Received 1 April 2020
Revised 21 April 2021
Accepted 9 October 2021

Mobilizing a pluralist theoretical approach to understand microlending digital platforms: the AfricaMC case

Eric van Heck
Rotterdam School of Management, Erasmus University, Rotterdam, The Netherlands

Ana Clara Souza
Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Porto Alegre, Brazil

Marlei Pozzebon
HEC Montreal, Montreal, Canada and Fundação Getúlio Vargas, Escola de Administração do Estado de São Paulo (FGV EAESP), São Paulo, Brazil, and

Maira Petrini
Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Porto Alegre, Brazil

Abstract

Purpose – This study aims to explore how a microlending digital platform connects social investors in developed countries and micro-entrepreneurs in Africa. However, additional research is necessary to discuss how online auction models are designed and implemented and how existing theories can explain their use in the so-called developing countries.

Design/methodology/approach – The research is based on a single case study: an online auction model for microlending named AfricaMC. Two main methods collected empirical data, namely, online participant observation, i.e. real-time participation in the online auction market and in the forum of discussions, where the authors observed the processes of microlending transactions as registered members; analysis of online documents, by reviewing forum discussions, analyzing reports, blogs, chats and other materials.

Findings – The results suggest that using sociological and information systems theoretical lenses in a complementary manner could provide greater value than using economics.

Originality/value – The study makes two main contributions. First, it mobilizes a pluralist theoretical approach based on economic, sociological and information systems perspectives to improve the understanding of microlending digital platforms using online auction models. Second, it uses the

RAUSP Management Journal
Vol. 57 No. 1, 2022
pp. 6-21
Emerald Publishing Limited
2531-0488
DOI 10.1108/RAUSP-03-2020-0041

understanding produced from data analysis of one particular African case to validate propositions derived from these three theoretical approaches that might be applied to other cases.

Keywords Microfinance, Emerging countries, Theoretical pluralism, Microlending platforms, Online auction models

Paper type Research paper

Introduction

Online auction models are particular types of digital platforms that have gained enormous popularity during the past decade (Spagnoletti, Resca & Lee, 2015). They support the interaction of bidders and lenders that are geographically separated while enabling retailers to reach out to a broader set of customers (Toewiwat *et al.*, 2014). Even small retailers can run online auctions using third-party sites such as eBay. Kuruzovich and Etzion (2018) highlight that it is increasingly important to understand online auctions in multi-channel contexts. Online auctions can be viewed not only as economic allocation mechanisms but also as social structures (Pozzebon & Van Heck, 2006). A variety of studies have investigated online auction models, some from a sociological lens, investigating the factors affecting online auction from sellers and buyers' viewpoint (Al-Dmour, 2016), others mobilizing an economic lens, focusing on performance, strategy and cultural aspects (Greenberg, Wong-On-Wing, & Lui, 2008). Despite the increasing interest directed toward online auctions markets (Toewiwat, Upngoen, Thaiprasert, & Leurcharusmee, 2014), more research is needed on its innovative use by the microfinance sector for social inclusion purposes.

It is relevant to emphasize that microfinance is part of a multi-faceted and complex universe of experiences involving financial operations with small amounts. Microcredit is seen as an instrument or mechanism for executing social-oriented financial operations (França-Filho, Silva Júnior, & Rigo, 2012). The Grameen Bank is an outstanding illustration of a microcredit initiative, where an initially small experiment evolved and promoted a vast impact against poverty (Yunus, 1999). Akhter and Cheng (2020) point out the microcredit borrowings in Bangladesh as a functional method to foster women's security and empowerment, which represents one of the critical priorities for sustainable development worldwide. They defend that microcredit offers a way to begin participating in achievable income generation activities essential to securing working capital and credit to support the poor when they need assistance. However, besides such a positive view of microcredit and its social consequences, many more critical authors deem microcredit as a capitalist tool to make money out of the poorest sectors of the population, nourishing an environment of subsistence, keeping poor people in a vicious circle of indebtedness. Likewise, Karnani (2007) defends the expansion of Prahalad's and Hart (2002) view of the poor primarily as consumers by recognizing them as producers and emphasizing the importance of not just selling to the poor but buying from them, revisiting the bottom of the pyramid assumptions.

Among the technological resources that might be used, digital platforms represent one source to be further explored regarding their potential to contribute to social inclusion (Diniz, Pozzebon, & Jayo, 2009). On the one hand, enabled by web technologies, emerging auction market models are willing to work as inclusive microfinance tools by building direct linkages between low-income borrowers, often located in emerging countries and lenders, often located in developed regions. As a result, microcredit has the potential to move up from non-governmental organization-related traditional operations to the mainstream of the financial markets (Gonzalez, Diniz, & Pozzebon, 2015). On the other hand, as explored by Spagnoletti, Resca and Lee (2015), the design of digital platforms differs from other information and communication technology (ICT) applications as their context are subject to

a wide range of varied parameters, for example, they are highly heterogeneous and tend to proliferate, both in users and new functionalities.

In this article, we are interested in investigating not only how online models are designed, implemented and used as a social structure in a microfinance context but also how existing theories – developed from a western epistemological standpoint – can explain such a phenomenon in emerging countries. We use three different lenses, namely, economic, sociological and information systems lens. Although some discussions address issues related to microfinance auctions (Yum, Lee, & Chae, 2012), no studies were identified that integrate a multi-disciplinary focus as proposed here. Therefore, our research question is:

RQ1. How a pluralistic theoretical approach can help to improve the understanding of microlending digital platforms?

To address our research question, we take a deductive-inductive approach. First, we assume a deductive approach by drawing a set of theoretical propositions to make sense of empirical data and then, we verify these propositions by using empirical data that, in an inductive approach, question them. Therefore, our paper's connection between theory and the empirical case is bi-directional, i.e. theory helps to understand empirics and empirics helps to validate the theory. Second, we use a pluralist theoretical approach to understand better one specific case of an online auction model being applied to microlending in emerging countries in Africa. The online auction model selected as our case study is known as AfricaMC [1], a non-profit organization acting as a digital platform orchestrator that links people worldwide who would like to lend money to people who would like to borrow it. The main contribution promoted by our study is to extend the existing knowledge by exploring which lens and practices are more aligned to support an auction model designed for the microfinance sector.

Online auction models: three theoretical lenses

From the review of literature on online auction models, we identified three leading research streams that portray those markets:

(1) an economic lens using allocation practices;

(2) a sociological lens using definitional practices; and

(3) an information systems lens using informational practices.

These three lenses were chosen because:

(1) each theoretical approach has potential explanatory power, i.e. a potential to explain the core of the microlending digital platform, the auction mechanisms;

(2) the theoretical approaches have different backgrounds; and

(3) the theoretical approaches are grounded in western thinking but not much validated in a non-western context, opening an opportunity to our investigation as the microlending digital platform is built to serve emerging regions primarily located in non-western contexts.

This mobilization of three potentially complementary theoretical lenses is aligned with Langley's (1999) seminal work on theorizing from process data. She presents the "alternate templates" as a powerful theorizing strategy for making sense of a social phenomenon and defends the information systems area as one of those which benefits most from this multi-dimensional view,

particularly for a better understanding of implementation processes. She also posits that the use and confrontation of distinct theoretical lenses might reveal contributions and gaps in each.

Auction markets and the economic lens

From an economic perspective, auction markets are *allocation practices*. The auction allocates the best buyer to the best seller and the product or service's value is reflected *only* by the price. According to Arozamena, Fioriti and Weinschelbaum (2021), auctions are not a new institution, for they have been reported at least since ancient Mesopotamia. However, today, they are ubiquitous.

The starting point is the groundbreaking 1961 article by William Vickrey, winner of the Nobel Prize in economics in 1996. Vickrey (1961) designed a new type of auction: the so-called *Vickrey auction*. Bidders place bids; the winner is the one who offers the highest price, but the price that the highest bidder pays is the second-highest bid ("second-price sealed-bid auction"). Although this type of auction model was rarely seen in the past (Rothkopf, Teisberg, & Kahn, 1990), recently, online auctions such as Overture and Google's have started to use it (Edelman, Ostrovsky, & Schwarz, 2007). Galal and Youssef (2019) reinforce that Vickrey auctions determine the actual market price of items, as bidders are motivated to submit their own monetary valuations without leaking their information to the competitors.

Lucking-Reiley (1999) examined four types of auctions, namely, the English model, the Dutch model, the first-price and the second-price or Vickrey auctions. All of these types of auctions were previously mathematically analyzed by Vickrey (1961). Lucking-Reiley (1999) analyzed them in the context of trading on the internet cards from the game "The Magic: The Gathering." This research showed that the Dutch auction system generates 30% more revenue than the highest price-sealed bid auction. The English and Vickrey auctions appear to generate roughly the same revenue confirming Vickrey's theoretical predictions. Following the publication of Vickrey's article, considerable research on auctions was carried out in microeconomics (for an introduction, see Milgrom (1989) and for an overview, see Klemperer (1999)). Further progress was achieved by analyzing the role of information (Akerlof, 1970; Stiglitz, 2000) and considering different important factors in the design of auctions. This stream of research on auctions shows that a detailed auction theory has been developed and extensively validated mathematically. Within economics, auction theory is propagated as one applicable to other economic problems.

From the extensive analysis of the economic auction theory (Vickrey, 1961; Milgrom, 1989; Klemperer, 1999), we formulate the first two propositions as follows:

P1a. The choice of the online auction model needs to be close to Vickrey's model and will generate the best allocation, and therefore, the best outcome for both borrower and lender.

P1b. Asymmetric information and signaling will have a negative impact on the outcome of the online auction market.

P1a is based on the work of Vickrey (1961) and the empirical validation proposed by Lucking-Reiley (1999) and Varian (2007). Varian (2007) analyzes the equilibria of a game based on the ad auction used by Google and Yahoo. The author provides empirical evidence that the Nash equilibrium of the position auction reasonably accurately describes the basic properties of the prices observed in Google's ad auction. *P1b* is based on the work of Akerlof (1970) and Stiglitz (2000), showing adverse selection and signaling issues in markets that apply to online auctions.

Auction markets and the sociological lens

A very different lens is the sociological perspective on auction markets, wherein markets are viewed as *definitional practices*. Smith (1989) is the first to have investigated an auction from a sociological perspective. Based on close participation and observations in all kinds of auctions (including art, fish and livestock auctions), he concludes: "Auctions do many things: They resolve ambiguities and uncertainties; they establish the value, identity, and ownership of items; they entertain; they shape social relationships and they reallocate vast sums of money. They also tell us a great deal about economic life and social behavior. It is in this latter capacity, as a paradigm of human behavior, that they have had their greatest impact not only on how we think about the determinants of economic value and behavior but rational behavior in general" (Smith, 1989, p. 162). In a more recent article, Smith extended his results into a more detailed theory used to examine two emerging online auction markets, namely, the *sponsored word/phrase internet search engine* markets and the *equity option* markets. Four assumptions are central to his theory (Smith, 2007, p. 3):

- Market practices are embedded in social meanings and generate social meanings.
- The production/reproduction of market meanings is grounded in the interactive social practices of "taking the role of other" and mutual understanding.
- Markets are evolving practices, subject not only to changing external factors but also internal changes because of their own definitional practices.
- Market ideations affect non-market practices, as well as market practices, insofar as market-generated meanings and framings spill over into non-market practices.

Markets as social practices are embedded in a web of other practices. As such, they are both continually influenced by these external practices and, in turn, influence them (Smith, 2007, p. 35). McGrath, Carrasco and Leimona (2017) identified that while it is possible to have an equitable implementation process, ensuring procedural equity may potentially compromise contextual equity. Their results help to identify characteristics of potential participants and communities to avoid social disruptions. Sociological auctions research shows that the auction's social context determines the value and the winner in an auction. If the value of a product or service cannot be determined by other means, an auction mechanism can be used to determine the value of a product with high uncertainty. To a certain extent, the social context determines the pricing and allocation in auctions. Derived from an analysis of the sociological markets literature (Podolny, 1994; Smith, 1989, 2007), we retained two propositions that we believe are strongly related to our investigation:

P2a. Online auction market practices are embedded in social meaning and generate social meanings.

P2b. Online auction markets are influenced by external practices and, in turn, influence them.

The first proposition (*2a*) is the center of Smith's theory and entails more than simply a pre-existing distribution of individual preferences, as assumed by the neo-classical economic model. Here, prices reflect a socially generated value that is a byproduct of how the item has been socially defined as part of the market practice. *P2b* is illustrated by empirical validations that show the basic categories of definitional transformations as they deal with determining what is being bought and sold, who can participate, what market rules and practices are required and what tasks will be accomplished. Another vital element is that such markets are continually reproducing themselves (Smith, 2007). The author showed

empirical evidence from both the sponsored word/phrase internet search engine markets and the equity options markets.

Auction markets and the information systems lens

In the third approach, located in the information systems literature, auction markets are considered *informational practices*. The research on auctions starts from the practical situation and practical problems, and thus, is critical for theoretical-driven research. An example of a critical analysis is the article by Rothkopf and Harstad (1994), where economic auction theory has limited value in practice. The question now is what contributions the information systems field made to the design of online auctions. Sam (2020), for example, highlights the benefits of using trust and rating systems for a trust model in online auctions because a trust measurement is necessary for consumer-to-consumer buyers and sellers' reactions to take place.

There are three discussions to distinguish the domain of online auction markets and the role of information systems and technology (Koppius, 2002). The first discussion analyzes online auctions compared to other coordination mechanisms and involves how ICT affects the coordination mechanism. In business, this discussion is conducted under the domain of online market hypotheses initiated by the article of Malone *et al.* (1987). They argue that ICT will reduce coordination costs dramatically and that there will be a shift in coordination from electronic hierarchies to electronic markets. However, the empirical validation of the online market hypothesis yielded different results (Grover & Ramanlal, 1999).

The second discussion particularly addresses the effects of online auctions. This research stream was initiated by the article of Bakos (1991). Online markets would ensure a reduction in search costs and the prices of goods and services would decline because of increased competition. However, the research of Lee (1998) on the online auction Aucnet shows that the lower price assumption is not supported because of better quality control and lower transportation costs. Another research, this one in the flower industry (Koppius, 2002), showed mixed results.

In the third research stream, online auctions are seen as new institutions or new business models that create value in an innovative way for all stakeholders involved. Well-known examples of online auctions are eBay and Google. We derived two new propositions from the information systems literature:

P3a. Online auction market must create value for all the participants involved.

P3b. Richer information architecture (with more information feedback over a longer period) will lead to a better auction market outcome.

P3a is based on a stream of research related to Kambil and Van Heck (2002), who stated that "for an electronic market to succeed, it must create value for all the participants. For instance, it must increase access, lower prices and lower transaction costs. But beyond that, it must prove itself even better than what now exists." The second proposition (3b) is based on the empirical work of Koppius (2002) and shows the importance and impact of the information architecture for the performance of online auction markets.

Comparing the three theoretical approaches

The first outcome of our literature review is a careful analysis of each theoretical stream separately and the formulation of the set of propositions presented above. We believe that these propositions represent potential sensemaking principles that might, in concrete situations, guide the design and adjustments of online auction models. More importantly, we

suggest that those propositions could be helpful in the improvement of microlending digital platforms. A second outcome of the literature review is a comparison of the three theoretical approaches, which allowed us to recognize three dimensions that help to understand similarities and differences between them. Those dimensions are based on the three dimensions proposed by Pettigrew's (1990) contextualism, namely, *the context* refers to the social setting where the ICT artifact is being used. It includes identification of different relevant social groups interacting in a given social and cultural setting; *the process* refers to understanding how social groups influence the negotiation process taking place around the implementation and use of a given ICT artifact; finally, *the content* refers to the resulting socio-technical characteristics of the ICT artifact being used. Table 1 summarizes the similarities and differences of the three research streams according to the dimensions.

Research methodology

Single case study

Our research is based on a single case study [2]: an online auction model for microlending that we will call AfricaMC. Based on the terminology of Stake (1995), AfricaMC can be seen as an *instrumental case study*. Despite the particular features that render it a rich object of investigation, the case is instrumental because AfricaMC helps us better understand microlending digital platforms (in our work, *online auction models*) and validate three

	Economic lens	Sociological lens	Information systems lens
Context	Context is not considered	Context is very important and it encompasses the mutual interaction of the auction market with the outside world	Context is considered in terms of buyer and seller characteristics
Process: role of participants	Interaction among different bidding strategies is a key component of the bidding process	Individuals are socially characterized and embedded in social meaning systems. Interactive social practices of "takin g the role of the other" and mutual understanding	Market processes (such as search, pricing and logistics) among different stakeholders. Information exchange among processes and feedback are important components
Process: role of technology	Asymmetric information among bidders (private/public information) is an important determinant for market outcome but information is not related to its context. Information technology is not considered to play an important role	Information as element of social interaction, meaning, rules. Information technology interacts with the auction market and information technology itself is the outcome of social interaction	Information architecture is important in explaining stakeholder decisions, behavior and outcomes of the market. Information is sometimes related to context. Information technology is seen as an important enabler of the online auction market
Outcomes	Price and allocation are the main outcome parameters. Value is mostly one-dimensional (price). Outcomes are based on allocative efficiency and Pareto optimality	Meanings/rules and allocations. Meaning/rules that determine the parameters of the goods	Price, allocation and information are the main outcome parameters. Value is considered multi-dimensional (price, quality, delivery time, etc.)

Table 1.
Overview of the three theoretical approaches

theoretical approaches. Furthermore, according to Stake (1995), instrumental case studies might lead to analytical generalization as the knowledge produced by a particular case can be extended to other cases in similar or equivalent contexts. The use of three theoretical lenses in a case study design was inspired by Langley's (1999) indication of the alternate template strategy for theorizing and by the well-known study published by Markus (1983) comparing three resistance theories for the implementation of management information systems.

Established in 2006, AfricaMC is headquartered in Copenhagen and operates with around 30 employees through a business network of around 28 local providers and local lenders in many African countries. The selection of AfricaMC as our case study was because of the opportunity to investigate an emergent online auction market in the micro-finance/microlending industry in real-time. AfricaMC was open for analysis by researchers when this research was carried out, but we used a fictive name to preserve its identity.

Two main methods collected empirical data. The first was sustained online participant observation. One of the researchers observed and interacted in real-time as a registered member on a very frequent (sometimes daily) basis in the AfricaMC web-based case study, conducted over seven months, observing both the online auction market and the forum of discussion. The researcher observed running auctions and bidding processes and participated actively in trading in the online auction market. This role might be seen as *observer-as-participant*, i.e. the researchers assume an observer's role through social interaction with the informants, but the intent is not to interfere nor develop a relationship with the other participants (Nørskov & Rask, 2011). Because the intent is to learn, it implies more observation than participation, although a minimal level of participation is necessary for performing the observation. In online observations, the "observational data are equivalent to the recorded data, as the social interaction and behaviors exist in a written form. Consequently, data are easily separated from interpretation, which is rarely the case in offline observations. This is likely to have a positive impact on dependability in online observation making" (Nørskov & Rask, 2011, p. 1). Table 2 presents a summary of the data collection.

The second method collected secondary data, including online documents, forum discussions, reports, blogs, chats and other material. In addition, we watched all the platform's videos available on YouTube®'s AfricaMC channel, focusing on a better

Sources	Data collection	Period
Bidding in the online microlending digital platform	Bid strategies, participants, type of investors, type of African projects, interview other bidders	June 2009–August 2009
Business model MYC4	Online MYC4 Forum discussions; academic literature; micro-finance blogs; comparison with competing business models; continuous following MYC4 news (weekly newsletter)	June 2009–May 2013
Investor remarks and participation	Online MYC4 forum discussion; micro-finance blogs	June 2009–December 2012

Table 2.
Summary of data collection

understanding of the case (more than 100 videos available). Finally, the content of AfricaMC's social networks was observed too.

The data analysis process followed three steps in a genuinely abductive process, namely, first, we deductively designed the six propositions from the deep analysis of the three theoretical lenses, then, we collected a massive amount of data as previously described and finally, we started a process of back and forth analysis between theory and data. The abductive process was guided by Thomas (2010).

The online marketplace AfricaMC

AfricaMC is an online marketplace that connects investors directly with African entrepreneurs who lack the capital to develop their businesses. The core of the online marketplace is a reverse auction concept. The platform started at the beginning of the twenty-first century and its constant searching for innovation made it a pioneer in connecting online lenders to entrepreneurs. The platform has been in operation for almost 15 years. Some information can show its impact:

- the borrowings have much presence in conflict zones and the least developed countries;
- more than a million dollars were transitioned between almost two million lenders to more than three million borrowers;
- the operation is present in more than 80 countries;
- some of the social performance badges from the AfricaMC are anti-poverty and vulnerable group focus, family and community empowerment, interaction to promote improvement through feedbacks, entrepreneurial support, facilitation of savings and innovation; and
- through AfricaMC's work, it is possible for students to pay for tuition, women can be empowered and start businesses, farmers can invest in equipment and families can afford needed emergency care according to each demand.

In addition, four aspects distinguish AfricaMC from other initiatives, namely, the focus on loans, not donations; the possibility to choose where to make an impact; the flexibility to push the boundaries of a loan and the principle of "lifting one to lift many."

As of May 2013, a total of 19,870 investors from 107 countries had crowdfunded €19,243,088 for 13,248 loans to 11,791 small businesses in seven African countries. The minimum investment is €5. AfricaMC has a business network of 16 *local providers* and 12 *local lenders* in Africa. The *local providers* (that sometimes can also be lenders) select healthy businesses with a need for capital. The business model of AfricaMC is based on transaction fees. AfricaMC uses a Dutch auction and it is a reverse auction with many bidders (the potential investors into the auctioned loan). Therefore, there are many bids and the combination of the lowest ones (from one or many bidders) that is able to fulfill the demand (in this case, the total loan) is the winner of the auction. The transactions of AfricaMC are analyzed in detail next.

Results

Using the three lenses to understand AfricaMC

The analysis of AfricaMC through three theoretical lenses allowed us to produce some preliminary results. First, it is clear that AfricaMC is a loan auction using an innovative online business model. Value is constructed by auctioning investment proposals and a combination of investors (the ones with the lowest bid in terms of interest rates) will invest

in the loan. Second, in terms of allocation, AfricaMC is doing an excellent job: on average, 93% of the loans will get funded (Chemin & de Laat, 2013), much higher than other online markets such as Prosper.com [3]. It indicates that investors have a sufficient level of trust in the business proposals of the African entrepreneurs. It also indicates that working with local providers and lenders who review the business plans of the potential borrowers seems to work.

Finally, the *microfinance* element (possibility of making relatively small loans) is an intrinsic characteristic of AfricaMC because bids may be €5 or higher. Given the setup of the auction, many investors combine their investment offers to fulfill a loan. For example, in one auction event, a loan of €1,600 was appointed to 30 investors, whose investments ranged from €5 to €500. Together, this group of investors is currently administrating the requested loan.

Table 3 [4] provides the results of the first part of our analysis, i.e. applying the dimensions of the three research approaches to make sense and produce a deeper understanding of the empirical case of AfricaMC. We indicated (+) when the dimension is

	Economic perspective	Sociological perspective	Information systems perspective
Context	(−) Context is not taken into account	(+) Context is fully is taken into account as mutual interaction	(−) Context is partially taken into account
Process: role of participants	(+) Dutch auction model close to advantages of Vickrey auction	(+) Interaction between forum and auction market improves "taking the role of the other" (investor) and mutual understanding	(+) Market processes (such as risk management, regulations and dispute resolution) are critical for auction markets
	(−) Interaction among investment bidders and charity bidders not taken into account	(+) Social meaning by bidders (outcome, interaction) embedded in social meaning systems	(+) Difference among investor bidders and charity bidders is taken into account
Process: role of technology	(+) Disclosure of private bidding information will impact auction outcome	(+) Information feedback of bidding events and reputation of participants (indicated by the level of investors, lenders and providers) is a crucial component (+) Information exchange via forums, blogs, wiki's, twitter etc. is taken into account	
Outcomes (−) Bid is two-dimensional (interest, amount)			
	(−) High level of currency risks not always reflected in interest prices		(+) Real time information updates of bidding event outcomes impact investors behavior

Table 3.
Applying the three theoretical approaches to understand MYC4

confirmed by empirical evidence provided by our case and (-) when the dimension is not present in the case or is present differently.

The first important point in understanding AfricaMC is how each perspective takes the context into account. Only the sociological lens considers the whole context, including institutional elements like the UN Millennium Goals and their ultimate target of finding mechanisms to fight poverty and technological elements like the availability of advanced functionalities such as those provided by Web 2.0 platforms. The information systems lens takes the context partially into account (just the technological elements, not the institutional ones), whereas the economics lens does not take the context into account at all.

Regarding the understanding of the processes triggered by participants in their interaction with the platform, both the sociological and the information systems lenses are helpful. Using the sociological lens, we can make sense of the social interactions among bidders and lenders through the technological platform. This leads us to recognize the importance of the forum of discussion, which in the AfricaMC platform allows relational interactions among the different social actors, thereby facilitating mutual understanding. This perspective also helps make sense of the social meaning involved in the processes and guides the changing rules of participatory governance. The information systems lens complements the sociological one, adding understanding elements like risk management, regulation issues and dispute resolution as relevant market processes. The least helpful lens for understanding participants' roles is the economic one, whose only advantage was clarifying the operation of the Dutch auction model through similarities with Vickrey's.

Regarding the role of technology, the economic lens reminds us that the disclosure of private bidding information, allowed by the type of technological platform applied, impacts auction outcomes. However, it does not consider the use of a forum of discussion and other typical Web 2.0 applications. Those relational capabilities are fully considered by the other two lenses – sociological and information systems – including the effect of information feedback of bidding events and participants' reputation on the entire process.

Finally, concerning the understanding of AfricaMC outcomes, the information systems lens provides valuable clues. It takes into account the fact that the bid is two-dimensional (interest and amount) and particularly the fact that real-time information updates of bidding event outcomes impact investors' behaviors. Both the information systems and the sociological lenses help analyze the effect of annual percentage rates (APRs) on stakeholder benefits (informational lens) and on the change of meaning/rules (sociological lens). Unfortunately, the economic lens did not appear very useful here. Once again, its only contribution, shared with the other two, is to make sense of the allocation level and the interest prices.

In brief, these findings from using the three theoretical lenses to understand AfricaMC show that each research stream has its strengths and weaknesses in capturing essential aspects of the evolving online auction model under investigation. However, it is quite clear that the first approach – the economic lens – is the least helpful in understanding AfricaMC, whereas the second – the sociological lens – is the one that explains it best. However, the third approach – the informational systems lens – seems to have a strong potential for being more specific in guiding the design and adjustments phases of auction model implementation. To sum up, the sociological and the information systems lenses are pretty much complementary.

Using AfricaMC to investigate the explanatory power of the three lenses

In the first part of the analysis described in the previous section, we applied the three theoretical lenses to understand the AfricaMC microlending digital platform better. As the

second part of the analysis, this section proposes inverting the role between empirical evidence and theory: we use empirical data gathered from AfricaMC to validate the propositions derived from the three theoretical lenses. Table 4 summarizes the results of this second part of our analysis.

P1a was not confirmed. Although the Dutch model (adopted by AfricaMC) has some similarities to Vickrey's regarding its characteristic of stimulating so-called "truth revealing" bidding strategies, we could confirm from the AfricaMC data that the choice of that model will generate the best allocation. The level of allocation is very high (93% of the loans are funded), but the overall performance of the auction market was low given the level of defaults in the first years.

Next, we could confirm that in cases of default loans, there were examples of asymmetric information (too positive about potential business success or too positive about the risks involved) and these examples of asymmetric information between the borrower and the lender did result in defaulted loans and had a negative impact on the outcome of the auction market. Therefore, *P1b* is confirmed.

Regarding the sociological lens, our analysis of AfricaMC led us to confirm the two propositions. First, the online auction market practices of AfricaMC are embedded in social meanings and generate social meanings. This provides a different view on this phenomenon, leaving behind the assumption of technological determinism, where the material properties determine the outcomes. From a more constructivist perspective, the meaning attached to material artifacts, co-constructed by the social actors, plays an important role. Second, online auction markets like AfricaMC are evolving practices subject to external factors and internal changes. This assertion stimulates openness regarding the changing and adaptable dimension of online marketplaces, which is suitable for the specific purpose of microlending. Likewise, AfricaMC is influenced by external practices and, in turn, influences them. For example, the exchange rates from the European currency (euro) to local (African) currencies have too strong an impact on the conversion of the loan to local currencies and have an economic impact both on the lender and the borrower. So, AfricaMC is also influencing the financial industry.

The two propositions of the information systems lens were also confirmed. First, the online auction market must create value for all the participants involved. This proposition implies that, to be successful, AfricaMC should provide benefits to all stakeholders, namely, investors, local providers and lenders, borrowers and market-makers like the AfricaMC coordinators. In the case of microlending digital platforms, it means that their long-term sustainability depends on providing benefits to all, including the target stakeholders in terms of social purposes: the borrowers. Second, richer information architecture (with more information feedback over a longer period) will lead to a better auction market outcome. This is also essential because it replaces short-term views of "information asymmetry" assumptions with long-term ones. In those long-term views, we recall the importance of the feedback provided over a longer period and the formulation of long-term goals, like contributing to social development and achieving the Millennium Goals. Third, online auction markets like AfricaMC designed around human interactions supported by technology in a

Table 4. Empirical evidence from MYC4 that validated the theoretical approaches

	Economic lens	Sociological lens	Information systems lens
Propositions derived from theories	*P1a* – not confirmed *P1b* – confirmed	*P2a* – confirmed *P2b* – confirmed	*P3a* – confirmed *P3b* – confirmed

social context will survive over time. Complementary to the two previous propositions, the focus on human interactions supported by technology instead of on technological platforms that shape human interactions is of crucial importance.

Our results show that the proposition of the two approaches seems to render more plausibility than the one that somehow dominates economic-based literature (the allocation one), reinforcing the valuable complementarity of the sociological and informational perspectives.

Conclusions and implications

This article explores a microlending digital platform with a potential for social inclusion. At the heart of this radical innovation is the online auction model, a concept that has been increasingly used by developed countries but still lacks investigation regarding its use and implementation in emerging economies. Moreover, little is known about how these models are used for social purposes like microfinance and how existing theories can explain such a radically innovative phenomenon in a non-Western context.

Our results make two main contributions. The first is theoretical. We suggest that adopting the sociological and information systems lens, instead of the more often applied economic view, could bring a different and relevant understanding to emerging business marketplaces based on online action models. The three theoretical lenses were seen, initially, as complementary. However, a careful analysis of our results suggests that the combination of sociological and informational perspectives provides an excellent opportunity for building a rich and insightful understanding of online auction models for microlending purposes. Moreover, we argue that the social meaning of technology-based interactions and processes was crucial as a basis for analyzing dynamic socio-technical systems. The *meaning* attached to material artifacts (such as online crowdfunded platforms) and co-constructed by the social actors plays an important role.

The second contribution is related to practical implications. Our study uses the AfricaMC case study to validate propositions derived from the three theoretical approaches. AfricaMC depicts an emerging and original business model supposedly aligned with social purposes. It was conceived and put into operation not just to support online bids but also to support the interactions among investors who are willing to put their money in businesses that could promote social and economic development in emerging countries. In this new model, interactions among local providers and local borrowers willing to invest micro-loans in entrepreneurship are also contemplated. Our results show that, once again, the economic perspective failed to have all its propositions confirmed. On the other hand, our interpretation of data gathered from AfricaMC confirms all the sociological and information systems lenses propositions. Therefore, organizational practices with more sociological or informational features should be prioritized in this business model.

Although some online markets in developed economies are booming, several others have failed, primarily due to lack of appropriate design, weaknesses in the governance structure or regulation issues. Thus, adopting online models, particularly online auction models, for social purposes like microlending is promising but merits caution. Future research could put forward this question as well as additional validations of the two theoretical lenses using empirical evidence gathered from in-depth case studies or cross-sectional surveys targeting similar and different online auction models and contexts.

Notes

1. The real name was changed for confidential reasons.
2. The position of Stake (1995), an expert in constructivist case studies, for building a robust single case study differs from the dominant positivistic position of Roberto Yin, who privileges multiple cases for replication reasons (replication logic).
3. Prosper.com is a microlending digital platform based on the US that connects lenders and borrowers for all kinds of loans such as for home improvements, buying a car or boat or setting up a business.
4. Note that in Table 3, the APR converts all fees (closing fees as well as interest) associated with a loan, to an interest paid with an annual frequency on the decreasing outstanding balance.

References

Akerlof, G. (1970). The market for lemons: Qualitative uncertainty and the market mechanism. *The Quarterly Journal of Economics*, *84*(3), 488–500. doi: https://doi.org/10.2307/1879431.

Akhter, J., & Cheng, K. (2020). Sustainable empowerment initiatives among rural women through microcredit borrowings in Bangladesh. *Sustainability*, *12*(6), 2275 doi: https://doi.org/10.3390/su12062275.

Al-Dmour, F. (2016). Towards understanding the factors that affecting the online bidding implementation: Based on grounded theory method. *Journal of Internet Banking and Commerce*, *21*(2), 1–20.

Arozamena, L., Fioriti, A., & Weinschelbaum, F. (2021). From auction theory to market design: Paul milgrom and robert wilson's contributions to economics. *Estudios Económicos*, *38*(76), 279–296. doi: https://doi.org/10.52292/j.estudecon.2021.2248.

Bakos, J.Y. (1991). A strategic analysis of electronic marketplaces. *MIS Quarterly*, 295–310. doi: https://doi.org/10.2307/249641.

Chemin, M., & de Laat, J. (2013). Can warm glow alleviate credit market failures? Evidence from online peer-to-peer lenders. *Economic Development and Cultural Change*, *61*(4), 825–858. doi: https://doi.org/10.1086/670374.

Diniz, E., Pozzebon, M., & Jayo, M. (2009). The role of ICT in helping parallel paths to converge: Microcredit and correspondent banking in Brazil. *Journal of Global Information Technology Management (JGITM), Special Issue on Information Technology Research in Brazil*, *12*(2), 80–103.

Edelman, B., Ostrovsky, M., & Schwarz, M. (2007). Internet advertising and the generalized Second-Price auction: Selling billions of dollars worth of keywords. *American Economic Review*, *97*(1), 242–259. doi: https://doi.org/10.1257/aer.97.1.242.

França-Filho, G. C., Silva Júnior, J. T., & Rigo, A. S. (2012). Solidarity finance through community development banks as a strategy for reshaping local economies: lessons from banco palmas. *Revista de Administração*, *47*(3), 500–515. doi: https://doi.org/10.5700/rausp1054.

Galal, H. S., & Youssef, A. M. (2019). Trustee: full privacy preserving vickrey auction on top of ethereum. *International conference on financial cryptography and data security*, pp. 190–207. Cham: Springer. In

Gonzalez, L., Diniz, E. H., & Pozzebon, M. (2015). The value of proximity finance: how the traditional banking system can contribute to microfinance innovations. Technology. *Governance, Globalization*, *10*(1-2), 125–137. doi: https://doi.org/10.1162/inov_a_00233.

Greenberg, R., Wong-On-Wing, B., & Lui, G. (2008). Culture and consumer trust in online businesses. *Journal of Global Information Management*, *16*(3), 26–44.

Grover, V., & Ramanlal, P. (1999). Six myths of information and markets: Information technology networks, electronic commerce, and the battle for consumer surplus. *MIS Quarterly*, *23*(4), 465–495, doi: https://doi.org/10.2307/249486.

Kambil, A., & Van Heck, E. (2002). *Making markets*, Boston: Harvard Business School Press.

Karnani, A. (2007). The mirage of marketing to the bottom of the pyramid: How the private sector can help alleviate poverty. *California Management Review*, *49*(4), 90–111. doi: https://doi.org/10.2307/41166407.

Klemperer, P. (1999). Auction theory: a guide to the literature. *Journal of Economic Surveys*, *13*(3), 227–286. doi: https://doi.org/10.1111/1467-6419.00083.

Koppius, O. (2002). Information architecture and electronic market performance. Ph.D. thesis, Rotterdam: Erasmus University.

Kuruzovich, J., & Etzion, H. (2018). Online auctions and multichannel retailing. *Management Science*, *64*(6), 2734–2753. doi: https://doi.org/10.1287/mnsc.2017.2732.

Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management Review*, *24*(4), 691–710. doi: https://doi.org/10.5465/amr.1999.2553248.

Lee, H. G. (1998). Do electronic marketplaces lower the price of goods? *Communications of the ACM*, *41*(1), 73–80. doi: https://doi.org/10.1145/268092.268122.

Lucking-Reiley, D. (1999). Using field experiments to test equivalence between auction formats: Magic on the internet. *American Economic Review*, *89*(5), 1063–1080. doi: https://doi.org/10.1257/aer.89.5.1063.

Malone, T., Yates, J., & Benjamin, R. (1987). Electronic markets and electronic hierarchies. *Communications of the ACM*, *30*(6), 484–497. doi: https://doi.org/10.1145/214762.214766.

Markus, M. L. (1983). Power, politics and MIS implementation. *Communications of the ACM*, *26*(6), 430–444. doi: https://doi.org/10.1145/358141.358148.

McGrath, F. L., Carrasco, L. R., & Leimona, B. (2017). How auctions to allocate payments for ecosystem services contracts impact social equity. *Ecosystem Services*, *25*, 44–55. doi: https://doi.org/10.1016/j.ecoser.2017.02.017.

Milgrom, P. (1989). Auctions and bidding: a primer. *Journal of Economic Perspectives*, *3*(3), 3–22. doi: https://doi.org/10.1257/jep.3.3.3.

Nørskov, S., & Rask, M. (2011). Observation of online communities: a discussion of online and offline observer roles in studying development, cooperation and coordination in an open source software environment. *Forum: Qualitative Social Research*, 12.

Pettigrew, A. M. (1990). Longitudinal field research on change: theory and practice. *Organization Science*, *1*(3), 267–292. doi: https://doi.org/10.1287/orsc.1.3.267.

Podolny, J. M. (1994). Market uncertainty and the social character of economic exchange. *Administrative Science Quarterly*, *39*(3), 458–483. doi: https://doi.org/10.2307/2393299.

Pozzebon, M., & Van Heck, E. (2006). Local adaptations of generic application systems: the case of veiling holambra in Brazil. *Journal of Information Technology*, *21*(2), 73–85. doi: https://doi.org/10.1057/palgrave.jit.2000059.

Prahalad, C. K., & Hart, S. L. (2002). The fortune at the bottom of the pyramid. *Strategy + Business*, *26*(1), 1–14.

Roth, A. E. (2002). The economist as engineer: Game theory, experimentation, and computation as tools for design economics. *Econometrica*, *70*(4), 1341–1378. doi: https://doi.org/10.1111/1468-0262.00335.

Rothkopf, M. H., Teisberg, T., & Kahn, E. (1990). Why are vickrey auctions rare? *Journal of Political Economy*, *98*(1), 94–109. doi: https://doi.org/10.1086/261670.

Rothkopf, M. H., & Harstad, R. M. (1994). Modeling competitive bidding: a critical essay. *Management Science*, *40*(3), 364–384. doi: https://doi.org/10.1287/mnsc.40.3.364.

Sam, M. K. (2020). Trust measurement and classification data for online auctions using intelligent system. *Journal of Computer Science and Information Systems*, *12*(3).

Smith, C. W. (1989). *Auctions: the social construction of value*, Berkeley: University of CA Press.

Smith, C. W. (2007). Markets as definitional practices. *The Canadian Journal of Sociology/Cahiers Canadiens de Sociologie*, *32*(1), 1–39. doi: https://doi.org/10.2307/20460614.

Spagnoletti, P., Resca, A., & Lee, G. (2015). A design theory for digital platforms supporting online communities: a multiple case study. *Journal of Information Technology*, *30*(4), 364–380. doi: https://doi.org/10.1057/jit.2014.37.

Stake, R. (1995). *The art of case study research*, Thousand Oaks, CA: Sage Publications.

Stiglitz, J. E. (2000). Capital market liberalization, economic growth, and instability. World Development, *28*(6), 1075–1086. doi: https://doi.org/10.1016/S0305-750X(00)00006-1.

Thomas, G. (2010). Doing case study: Abduction not induction. *Qualitative Inquiry*, *16*(7), 575–582. doi: https://doi.org/10.1177/1077800410372601.

Toewiwat, A., Upngoen, C., Thaiprasert, N., & Leurcharusmee, S. (2014). Modeling the impacts of online auction via eBay on economic welfare. *International Journal of Intelligent Technologies & Applied Statistics*, *7*(2), 171–184.

Varian, H. (2007). Position auctions. *International Journal of Industrial Organization*, *25*(6), 1163–1178. doi: https://doi.org/10.1016/j.ijindorg.2006.10.002.

Vickrey, W. (1961). Counter speculation, auctions, and competitive sealed tenders. *The Journal of Finance*, *16*(1), 8–37. doi: https://doi.org/10.1111/j.1540-6261.1961.tb02789.x.

Yum, H., Lee, B., & Chae, M. (2012). From the wisdom of crowds to my own judgment in microfinance through online peer-to-peer lending platforms. *Electronic Commerce Research and Applications*, *11*(5), 469–483. doi: https://doi.org/10.1016/j.elerap.2012.05.003.

Yunus, M. (1999). The grameen bank. *Scientific American*, *281*(5), 114–119. doi: https://doi.org/10.1038/scientificamerican1199-114.

Author contributions are as follows: Van Heck, Eric – Conceptualization (Lead), Formal analysis (Lead), Methodology (Supporting), Writing-original draft (Lead). Pozzebon, Marlei, Corresponding Author, Conceptualization (Supporting), Methodology (Lead), Writing-review & editing (Supporting). Petrini, Maira, Conceptualization (Supporting), Writing-review and editing (Supporting). Souza, Ana Clara, Conceptualization (Supporting), Writing-review and editing (Supporting).

Corresponding author
Marlei Pozzebon can be contacted at: marlei.pozzebon@hec.ca

Associate editor: Barbara Galleli