seller cares about the buyer's interests. Thus, sellers with high motivation express an

interest in working *directly* with the sellers to make a successful sale, and sellers with low

motivation only express an interest in selling to the highest bidder.   Together, the high

and low conditions for competence and motivation created four possible combinations (or

experimental conditions in a 2 X 2 fully crossed design). See Figure 1 for a description of each of the four seller types in the goods and services surveys.

Insert Figure 1 About Here

Assessing Trustworthiness in Online Sellers of Goods and Services

To understand how individuals assess the trustworthiness of online sellers' descriptions in the absence of other information, we compared the respondents' selection of the seller that they believed was the *most* trustworthy. Figure 2 shows the mean choice of the most trustworthy seller, by survey type (goods or services).

Insert Figure 2 About Here

The proportions for the four seller types are significantly different within the goods survey ($\chi^2 = 16.1$, p < .001) and within the services survey ($\chi^2 = 26.7$, p < .001). The most apparent result from the mean responses shown in Figure 2 is that the respondents in both survey types chose seller A (high competence and high motivation) as the most trustworthy seller, compared to the other possible choices. Specifically, 55% of the respondents in the goods survey and 61% of the respondents in the services survey chose seller A as the 'most trustworthy seller, as anticipated. On the other hand, only 12% of the respondents in the goods survey and 3.2% of the respondents in the services survey chose seller B (low competence and low motivation). The mean choices for seller A do not significantly differ between the two survey types, and the mean choices for

seller B also do not significantly differ between the two survey types. In other words, respondents significantly chose seller A more than seller B in both the goods and services surveys, and they did so at about the same levels. Respondents tended to select the high competence and high motivation seller as the most trustworthy, while the low competence and low motivation seller was far less likely to be chosen as the most trustworthy. These findings generally support existing theory and research which argues that both competence and motivation are related components that individuals use when assessing the trustworthiness of others.

Some important differences also occur between the remaining sellers and the two survey types. Twenty-one percent of the respondents in the goods survey and only 6.5% of the respondents in the services survey chose seller C (high competence, low motivation) as the most trustworthy seller. This disparity (15%) is moderately significant ($\chi^2 = 2.9$, p = .08). Furthermore, 29% of the respondents in the survey on services and only 12% of the respondents in the survey on goods chose seller D (low competence, high motivation) as the most trustworthy seller. This difference (17%) is also moderately significant ($\chi^2 = 2.82$, p = .08). Thus, it appears that respondents in the survey on goods tended to favor the seller with high competence but low motivation more so than did the respondents in the survey on services. Yet, the inverse is also supported: respondents in the services survey tended to favor the seller with high motivation but low competence more so than did the respondents in the goods survey.

We also asked respondents in the two survey types to indicate how much they believed in their selection of the most trustworthy good or service provider by investing 0-5 real dollars in their choice. This investment money came from the original $10

participation payment. The participants were told that if they correctly identified the most trustworthy good or service provider, the experimenter would double their investment[9]. Thus, the investment amount is a good indicator of one's *confidence* in her choice. The average investment in the goods condition was 2.94 (S.D. 1.9) and 2.87 (S.D. 1.9) in the services condition. An ANOVA with the investment amount as the dependent variable and the survey version (goods or services) as the independent variable confirmed that the difference was not significant, $F(1, 62) = .02$, $p = n.s.$ More importantly, there was no significant difference once we also controlled for the individual choice of the most trustworthy provider (A-D), as well as the interactions between choice and experimental condition. These results indicate that all participants were fairly confident in their choice, regardless of the condition or their selection of the most trustworthy provider.

The combined results from this study suggest that competence and motivation are indeed important to individuals who are attempting to assess the trustworthiness of online goods and service providers. In particular, sellers with both high competence and high motivation are more likely to be selected as the most trustworthy (especially compared to sellers with low competence and low motivation). Yet, there is also notable evidence that competence and motivation might work *differently* in some online goods versus service markets. Among respondents who selected sellers with differential levels of competence and motivation, high competence tended to be favored over motivation in the goods market while high motivation tended to be favored over competence in the market for

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[9] Since there was no one 'most trustworthy' good or service provider, all subjects received an equal bonus regardless of how much they invested or which provider they chose.

services. This reflects to some extent the relational aspect of the service market, as noted above.

Qualitative Responses and Decision-making Processes

The respondents in both surveys provided open-ended responses to questions about *how* they chose the most trustworthy seller. To analyze these data, we first examined all of the responses for common themes, reasoning, and explanations. Then, we sorted the responses by survey type and selection of the 'most trustworthy seller' (A-D). This procedure allowed us to compare the emergent themes to see if there were any consistent differences between relevant groups.

Responses to the Survey on Goods

Among the respondents who participated in the online goods survey, we first examined those who chose seller C (high competence, low motivation). As the quantitative analysis shows, the respondents in the survey on goods chose seller C more often than did those in the survey on services. If respondents were focusing on the competence of the seller as the most salient characteristic, we assume it should show up more often in their responses when they choose the high-competence seller (C or A). In fact, this was often clearly indicated by the respondents' identification of the seller as a professional photographer:

> *[Goods Survey; Choice of seller C] "I trust professional photographers, and the people who just wanted to sell their camera seemed less trustworthy because they gave a poor excuse for not needing the camera."*

In some cases, the respondents inferred other information from the fact that seller C was a self-described 'professional'. For example, the competence of the seller was sometimes extended to how he or she may have taken care of the good (i.e., the camera). Furthermore, the *lack of motivation* to directly work with the buyer was sometimes viewed as a *positive* attribute:

> *[Goods Survey; Choice of seller C] "He says he is a professional photographer so he probably has taken good care of the camera. Moreover, he is straightforward and says that the highest bidder will get the item, thus avoiding the hassle of having to bargain."*

As the quantitative analysis demonstrates, seller A was chosen as the most trustworthy seller most often in both the goods and services surveys. Thus, an important question is what specific aspect(s) of seller A was most important to respondents in the goods survey? That is, since seller A's description includes high competence and high motivation, it would be interesting to know whether respondents focused on one or both of these features. Not surprisingly, many respondents in the goods survey who chose seller A tended to mention both competence and motivational factors:

> *[Goods Survey; Choice of seller A] "This seller sounded professional and knowledgeable. They also were willing to talk to the buyer and make a good deal rather than just selling the camera to the highest bidder."*
>
> *[Goods Survey; Choice of seller A] "I picked my choice based on the fact that the seller said that they were a professional photographer and trusted this camera [sic]. Also the seller said they could work with the buyer in making the purchase, which added a sense of friendliness."*
>
> *[Goods Survey; Choice of seller A] "A didn't seem to be an overly aggressive sell, but tried to make some claim of knowledge."*

In fact, the most common response for those who chose seller A in the goods survey was some combination of competence and motivation. While this is not surprising given that the descriptions were designed to embody these two characteristics, what was surprising is that respondents who chose seller A in the goods survey tended to mention competence factors *first*. Furthermore, when individuals in the goods survey only mentioned one factor for seller A, it was almost always competence related:

> *[Goods Survey; Choice of seller A] "The one with the most experience. Most professional ad."*

> *[Goods Survey; Choice of seller A] "He is a professional photographer."*

> *[Goods Survey; Choice of seller A] "This seller seemed to have a lot of experience in the area, and would probably know more than the others, since he/she is a professional."*

Responses to the Survey on Services

In the quantitative analysis, we observed that respondents who took the services survey chose seller D (low competence, high motivation) more often than did the respondents in the goods survey. Just as we were interested in why individuals chose seller C in the goods survey, we wanted to investigate whether the respondents who chose seller D in the services survey would focus on motivational factors more than competence factors. In fact, the survey responses support this supposition:

> *[Services Survey; Choice of seller D] "This seller sounded the most personable; eager to offer his services not solely for his own profit."*

> *[Services Survey; Choice of seller D] "The language of their ad: how sincere they actually sounded. Seller D used 'really' and seemed most willing to please the customer."*

As with respondents in the goods survey, individuals in the services survey: 1) were more likely to choose seller A as the most trustworthy seller compared to the other sellers, and 2) tended to mention both competence and motivation when they chose seller A. However, we also noticed an interesting detail: just as respondents in the survey on goods who chose seller A tended to mention *competence* factors first, respondents in the survey on services tended to mention *motivational* factors first. This difference consistently appeared throughout the open-ended responses:

> *[Services Survey; Choice of seller A] "The person was open to discussing the transaction before it took place. They also said they were a professional graphic/web designer, unlike two of the others, who were just starting out on this career."*

> *[Services Survey; Choice of seller A] "A willingness to accommodate needs met before price set, one on one [sic] interaction. These things mean that there is no hiding behind corporate tape. When your dealing with a real person you establish a relationship with them, which hopefully increases their trustworthiness."*

> *[Services Survey; Choice of seller A] "The most trustworthy to me was the one that put the clients needs before selling the product. The company did not seem pushy or nonchalant. This company was also not one that claimed to be new to the business, and therefore may have more practice."*

It is important to note that just because a respondent mentions one characteristic before the other does not necessarily indicate that it is always the most important item. However, so long as there is no other competing explanation for why respondents would do this, it can be viewed as a suggestive finding. To be sure, in the actual text from the sellers (Figure 1), the descriptions in both surveys *always* started with competence factors before motivational factors. Thus, we can be relatively confident that the difference in observed order is at least not due to any operational difference in the descriptions provided in the two surveys.

Discussion and Future Research

Our exploratory study has demonstrated that in goods and service online markets potential customers are likely to evaluate and view as important information that contributes to their capacity to evaluate two key aspects of reliability or trustworthiness of the vendor/supplier. These two dimensions include competence of the vendor to provide high quality goods and services, as well as their motivation not to take advantage of the customer. Both dimensions are hardest to communicate in an online world of exchange since there are no face-to-face cues or a past history of interaction to reassure the first time customer or consumer. Studying these first-time interactions, however, is important since they are often the key to the success of online goods and service markets. Appealing to complete strangers, such as new customers, is not an easy task in any type of market.

Our data suggest that while both of the key dimensions of perceived trustworthiness, competence and motivation, are central to consumer judgments, the relative importance of each dimension varies depending on the nature of the market. In particular, in markets for services it appears that information that offers cues about the motivation of the provider are more salient than competence information. For goods markets the reverse seems to be true: cues that provide information about competence and thus the potential quality of the good are more important than information about the motivation of the provider (though clearly this is also relevant information as indicated by the overall choice of the provider who meets both criteria as the most frequent selection by all subjects in the study).

An important limitation of our study is that it deals with the single domain of media production. Specifically, our fictional online sellers provide cameras and web/photography services. We chose these two examples because they were comparable within the domain of media production, yet this choice also limits the generalizability of the exploratory findings. It is fair to assume that in other domains we might find different results. However, as we have argued throughout this chapter, such differences would most likely derive from alterations in the levels of uncertainty and risk in these domains (as opposed to *substantive* differences between the domains). Future research should investigate how assessments of trustworthiness differ across domains, and more importantly, identify the specific factors that may account for these differences.

Using these data as baseline data we intend to pursue further investigation of the relative importance of the types of cues that provide useful information for assessments of trustworthiness, especially to first-time customers. It is clear that variation in what is at stake in the transaction matters. The market for diamonds is very different from the market for cameras or even cars. And, the market for professional legal and medical services is very different from the market for computer programming or auditing services. In many of these examples, the line between what is a 'good' and what is a 'service' is often blurred. Sometimes physical goods are fused with associated services, such as the retail market for diamonds (where value is often determined by the appraisal services before purchase). Additionally, some services such as auto repair imply the purchase and use of auto parts. It seems probable that the factors that influence how individuals assess the trustworthiness of online sellers are not stringently defined by just the goods versus service market dichotomy. Systematic study of these variations will

help us sort out the relative importance and weights assigned to particular pieces of information in assessments of trustworthiness.

Varying the exact nature of the good or service and the amount of risk involved in completing an exchange online will be important avenues for continued research. Future research should also include analysis of the effects of combined elements identified in previous research, including web design, type of information sources and content, and assessments of the providers of the goods or services– including reputation. Finally, developing new research tools for analyzing the specific pieces of information respondents find most useful in making judgments of trustworthiness will enable us to understand more fully how information contributes to decision-making in online markets for goods and services.

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Manipulations	Goods Survey	Services Survey
High Competence High Motivation	**I am selling a brand new Nikon D70 Camera. I am a professional photographer and I use this same camera in my own work. Please contact me directly if you are interested, I can work with you to make it a worthwhile purchase.**	**I am selling custom website photography and graphic design for your website. I am a professional graphic artist with my own firm. Please contact me directly if you are interested - I am open to discussing client needs before the service is purchased.**
Low Competence Low Motivation	**Hi, I have a Nikon D70 Camera for sale-- brand new condition. I got it as a gift, and I really don't know much about photography. Best offer gets it.**	**Hi, I am offering custom web photography and graphic design. I recently switched careers and am beginning my own website design practice. Best offer gets it.**
High Competence Low Motivation	**I have a Nikon D70 Camera for sale. It is in brand-new condition. I am a professional photographer and I can say it is a great camera. I will sell to the highest bidder.**	**I am offering my services for custom website photography and design for your website. I run a professional website design firm. Please contact me after you successfully win the bid.**
Low Competence High Motivation	**Nikon D70 Camera for sale, brand new. I don't really take pictures that often so I don't need it. I would like to sell, so reply to me directly and we can work something out. thanks**	**Custom website photography and graphic design for sale. I am a new designer in the business. I would really like to develop my portfolio, so reply to me directly and we can discuss your requirements. I am sure we can work something out. Thanks**

Figure 1. Buyer Descriptions for Online Sales by Competence and Motivation.
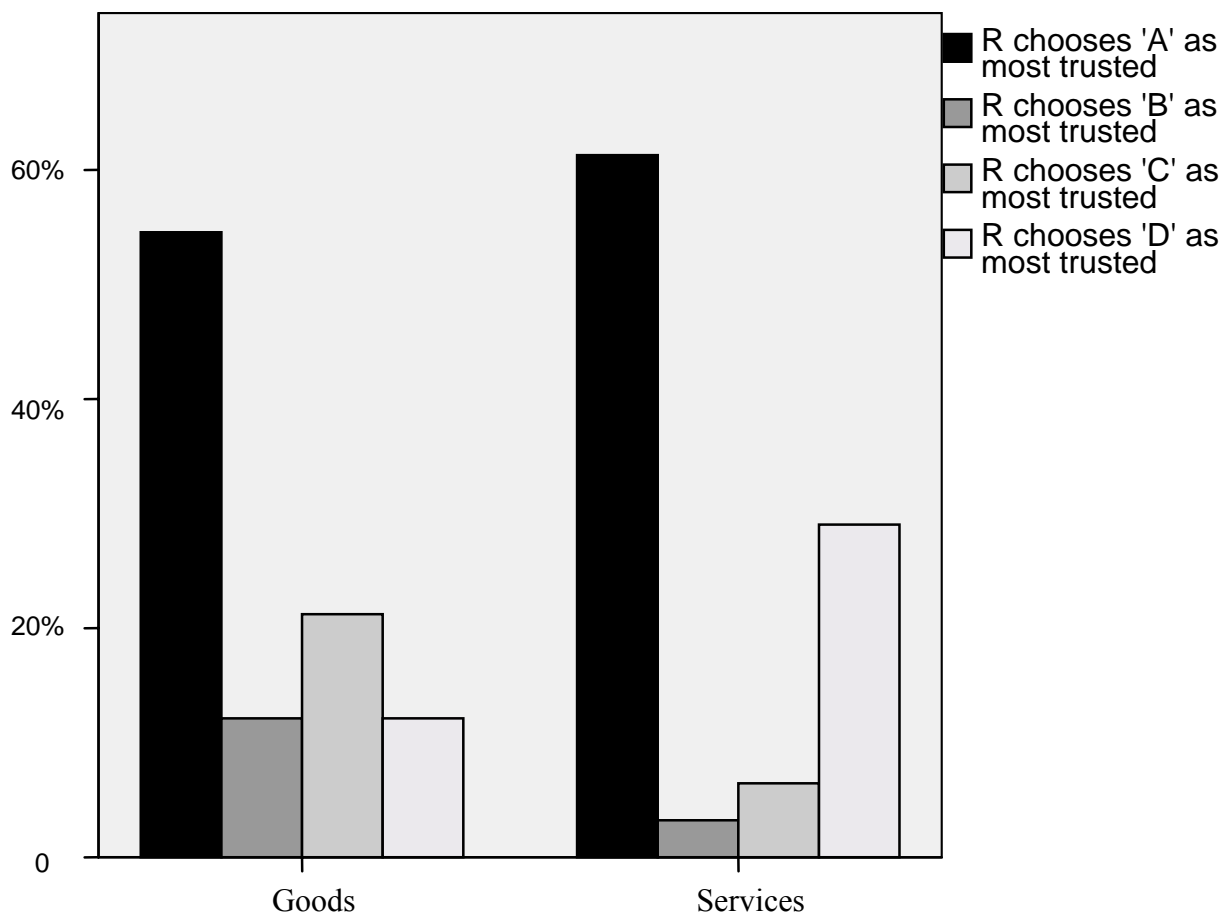
Note: Seller A=High Competence, High Motivation; Seller B=Low Competence, Low Motivation; Seller C=High Competence, Low Motivation; Seller D=Low Competence, High Motivation.

Figure 2. Percent Choice of "Most Trustworthy" Seller in Goods and Services Survey