


How Do Digital Market Platform Hosts Exercise Control Over Sellers?


Digital Market Platform Sellers Control

Shraddha Nimish Danani, Tata Services Ltd., Mumba, India*

 <https://orcid.org/0000-0002-6318-2775>

Janis L. Gogan, Bentley University, USA

Prageet Aeron, Management Development Institute, Gurgaon, India

 <https://orcid.org/0000-0003-3957-5912>

Kirti Sharma, Management Development Institute, Gurugram, India

Mahadeo Prasad Jaiswal, Indian Institute of Management, Sambalpur, India

ABSTRACT

High speed connectivity, smart mobile devices, social media, and rapidly-proliferating end-user applications have given rise to digital markets. This paper investigates how digital market hosts exercise control over sellers. The authors propose that findings from prior empirical studies informed by control theory in other contexts might not fully apply to digital markets, since these platforms are loosely connected to participants. The three-case study revealed that, similar to controllers in other contexts, digital market hosts do utilize a mix of formal and informal control mechanisms, yet their seller control portfolios also differ importantly from control portfolios in other contexts. This paper presents the study findings, considers questions arising from the findings, and provides a useful foundation for further research that can consider why digital markets entail challenges that give rise to novel control portfolios.

KEYWORDS

Case Study Method, Control in Digital Platforms, Digital Markets, Digital Platforms, Organizational Control Theory, Platform Control, Platform Ecosystem, Platforms, Portfolio of Control Modes

1. INTRODUCTION

A digital market is a contemporary version of an old phenomenon; local markets, bazaars and shopping malls, which have connected consumers with sellers for centuries (Fichman, Dos Santos, and Zheng 2014; Tan, Pan, Xianghua, and Lihua 2015). It operates as a micro-economy (Halckenhäusser, Foerderer, and Heinzl 2020). A digital market host firm, referred as ‘Host’ here on, facilitates and orchestrates participants’ interactions (Brown and Grant 2005; Tiwana 2014), aiming for value creation on all sides

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*Corresponding Author

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(Wiener, Mähring, Remus, Saunders, and Cram 2019). The host organization (such as Alibaba, Amazon, Flipkart or Rakuten) provides the platform on which goods and services are ordered and oversees its governance. The 2020 coronavirus pandemic accelerated a shift from traditional brick-and-mortar to online shopping. In November 2020 analysts predicted US online sales would reach \$839 billion -- 21% of total retail sales, versus 14.3% in 2018¹. US online holiday sales were about \$171 B, up 32.4% from the same period in 2019². In India, analysts predicted online sales during the “festive” season (leading up to Diwali) would reach \$6.5 billion³ and that annual online sales would increase from \$30 billion in 2019 to nearly \$100 billion by 2024⁴. Rapid growth can intensify strategic, operational, and ethical challenges. In 2019 a *Wall Street Journal* investigation identified on Amazon products sold by third-party sellers, which did not comply with US product safety requirements (including children’s toys). That article concluded: “Amazon’s struggle to police its site adds to the mounting evidence that America’s tech giants have lost control of their massive platforms – or decline to control them”⁵. Regardless of laws governing traditional retailers versus digital markets, many consumers hold Amazon for products sold on its platform – including third-party products sold by 2.5 million merchants -- about 60% of the physical merchandise sold on Amazon’s platform. Though the hosts acts as a matchmaker, it is accountable for successful completion of the interactions and is held responsible for the opportunistic behaviour, if any, of its participants. Hence, it is essential for the hosts to control the interactions conducted. Thus, the digital market host’s effectiveness in attracting large number of sellers and consumers is a key success factor (de Reuver, Sørensen, and Basole 2018), so is their ability to control participants’ processes and interactions (Shafiei Gol, Stein, and Avital 2019).

Control, as defined by organizational and information systems research is, attempts to align individual behaviour with organizational objectives (Ouchi, 1979; Wiener et al., 2019). While control research thus far has explained control dynamics in dyadic control relationships such as manger-subordinate (Eisenhardt, 1985; Ouchi, 1979), outsourcing partnerships (Gregory and Keil, 2014; Kirsch, 1997) etc., research on loosely connected participant environment such as digital market ecosystem is still in nascent stage (Danani, 2021). Having said that, we also observe growing interest in the field with research on effects of technology-assisted control on controlee privacy (Goldstein, 2014), controlee stress and work overload and controlee resistance due to continuous monitoring and power asymmetries (Rosenblat, 2016). But there is lack of granular level discussion on control configuration in digital market. It is not clear if the control configurations identified in the past studies can capture control characteristics of digital market participant control. Questions like, *how digital markets structure their informal control portfolios to inculcate shared norms in their sellers who are scattered across wide geographic region*, or, *how formal controls like process control and outcome control be enacted by these marketplaces to ensure successful completion of interactions being conducted outside the control boundaries of the platform*, may not be fully explained by existing control configurations set in other contexts. This demands a fresh, in-depth study of control portfolios implemented by digital market hosts. Thus we pose our research question: ‘How do digital market platform hosts exercise control over sellers?’

Our goal to conduct this exploratory qualitative three-case study is to identify digital market hosts’ seller control portfolios structure. We begin with building theoretical framework of control modes in digital market context in section 2. This is followed by description of research methodology adopted for this research. Study findings are discussed in section 4, where we structure detailed control portfolio implemented by the case organizations. In section 5, contribution to theory and practice are discussed, followed by enlisting of study limitations of the study which double up as future research opportunities.

2. LITERATURE REVIEW

2.1 Digital Market Participation:

Control is an essential digital market platform host role (Buchwald, Urbach and Ahlemann 2014); a host exerts control to encourage good behaviour and limit bad behaviour (Tiwana, Konsynski,

and Bush 2010) and embeds controls in computer applications (Parker and Van Alstyne 2018). But, control in digital market context is not straightforward. The hosts need to control behaviour of large number of outside participants, who are neither hired nor employed by them. These participants are not co-located with the hosts. Many sellers and providers of complementary services may participate in a particular digital market for years. Others (often individual entrepreneurs or small organizations) may participate only briefly. Feedback from consumers and sellers can give rise to positive or negative network effects (Gawer 2010) – as when a seller's opportunistic behaviour causes some consumers to exit a platform. Hosts aim for maximum seller participation, but they do not pre-select most sellers, who are independent entities that voluntarily participate and may exit at any time. Prior studies have not investigated how digital market hosts exercise control (Yoo, Boland Jr., Lyytinen, and Majchrzak 2012).

2.2 Digital Market Interactions:

If we look at the interactions, some participants' interactions take place off the platform and beyond the host's direct control (Felin and Zenger 2014). But the host needs to ensure successful completion of these interaction. A host can exercise control by acting as a 'bouncer' (Parker and Van Alstyne 2018; Aulkemeier, Iacob, and van Hillegersberg 2019), but overly tight control may antagonize some participants (whose exit can make a platform less attractive to other participants). At the same time loose control structure may lead to interaction failure and consumer dissatisfaction, resulting in their exit from the platform. Because sellers are not co-located and are not platform employees, the host has limited authority (other than items specified in the seller contract); they can coax – but not coerce – sellers to help achieve platform objectives (Parker and Van Alstyne 2018). Thus, digital market hosts aim to strike a balance between attracting and controlling participants (Parker and Van Alstyne 2018). This leads to our research question, 'how do digital market platform hosts exercise control over its sellers?'. We intend to apply control theory to understand how hosts influence seller behaviours to achieve digital market objectives.

2.3 Control Theory & Digital Market:

Organizational control emphasizes human objects and mechanisms of control. Accounting control focuses on financial data (to assure that financial statements accurately reflect operations and performance), emphasizes both human and computer-based controls (Merchant and Van Der Stede 2017) for prevention, detection, and correction (Gelinas and Dull 2008). Since organizational controls and accounting controls are complementary perspectives, we refer herein to "control theory" as encompassing organizational and accounting control. Control theory has helped to explain control complexities in various other contexts. Effective control aligns employee behaviour and performance with information systems priorities (Kirsch, Sambamurthy, Dong-Gil Ko, and Purvis 2002; Choudhury and Sabherwal 2003; Heiskanen, Newman, and Eklin 2008; Gregory and Keil 2014). Control theory application in this novel context of digital market is an unexplored territory thus far.

To create a balanced control portfolios hosts use a mix of control modes (Kirsch, 1997). Control modes are classified as *formal* (process controls, outcome controls) and *informal* (relational or "clan" controls, mechanisms supporting self-control; Kirsch 1997; Chua, Lim, Soh, and Sia 2012; Merchant and Van der Stede 2017). A digital market host selects various control mechanisms (in the four modes) to build its seller control portfolios. The resultant control portfolio should align with organizational culture and priorities. Under the guidance of the research question, this research aims to conduct in-depth study to understand hosts seller control portfolio at the granular level.

3. RESEARCH METHODOLOGY

Given that the phenomenon under investigation is relatively newer and there is lack of prior research on control exercised by hosts on sellers in digital market context, a qualitative approach was considered

more appropriate. A qualitative case study was designed and conducted as case study is an appropriate method for seeking answers to ‘how’ and ‘why’ questions in complex contexts (Yin 2009). The approach taken here was ‘soft positivism’ (Madill, et al., 2000), designed to study a relatively newer phenomenon under the guidance of a stable theoretical framework from a positivist lens but not limited to examination of predefined constructs. Newer constructs and relationship were identified and investigated in alignment with interpretivist approach.

3.1 Case Selection:

To understand the seller control portfolios structure, it was essential to conduct in-depth study of control structure implemented in number of digital market organizations. Thus, a series of three case studies were conducted. The case organizations, MultiCart, GlobalCart, FastCart (companies anonymized), were selected based on following initial case selection criteria:

- Host firm’s primary focus is to provide a digital market platform and appropriate tools and processes to facilitate commercial transactions between outside sellers and consumers.
- The platform infrastructure and user interfaces support transactions initiated via computer or mobile devices (selected cases are not offline platforms or directory service platforms).
- On the platform, consumers can search for/obtain accurate product information based on brand, seller, product specifications, and price.
- The digital market has many sellers offering many products in many product categories.
- Sellers independently decide what products or services to sell.
- Seller participation is through self-service digital interfaces, not offline-based evaluation.
- The platform’s system interfaces are available to third parties without filtration.

Table 1 describes the case firms, in the order in which each case study was conducted (Danani, 2021).

3.2 Data Collection:

Data collection started with first case, MultiCart. After initially analysing MultiCart seller control mechanisms, we started the GlobalCart case study and (after that initial within-case analysis) FastCart. Prior to on-site data collection, publicly-available information was gathered, e.g. documents, news, consumer reviews. Fieldwork started with semi structured in-depth interviews of operations manager and fulfilment centre head, at a fulfilment centre (each lasted for about 45 minutes to an hour). Subsequently, telephonic interviews of merchant management team, content quality control team, seller support team, and consumer support team were conducted. Snowball sampling (per interviewee referrals) led us to other interviewees (Danani, 2021). At each interview, extensive notes were taken, and clarifying or followup questions were asked. Interview and site observation notes were transcribed within 24 hours, which were subsequently reviewed with the operations manager, to confirm our understanding. The interviews resulted in more than 200 pages of transcription. The first author participated in a classroom-based seller orientation training session along with a seller. Additionally, conducted face-to-face interviews with two seller firm owners. To further understand control structure at the implementation level, the author conducted a three-day participant observation⁶ at a seller’s facility and accessed seller portal, seller community portal, seller mobile app and transaction-related documents. Interview findings were compared with data from company documents (e.g., training materials, policy documents, manuals, dashboards, digital communications, observed system interfaces). For example: a content manager’s interview was corroborated with MultiCart’s catalogue creation guideline documents. An operations manager interview was corroborated with training documents, seller portal and operations guideline documents.

To establish reliability, following recommendation by Yin (2009), case study protocol (consisting of instrument and procedures used for data collection) and case study database were developed. The data collection procedures included detailed case selection criteria, interviewee selection guidelines and interviewing method. In addition, the protocol contained interview questions. To ensure validity, as suggested by Yin (2009), below approach was adopted: multiple sources of evidence and interviewee confirmation on case study analysis. Interview findings were triangulated with other sources of data (e.g. documents, training materials, memos and other interviews). The within case analysis write-ups were reviewed by key informants in each case firm, namely Operations manager and fulfilment centre head. The minor edits suggested by them were incorporated which were subsequently approved by them.

3.3 Data Analysis:

Our analysis included steps consistent with positivist methods (e.g., coding interview data for known accounting control mechanisms, classified into control modes. Consistent with the discovery of grounded theory (Glaser and Strauss 1967), we iterated between data collection and analysis based on emergent themes (Eisenhardt 1989). Early rounds of coding were done manually on paper, and later we used the Atlas.ti qualitative data analysis tool. Interview notes and documents were reviewed multiple times, to verify reported facts and identify or refine themes and concepts. Tabular displays, and diagrams captured relevant case details and relationships.

For each case, we produced a summary document listing seller control mechanisms, classified per control modes. Both open coding and axial coding described each organization's control portfolio (e.g., initial open codes *Specify delivery milestones*, *Specify target timeframe*, and *Clearly defined interaction success criteria* were later grouped within an axial code: *Clearly defined performance criteria*).

Since the first round of within-case analysis took place during data collection, we identified open questions and requested additional sources of data. During subsequent rounds of data analysis we contacted interviewees for clarification and various documents. For example, while analysing a merchant manager's interview notes, we saw a need for more detailed information about performance metrics computation and evaluation criteria. Merchant manager subsequently provided relevant documents and we also conducted an online search on the MultiCart website for consumer ratings of sellers. Key interview findings were corroborated with relevant evidence from primary-source or secondary-source documents and other interviews. This triangulation strengthened inferences gleaned from interviews about unique aspects of seller control in digital markets.

Insights from within-case analysis led us to modify some concepts in our evolving case analysis framework. For example, we first saw MultiCart training and guideline documents as transferring process knowledge to sellers (mapped to process control mode). Subsequently realizing that these documents help sellers perform effectively, we mapped them also to informal self-control, and amended the framework to include controller mechanisms that enable controlees to exercise self-control.

After completing the identification of specific seller control mechanisms at MultiCart, the next case, GlobalCart, was selected based on replication logic to confirm the case study findings. It resonated with the findings of the first case, with minimal incremental learning. But to confirm further, third case firm, FastCart. Here no new learnings were found so stopped at the point of theoretical saturation.

4. FINDINGS

We aimed to identify meaningful similarities and differences between cases, to consider how each host's seller control portfolio helps them achieve digital market objectives, and whether and how control deficiencies challenged their ability to achieve their objectives. Our findings reveal that structuring an effective digital market seller control portfolio is a complex exercise. Within categories

(formal or informal), some controls intertwine. For example, positive variances (from metric-based outcome controls) trigger hosts to reward high-performing sellers and publicize their best practices to other sellers, and formal outcome controls and formal process controls intertwine when a negative variance triggers a host recommends that a seller outsource some processes to a specific external service provider. Between formal and informal modes, controls also intertwine. High performers (per formal outcome metrics) receive access to personalized informal resources that help them perform even better, and host training enables these sellers to exercise more effective self-control over those processes. In the following sections we present detailed findings about hosts' use of formal and informal seller control mechanisms (refer to Table 3 for the full set of controls identified in the study (Danani, 2021)).

4.1 Formal Process Control Mechanisms

Some process controls are embedded in mandatory sales modules in host-provided systems; other formal process controls are carried out by host employees. For example: before a seller's product catalogue is approved and activated for consumer viewing, it is reviewed by a quality control team, for compliance with content guidelines. A GlobalCart Content Manager emphasized: "We are very particular about how the product page ...[and] every product photo should look, how many photos, image size, resolution, product title, and all the content. It should look uniform across the portal." FastCart seems more concerned with content than uniformity of design; their General Manager stated: "Our content quality control team verifies content for image quality, accuracy, content writeup completeness, language, and information details. Also they check if the seller has uploaded illegal, prohibited or objectionable product or content."

Detailed guidelines specify how sellers should handle consumer queries. When a consumer complaint is received (via the system), a host team can investigate and impose financial penalties, temporarily suspend the seller, permanently ban the seller from the platform, or take other corrective actions. Prohibited acts include misbehaviour with consumers, using inappropriate language with consumers or host employees, selling counterfeit products, committing fraudulent acts, selling products of a brand without sufficient authority, etc. MultiCart's seller support manager explained: "When a seller commits [a] policy violation, it is a big issue; we don't take it lightly. If found guilty, the seller is removed." GlobalCart's seller support manager said: "We are very strict ... We take complaints on cheating, fraud etc. very seriously. Guilty sellers are removed from the portal immediately ... [and] not allowed to participate under a new name."

All three hosts provide quality checking, packing and shipping guidelines, and do not monitor how sellers carry out procurement, manufacturing, or fulfilment processes. A FastCart general manager explained: "Our sellers are located all over the country; ... it is not possible to send our person to sellers' factories. ... Some sellers are manufacturers, some traders, some individual resellers, some designers. How do we monitor what is happening in their offices or factories?"

4.2 Formal Outcome Control Mechanisms

Each host monitors seller performance based on an evaluation matrix that helps detect sellers performing above or below performance standards. Two key processes -- order delivery and consumer query resolution -- are broken into measurable control points; desired performance metrics against these interim milestones are defined. Thus, host systems measure seller performance on covered processes and sub-processes. In-between these control points/milestones, sellers conduct their processes as they see fit.

Specific process milestones vary across the three firms. Multicart and GlobalCart measure seller order delivery performance per: rate of seller order acceptance, time taken to pack an ordered product, time taken to ship it, time taken to deliver it to consumer, rate of consumer order acceptance. FastCart systems measure seller performance against timely delivery, return rate, consumer communication rating and other consumer feedback.

All three hosts encourage consumers to assess seller performance through quantitative ratings of product quality and service experience; these are displayed on product listing pages. The hosts also capture qualitative consumer feedback (reviews); these are linked to product listing pages. When issues arise, consumer and seller are required to communicate via the platform, so hosts can monitor sellers' response times, issue resolution times, and specific communication with consumers. Consumers rate sellers' query resolution performance, and low ratings may cause the system to ban a seller from the platform.

Consumers' seller evaluations weigh heavily in hosts' overall ratings (which also account for sellers' sales turnover per evaluation period). GlobalCart's operations manager clarified: "For every order, performance against checkpoint parameters is recorded. The system calculates the average value [over] a 30-day [period]." A MultiCart Operations Manager explained: "If the product is not packed well [or is] damaged in transit, the consumer will raise a return request. We monitor this. We do not monitor if the seller packed [the product correctly or packed] the right product, as ordered by the consumer. ... We monitor ... return requests raised against a seller." MultiCart's merchant manager emphasized the importance of consumer ratings: "Since we are unable to monitor the production process and quality of product, we give high weightage to consumer-initiated returns. If a consumer says the product is defective or damaged, we simply take it back and debit it to the seller; there is no cross checking or evaluation of consumer complaints." A seller who consistently performs well is rewarded with faster payouts, lower platform fees, and better visibility on product listing pages.

MultiCart and GlobalCart (but not FastCart) grade sellers in three tiers. A new seller starts at the lowest tier and can move up, based on performance metrics. Multicart and GlobalCart systems endorse high-performing sellers on product listing pages, via badges such as 'Trusted', 'Assured', 'Gold Partner' etc. All three hosts display seller performance level and consumer feedback on sellers' product listing pages. A platform-provided seller dashboard displays their performance on every interaction, against relevant system-generated and consumer-provided parameters. FastCart's general manager stated: "The rating mechanism is our tool to ensure that sellers perform in alignment with our goal."

4.3 Informal Relational Control Mechanisms

MultiCart Operations Manager: "Sellers who are performing well are very important for us; we need to take care of them and their needs [and] support them if there is an issue."

GlobalCart Merchant Manager: "Once a seller starts doing well on the platform ... we offer certain paid promotions and marketing campaigns which may benefit him ... Eventually rapport is built with the seller. We work as friends, as a team."

FastCart General Manager: "We need good sellers' ... support and loyalty. They have ... options; if they see good business with us ... [and] if we have a good relationship with them ... they stay with us."

Host merchant management teams focus on high-performing sellers -- whose average rate of rejection and shipping times are within allowed limits, and sales turnover is above a specified level. FastCart's general manager explained: "We can't build relations with all 300,000 sellers. The ones who do good business, consistently with [few] returns and quality complaints, are important for us."

To encourage mutual support, MultiCart and GlobalCart offer local city chapters where high-performing sellers can interact with each other. The host merchant coordinator socializes with them through meetings, calls, awards events, advanced training seminars and other events. A MultiCart merchant manager stated: "We meet up with them, one to one or in a group setting, region wise. We conduct advanced training to help them grow their business." FastCart's general manager stated "With our high performing sellers in each category, we have very friendly relations. We meet them, have calls with them, plan promotional campaigns, ... help them ... grow their business." Promotional events reward high-performing sellers for recruiting other sellers (GlobalCart merchant manager: "We also give cash rewards to sellers to get new sellers on the platform"). Host teams also support these sellers when order delivery, logistics, or payment issues arise.

All three hosts hold recognition events to appreciate the efforts of high-performing sellers. MultiCart and GlobalCart promote Seller success stories through social media channels, seller portals and other media.

For average or below-average sellers, basic training systems and events offer guidelines on how to carry out various activities and host-specific terminology and processes. MultiCart and GlobalCart offer community portals for all sellers. A GlobalCart merchant manager said “Sellers can post queries or concerns they may be having, [and more] experienced sellers guide and help out.” Seller community portals sometimes send messages to encourage seller participation (GlobalCart merchant manager: “We launch various competitions, quizzes, and promotions on our seller platforms ... throughout the year to keep them connected with us.... [and] we share stories of seller heroes who have done exceptionally well, fighting against all odds. ... [Annual] awards [honor] sellers ... for exceptionally outstanding performance.”

Thus, digital market hosts encourage seller communities and engagement, and focus their attention on high-performing sellers.

4.4 Informal Self-Control Mechanisms

Most sellers are independent entrepreneurs, and many participate on all three platforms.

GlobalCart merchant manager: “Seller has complete liberty, right from what product range to be sold, price points, photos, descriptions, to shipping method, warehousing options, and even in how many days they will deliver. Everything is decided by the seller; it’s completely controlled by him.”

FastCart general manager, product category: “Our system gives power in their hands. They can decide how much they want to grow. There is no restriction. ...”

MultiCart Operations Manager: “Sellers themselves control their performance. We openly display their performance report card to them [and to] consumers. ... In order to protect their business, sellers ... will do everything which will keep their consumers happy and get good ratings from them.”

Hosts use several mechanisms to encourage seller self-control; these intertwine with formal controls. Host manual processes reward high-performing sellers with resources that help them grow further. Since hosts can impose penalties, it is important for each seller to design and carry out effective offline processes. Training resources (mostly online, with some delivered in traditional classrooms) help all sellers acquire relevant skills and knowledge. Seller self-control is also encouraged through guidelines, digital interfaces to post new product offerings, access to physical resources (logistics network, warehousing facility, etc.), specialized service providers, payment gateways, marketing and promotion channels, packaging material and other optional resources. A MultiCart merchant manager said “From registration to portfolio creation to GST guidelines, performance parameters, order delivery cycle management; everything is covered in training videos..... to make the seller ... do business well on our portal.”

Hosts align outcome controls with mechanisms for encouraging self-control, by linking rewards and penalties with performance. FastCart general manager explained: “The weighted average of ratings given by customers for the seller is displayed next to the seller name on every product listing. All future customers can view the rating and identify the reason for a poor rating.” Tiered levels (MultiCart and GlobalCart) reinforce strong seller product and service performance with both seller performance displays and endorsements (described above), as well as other rewards or penalties. Financial rewards include faster payment disbursement and lower member-ship fees. MultiCart and GlobalCart also place high performers’ listings in a more desirable position among other sellers’ listings. A MultiCart merchant manager explained: “The seller’s level is displayed next to his listing. ... Consumers feel more confident to buy from a gold level partner. ... When the seller performs extremely well, and has higher ratings ... his product listing is higher in the category, leading to better visibility. He gets faster payouts, and better margins. He does more business with us. More business means preferential treatment in all promotion campaigns. So it works to his advantage.”

Hosts respond to poor performance by issuing warnings or imposing penalties. GlobalCart Operations Manager: “When performance is not good, we issue warnings to sellers and observe for a fixed number of days. If performance does not improve, we suspend the account temporarily. [A suspended] seller has to submit a plan with a timeline for correcting lapses in performance. ... [After] 30 days, if no improvements are found, we completely deactivate the seller account and remove all listings.” On sellers’ dashboards, MultiCart and GlobalCart seller systems display order-wise service and product performance and consumer feedback details, along with further analysis that enables sellers to take corrective action. GlobalCart Merchant Manager said “Seller can also view their star ratings. There is an overall rating displayed on the home page, and there is order by order breakup on every parameter.” A FastCart general manager stated: “Seller sets up his shop on our portal. ... He is running his own shop here; cost, quality and timeline parameters should be controlled by him. If he doesn’t manage the quality and timeline he will get bad customer reviews, then he will lose further business. If he doesn’t manage his costs well, he will start making losses, and will not be able to survive for long.”

Thus, under the shadow of metric-based outcome controls, hosts encourage sellers to implement self-control.

5. DISCUSSION, CONTRIBUTIONS AND CONCLUSION

5.1 Capturing the Complexity of Control

The case findings reveal that digital market hosts’ seller control portfolios combine formal and informal controls, and some are intertwined. Formal metric-based outcome controls heavily intertwine with other control mechanisms, and consumers exercise significant control through their ratings and evaluations.

Most sellers are responsible for their product offerings, promotions, order delivery, returns processing, and consumer query resolution. Some important processes and seller-consumer communications are conducted offline (even though all seller-consumer communication is supposed to take place on the hosts’ platforms). The host firm leaders see their primary mission as serving as a matchmaker, yet interviews revealed that sellers and consumers tend to hold hosts responsible for problematic transactions. A GlobalCart operations manager expressed concern: “Customers [express complaints] on social media ... Cancellations are very harmful for us.” Since hosts’ information systems can process many transactions, use of computer-based controls might be more extensive than in other IT contexts (such as information systems development or outsourcing).

Our findings revealed that formal computer-based process controls enable outcome metrics which link to informal mechanisms that encourage seller self-control. Metrics compensate for hosts’ inability to directly observe offline processes. Consumer evaluations also help. Thus, hosts depend on both system-based controls and consumers to bring to light seller product and service quality issues.

Digital markets might emphasize informal relational controls to a greater extent than other digital platforms. Host firm employees help build a relationship with high-performing sellers, to keep them engaged and committed to the digital market’s goals. Success stories describe ‘heroes’ who exemplify the host’s values. Although host-provided systems give all sellers access to helpful resources and to some engagement opportunities, the human relationship-building mechanisms focus on high-performing sellers.

A seller can exit a digital market at any time, yet the relationship between host and seller is bi-directional and interdependent (most sellers could not effectively “go it alone;” hosts offer various mechanisms that support seller self-control. The relationship between controller and controlee is near parity in this context; neither seller nor host holds the balance of power. The host can ban highly problematic sellers, but cannot set a quality or compliance bar so high as to force many sellers to leave (which could antagonize consumers). Instead, hosts try to spot and discourage problematic behaviour before it becomes highly problematic; severe penalties are a last resort, since tight process controls

or harsh punitive controls can offend sellers' sense of autonomy. Informal controls help hosts build mutually-beneficial relationships and encourage seller self-control (through helpful training resources, clear and helpful information about seller performance, mutual assistance, financial rewards, and other perquisites that reinforce appropriate seller behaviour and results).

6. CONTRIBUTIONS

Both hosts and sellers rely on each other for their firms' survival and growth, and multi-level dependency dynamics among hosts, consumers and sellers lead to complex control portfolios. Thus, control is exercised by the host, sellers and consumers. This power balance seems to promote positive network externalities and limit negative word of mouth.

6.1 Contributions to Theory

Given that prior empirical studies did not address how digital market hosts exercise control over sellers (Halckenhaeusser, Foerderer, and Heinzl 2020), our study contributes to control theory in two ways. First, this three-case study revealed specific control mechanisms that hosts implemented, and categorized them per control objectives and mode. These findings shed light on how control is operationalized in non-hierarchical (horizontal) contexts, and allows us to consider how digital market control portfolios differ from those in other digital platforms (Tiwana 2014; Parker and Van Alstyne 2018), information systems development projects (Cram, Brohman, and Gallupe 2016 a, 2016 b; Cram and Gallupe 2016), and outsourcing engagements (Rustagi, King, and Kirsch 2008; Remus and Wiener 2012; Wiener et al., 2019). Compared with these other digital platforms, digital market hosts may rely more heavily on sellers with regard to participation, product offerings and transactions. Our three-case study reveals that digital market hosts aim to both control and engage sellers. Given some seller-consumer interactions take place off the platform, we assert that hosts respond to this challenge by attempting to both control and coax sellers to achieve the digital market's objectives. Embedded in host-provided information systems are mechanisms that implement tight control over some seller behaviour, which is counter-balanced by informal relational mechanisms that impose looser control. For example, strict detective outcome controls (rate of fulfilled/unfulfilled transactions, and for interim sub-processes in the larger transaction process) are balanced by host-provided mechanisms that support seller self-control. Thus, we propose: *Effective digital market control portfolios achieve a balance between formal and informal controls and preventive and detective controls*. We further propose that this form of control balancing is likely applicable in other horizontal contexts, such as service exchange platforms and media platforms, in which controllers have limited authority over controlees.

An intriguing finding in our three-case study is that the hosts give consumers strong authority to extensively monitor and evaluate seller product and service quality (not just to report seller misbehaviour). Consumers' quantitative and qualitative feedback have consequential weight in the host's seller evaluation. In contrast, other digital platforms, like innovation platforms and media platforms, treat participant feedback as helpful communication that is utilized only in cases of grave misconduct.

6.2 Contributions to Practice

Participation by many loosely-connected parties on multiple sides of a digital platform give rise to control challenges (Parker and Van Alstyne 2018). Digital market hosts hold limited authority over its many sellers generating many short duration transactions, giving rise to 'the goldilocks problem': the host should neither impose too-tight or too-loose control (Tiwana 2014). Figure 1 can guide the design of a digital market control portfolio, by revealing merchant manager roles and responsibilities, required system functionality, and helpful firm-level initiatives (Danani, 2021).

For the first time, our study provides a detailed description and analysis of how hosts exercise control over sellers in mature (presumably effective) digital markets. At this juncture, our case

study findings enable us to offer preliminary managerial guidance regarding the use of formal and informal control modes and particular control mechanisms. Examples that came to light include the use of measurable milestones/interim system-enabled outcome controls at various points along the end-to-end sales transaction continuum. These metrics made it possible for hosts to design and implement software that monitors and reports on them, and the case findings reveal that informal seller engagement events (awards ceremonies, stories of heroic sellers, etc.) counterbalance these strict metrics-based controls. Thus, our findings can help managers improve the effectiveness of their digital control portfolios.

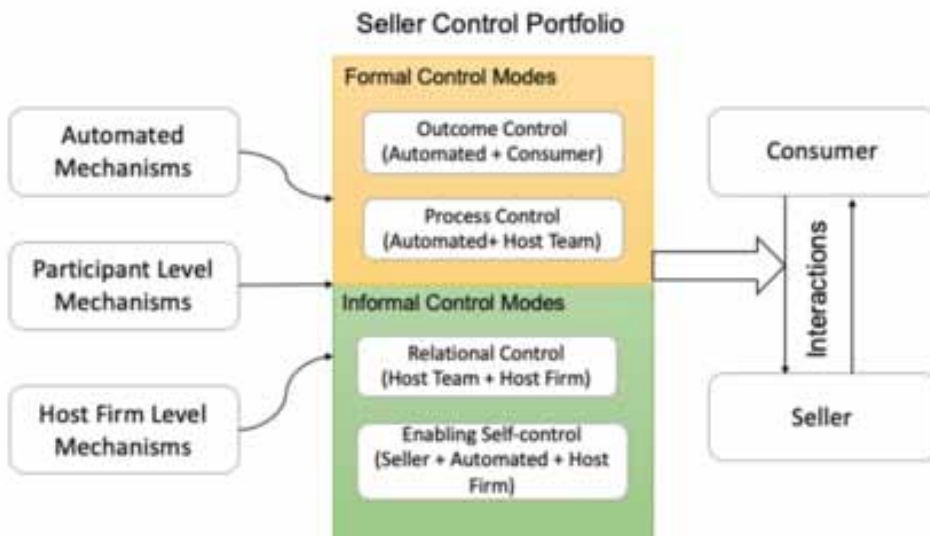
A digital platform becomes more useful to the extent that more participants join and contribute towards its growth. Participants expect hosts to impose both tight and loose controls (Benlian, Hilkert, and Hess 2015) that are well-balanced (Ghazawneh and Henfridsson 2013). By studying digital market seller control portfolios holistically and in situ, our study analysed control mechanisms at the systems level, participant level, and firm level.

6.3 Study Limitations and Opportunities for Further Research

This study is based in a specific geographical, institutional and regulatory context of a single country, India. Future multiple-case studies addressing control in digital markets could take two tacks: 1) case studies of digital market host firms headquartered in culturally-different contexts, such as Europe, North or South America, East Asia, or Africa (for purposes of replicating and extending our study findings) and 2) embedded-cases studies of huge multinationals (such as Amazon or AliBaba), to learn whether, why and to what extent control portfolios differ across regions. Future survey-based studies can empirically test our findings on a larger sample size, based on a broader geo-political context, to confirm the validity and generalizability of findings reported here.

We analysed control portfolios for multi-product, multi-seller digital markets. We did not study on-demand service platforms (e.g., Uber), which deliver homogeneous services (consumers does not select the service provider). We also did not directly study control portfolio evolution; for this exploration, we set a case-selection criterion of digital markets already operating at a mature stage. At an earlier stage, a host's primary objective would be to attract a critical mass of participants, and

Figure 1. Digital Market Platform Seller Control Portfolio



thus it might implement looser formal controls in general, and rely specifically on relational controls directed at recruiting and attracting sellers. A mature digital market might utilize tighter formal control mechanisms and different relational controls. Longitudinal case studies could capture changes to a digital market control portfolio over time, for valuable insights.

Future research can build on this study by identifying additional control parameters such as control costs and benefits. Our study gathered only suggestive evidence regarding the effectiveness of specific controls, in terms of costs and planned versus realised control outcomes, or from multiple stakeholders' points of view. Also, our study viewed control from the host' perspective; we did not examine how specific control mechanisms affected seller attitudes or behaviour. A future study on this aspect can build on the foundation laid here. Future studies can also look more closely at how consumers influence sellers. Like sellers, consumers are independent outsiders (the platform is open for broad participation). Personal motives and expected gains lie behind some ratings and feedback given by some consumers, and also malicious third parties engage in exploitative actions that can cause reputational or financial harm to sellers. Thus, the host needs to balance sellers' and consumers' interests to achieve a fair equilibrium. Future studies can investigate how hosts control consumer behaviour (e.g., detecting and punishing impostors who pretend to be legitimate consumers).

Consumers' involvement in the control process raises intriguing issues. Globalcart and Multicart empowered consumers to a significant degree, whereas Fastcart gave consumers limited (yet important) control authority. This implies that hosts have options for involving consumers as control partners. Our study findings provide a foundation for future studies that can continue to investigate how and why digital market hosts involve consumers in their control portfolios. Findings about the mutual influence of host systems, host employees, sellers and consumers appears consistent with the application of service-dominant logic, in which actors on a digital platform "can play a diverse set of roles in resource integration and service innovation ... [and] can proactively support the process of value co-creation by establishing new organizational mechanism and making appropriate changes to their internal processes" (Lusch and Nambisan 2015). Future studies, informed by service-dominant logic, holds great promise for deepening our understanding of control and interdependence in digital markets and other digital platforms.

Our study revealed that digital market hosts expend great effort to build relationships with high performing sellers. Yet, some high-potential sellers target market niches or at a given time may offer innovative products that consumers do not yet understand. These sellers are not (yet) classified as 'high-performers' since few consumers have learned about their innovative products. High-potential/low visibility sellers would likely be overlooked by performance-oriented algorithms. Stronger data analytics might help hosts identify these new sellers that are not performing well at present. In large transaction data sets (typical of digital markets), it is possible to analyse and pick up faint signals pointing to new sellers' potential. Thus, future studies should first identify how hosts currently deal with up-and-coming sellers, and data-intensive experimental scenarios might also reveal how hosts can detect promising but weak signals pointing to high-potential product innovators.

Each of the three digital market platform cases chosen for this study attracted many sellers, and the hosts did not curate their products. In contrast, some highly focused digital markets do carefully curate their product portfolios. Such focused digital markets are out of scope of this study, but future studies could compare their control portfolios with the findings from our study.

Control comprises one of three key aspects of platform governance, along with decision making rights and pricing mechanisms. A good governance structure helps a platform host leverage a well-designed modular platform architecture, and the three aspects have to align well (Tiwana 2014). Future studies can focus on how digital market control portfolios align with decision making rights and pricing mechanisms. Do metric-based outcome controls complement and/or substitute for a platform's decision making rights and pie-splitting policies? As yet, this question is unanswered.

7. CONCLUSION

This study revealed an important control paradox in digital markets: hosts allow sellers to make many decisions about major aspects of their participation on the platform, including letting them carry out transaction processes as they deem fit. Yet, hosts' advanced information systems and supporting infrastructure do make it possible for hosts to tightly control many steps in end-to-end sales transactions. This balanced control structure (providing autonomy and control simultaneously), breaks the pervasive negative view of control. Our digital market control framework and the findings from the current three-case study provide helpful guidance to future researchers, who can conduct studies that delve more deeply into how digital platform hosts exercise control, as well as to identify antecedent conditions, control effects, and consequences.

Given the rapid pace of change in emerging technologies relevant to digital platforms (artificial intelligence, blockchains, etc.), the next generation of researchers will continue to have many opportunities to reveal how control mechanisms and governance architectures continue to evolve in future digital platform ecosystems.

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ENDNOTES

1 US eCommerce sales jump 37% in Q3. DigitalCommerce360, Nov 19 2020. <https://www.digitalcommerce360.com/article/quarterly-online-sales/>

APPENDIX A: TABLES

Table 1. Three-Case Summary

MultiCart	GlobalCart	FastCart
October 2018--Jan 2019	January 2017-- July 2018	March 2019--May 2019
Launched 2007	Launched 2012	Launched 2010
80M product SKUs	100M + product SKUs	60M + product SKUs
100,000 sellers	400,000 sellers**	300,000 sellers***
100M + consumers	150M + consumers	10M + consumers
<p><u>MultiCart</u> sells many products in many product categories. In 2007 it offered a niche product category, and subsequently expanded into electronics, apparel, home appliances, books, toys, and other consumer products, including (recently) groceries. MultiCart targets consumers all over India. Its systems enable efficient consumer product discovery, ordering, payment processing, and seller delivery, and facilitate product cataloging and user interaction.</p>	<p><u>GlobalCart</u> operates in many countries; our study focused on its operations in India. Its systems connect small to medium size sellers with consumers all over India. GlobalCart built its own logistics infrastructure to deliver products to most pin codes in the country. GlobalCart depends primarily on independent sellers' product offerings</p> <p>** Interviews revealed GlobalCart has 120,000 <i>active</i> sellers.</p>	<p><u>FastCart</u> sells many products, in 800 product categories. It does not manufacture or trade any products under its brand. Its logistics infrastructure can service 3000 Indian cities. The company targets value-conscious consumers in smaller towns, attracted to low-value high-volume product categories.</p> <p>*** Interviews revealed about 60-70% of FastCart sellers are <i>active</i>.</p>

Table 2. Data Collection Details

Data Collection	Focus	MultiCart	GlobalCart	FastCart
Interviews (T: Telephone F: F2F)				
Content Team (T)	Content approval process	2	2	1
Training Team (T)	Training objectives & process	1	1	1
Merchant Management Team (T)	Control mechanisms & structure	2	2	2
Operations Team (F)	Control mechanisms & structure	2	2	2
Seller support Team (T)	Relational control structure	1	1	-
Sellers (F)	Interaction process, system interface	2	2	2
Consumer (F)	Ratings & Reviews mechanism	2	2	1
Documents				
Policy documents	Control mechanisms & structure	39	41	23
Guideline memos	Control mechanisms & structure	17	21	23
Training material	Control mechanisms & structure	51	58	42
Digital Resources				
Access community portal	Relational control structure	Yes	Yes	-
Access to Seller portal	Control operationalization	Yes	Yes	Yes
Seller mobile app access	Control operationalization	Yes	Yes	-
Other				
Participate in seller operations	Control operationalization	Yes	Yes	-

Table 3. Three-Case Comparison: Control Mechanisms in Digital Market Platforms

Mechanism	Mode	MultiCart	GlobalCart	FastCart
Verify adherence to Product Catalogue creation guidelines	PC	√	√	√
Verify Adherence to Terms of Participation	PC	√	√	√
Measure rate of order acceptance by seller	OC	√	√	NO
Measure time taken to pack and ship	PC, OC	√	√	√
Measure time taken to deliver to end consumer	PC, OC	√	√	NO
Measure pickup reattempt rate	PC, OC	NO	√	NO
Measure consumer return rate	OC	√	√	NO
Measure product quality through returns	OC	√	√	NO
Measure consumer satisfaction on order cycle	OC	√	√	√
Measure seller performance (order value, volume) in a given period	OC	√	√	NO
Measure time taken to resolve consumer query/ issue	PC, OC	√	√	√
Measure consumer satisfaction on query/ issue resolution	OC	√	√	√
Measure number of completed returns request	OC	√	√	NO
Measure time taken to process refunds on returns request	PC, OC	√	√	NO
Support sellers through community platform	RC	√	√	NO
Assist sellers with setup (registration, catalogue creation, statutory setup, etc.)	RC	√	√	√
Assist Sellers with issue resolution	RC	√	√	√
Connect with seller through calls and meetings	RC	√	√	√
Create promotional events	RC, SC	√	√+	NO
Encourage sellers to recruit new sellers to the platform	RC	NO	√	NO
Organize seller group events	RC	√	√+	NO
Organize seller appreciation events	RC, SC	√	√+	√
Promote seller success stories	RC, SC	√	√+	NO
Provide access to comprehensive training material	RC, SC	√	√	√
Provide training on platform norms, values and objectives	RC	√	√	√
Provide training on platform processes (order delivery, consumer issues/queries, returns management) and performance criteria	SC, PC	√	√	√
Provide seller best practices training (QC, packaging, shipping, warehousing)	RC, SC	√	√	NO
Sellers decide re products, pricing, promotion, QC, packaging, shipping	SC	√	√	√
Consumers may return product if not satisfied with quality, packaging etc.	SC	√	√	√
Automatically cancels order if not shipped within specified timeframe	SC, PC	√	√	√
Display service and product performance matrices on seller's dashboard	OC, SC	√	√+	√
Display consumer ratings and feedback on seller's dashboard	OC, SC	√	√	NO
System-generated seller ratings based on order performance and consumer experience	OC, PC, SC	√	√	NO
Display seller product ratings and past consumers feedback to consumer	OC, SC	√	√	√
Display system-generated seller service performance rating to consumer	OC, SC	√	√	NO
Preferential display of products from high performing sellers	OC, SC	Ö	Ö	NO
List highly rated products prominently on portal	OC, SC	Ö	Ö	NO
Link financial benefits with order performance	SC	Ö	Ö	NO

Key OC: Outcome Control PC: Process Control RC: Relational Control SC: Self-Control

Shraddha Danani is a Fellow of Management (Digital Platform Control) from Management Development Institute, Gurgaon, India. Additionally, she holds Bachelor of Engineering from Mumbai University. She has more than two decades of experience in the areas of Information Systems, Digital platforms, e-Commerce, Retail, Entrepreneurship, Management Control systems. She has published case with Ivey Publishing & Case Center on management control system designing challenges. Prior to research, she has worked with organizations like Accenture, Tata consultancy Services. She had successfully founded and grown ventures in the eCommerce & retail sectors. She has keen research interests in digital platform entrepreneurship and governance domain. She leads Digitalisation capability at Tata Services Ltd.

Janis Gogan, Full Professor of Information & Process Management at Bentley University, teaches and conducts research on strategic IT management. She earned EdM, MBA, and DBA degrees from Harvard University. Recent studies focused on health care IT, pilot testing blockchain and machine learning applications, lean agile software development, strategic information security management, and other strategic IT management topics. Her CV lists more than 150 publications in journals such as BPMJ, CAIS, Case Research Journal, Electronic Markets, Government Information Quarterly, Information Systems Frontiers, Information Systems Journal, International Journal of Electronic Commerce, JIT, JMIS, MIS Quarterly-Executive, The Information Society, and conference proceedings such as AMCIS, AoM, ECIS, HICSS, and ICIS. She serves on editorial or advisory boards of Case Research Journal, Health Policy & Technology, JAIS, JIT and JMIS. Many of her teaching cases have been discussed at universities around the world; some won awards or were HBS best-sellers. Gogan conducts workshops on rigorous and relevant ("Double Impact") case research, and she is a past president of NACRA, the case research association.

Prageet Aeron is a Fellow of Management (Computers and Information Systems) from Indian Institute of Management, Ahmedabad and a Chemical Engineering graduate from IIT-BHU, Varanasi. His primary areas of research have been Entrepreneurship, Technology Strategy, and Telecom Policy and Network Economics. His teaching interests include IT Strategy, Artificial Intelligence and Data Analytics.

Kirti Sharma holds a Ph.D. in Marketing and Services Management with emphasis on Consumer Perceptions and Satisfaction. A Master's degree in Marketing Technology (with distinction) and a Bachelor's degree in Science from Kurukshetra University, Kurukshetra, India. She has a teaching experience of over 18 years. Before joining academics, she has worked in companies like Cipla limited, Thompson Consumer Electronics etc. for close to 4 years. She has held various teaching and administrative responsibilities during her academic tenure. At MDI, apart from her academic output, she has collaborated with Govt. of Haryana Directorate of Urban Local Bodies as a consultant for marketing communication and content development for Smart Cities in the State of Haryana, India. Furthermore, she has completed an assignment in the capacity of a consultant with Government of India's Ministry of Micro, Small and Medium Enterprises (MSME) on the evaluation of Prime Minister's Employment generation programme (PMEGP scheme). She has also acted as a Honorary consultant to Khadi and Village Industries (KVIC) for the marketing of KVIC products. She has published five cases with IVEY publishing and Case centre.

Mahadeo Prasad Jaiswal is a renowned professor of Information Management area. He is director of Indian Institute of Management, Sambalpur.