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Toward unpacking trust in a local sharing economy community in Switzerland

Anton Fedosov, Liudmila Zavolokina, Sina Krumhard, Elaine Huang
University of Zurich, Switzerland
antonf@ifi.uzh.ch, zavolokina@ifi.uzh.ch, sina.krumhard@uzh.ch, huang@ifi.uzh.ch

Background

The rapid development of the social, economic, and business models of the "sharing economy" [2] enables the effective and efficient coordination, acquisition, distribution, and sharing of many kinds of different resources. Beyond well-known services such as Airbnb and Uber, an increasing number of sharing initiatives have established online platforms and services to facilitate access to shared resources (e.g., tools, food surplus, spaces) within their local communities. With the automation and complexity of digital tools and platforms, and the specific challenges of online sharing communities [6], trust within supporting technologies become increasingly critical for successful use and adoption [4,13].

Trust is the basis for many human interactions and relationships. Furthermore, the concept can be transferred to institutions, organizations, and technologies [1,3]. Today, trust in technologies is especially important as it is a prerequisite for successful technology adoption [8,11]. The importance of trust in technologies has been examined by scholars in different settings such as virtual communities [16],

e-commerce systems [9,18], online exchange communities [12], and other contemporary digital services and platforms that facilitate economic interactions among peers [3]. Interactive systems can have two different roles in trust relationships [18]. The first is the mediator role, in which a system mediates an interaction between humans. For this role, interpersonal trust should be established. The second is the trustee role, in which a system is the agency a human interacts with and, thus, needs to be trusted. For this role, systems trust should be established.

In most cases, today's digital solutions are 'black boxes' [17] for users. Explaining how a digital solution is developed and how its algorithms function does not necessarily lead to more trust [17]. Therefore, new approaches are needed to engender trust and to design trustworthy digital solutions in which algorithms play a more active role than before. For example, *trust-supporting design elements* [15,21], which are platform features that establish end-user trust, can help establish trust in 'faceless' algorithms.

In online sharing communities, designers of platforms have the challenge of designing for both interpersonal and systems trust to ensure effective and meaningful interactions among their users [10,19]. With the advent of rapid digitalization, the emergence of new digital solutions, and the pressure to stay competitive, service providers further develop online platforms and introduce new features and mechanisms, which may distort previously established trust in systems.

In our empirical study, we aim to unpack elements of interpersonal and systems trust in the case of a local online sharing community which recently introduced a new semi-automated mechanism for resource exchange.

Case Study

We are conducting a study in collaboration with two companies in Switzerland: a Zurich-based two-sided online marketplace [12] for household goods, Sharely[1], and the Swiss Federal Railways (SBB). Sharely aims to increase sharing and use of underutilized personal items (e.g., a drill, a bike pump, sports equipment), by advocating conscientious and sustainable resource consumptions practices (e.g., "better to share than to buy"). Community members can post information about the items they want to lend on Sharely's website or mobile app. These items can be borrowed for a small fee from a lender for a fixed period of time. Sharely takes a percentage of each transaction on their platform. The pick-up and return of the items are decided by the lender and borrower and usually happen face-to-face.

Recently, Sharely added a new service that offers members an option for indirect resource exchange (e.g., [14]), i.e., where pick-up and return do not happen through face-to-face interaction. In a partnership with SBB, Sharely enables renting

[1] https://www.sharely.ch/

popularly exchanged items using SBB SMART BOXES[2], newly repurposed luggage lockers at train stations. The SMART BOXES are Internet-enabled lockers that can be opened and closed via a mobile app. In this context, Sharely provides a small set of its most popular items (e.g., a drill, a jigsaw, a drone), which users can borrow via the SMART BOXES in a semi-automated manner in one pilot site station in Zurich.

The new sharing system introduced by Sharely and SBB faces some trust-related challenges in both interpersonal and systems trust [4]. Therefore, we formulated two research questions for our study:

(1) What are the current conceptualizations of interpersonal and systems trust in the Sharely community?
(2) How can they be shaped by the introduction of an impersonal exchange through the SBB SMART BOX?

Prior research indicates that face-to-face exchanges are critical for establishing trust in local resource-sharing communities [7]. In this new setting, interpersonal trust within the community could be hard to maintain. In the case of broad deployment of this new exchange option and its integration into peer-to-peer sharing arrangements, both the lender and the borrower miss out on the opportunity to meet face-to-face as the trust is placed in a system rather than in other members [12].

When it comes to systems trust, successfully mediating trust from Sharely's website and service in this new sharing arrangement may pose another challenge to trust accrual and maintenance in the community and their supporting technologies. More specifically, it is unknown how the introduction of indirect resource exchange shapes members' perceptions of usability and reliability of the Sharely and how it affects peoples' attitudes toward privacy and safety, which are constitutive properties of trust(worthiness) in computing systems [20].

Ultimately, we envision that studying the deployment and use of SMART BOXES could lead to insights into other developments in IoT automation in the sharing economy (e.g., the use of smart locks to grant access to shared apartments [5]). To date, the decision about renting out resources has generally been the prerogative of the resource owner, but we envision that in the near future, automated systems could take a more active part in helping communities identify and optimize available resources and easing the coordination of sharing through automated or semi-automated processes, bringing up a new set of characteristics to determine systems' trustworthiness, such as fairness, accountability, and transparency [20]. Subsequently, discussing the results of our empirical study about conceptualizing trust in a local online sharing community and identifying *trust-supporting design elements* for future (sharing economy) platforms motivate our interest in this conference.

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[2] https://smartcitylabbasel.ch/en/projekte/sbb-smart-box/

References

[1] Balázs Bodó. 2021. Mediated trust: A theoretical framework to address the trustworthiness of technological trust mediators. *New Media & Society*, *23*(9), 2668-2690.

[2] Rachel Botsman and Roo Rogers. 2010. What's mine is yours. *The rise of collaborative consumption*.

[3] Rachel Botsman. 2017. *Who can you trust?: how technology brought us together–and why it could drive us apart*. Penguin UK.

[4] Coye Cheshire. 2011. Online trust, trustworthiness, or assurance? *Daedalus* 140, 4, 49–58.

[5] Rajib Dey, Sayma Sultana, Afsaneh Razi, and Pamela J. Wisniewski. 2020. Exploring smart home device use by airbnb hosts. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–8.

[6] Anton Fedosov, Airi Lampinen, Tawanna R. Dillahunt, Ann Light, and Coye Cheshire. 2019. Cooperativism and Human-Computer Interaction. In *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems*, 1–4.

[7] Anton Fedosov, Airi Lampinen, William Odom, and Elaine M. Huang. 2021. A Dozen Stickers on a Mailbox: Physical Encounters and Digital Interactions in a Local Sharing Community. *Proceedings of the ACM on Human-Computer Interaction* 4, CSCW3, 1–23.

[8] David Gefen, Elena Karahanna, and Detmar W. Straub. 2003. Trust and TAM in online shopping: An integrated model. *MIS quarterly*, 51–90.

[9] David Gefen and Detmar W. Straub. 2004. Consumer trust in B2C e-Commerce and the importance of social presence: experiments in e-Products and e-Services. *Omega* 32, 6, 407–424.

[10] Florian Hawlitschek, Timm Teubner, and Christof Weinhardt. 2016. Trust in the sharing economy. *Die Unternehmung* 70, 1, 26–44.

[11] Axel Hoffmann, Holger Hoffmann, and Matthias Söllner. 2013. Fostering initial trust in applications–developing and evaluating requirement patterns for application websites. In *21st European Conference on Information Systems (ECIS),* Utrecht, The Netherlands.

[12] Airi Lampinen and Barry Brown. 2017. Market design for HCI: Successes and failures of peer-to-peer exchange platforms. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, 4331–4343.

[13] Airi Lampinen, Vilma Lehtinen, Coye Cheshire, and Emmi Suhonen. 2013. Indebtedness and reciprocity in local online exchange. In *Proceedings of the 2013 conference on Computer supported cooperative work*, 661–672.

[14] Matthew V. Law, Mor Naaman, and Nicola Dell. 2018. ShareBox: Designing A Physical System to Support Resource Exchange in Local Communities. In *Proceedings of the 2018 Designing Interactive Systems Conference*, 1155–1167.

[15] Jan Marco Leimeister, Winfried Ebner, and Helmut Krcmar. 2005. Design, implementation, and evaluation of trust-supporting components in virtual communities for patients. *Journal of Management Information Systems* 21, 4, 101–131.

[16] Jan Marco Leimeister, Pascal Sidiras, and Helmut Krcmar. 2006. Exploring success factors of virtual communities: The perspectives of members and operators. *Journal of organizational computing and electronic commerce* 16, 3–4, 279–300.

[17] Wolter Pieters. 2011. Explanation and trust: what to tell the user in security and AI? *Ethics and information technology* 13, 1, 53–64.

[18] Matthias Söllner, Axel Hoffmann, Holger Hoffmann, Arno Wacker, and Jan Marco Leimeister. 2012. Understanding the formation of trust in IT artifacts. Association for Information Systems. In *Proceedings of the International Conference on Information Systems (ICIS'12)*, Orlando Florida, USA.

[19] Maarten Ter Huurne, Amber Ronteltap, Rense Corten, and Vincent Buskens. 2017. Antecedents of trust in the sharing economy: A systematic review. *Journal of Consumer Behaviour* 16, 6, 485–498.

[20] Jeannette M. Wing. 2021. Trustworthy AI. *Commun. ACM* 64, 10, 64–71.

[21] Liudmila Zavolokina, Noah Zani, and Gerhard Schwabe. 2020. Designing for Trust in Blockchain Platforms. *IEEE Transactions on Engineering Management*.