Theorising quantified credibility in the age of big data: a case of China's Social Credit System

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Abstract

In this paper, I theoretically examine the concept of quantified credibility in sociology. I argue that quantified credibility has components of status, reputation, and trust, which are arbitrations of rankings of individuals, public and private institutions to determine their trustworthiness, legitimacy, and access to resources. To illustrate the above, this paper provides an in-depth analysis of China's Social Credit System (SOCS), as it is developing into one of the largest and comprehensive data systems in the world.

Keywords: Quantified credibility, Status, Reputation, Trust, Social credit system

Introduction

How can we trust the expertise and reliability of strangers? This is an age-old problem, one which is exacerbated by the complexity of risk in data-driven societies (e.g., Ericson and Haggerty 1997; Mathieu and Hartley 2021). Moreover, in today's late modern period, we live in a society that is inherently proliferated with data. One phenomenon of late modernity (Beck et al. 1994), or liquid modernity as it is often called (Bauman 2000, 2007), is the rise of big data and the accompanying quantification of status, reputation, and trust. These concepts are vital elements guiding the development of the concept of quantified credibility, which can be defined as the assignment of scores to individuals by private and public individuals and institutions, which rank their legitimacy and access to resources (see Raghunath 2020).

The concept of quantified credibility can be linked to the rise of liquid modernity, which focuses on uncertainty caused by constant, unpredictable change (see Bauman 2000, 2007; Beck 1992; Beck et al. 1994; Fuchs 2019; Raghunath 2019, 2021; Streeck 2017). Big data plays a fundamental role as the source and mechanism by which scoring systems determine the status, reputation, and trust of individuals and institutions, thereby providing legitimacy in risk driven societies. Big data is defined not only by the volume and scale of information being handled but can also be characterized as an agent for transformation across various social domains (Diaz-Bone et al 2020). Therein lies the paradoxical connectedness of our increasingly data-driven late modern period, defined by expanded communication capacities, tighter control facilitated by advanced

technologies, and the growing influence of economies and institutions on sociocultural affairs (see Oxford Reference 2009).

Naturally, the rise of big data systems is symptomatic of attempts to mitigate growing levels of risk, as ranks and scores act as filters to weed out risky individuals and institutions in uncertain and volatile transactional environments (see Fuchs 2019; Rosamond 2020). This has entailed a reliance on big data and a redefinition of people's access to resources determined by the new language of quantification that borrows terminologies from standardized metrics, rankings, and ratings (Mennicken and Espeland 2019). One example is the use of credit ratings.

Credit ratings have two arms. First, there is a financial arm that is represented by scores and rankings. Credit rating agencies typically regard individuals and companies as risks and require rationalized calculations to assess them (Marron 2007). These agencies attach a numeric value to a person or a company's reputation as a visible representation of the likelihood that the person or company will repay their debt (Esposito and Stark 2019). In other words, by issuing credit scores, individuals and companies have their willingness and ability to repay loans quantified as a rating.

However, the scope of emerging systems that quantify and rank the status, reputation, and trust of individuals and organizations goes beyond credit scores. The second arm of big data is the peer review system. Individuals and businesses can be ranked and/or rated via peer review platforms that inform others of their trustworthiness as providers of goods and services (Jøsang et al. 2007; Mikołajewska-Zając 2018; Lee 2019). Peer review fosters a sense of trust between strangers, which facilitates transactions more easily. In recent years, these two arms are being increasingly combined into larger 'big data assessment systems,' enabled by modern technology. These involve collections of formalized and standardized procedures that confer value onto others through the aggregation of data thereby creating the norm of quantified credibility (see Raghunath 2020; Whitmeyer 2000).

This combination of the two arms of big data can be seen in different contexts. China's SOCS is an intriguing case as there are significant economic, political, and social implications (Raghunath 2020). The upsurge in formalized data gathering systems has fostered the need for accompanying quantified credibility measures, which are crucial for mediating interactions between individuals and institutions in risk-driven societies. Whether for conducting transactions or sharing information, big data rankings provide assurance for individuals and organizations.

Methodologies and approaches associated with big data are popular because of their ability to capture various large-scale and ubiquitous aspects of human behavior, providing a level of insight that is considered "intelligent." Yet, serious problems exist with such systems. First, the scores are designed to create transparency amongst strangers, ideally opening access to resources and increasing social mobility (Kostka 2019; Raghunath 2020). The application of these scores can, in fact, have the opposite effect when groups of individuals are excluded. Second, the way scores are calculated is often not transparent. Many assume calculations are inherently objective and thus trustworthy, however, this is not necessarily the case (e.g., Liang and Chen 2022). Biases in calculations, or even an ignorance of the method and factors used in calculating scores, makes it difficult for one to manage one's scores. This opacity is demonstrative of the larger issue

of how quantified credibility calculations amplify distortions and hide manipulations, functioning instead as a normative device (Liang and Chen 2022) and contradicting their intended purpose of averting risks and promoting transparency in transactions between strangers. Furthermore, the use of algorithms in big data analysis has been subjected to heavy criticism by scholars as they might influence status, reputation, and trust through inherent biases in their models, defy public scrutiny and reduce transparency (see Dekker et al. 2022).

Against this backdrop, this paper examines China's SOCS as an exemplification to better understand quantified credibility in a risk-driven and data-driven society. This paper conceptualises the theory of quantified credibility on the sociological premise of status, reputation, and trust. The case of China's SOCS provides an example of how this theory works. This is because China's SOCS is not different from other credit rating systems around the world, except that it does not focus exclusively on financial transactions but includes economic, legal, social and ethical behaviour, which can shape individual and institutional status, reputation, and trust in significant ways (see Koty and Huld 2023).

Components of quantified credibility

There is a need to conceptualize quantified credibility due to the following reasons. There is a growing trend towards embracing data-driven lives and governance, as demonstrated by efforts to quantify status, reputation, and trust (see Boyd and Crawford 2012; Lupton 2016; Saltelli and Di Fiore 2020; Wong and Donbson 2019; Zhang 2020). This emerging new reality offers us an opportunity to thoroughly examine what quantified credibility is, how it is conceived, and how this quantification of credibility represents an acceleration of risk management through big data collection.

Quantified credibility is a numerical approximation by institutions and individuals of a person or an organization's ability to honor commitments based on their track record, which is primarily influenced by ranking or review mechanisms created by power brokers like banks and government agencies (Esposito and Stark 2019; Pasquale 2015). Additionally, it is based upon factors that are used to determine whether an individual or institution can be trusted (Bar-Isaac and Deb 2014). A marker of quantified credibility can therefore provide a simple way for people to judge transactions (Esposito and Stark 2019). It is possible that the use of quantified rankings regardless of the subjective nature of the determinants, increases institutional influence. These institutions therefore assume an authoritative position by conferring scores within their areas of expertise (Blank 2007; Power et al. 2009).

Before proceeding to understand the race towards quantification and big data in late modern societies, it is particularly important to understand underlying sources of quantified credibility. To highlight the complex nature of this concept, the literature has continuously strived to define precisely what credibility is (see Becker 1982; Flanagan and O'Shaughnessy 2005; Fombrun 1996; Podolny 2001; Suh and Amine 2007; Yogev 2010; Zafirau 2008).

To gain better analytical purchase on the concept of quantified credibility, I will turn to the literature on status, reputation, and trust before discussing how they are the pillars of quantified credibility. However, I must note that most authors do not address credibility directly. Neither do they refer to the complex mixing of status, reputation, and trust

as a response to rising levels of risk in late modern societies. Many academic discussions do, however, analyze the three aforementioned factors as being sequentially linked (e.g., Benjamin and Podolny 1999; Boero et al. 2009; Jung and Lee 2016; Podolny 1993; Raub and Weesie 1990). Given these studies, I will elaborate that quantified credibility is a combination of status, reputation, and trust predicated by powerful bureaucratic institutions, as responses to mitigate risk. Quantified credibility can therefore be theorized as a synthesis of status, reputation and trust. The concepts of status, reputation and trust are theorized in sociology but mostly as independent concepts of social capital rather than interdependent concepts that are increasingly subject to numerical evaluations. The concepts of status, reputation and trust are discussed below, and their synthesis is observed in the concept of quantified credibility.

Status

Status has been considered in the literature mainly in two forms: general subjective evaluation and expert validation. In the first manifestation, status can be inferred from qualitative statements about an individual. Rubineau et al. (2019) assessed individuals' levels of status based on popularity by asking people if a named individual is well-liked. On the other hand, Lin (1999) formulated an ego-based assessment where individuals assess their own status through a series of questions. In both cases, an individual's status is determined through some form of qualitative evaluation, which does provide room for negotiating personal branding and social relationships.

In the second form, status is inferred from rankings by subject matter experts. For instance, Benjamin and Podolny (1999) determine the status of various wineries based on connoisseurs' rankings of the companies' wines. In this case, the experts are connoisseurs that possess high credibility, and make credibility assessments that are reflected at the individual level. Such expert-based rankings may not always be sufficient, particularly, when an expert's credibility is called into question (Ayeh et al. 2003). Some argue that this implies that the status of groups or individuals grounded on such expert rankings are inherently unstable (see Rosamond 2020). Others disagree, suggesting that while some may question the credibility of experts, the strong correlation between rank and status signals can be reasonably inferred (Benjamin and Podolny 1999). If rankings are unstable as determinants of status, it also means that perceptions of an individual or firm's status are mostly affirmed by public consensus (François 2014).

The concept of status is used by Weber to explain the power differentials between individuals in society (Gane 2005). While Weber's understanding of status transcends economic benefits and access to resources, including considerations of prestige, race, and religion (Bendix 1960; Weber 1978), for our purpose, it is also useful to consider whether status confers direct economic benefits. It is suggested that status is based on social consensus and dependent on social relations and hierarchy (Gane 2005; Packard 2008), which also seems to form an important part of how credibility is created. Thus, the liquid nature of status contributes to the analysis of quantified credibility. Meanwhile, it is important to consider how reputation and trust factor in as well.

Reputation

Reputation is usually regarded as the collective perception of an individual or organization (Fine 1996, 2008; Whitmeyer 2000; Yogev 2010). This means that a person's reputation can be generated through gossip (Rooks et al. 2011), shared perceptions of popularity (Fujimoto et al. 2017), and other para-social relations (Fine 2008). Reputation is also pervasively quantified, particularly in online milieus through rankings (Rosamond 2020). While we agree with the idea that reputation is generated by third parties, this definition fails to convey how different entities exert influence on the collective perception of individuals, particularly by powerful institutions. In this subsection, we will consider the current literature surrounding the characteristics of reputation that are relevant to our understanding of quantified credibility.

One key characteristic of reputation is that it tends to be field-specific. A positive reputation in one field does not necessarily translate well to another field. For example, online transactions are influenced by a reputation mechanism operating between buyers and sellers and are highly volatile (Kollock 1998; Rosamond 2020), whereas the reputation of a chef might be determined by the Michelin food guide (Esposito and Stark 2019), reviews, or the attention of prominent food critics. In each case, certain institutions are regarded as authorities within their respective fields and can hold vastly different criteria for credibility. Similarly, Ertug et al. (2015) find that different audiences react differently to signals of reputation and create volatile audience-specific variations. This complicates the process of determining what type of reputation is "good" and how individuals should strive to build a reputation (Bar-Isaac and Deb 2014; Rosamond 2020).

Other important features of reputation are that it is relational, embedded, and crucial to the operation of social networks (Becker 1982; Fujimoto et al. 2017; Gorman 2015; Podolny 2001; Rubineau et al. 2019; Yogev 2010; Zafirau 2008). For reputation only exists when it is perceived and acknowledged by others (Fuchs 2001; Jackson 2019). Raub and Weesie (1990) have created a model that suggests reputation is particularly important in social networks, because it allows embedded actors to acquire information about the partners with whom they want or need to cooperate and prevents deceitful and/or malicious social exchanges. In such a way, reputation is valuable to actors in the network as a key to gaining information (Kollock 1994).

Lastly, reputation is transitive. A good reputation suggests to observers that an individual has social connections with organizations and/or individuals of high reputation. Rubineau et al. (2019) show that highly reputable individuals actively reject social connections with those of lower reputation by mocking them and discriminating against them, among other tactics. The active rejection of individuals of weaker reputation reduces damage to one's own reputation that might be incurred through association. In the Chinese SOCS, wherein reputation is a key feature, being closely associated with a person who is in debt reduces one's own social credit score (Kostka 2019; Raghunath 2020). Thus, individuals and communities may adapt themselves to exclude those with lower reputations.

Trust

Trust is usually defined as faith in an individual's future behavior. In other words, whether an individual has the capability and motivation to deliver on their promises

(Robbins 2017). Moreover, it serves to mediate the gap between knowledge and expectations when information is limited (Simmel 1950). Torche and Valenzuela define trust as "the ability to interact with strangers even when weak third-party guarantees of compliance exist, and without the onerous need to transform the stranger into a personal relation" (2011, p. 193). Building from this definition, two prominent theories of trust exist within the literature. The first theory focuses on social exchange relations (Blau 1964), while the second focuses on rational action theory (Frederiksen 2012; Torche and Valenzuela 2011).

Blau (1964) argues that trust is built upon successful social exchanges and serves to facilitate future social exchanges between individuals. Trust aggregates the longer the relationship lasts, beginning with transactions that require much lower trust and building to those that require more. The deepening of a relationship involves showcasing vulnerability, which validates one's trust in the other. Apropos of this example, Blau (1964) argues that trust exists only in social exchanges; purely economic exchanges will not generate or require trust, as trust is linked with personal obligation and reciprocity. Only by fulfilling reciprocal social exchanges do individuals establish trust between them. Some sociologists, like Claus Offe (1999), agree that trust is difficult to extend beyond personal relations. This perspective limits the application of the concept of trust to personal contacts and fails to explain how exchanges happen between strangers. With the incorporation of the Internet into our lives, however, we are being increasingly asked to engage in exchanges with those we do not know personally. Rational action theory suggests that instead of avoiding strangers, individuals should calculate the benefits of trusting other individuals (Torche and Valenzuela 2011). This willingness to engage with others promotes the use of ranks and scores in determining strangers' trustworthiness (Torche and Valenzuela 2011).

In addition to decisions about who to trust, trust operates on two levels. On the first level, individuals' experiences with another party can develop experience-based and knowledge-based trust (Hardin 1992; Lewicki and Bunker 1995), which are forms of trust that arise from social relations (Blau 1964). Another way for trust to be established between strangers is through the exchange of third-party information, such as appraisals. This explains why rankings of individuals through third-party reputation systems have become mainstream ways to solicit the trust of complete strangers.

Synthesis of status, reputation, and trust as quantified crediblity

Status, reputation, and trust are interrelated in the construction of quantified credibility. This is because status, reputation, and trust are often conflated in the literature. For example, Andres et al. (2014) measure reputation by referencing a company's position on a ranking chart, as status is typically measured (Benjamin and Podolny 1999). Reputation is also defined as the external perception of "how a given individual, or organization will perform in producing a good or service" (Jackson 2019, p. 21). This is akin to the definition of trustworthiness, which involves the belief that an individual has the capability and motivation to deliver a good or service (Robbins 2017, p. 412). Additionally, reputation and trustworthiness are sometimes conflated in that both can be measured by previous successes (Raub and Weesie 1990). This definitional ambiguity suggests that these concepts are complex and are not consistently conceptualized in the literature.

Many have attempted to analyze the relationship between status, reputation, and trust. Benjamin and Podolny (1999) suggest that associative status is a factor, exemplified by high-status firms affiliating themselves with each other and avoiding relations with low-status firms, which would affect their reputation and perceived trustworthiness. Conversely, such a relationship would enhance the reputation and trustworthiness of the lower-status firm. Blaine Robbins (2017), however, finds that while status homophily may encourage the rapid formation of trust, it does not maintain it. Trust is maintained over time through consistent affirmation of an individual's capabilities in performing their required tasks. Blau's (1964) social exchange theory suggests the need for individuals to prove their reciprocal abilities to generate higher levels of trust. Merely possessing status does not guarantee the continuance of trust. In the absence of personal experience or available empirical evidence, reputation plays an important role in establishing trust. Each quality re-affirms the other in an intertwined manner, for status begets reputation, reputation begets trust, and so on.

In all these studies, trust is often described as being subsequent to status and reputation (Boero et al. 2009; Robbins 2017). Status and reputation open the door, and reciprocity maintains or enhances trust. However, the relationship between status and reputation is much less clear. Status is regarded by some as a signal of reputation (Benjamin and Podolny 1999), and in many cases determinants of status and reputation overlap. However, an in-depth inspection of the definition of reputation suggests that it is much more arbitrary than status. Unlike status, which can be codified by a ranking or rating framework, reputation differs depending on the audience (Bar-Isaac and Deb 2014) and is vulnerable to manipulation by other parties (Fine 1996).

Another conflation that often occurs in the literature involves a frequent portrayal of credibility as a form of social capital (Woolcock 1998). For instance, Robert Putnam (2000) argues that social capital is built upon trust and reciprocity between individuals in a community. Although he does not directly address the term credibility, his work suggests that people who are trusted within a community will honor their commitments. However, it is important to note that social capital has multiple definitions in the sociology literature. Portes (1998, p. 6) suggests that "social capital stands for the ability of actors to secure benefits by virtue of membership in social networks or other social structures." We would argue that quantified credibility differs from social capital. While social capital develops through interpersonal interactions (Putnam 2000), we have shown in the previous section that quantified credibility can also be conferred by institutions, independently of the social ties that individuals have with others in their networks.

Quantified credibility differs from social capital in other ways as well. Bourdieu (1986, p. 248) defines social capital as "the aggregate of the actual or potential resources, which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintances or recognition." For Bourdieu, social capital means non-economic assets such as skills and education that allow social mobility and can be tied to credentials granted by institutions. Stephen Zafirau (2008) adds that social capital can be developed intentionally; by following cultural and occupational norms, one can become successful.

I argue that quantified credibility is not something a person or institution can fully maneuver, nor is it inalienable. It is conferred by external authorities based on factors

that are often obscure, and thus paradoxically may not increase transparency. Thus, the complexities of status, reputation, and trust can be explained through the concept of quantified credibility seen in the implementation of China's SOCS.

Quantified credibility: the case of China's SOCS

The SOCS in China is an example of quantified credibility as it is aimed at boosting a quantification of status, reputation and trust of individuals and institutions through numerous kinds of data that is social, economic, ethical, and legislative in nature (see Koty and Huld 2023. China began developing its SOCS in the early 1990s to address trust issues in its commercial and financial sectors (Lee 2019; Liang et al. 2018). The SOCS is designed to interact with each other and aggregate credibility at different levels (Liu 2019), and the Chinese government anticipates that all citizens will be involved in some form of SOCS (Marr 2019). Although there is no mass-scale study on the attitudes towards these systems, one survey suggests that the concept has been widely supported by Chinese citizens, who view it as a viable approach to tackling pervasive trust problems with easy-to-understand metrics (Kostka 2019). For example, there has been a rise in the usage of smartphone apps that allow citizens to view their own scores, as well as those of others (Lee 2019; Liu 2019). The SOCS serves as a new way of perceiving the trustworthiness through experiences with others (Aho and Duffiled 2020; Frey and Van de Rijt 2016; Xu et al. 2022), without having to develop a personal relationship. This facilitates cooperation and helps to prevent untrustworthy behavior (Tyler and Kramer 1996). While the concerns over privacy, social management, and governmentality have largely been addressed in existing studies (e.g., Liang and Chen 2022; Zhang 2020; Zou 2021), a less-explored topic is a growing concern over reputation (Liang et al. 2018; Zhang 2020). The extensive impact on reputation has led one scholar to refer to China as a "reputation state" (Dai 2018).

These efforts harken back to 2014, when the State Council of the People's Republic of China announced the need for a SOCS (Lee 2019). While typical credit rating institutions are only concerned with an individual's ability to repay debts, the SOCS aims to regulate social behaviors and enable credible individuals and organizations to gain access to resources, while restricting discredited individuals and organizations to improve trust in society (Gan 2019; Meissner 2017; SCPRC 2014). The goals of improving the economic system and facilitating social governance resulted in two distinct regulatory bodies. The People's Bank of China oversees financial regulations while the National Development and Reform Commission deals with social governance issues (Lam 2022; Liu 2019). Thus, variations under the SOCS exist concurrently to tackle different goals and priorities. These are being tested by different approved organizations (Ding and Zhong 2020; Kostka 2019).

In the case of China, there have been least several companies authorized to rate individuals' social credit scores. However, most citizens chose to have their social credit rated by reputable companies (Kostka 2019). Although some appreciate a simplified numeric metric to determine credibility, one major, if not predictable, problem with the SOCS is the impact on one's access to resources, and thus their quality of life (Liang et al. 2018). Many people are familiar with the types of financial services that a bad credit

score can put out of reach, a home loan, for example. In the Chinese SOCS, the range of incentives and penalties tied to one's social credit score is far wider. For example, individuals with higher social credit scores can apply for discounts on their energy bills and skip the hospital waiting line. Comparatively, individuals with lower social credit scores might be restricted from buying airline tickets and have fewer choices of schools for their children (Marr 2019).

Interestingly, social credit norms in China often differ regionally, both in their scoring algorithms and the rewards and punishments attributed to a particular score (Engelmann et al. 2021; Liu 2019). A score that might limit your children's schooling options in one part of China would not necessarily do so in another (Lee 2019). Despite this precarious lack of parity, however, rewards and punishments based on credibility scores remain the predominant mechanisms of the SOCS (Liu 2019). It is important to keep in mind that access to resources can create a credibility feedback loop, as mentioned earlier, akin to the poverty cycle. Essentially, as an individual's scores limit their opportunities for social advancement, and vice versa, one's score in turn possibly limits their family members' opportunities. For example, family members associated with those in debt may be assigned lower credit scores (see Kostka 2019). This form of credit system attempts to designate consequences proportional to categorical actions and values. It is an attempt at an institutional level to manifest social responses towards quantified forms of status, trust, and reputation, as previously discussed. However, it also strengthens forces of social stratification (Raghunath 2020).

The systems' potentially outsized impact on access to resources makes the non-transparent nature of the process even more problematic. Scores are calculated based on data collected by corporations and government authorities (Kostka 2019). While scores are publicly accessible (Marr 2019), this transparency of information is not mutual. Government authorities and corporate partners have control over this quantification process and ecosystem of data, while the individual citizen has limited agency over the metrics determining their quantified selves (Ding and Zhong 2020; Esposito and Stark 2019). The concerns of information opacity persist across the regional variations of China's SOCS. This is not aberrant in a society guided by big data, Lv and Luo (2018) argue, since unequal access to data naturally leads to asymmetries of power, favoring governments and major corporations. This places more power in the hands of institutions to affect the quantified credibility of individuals.

Although the individual is presumably able to control their score by simply adhering to the norms and metrics upon which they are judged, it is naive to overrate the agency that individuals have within the imbalanced power dynamics of this information-driven reality (Liang and Chen 2022; Raghunath 2020). As Christian Fuchs (2001 p. 37) puts it, "persons can do little, networks a lot, and most of what networks do does not follow from the intentional actions of persons." On a broad scale, an individual's scores are based on the ways in which they succeed or fail in larger financial and legal systems, outcomes of which are often beyond their control.

While it may seem obvious that one can protect one's quantified credibility by not engaging in fraud, or by paying one's debts on time, other kinds of behaviors that factor into the score are more obscure. For example, some variations of the SOCS deduct points from individuals for excessive gaming (Kobie 2019), a behavior that is

not objectively relevant to one's quantified credibility. The subjectivity of reviews may not accurately reflect a person's performance, yet these numerical scores of varying accuracies can impact a person's ability to participate in this systematized and quantified society.

Tying quantified credibility to social networks is another concern, as it may inject aspects of status transference into the system. For example, Alibaba's Sesame Credit scoring system originally considered the statuses of connected individuals in its scores (Kostka 2019). Essentially, relationships with individuals of high status and reputation would increase one's credibility. While the Sesame Credit has been discontinued due to a unification of commercial social credit variations (Liu 2019), some variations of the city-level SOCS also consider social networks to be relevant aspects of credit scores (Lee 2019). This supports the theory that, despite aspirations of objectivity, the SOCS is susceptible to status leaks (Becker 1982; Fujimoto et al. 2017; Gorman 2015; Podolny 2001; Rubineau et al. 2019). The trend of including social networks in determining the quantified credibility of individuals is not isolated to China. Even in the United States, various lending agencies use such algorithms to determine the quantified credibility of individuals and firms (Liang et al. 2017).

While China's SOCS is an attempt to improve legitimacy and transparency in transactions, the scores could serve as a form of validation for increased usage of quantified credibility. It is important to note that the perceived need for such scoring is characterized by constant automation caused by technological and environmental disruptions, among others (see Koty and Huld 2023; Raghunath 2019, 2020, 2021). Without a social credit score, one may find it difficult to generate positive quantified credibility in a society with increasingly large and complex demographics, resulting in slower or less efficient transactions (Guseva and Rona-Tas 2001). In the case of China, the literature suggests that most citizens voluntarily participate in a commercial SOCS, with over 80% willing to do so with trust in the state to regulate the collection of data (Kostka 2019). Another influential aspect is the context of their lived landscapes and circumstances, with some surveys revealing that individuals residing within more urbanized environments feel more supported and are thus more trusting (Steinhardt and Delhey 2020). In times of crisis, such as the onset of the COVID-19 pandemic in 2020, citizens were willing to sacrifice some freedoms to facilitate the crisis response, as authorities made amendments to the SOCS with new exemptions, incentives, and penalties (Koty 2020; Wang 2020). The high rate of participation despite valid concerns suggests that most individuals prioritize the social, economic, ethical, legal, and political benefits of permitting institutions to determine their quantified credibility in the context of modern challenges and the growth of big data.

Quantified credibility and how it contributes to understanding the SOCS

The role of big data in representing the credibility of individuals is becoming increasingly more salient. However, discussion around quantified credibility as a complex status, reputation, and trust enabler has been neglected in the sociological literature. Quantified credibility is a fluid social construction, responding to various institutional and individual agents that construct and mitigate risk. Borgman (2015) argues that big data is not necessarily a novel concept, but is analogous to "big science," or the collaborative global

efforts of different researchers (De Solla Price 1963). The effects of unprecedented risk and innovation have created what Malcolm Parks (2014 p. 355) calls the "big data movement"—large in the sense of the complexity of information now available. The use of big data in modern societies is linked to increased levels of bureaucratization, where it is difficult to assess credibility primarily on the basis of social networks and personal connections due to the insecurities and hazards introduced by modernization (see Beck 1992).

In the past, credibility was the mainstay of negotiations and interactions, involving qualitative assessments to at least some extent (Mills 2018). With the status, trust, and reputation of an individual or entity being bound up with another party's subjective scrutiny, one could argue that credibility was based on arbitrary assessments of one's social capital. Nonetheless, there is the growing trend of quantified data systems in late modernity. Providing numeric-based proxies for the credibility of individuals and firms, such systems track how well actors abide by accepted social, economic, and financial norms. These late modern appeals to big data approaches have been made to respond to the inequalities of older systems. However, such attempts are unsuccessful as the rules of the game keep changing in algorithmic-driven societies that are clearly not yet divorced from subjective measures. Quantified credibility is constantly evolving and is more than the sum of individual values for status, reputation, and trust. Rather it is the quantified interpretation of the intersection of all three concepts, with an added measure of maneuverable norms of powerful institutions and experts that control the elucidations of knowledge provided by big data, as illustrated in the discussion of China's SOCS (e.g., Liang and Chen 2022; Xu et al. 2022). As such, the protean nature of approaches to quantified credibility is a fitting reflection of the complex state of late modernity. The emerging emphasis on quantifiable personal attributes, as encapsulated in the concept of quantified credibility, is no doubt a pathology of these times and its efficiency-drive mindset promotes a categorical perspective on society.

Conclusion

This article theorized quantified credibility as the amalgamation of status, reputation, and trust with the illustrated case of the Chinese SOCS, as it is one of the most prominently publicized examples of a quantified credibility mechanism in action The purpose was to provide a complex understanding of quantified credibility and establish its premise in sociological literature.

I suggest that quantified credibility is embedded within social networks and individuals' data driven relationships with institutions. Hence, one can hope to gain quantified credibility by visual compliance to the rules and laws set by the SOCS system. Individuals and institutions must act instrumentally to augment their quantified credibility, but at the same time, they may have little control over the process and transparency of the scores assigned to them. As the SOCS expands, individuals and institutions become both generators and products of the quantified credibility apparatus. This raises further questions about why people abide by the rules of quantified credibility Furthermore, it causes us to consider how one could navigate status, reputation, and trust in everyday life.

Declarations

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