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HOW DIGITAL MARKET HOSTS CONTROL SELLERS

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Abstract How do hosts of digital markets exercise control over sellers? Our three-case study, set in India, reveals that seller control portfolios used by large digital market hosts differ from control portfolios in other contexts (reported in prior research). The platform host neither preselects nor hires most sellers; this limits hosts' control options. The platform supports many short-duration transactions, yet some related processes take place offline – again limiting hosts' control options. In this context of many-sellers, many-buyers, digital market hosts (similar to other controllers) attempt to balance formal and informal controls. By identifying specific control mechanisms that hosts utilize, our study findings provide a useful foundation to support further research on control challenges in digital markets and other digital platforms.

Keywords:

digital market, digital platform, control, case research

1 Introduction

Control is both necessary and insufficient to digital platform success (Tiwana et al. 2010; Buchwald et al. 2014, Shafiei Gol et al. 2019). A digital market is a digital platform that connects buyers and sellers via their computers or mobile devices. Digital market hosts confront several control challenges. Sellers are not platform employees, and most sellers are independent entities; they voluntarily participate and may exit at any time. Unlike many other digital platforms, on a digital market many sales transactions involve both on-platform and off-platform processes. Because of this, the platform host's control leverage is limited (Felin & Zenger 2014). Their control authority is further constrained by the fact that hosts and sellers are not co-located (difficult to observe off-platform behavior). Reflecting these and other concerns, prior studies indicate that many platform hosts try to coax participants to align with platform priorities (Parker & Van Alstyne 2018), such as by orchestrating participants' interactions (Brown & Grant 2005; Tiwana 2014). Most platform hosts aim to strike a balance between tight and loose control, and between attracting and controlling buyers and sellers (de Reuver et al. 2018, Parker & Van Alstyne 2018).

Some helpful automated controls are embedded in digital platform software (Parker & Van Alstyne 2018), and hosts also have the option of evicting participants who misbehave (Parker & Van Alstyne 2018; Aulkemeier et al. 2019). Since eviction is a last resort, it would be helpful to chronicle in detail how digital market platform hosts actually exercise control over sellers, by closely examining their seller control portfolios, and circumstances that influence which controls are used and when. A recent study (Croitor et al. 2021) investigated sellers' perceptions about digital market hosts' use of two formal and informal control modes (described below). However, to date no prior in-depth study has comprehensively examined how digital market hosts exercise control over sellers. Thus, our three-case study posed the following research question: *How do digital market hosts exercise control over participating sellers?*

1.1 Brief Overview of Prior Control Research

An organization's portfolio of manual and computer-based control mechanisms aims to prevent, detect, and correct adverse events, in ways that align with strategic and operational priorities for organizational control (Cardinal et al. 2017), accounting control (Gelinias & Dull 2008), or IS control (Kirsch et al. 2002;

Choudhury & Sabherwal 2003; Heiskanen et al. 2014; Remus & Wiener 2012, Wiener et al. 2019). Prior studies categorize control mechanisms in two modes: 1) *formal* (process controls and outcome controls) and 2) *informal* (relational controls and mechanisms that support self-control) (Chua et al. 2012; Merchant & Van der Stede 2017). Until recently, prior platform studies articulated control challenges and offered guidance on balancing control portfolios in terms of these higher-level control modes; most prior platform control studies did not closely investigate the specific formal and informal control mechanisms hosts used to achieve balanced control (Yoo et al. 2012; Halckenhäusser et al. 2020).

A survey of sellers on Amazon and Etsy (Croiter et al. 2021) reveals that control perceived to be strict (e.g., screening mechanisms that block undesired sellers) negatively affect sellers' intrinsic motivation, their perceptions of platform usefulness, and their satisfaction with the platform. Informal relational controls -- what Ouchi (1980) referred to as Clan Control -- positively influenced seller perceptions. Croitor et al. contributed helpful early findings on sellers' attitudes about specific controls, and their behavioral intentions. A recent literature review (Danani, 2021) called for in-depth comprehensive examination of specific control mechanisms that digital market hosts use to exercise control over sellers.

The remainder of this paper is structured as follows. In Section 2 we describe our research method. After presenting findings from our three-case study in Section 3, we briefly discuss those findings which are consistent with prior control studies, and point to other findings which uniquely reflect the digital market context. In Section 4 we discussion contributions, study limitations, and future research opportunities.

2 Research Method

Case research is appropriate for learning 'how' and 'why' managerial phenomena unfold in complex contexts (Yin 2009). Our three-case study sought to learn in detail how digital market hosts exercise control over sellers. We identified three prominent digital markets operating in India (home country of first author). Each digital market serves many consumers and many sellers. MC, GC, and FC (companies anonymized) are each at a mature stage of operations (neither startup nor in decline). Each digital market connects many consumers with 100,000 or more sellers, offering many

products. From left to right, Table 1 summarizes key features of these three digital market cases, in the order in which we gathered data.

For each case, semi-structured interviews were conducted with an operations manager, merchant manager, operations head, and merchant head. Snowball sampling led us to other interviewees. Interview and site observation notes were typed within 24 hours and corroborated/triangulated case findings were confirmed with each firm’s operations manager and also with owners of some seller firms. 12 interviews were conducted at MC , 12 at GC; 9 at FC. Interview findings were compared with more than 360 company resources, including training materials, policy documents, manuals, dashboards, digital communications, and observed system interfaces. Here are two triangulation examples: 1) A content manager’s interview was corroborated with MC's catalogue creation guideline documents. 2) An operations manager interview was corroborated with training documents, seller portal and operations guideline documents.

Table 1: Three Digital Market Hosts

MultiCart (MC)	GlobalCart (GC)	FastCart (FC)
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 120,000 active sellers	300,000 sellers 60% to 75% active sellers
100M + consumers	150M + consumers	10M + consumers
In 2007 MC_targeted a niche market. Later it expanded into electronics, apparel, appliances, books, toys, other consumer products, and groceries. Today it targets consumers all over India.	GC operates in many countries; this study focused on its operations in India. Its systems and infrastructure connect small to medium size mostly-independent sellers with consumers all over India.	FC does not produce or trade any products under its brand. Its logistics infrastructure services 3000 Indian cities. FC targets consumers in smaller towns. It offers low-price high-volume products.

Our analysis utilized both a positivist lens (we coded case data for known control mechanisms, classified in informal or formal control modes), and a grounded theory lens (we identified control mechanisms not discussed in prior studies and, iterating between data collection and analysis, we identified new control themes). Thus, both open and axial coding described each organization's control portfolio. For example, three open codes – *specify delivery milestones*, *specify target timeframe*, *clearly defined interaction success criteria* -- were grouped into an axial code: *Clearly defined performance criteria*.

When necessary, we re-contacted interviewees to clarify details and obtain supporting documents (e.g., after analysing a merchant manager interview, we asked this interviewee to clarify details about performance metrics and evaluation criteria). Interview findings were corroborated via primary-source or secondary-source documents and other interviews. This helpful triangulation led us to modify some initial concepts. For example: we saw that MC training documents and guidelines transferred process knowledge to sellers. Later, we obtained evidence indicating that training did help sellers perform effectively. Thus, we mapped training to both formal process control and informal self-control.

3 Study Findings

The study findings revealed that hosts' seller control portfolios are comprised of control mechanisms implemented at three levels: system (automated control mechanisms), participants (control exerted by host employees, consumers, peer sellers and seller themselves) and host firm (policies, initiatives, values and culture). Figure 1, a Digital Market Seller Control Framework, summarizes three broad levels of control mechanisms (automated, participant-level, host firm-level), mapped to formal and informal control modes, and influencing consumer-seller interactions.

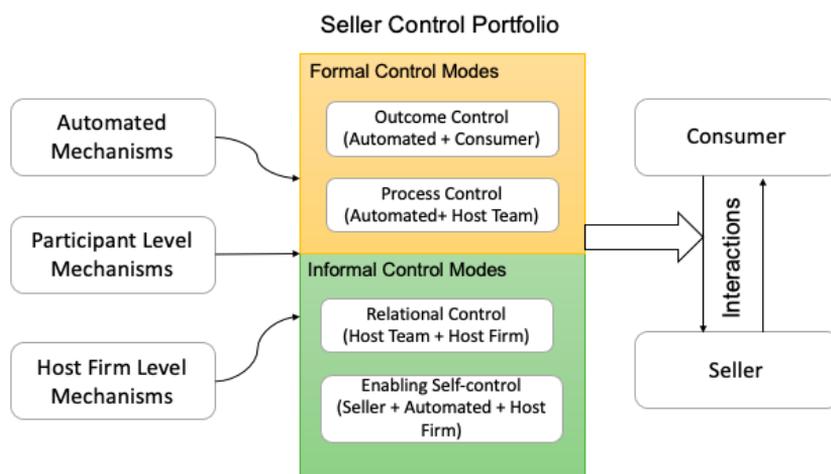


Figure 1: Digital Market Platform Seller Control Framework

Table 2 (shaded in grey) summarizes conventional (single-mode) formal and informal seller controls identified in the three cases. Table 3 (not shaded) summarizes hybrid (multi-mode or multi-mechanism) controls in the three cases.

Table 2 Three-Case Comparison: Single-Mode Controls in Digital Market Platforms

Mechanism	Mode	MC	GC	FC
Formal Controls OC: Outcome control PC: Process Control a: automated f: firm p: participant				
Verify adherence to catalogue guidelines, participation terms	PC a, p	√	√	√
Measure rate of order acceptance by seller	OC a	√	√	NO
Measure consumer returns (indirectly gauge product quality)	OC a	√	√	NO
Measure product quality through customer returns	OC a, p	√	√	NO
Measure consumer satisfaction on order cycle	OC a	√	√	√

Measure seller order (value + volume) in a given period	OC a	√	√	NO
Measure consumer satisfaction on query/issue resolution	OC a, p	√	√	√
Measure number of completed returns request	OC a	√	√	NO
Informal Controls RC: Relational Control; SC: Support of Self-Control				
Support sellers through community platform	RC p, f	√	√	NO
Assist sellers with registration, catalogue creation, other setup	RC p	√	√	√
Assist sellers with issue resolution	RC p	√	√	√
Connect with seller through calls and meetings	RC p	√	√	√
Encourage sellers to recruit new sellers to the platform	RC p	NO	√	NO
Organize seller group events	RC f	√	√ +	NO
Training: platform norms, values and objectives	RC f	√	√	√
Sellers decide re pricing, promotion, QC, packaging, shipping	SC p	√	√	√
Link financial benefits with order performance	SC a, p	√	√	NO

Most formal controls are enacted via automated systems. An MC operations manager stated that automated controls monitor consumers' product return requests, and that “we do not monitor if the seller packed the right product, as ordered by the consumer.” GC’s operations manager said “For every order, performance against checkpoint parameters is recorded. The system calculates average value [for] a 30-day [period].”

Table 3 Three-Case Comparison: Hybrid Controls (multiple mechanisms/modes per control)

Mechanism	Mode	MC	GC	FC
Controls that Combine 2 Formal Modes PC: process control; OC: outcome control				
Measure time to pack and ship	PC a, OC a	√	√	√
Measure time to deliver to end consumer	PC a, OC a	√	√	NO
Measure pickup reattempt rate	PC a, OC a	N O	√	NO
Measure time taken to resolve consumer query/issue	PC a, OC	√	√	√
Measure time taken to process refunds on returns request	PC, OC	√	√	NO
Controls that Combine 2 Informal Modes RC: relational control; SC: support for self-control				
Create promotional events	RC, SC	√	√ +	NO
Organize seller appreciation events	RC, SC	√	√ +	√
Promote seller success stories	RC, SC	√	√ +	NO
Provide access to comprehensive training material	RC, SC	√	√	√
Best practices training: QC, packaging, shipping, etc.	RC, SC	√	√	NO
Controls that Combine Formal and Informal Modes				
Training: order delivery, queries, returns), performance criteria	SC, PC	√	√	√

Automatically cancel order if not shipped on time	SC, PC	√	√	√
Display system-generated seller service rating	OC, SC	√	√	NO
Prominently display high performing sellers' products	OC, SC	√	√	NO
Prominently display products highly rated by consumers	OC, SC	√	√	NO

Hosts rely on employee teams to manually measure sellers' content quality, and rely on consumers to judge sellers' product and service quality. All three hosts encourage consumers to evaluate sellers via quantitative and qualitative ratings of product quality, service experience, and seller query resolution. These ratings are displayed on or linked to sellers' product listing pages). Consumer evaluations weigh heavily in hosts' overall seller ratings (along with sellers' sales per evaluation period).

All sellers receive training that explains terminology, processes and instructions. MC and GC community portals target all sellers with these resources. Other informal controls aim to build relationships with sellers. Host teams attempt to keep sellers engaged with their platform (participant-level relational controls). For example, MC and GC invite high-performing sellers to local city chapter events. "Sellers who perform well are very important for us," said an MC Operations Manager. "We need to ... support them if there is an issue." Awards and recognition events (firm-level controls) also aim to strengthen high performing sellers' association with the platform. A host merchant coordinator organizes meetings, calls, awards events, advanced training seminars and other events. MC merchant coordinator: "We meet up with them, one to one or in a group setting, region-wise. "

Other control mechanisms encourage seller self-control, and these intertwine with formal controls, such as performance-triggered rewards and penalties. MC's Operations Manager stated that sellers "control their performance. We openly display their performance report card ... [Sellers try to] keep their consumers happy and get good ratings." FC manager: "The weighted average of customer ratings for a seller is displayed next to seller name on every product listing. Future customers can view the rating, identify the reason ..." Hosts respond to poor performance with

warnings or penalties. GC Operations Manager: “We observe [a problematic seller] for a fixed number of days. If performance does not improve, we completely deactivate the seller account and remove all listings.”

4 Contributions, Limitations and Directions for Further Research

The three cases reveal that hosts use many formal and informal controls, including providing resources that enable seller self-control. Hosts also deputize consumers to exercise control over sellers, through quantitative ratings and qualitative feedback. Consistent with the ‘Goldilocks’ challenge (Ghazawneh & Henfridsson 2013), hosts aim for balance; that is, overall control that is neither too-tight nor too-loose (Tiwana 2014; Benlian et al. 2015). In digital markets, the Goldilocks challenge appears to be partly influenced by interdependence among hosts, sellers and buyers, and partly influenced by the fact that sellers and consumers are only loosely tied to the market platform (they can buy or sell elsewhere). In this interdependent yet loosely-coupled context, hosts apply tight system-based controls, and authorize consumers to exercise tight control by evaluating sellers' product and service quality. Hosts offset tight controls with looser informal relational controls and by mechanisms that support seller self-control. We believe a similar balancing of formal/informal and preventive/detective controls likely applies in other contexts characterized by both interdependence and loose coupling -- such as platforms that support ride-sharing, short-term home rentals and other 'sharing economy' services. Future in-depth and holistic case studies set in these other digital platform contexts are still needed.

Our study was based in India, which limits the generalizability of our findings. Future case studies can usefully focus on culturally-different contexts like Europe, North or South America, East Asia, and Africa. An embedded-cases study of a huge multinational like Amazon or AliBaba could investigate why and to what extent controls are chosen and exercised differently by headquarters versus managers in different regions. Our study provides a helpful foundation for future case studies as well as large-sample surveys investigating hosts' reliance on specific seller control mechanisms (in differently-configured control portfolios).

Our study did not directly examine how specific controls affect seller employees' attitudes or behaviour (an important early contribution of Croitor et al. 2021). In future studies, it would be helpful to take a 360° view of stakeholder responses to a broader set of formal and informal control mechanisms (important, since hosts need to fairly balance sellers' and consumers' interests). Studies informed by service-dominant logic (Lusch & Nambisan 2015) could helpfully explore whether and how value cocreation (or inadvertent value destruction) is associated with differently-configured digital platform control portfolios.

In our three cases, hosts focused on building relationships with high-performing sellers. As for high-potential (but as yet under-performing) sellers (e.g., those serving small but profitable market niches or offering innovative products which consumers do not yet understand): our findings suggest that digital market hosts adopt a 'sink or swim' approach. Perhaps this is because a seller's success potential is hard to spot. Stronger data analytics might help hosts identify high-potential sellers by attending to faint signals that point to consumer acceptance and likely profitability in small market niches. Future design-science studies could contribute, by testing alternative analytic techniques that may strengthen those faint signals.

Our three-case study revealed that digital market hosts allow sellers to decide how to carry out many processes (on-platform and off-platform). Advanced information systems and supporting infra-structures might in future enable hosts to exercise tighter automated control. Our case study provides a basis for comparison with future studies that could chronicle whether and how host control changes as smarter systems (supported by artificial intelligence, blockchains, etc.) take on additional control functions, and also chronicle how host employees, sellers and consumers react to such changes. Given the rapid evolution of ICT, many future studies utilizing multiple research methods, are needed, to continue to shed helpful light on mechanisms of control in digital markets and on other digital platforms.

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