# Defying the Unfortunate Destiny of Platform Complementors: Managerial Guidelines for

## **Adopting Effective Safeguards**

### Alain Verbeke\* and Wenlong Yuan\*\*

\* Professor of International Business Strategy, McCaig Chair in Management, Haskayne School of Business, University of Calgary, Calgary, Alberta, T2N 1N4, Canada E-mail: alain.verbeke@haskayne.ucalgary.ca phone: +1 403 220-8803 fax: +1 403 282-0095

And Inaugural Alan M. Rugman Memorial Fellow, Henley Business School, University of Reading, United Kingdom

> And Adjunct Professor, Solvay Business School, Vrije Universiteit Brussel, Brussels, Belgium

\*\* Professor of Entrepreneurship Stu Clark Chair in Entrepreneurship and Innovation Asper School of Business, University of Manitoba 181 Freedman Crescent, Winnipeg, MB R3T 5V4 Canada Phone: 204-474-9729 E-mail: wenlong.yuan@umanitoba.ca

## forthcoming, Strategic Management Review

Keywords: bounded rationality, bounded reliability, complementors, Platform, transaction cost

theory

## Acknowledgments

We are grateful to the special issue editors Fabrice Lumineau and Arvind Malhotra, as well as an anonymous reviewer, for their constructive guidance during the review process. We further appreciate the insightful discussions at the SMR Special Issue Virtual Conference in 2024.

#### Abstract

We examine through a transaction cost theory (TCT) lens how complementors in digital networks can adopt safeguard mechanisms vis-à-vis the Platform they are associated with. We review various expressions of bounded reliability (BRel) emanating from Platforms, as documented in influential scholarly work, and we describe an arsenal of safeguard mechanisms complementors can adopt and that we have synthesized under the heading of *MIDAS*-model. We also assess how the cultural, administrative, and geographic distances between Platform and complementors can bias the latter's perceptions of the Platform's behavioral proclivities: complementors systematically tend to misjudge and overestimate the Platform's reliability towards its partners. Such bounded rationality (BRat) related bias creates *de facto* hurdles for complementors to effectively safeguard against the Platform's BRel.

#### Introduction

Mainstream research on digital Platform firms (hereafter 'Platforms') often focuses on subject matter such as network effects, Platform technology, structure and governance, etc. primarily from the perspective of the Platform itself (e.g., Chen et al., 2022a) and much less from the perspective of complementors or Platform-dependent entrepreneurs (e.g., Cutolo and Kenney, 2021; Tschang, 2021). The Platform itself functions as a mega-organization, and more specifically as a two-sided or multi-sided market and the hub of a network, whereas the complementors often function as rather easily substitutable spokes in this network. The key questions raised in research typically address the determinants of Platform success and how Platforms (should) manage relationships with their complementors (Chen et al., 2022a). Even when researchers utilize complementors as the unit of analysis, they tend to highlight how the Platform secures and manages complementor engagement to serve the Platform's interests and its network; the interests of complementors are seldom considered a major concern (Saadatmand, Lindgren, and Schultze, 2019).

An emerging stream of research has started to adopt a complementor-centric perspective (Cenamor, 2021; Chen et al., 2022b; Johnson et al., 2022). This research analyzes the complementors' strategies and capabilities required to survive and thrive in a Platform-driven environment (Zabel, O'Brien, and Natzel, 2023). However, researchers tend to have conflicting views about whether complementors should craft and adopt specific safeguards in their relationship with the Platform, despite this relationship being critical for complementors to create and capture economic value (Hein et al., 2020). Some scholars have argued that the power imbalance between Platform and complementors creates hazards for the latter; they therefore need to incorporate elements of resilience in their strategies, such as through multihoming and

income diversification, to mitigate their vulnerabilities (Cutolo and Kenney, 2021). In contrast, others contend that in well-defined situations, such as with a creative community Platform, this firm typically engages in benign and mutually beneficial actions. In the latter context, the business model emanating from the Platform itself should supposedly mitigate potential abuse of power by any participant in the community (Tschang, 2021).

The conflicting arguments about the need for complementors to safeguard against Platforms raise three important questions. *First*, the possible opportunistic or otherwise unreliable behavior of Platforms warrants introducing countervailing safeguard mechanisms. However, if Platforms indeed engage in benevolent behavior towards their network, is it then still necessary to focus on safeguards (Tschang, 2021)? *Second*, how do (or should) complementors determine Platforms' behavioral proclivities, i.e., whether opportunism or otherwise unreliable behaviour could appear or whether on the contrary promises made to complementors will mostly be respected? *Third*, if complementors determine they need safeguards against hazards brought about by a potentially unreliable Platform, what options should they contemplate in this regard?

These questions echo a fundamental concern in the strategy literature regarding the governance of interfirm relationships (Argyres, Lumineau, and Zanarone, 2025). Reflecting on generations of strategy scholarship, Leiblein and Reuer (2020) have argued that concerns about opportunistic behaviour associated with moral hazard, shirking, and adverse selection have led to well-received theories on discriminant alignment between transactional attributes and governance forms (e.g., Williamson, 1991). This strand of strategy research has examined the conditions under which markets, firms and hybrids may prevail (Leiblein, 2003; Pisano, 1990; Walker and Weber, 1984). Much research following this strand has applied transaction cost

theory (TCT) and has considered knowledge misappropriation risk (often related in part to information asymmetries) as a key determinant of governance choices (Reuer, 2024).

In this article, we adopt the TCT based perspective of bounded reliability or BRel (Kano and Verbeke, 2015; Verbeke and Greidanus, 2009). We develop a conceptual analysis of the antecedents of safeguard mechanisms that complementors can adopt, as shown in Figure 1. This figure highlights two conflicting forces, namely the BRel of the Platform and the complementors' assessment of the Platform's behavioral proclivities. Here, Platform reliability tends to be misjudged and overestimated for bounded rationality (BRat) related reasons we explain below. The conflicting forces shown in Figure 1 affect the perceived need for safeguard mechanisms and influence the subsequent adoption thereof.

Insert Figure 1 about here

The first force driving the need for safeguards in Figure 1 is the (situational) BRel of the Platform. Such BRel determines the need for complementor safeguard mechanisms, whereby a spectrum of safeguards is available. BRel emanating from a Platform suggests that complementors should, as a general rule, contemplate introducing safeguard mechanisms to protect their own interests. Human frailty is a universal occurrence in commercial exchanges though the observable or expected level of unreliability may be situational. Even without opportunism being in play and when credibly assuming a Platform's benevolence (e.g., based on its reputation for honest business dealings), the Platform's practices might still harm the interests of complementors because of various other expressions of BRel.

The second force described in Figure 1 is the relationship between the complementors' assessment of the Platform's behavioral proclivities and the resulting perception as to which safeguard mechanisms are needed. Here, complementors may develop a biased perspective on

the behavioral proclivities of the Platform – misjudging and underestimating various forms of unreliability – and they may therefore be only weakly motivated to safeguard *ex ante* against the Platform's unreliability. As a result of this occurrence of bounded rationality (imperfect information and information processing capacity), a misaligned governance system will arise, which can ultimately be detrimental to the complementors.

Our paper proceeds as follows. We will briefly review the current literature on complementors, and we will present examples of BRel of Platform firms. We will then discuss various scenarios of complementor vulnerability and suggest a spectrum of safeguard mechanisms that complementors can adopt. Finally, we will examine how complementors should assess the behavioral proclivities of a Platform and the challenges brought about by various components of distance vis-à-vis this Platform.

#### The Platform Firm and Emerging Research on Complementors

The research on Platforms has gained significant traction in the past twenty years, covering a broad array of subject matter, including network effects, governance structures, conditions for value creation, and competitive strategies. A *first* key area of interest in Platform research has been that of network effects, whereby the value of a Platform supposedly increases as more users join its network. In reality, both positive and negative network effects can arise, and various studies have explored how Platforms can harness these effects (Cennamo and Santalo, 2013). For instance, at the downstream end, they can adopt strategic user acquisition and engagement policies to balance the needs for growth and quality (McIntyre and Srinivasan, 2017). More generally, multi-sided Platforms such as Google, which is accessible free of charge for users but

not for advertisers, often design pricing structures subsidizing one side of the market to attract the other, thereby making Platform usage more valuable to all parties involved (Rysman, 2009).

A *second* key area of research has been that of Platform governance. This research stream has focused on how Platforms manage the behaviors of participants and the interactions among them, within their network (Gawer and Cusumano, 2014). Governance studies have assessed the dimensions and outcomes of a variety of network governance models, for example the extent to which the Platform firm exerts control over network activities (Tiwana, 2014), and the significance of specific governance mechanisms such as rules, pricing policies, and entry requirements (Boudreau and Jeppesen, 2015). There has also been an increasing interest in sensitive areas related to governance such as industry competition and regulatory oversight of Platform market behavior, especially as Platforms wield significant power over market access by other parties (Eisenmann, Parker, and Van Alstyne, 2011).

A *third* research area has focused on the value creating mechanisms that Platforms can deploy. The question is how Platforms facilitate innovation and generate network-based value. Platforms can use business models that are transaction-based (e.g., eBay), innovation-based (e.g., Android), or hybrid in nature (e.g., Amazon); in each case they aim to achieve a vibrant network of complementors to maintain Platform growth and to heighten user engagement (Ceccagnoli et al., 2012; Cusumano, Yoffie, and Gawer, 2019).

Despite the significant growth in Platform studies, three important research gaps remain. *First*, scholars have devoted comparatively little attention to the vantage point of the complementors, as compared to that of the Platform firm itself or the Platform network in its entirety. As a Platform's network may comprise a diverse set of participants such as content developers, vendors, third-party service providers and users (Kretschmer et al., 2020), the

interests of these multiple participants can be intertwined and conflicting. For example, Platform design to promote intra-network competition (for instance through financial incentives to reward individual complementors' performance in isolation of the contribution of others to this performance) can come at the expense of productive cooperation among complementors, which in turn may require Platforms to balance the tensions between competition and cooperation. The Platform firm (i.e., its owners or controlling parties) systematically performs a central role in managing relationships and in aligning incentives to encourage innovation and participation from network members. Individual complementors (or groups of complementors) are often secondary parties in network functioning, with their roles and behavior fully determined by Platform features. This explains why complementors are usually peripheral in extant research.

However, the sheer number of complementors, in the sense of having numerous (mostly) small and medium-sized firms, potentially fully dependent on a single Platform firm, suggests it is important to examine their strategies and behaviors in relation to the Platform. Recognizing the lack of attention paid to complementors, a small number of researchers have started to place complementors at the center of their analyses (Cenamor, 2021; Chen et al., 2022b; Johnson et al., 2022). Some of this research focuses on complementor performance and examines its determinants, such as the market position of the Platform (dominant or not) (Rietveld, Ploog, and Nieborg, 2020) and the opportunities for multihoming (Cennamo, Ozalp, and Kretschmer, 2018; Polidoro and Yang, 2024). Other scholars have adopted a power perspective, focusing on the power imbalance between the Platform firm and its complementors, and the impacts thereof.

*Second*, paying attention almost exclusively to the Platform firm and its network typically implies having limited awareness of its 'dark side' and the potentially negative effects on complementors. Here, Pierce (2009) finds that complementors can suffer financial losses and

may even exit the market if core firms create turbulence in their network. Current literature has identified two major reasons for this negative impact. The first reason for a negative impact is the complementors' one-sided dependence on the Platform firm (Cutolo and Kenny, 2021; Eisenmann, Parker, and Van Alstyne, 2011; Nambisan and Barron, 2021). This dependence can result from the vast scale of the Platform's user base, or from its proprietary technology that is only accessible from inside its network, or from high switching costs when leaving the Platform (Lv and Schotter, 2024). Lv and Schotter (2024) suggest that complementors face a "Faustian bargain", whereby they relinquish autonomy in exchange for network participation and lock themselves into specific strategic pathways set by the Platform. The second reason for a negative impact is the role conflict and stress experienced by entrepreneurs (i.e., leaders of complementors) when becoming part of the Platform's network (Nambisan and Baron, 2021). Especially if the entrepreneur operates a new venture, conflicts between the complementor firm's interests and network interests can cause significant conflict and interfere with the complementor's performance.

*Third*, given the large and sometimes negative impact of Platforms on complementors, a few researchers have proposed mechanisms to curb expressions of the former's dark side to protect the latter's interests. These mechanisms include (exogenous) regulatory and legal practices such as mandatory interoperability to increase transparency and contestability, bottom-up collective action by low-powered complementors, top-down improvements by Platforms themselves (possibly to retain a social license to operate), and cooperative approaches involving network partners (see, e.g., Lv and Schotter, 2024; Rahman, Karunakaran, and Cameron, 2024).

In addition to engaging in collective action, an individual complementor can also choose to go beyond functioning as a passive receiver of Platform-imposed rules and practices. In this case, the complementor establishes firm-specific safeguards. For example, Wang and Miller (2020) suggest that complementors anticipating potential losses as a result of the Platform's (self-centered) actions, may seek viable options for value creation and capture outside of the network to increase their bargaining power.

However, scholars differ as to the best approaches individual complementors can adopt to mitigate their vulnerabilities and defy an unfortunate destiny. There have been conflicting assumptions about the behavioral proclivities of the Platform firm. These assumptions can range from opportunism (e.g., Cutolo and Kenney, 2021) to benevolence (e.g., Tschang, 2021). For instance, Cutolo and Kenney (2021) propose the usage of strategies such as multihoming to counter Platform unreliability. In contrast, Tschang (2021) argues that certain business models such as those focused on the sharing economy, or on nurturing new product lines, or on growing the network, may be sufficient to keep in check any negative behavioral proclivities of Platforms and that there is no need for dedicated safeguard mechanisms in these situations. However, others have argued that the prevailing safeguard approaches seldom work, and that only multisided accountability systems can enforce Platform reliability (Rahman, Karunakaran, and Cameron, 2024).

The above elements suggest two challenges in current analyses of complementors. *First*, extant literature on complementors appears not to engage with the possible range of behavioral proclivities that Platforms exhibit in practice. *Second*, the responses proposed for complementors to mitigate their vulnerabilities have their roots in diverse literatures, such as sociology, labor relations, and management (Kapoor and Agarwal, 2017; Kellogg, Valentine, & Christin, 2020; Maffie, 2020; Occhiuto, 2017; Vallas and Schor, 2020; Wang and Miller, 2019; Wen and Zhu, 2019), but often fail to consider explicitly how complementors could reasonably

anticipate and interpret Platform unreliability. Below we examine straightforward behavioral assumptions derived from TCT than can be applied to Platforms.

#### **Bounded Reliability of Platforms**

Much management research builds upon specific micro-foundational assumptions supposedly driving the behavior of economic actors, and it thereby provides guidance for improving managerial practice. The late Oliver Williamson popularized the notion of opportunism, or "self-interest seeking with guile" in TCT. Opportunism has been the subject of much debate about the accuracy of its portrayal of human behaviour (Ghoshal and Moran, 1996; Verbeke, 2003). The inaccuracy of the opportunism assumption led Verbeke and colleagues (Kano and Verbeke, 2015; Verbeke, 2013; Verbeke and Greidanus, 2009) to develop the umbrella concept of BRel as a more appropriate assumption about human nature.

BRel refers to "economic actors being reliable, but only boundedly so" (Kano and Verbeke, 2015: 98). BRel proposes that expressed commitments by individuals do not always result in the promised outcomes, and this for three distinct reasons: opportunism, benevolent preference reversal, and identity-based discordance. Opportunism is about intentional deceit. Benevolent preference reversal means that *ex ante* good faith commitments may fail to materialize because preferences are re-ordered over time and the importance of earlier commitment diminishes, or a party to transactions makes too many commitments that then must be scaled back. Reprioritization and scaling back on overcommitments are often observed in real-world managerial situations. Identity-based discordance means that promises made by economic actors may be misaligned with either their own values and identities (regression) or with those prevailing in other organizational units or other parties to transactions (divided engagement), thereby again leading to commitment non-fulfillment.

Different from opportunism, which implies intentional deceit, benevolent preference reversal and identity-based discordance refer to failed commitments in the absence of malevolence (and unrelated to the presence or absence of technical competences to make good on commitments). Benevolent preference reversal can refer to the need to scale back on overcommitments even though these were made in good faith, possibly because of unwarranted optimism or pressures to 'say yes'. It also includes reprioritizing commitments with some being given reduced priority over time, i.e., a reordering of preferences takes place with promises to some parties given lower urgency.

Identity-based discordance, at the individual level, refers to conflicts between a person's commitments and his or her personal values and identity, e.g., expressed as adherence to past practices that drives 'regression,' but it can also apply to units in an organization and to any party in a transaction. Also in this category of failed commitments is 'divided engagement', meaning conflicts between different units in an organization or for instance between different parties in an alliance that engage in sub-goal pursuit at the expense of their commitments towards pursuing overarching organizational or alliance-level goals, but with each party thinking erroneously that its behavior serves these overarching goals.

Below we describe the BRel manifestations of Platforms in more detail, in accordance with what has been articulated in scholarly research. Our TCT-lens reveals that BRel has only been recognized implicitly in current research. We provide two typical examples of BRel, as highlighted in the Platform literature.

Rietveld, Schilling, and Bellavitis (2019)

Rietveld, Schilling, and Bellavitis (2019) studied Platforms and analyzed these firms' incentives, ability, and opportunity to manage their respective networks as they see fit. They tried to answer the question whether and how Platforms engage in 'selective promotion' activities, i.e., choose at the input side particular complementors who will receive endorsements, and benefit from special campaigns and awards. Selective promotion can confer advantages to both the complementors chosen and to the overall network. This Platform practice has various implications. *First*, complementors may compete among each other, and selective promotion can influence the competitive dynamics among the complementors by changing at the output side customers' perceptions of their products and services. *Second*, as interdependencies may exist among complementors, selective promotion can increase (or reduce) the appeal of an entire product portfolio, thereby increasing (or reducing) the value of segments in the Platform's overall network.

Rietveld et al. (2019) found that Platforms are more likely to promote complementors with products that are of good quality and achieve commendable sales volumes, but not the ones with either poor sales or the best initial sales. Moreover, as collective value creation by the entire network is important for the Platform's own survival and prosperity, the latter will be more inclined to promote product categories in which it does not yet occupy a strong position, to broaden its range of users.

Rietveld et al. (2019) focused mainly on Platform strategy, but their findings highlight various forms of Platform unreliability. *First*, complementors may receive differential treatment by the Platform based on what is best for the latter, though researchers on the topic typically view complementors as 'one group' or 'one stakeholder' rather than as different groups based on the Platform's own categorization. *Second*, the potential erosion of complementors' ability to

compete and to create and capture value, does not necessarily result from the Platform's opportunistic behavior, as shown by the instances where selective promotion negatively affects the complementors *not* chosen by the Platform for privileged treatment. Non-chosen complementors likely had an unmet expectation of equal treatment by the Platform, aligned with the 'no need to check' principle, but unequal treatment can best be considered benevolent preference reversal, whereby the Platform re-orders preferences because of factors such as increased competition with other Platforms, perceptions that some complementors will permit higher joint value creation or value capture by the Platform, the objective to balance the Platform's portfolio of products offered, thereby achieving risk diversification, etc.

BRel of the Platform in terms of reneging on the promise (whether explicit or implicit) – and counteracting the expectation – that all complementors will be treated equally and fairly, creates hazards for non-favoured complementors, irrespective of their performance in objective terms. In fact, all complementors face the challenge of becoming disfavoured by the Platform, without any possibility to know in advance the magnitude of this hazard, because of information asymmetries, i.e., a bounded rationality problem.

#### *Zhu and Liu (2018)*

Platforms can deploy a variety of tools to influence complementors, for instance through their unilateral design and revision of governance mechanisms, or through competing directly with complementors. Zhu and Liu (2018) studied Platforms' entry into complementors' markets: they asked which product markets they were most likely to target and what responses complementors were most likely to adopt. They argued that two theoretical perspectives can help predict Platform behavior. One perspective is that Platforms need to maintain the health of the network

they control and are mostly cognizant of likely adverse reactions from complementors to BRellike behavior (Iansiti and Levien, 2004). Complementors could reasonably view a Platform's entries into their product space as reducing their own ability to create and capture value. Perceptions of the Platform acting opportunistically could therefore make it vulnerable to reduced motivation of complementors to contribute to the network. Such perceptions could also lead to retaliation and a breakdown on the network. A second perspective is that Platforms will systematically pursue unilateral value capture based on asymmetrical resource dependency. Free riding on complementors' products reduces the need for Platforms to identify business opportunities themselves, thereby making it easier to capture value.

Based on data about the Amazon Platform's entries into complementors' markets, Zhu and Liu found that Amazon was more likely to have entered markets where complementors had been successful and it tended to avoid those markets that required significant Platform-specific investments. Clearly, Amazon's entries discouraged the affected third-party sellers from growing their business on Amazon. These findings are consistent at best with benevolent preference reversal and at worst with opportunism by the Platform firm.

The more general lesson to be drawn is that when complementors are in the early stage of exploring a market, Platforms will tend to be collaborative to facilitate these complementors' business development. Subsequently, this proclivity to collaborate may be replaced by the goal of unilateral value capture, namely when the market segment has been tested and validated, thereby leading to a re-ordering of commitments. The BRel of Platforms in the form of preference reversal –whether benevolent or as *ex post* opportunism– clearly reduces joint value creation and value capture by the targeted third-party complementors on the Platform. Again,

BRel is allowed to unfold because of information asymmetries, i.e., a bounded rationality challenge facing the affected complementors, combined with asymmetrical dependency.

#### Need for Safeguard Mechanisms for Complementors: A TCT Perspective

The expectation that Platforms may act unreliably suggests that complementors need to develop safeguard mechanisms against such BRel. We develop a conceptual framework based on transaction cost theory (TCT) (e.g., Hennart and Verbeke, 2022; Williamson, 1996) and we highlight four base-level scenarios for complementors. TCT prescribes not only governance structures that economic parties should select to organize interdependences, but it more generally addresses "the identification, explication, and mitigation of all forms of contractual hazards" (Williamson, 1996: 5). Different from the one-sided attention to power asymmetries and the Platform-centric perspectives, our framework centers around complementors and integrates key influencing factors. Following TCT, we categorize safeguard mechanisms as having functional properties *ex ante* and *ex post*, to incorporate both incentive alignment and adaptive capacity.

The first question to be answered in our view considers the *ex ante* design of the governance structure and related safeguard mechanisms: to what extent are these imposed on the complementors versus negotiated between the Platform and complementors? *Ex ante* governance arrangements reflect the rules of the game, such as who will be able to join the network, how to coordinate and incentivize value creation, and how to handle task assignments and conflict resolution (Gawer, 2021). With a logic of multilateral exchange among Platform, (supply-side) complementors, and users, the *ex ante* governance arrangements are likely to result from some type of multilateral interaction among all participants in Platform functioning.

Multilateral negotiations can take two forms. One possibility is that the Platform takes the lead and assumes a dominant role in creating its network and managing the governance

arrangements, in a way that "for nearly all Platform users, the terms and conditions of participation are non-negotiable" (Cutolo and Kenney, 2021: 15). A second possibility is that despite the substantial information and scale advantages Platforms often have over individual complementors, the former's ability to determine the initial arrangements at the time of network creation can vary, depending upon a series of variables. These include the competition level among alternative Platforms, Platform popularity and uniqueness, reputation, access to customers, and the Platform's contract design capabilities (e.g., Cennamo, 2021; Chen et al., 2022b). If the Platform itself is more vulnerable in its competitive environment, early complementors may be able to negotiate more favorable terms and conditions for collaborating with the Platform (Uzunca, Sharapov, and Tee, 2022). For example, even Uber and Airbnb have accepted that initial participants in their networks would be actively involved in the negotiations of terms (Lashinsky, 2017: 92-97, 106; McCann, 2015). We can therefore categorize the ex ante design of safeguard mechanisms into two types, namely those 'imposed' unilaterally on the complementors by the Platform versus 'negotiated' between the Platform and complementors, and therefore typically more favorable to the latter.

The second question considers *ex post* adaptation. From the complementors' perspective, switching costs, meaning the net costs associated with exit from Platform participation (and considering not only a complementor's immediate costs of exiting but also the potential value capture resulting from this complementor selecting an alternative path for doing business) would appear of critical importance. If there is no strong 'lock-in' effect, complementors can migrate to another Platform or mode of doing business at will and the adaptive capacity of governance arrangements becomes inconsequential (Chen et al., 2022a).

Dedicated investments in a Platform and in the related linkages with other parties, as well as the specific skills and experience developed through operating on this Platform, can influence switching costs. A key source of switching costs is asset specificity, meaning: "durable investments that are undertaken in support of particular transactions, the opportunity cost of which investments is much lower in best alternative uses or by alternative users should the original transaction be prematurely terminated" (Williamson, 1985: 55). Operating on a Platform may require unique Platform interfaces and product designs tailored specifically to accommodate the Platform (Agarwal and Kapoor, 2023), which in turn can lead to strong interdependences with other complementors. Network-specific learning can also arise from operating on a Platform, and this would add to switching costs for complementors when exit decisions are considered (Jacobides et al., 2018).

Based on the two above dimensions, there are four scenarios for complementors in terms of needs for safeguard mechanisms, see Figure 2. We discuss these scenarios below.

Insert Figure 2 about here

Quadrant 1. Ex ante safeguard mechanisms imposed on the complementor with high switching costs

In this case, the Platform designs the safeguard mechanisms, and it is challenging for the complementor to exit. This scenario is aligned with the view of scholars who are concerned about power imbalances between Platform and complementors (e.g., Cutolo and Kenney, 2021; Rahman et al., 2024). An example of this scenario is the functioning of the Apple App Store before competing stores were launched by Platforms such as Google and Microsoft (Uzunca, Sharapov, and Tee, 2022). The Apple App store imposes general operating rules on complementors, such as subscription fees to advertise apps on the store and remittance of an

imposed percentage of revenues from paid App downloads. Before Google, Samsung and Microsoft became competitors, complementors on the Apple App store would forego substantial revenues in return for the Platform services provided and face substantial costs if they decided to exit because of the lock-in effect.

From a Williamsonian perspective, there are no witting victims, because complementors selling apps are typically sophisticated economic actors in the knowledge economy, but the reality of exit difficulties remains. For example, Cutolo and Kenney (2021: 585) argued that: "Once lock-in has been achieved, there are very few alternatives and PDEs [referring to Platform dependent entrepreneurs] will inevitably be in a position of dependence. Moreover, PDEs must optimize their operations for the dominant Platform, thereby deepening their lock-in."

# *Quadrant 2. Ex ante safeguard mechanisms imposed on the complementor with low switching costs*

In this scenario, Platforms determine the governance terms that complementors need to accept before they can join the Platform, but the complementors can leave the Platform at will. For example, in their analysis of the human resource management (HRM) practices of the Dutch operations of Deliveroo and Uber Eats, two major online labor Platforms, Meijerink et al. (2021) found that the Platforms had designed clear rules in the realm of selection, training, workforce compensation, performance appraisal, and other HRM practices. Even though the individuals delivering the goods to customers were encouraged to wear branded gear, this gear was rented out or sold at a discount, and the complementors could resign from their role and change jobs at any point. Switching costs were reduced as the external environment became more competitive at the Platform-side and complementors had access to alternatives where they could deploy their services (Tschang, 2021). However, to the extent that the services provided by complementors were easy to substitute by those of others and that standardized contracts allowed significant benefits of scale and integration, there was little incentive for the Platforms to negotiate governance terms with the complementors.

In this quadrant, Platforms such as Uber may look for avenues to increase switching costs. For example, a Platform can award drivers a higher seniority level if they keep working for the Platform for a certain period, and a bonus if they surpass a certain number of weekly rides (Guo *et al.*, 2023). New drivers switching to a new Platform may miss out on the earnings they would have received if they had stayed on their initial Platform. Platforms may also design contracts with non-constant and increasing marginal returns for certain complementors. As one example, earnings accruing to complementors such as restaurants from serving X customers through a Platform, may be less than half of the income from serving 2X customers, thus reflecting the Platform's explicit intent to increase the cost for complementors to exit.

# Quadrant 3. Ex ante safeguard mechanisms favorable to the complementor (negotiated) with high switching costs

This scenario is different from Quadrant 1, as the Platform is willing to negotiate with complementors regarding contracts and governance arrangements more generally. For instance, Liang et al., (2022) describe the formal collaborative relationships between Platforms and infrastructure complementors (i.e., network operators), with the latter tending to be large corporations. As another example, Tschang (2021) documents the friendly acquisition of Bungie (an independent developer) by Microsoft, with the latter allowing not only pre-negotiation of the

contracts between Bungie and Microsoft, but also acknowledging the high levels of mutual dependence.

Various elements can motivate a Platform to negotiate with a complementor on governance arrangements. This motivation can be the need to cultivate the latter's brand name, so as to gain differentiation from the Platform's competitors. The motivation can also be the need to explore in more detail how new sources of revenues might be achieved, and to establish novel governance arrangements in this realm (Tschang, 2021). Finally, the motivation may be the enticement of complementors' entry at the early stage of Platform development (Uzunca, Sharapov, and Tee, 2022). In this scenario of stronger mutual dependency as compared to the situation in quadrant 1 of Figure 2, Platforms are willing to modify their standard governance arrangements and to engage in negotiations with complementors.

# Quadrant 4. Ex ante safeguard mechanisms favorable to the complementor (negotiated) with low switching costs

In this scenario, the governance arrangements are favorable to complementors, and this can have various reasons. Some Platforms may offer favorable terms to promote potential complementors' entry onto the Platform if they see great value creation potential and they may entice complementors to explore new revenue opportunities via the Platform (Tschang, 2021). This willingness to adapt governance terms will become stronger in instances where the Platform has limited bargaining power (Uzunca, Sharapov, and Tee, 2022). Relative bargaining power may be affected not only by complementor characteristics, but also by features and preferences of other actors, in particular those with decision rights to grant the license to operate to the Platform. For example, riding Platforms such as Uber often provide sign-up and referral bonuses to drivers when entering a city market (Chen et al., 2019; Scheiber, 2022). Uber has also needed

to be adaptive in many cities to the concerns of regulators about the contractual conditions offered to drivers. How favorable to complementors these arrangements are with Uber is debatable, but switching costs for drivers have been particularly low, with some drivers even working for more than one Platform at the same time (e.g., for Uber and Lyft in US cities). The combination of flexible (not unilaterally imposed in their entirety) *ex ante* safeguards and low switching costs represents the most favorable scenario for complementors.

#### Safeguard Mechanisms from a TCT Perspective: The MIDAS Framework

Scholars studying complementors have proposed various safeguard mechanisms meant to protect these economic actors against potential unreliability of Platforms (Cutolo and Kenney, 2021; Rahman, Karunakaran, and Cameron, 2024). Such safeguards include, *inter alia*, multihoming (a form of risk diversification) and various types of contractual clauses beneficial to complementors but that may require collective action among these complementors, or partnerships with unions and labor groups, and sometimes interventions from regulators and other actors holding decision rights over the Platform's social license to operate.

We think it is important in the current scholarly discussion about safeguard mechanisms for complementors, to avoid two traps. *First* would be to assume (whether implicitly or explicitly) that a quadrant 4 situation in Figure 2 would ultimately be sufficient to support complementor interests in value creation and capture, associated with their dealings with a Platform. Even in quadrant 4, safeguarding complementor interests will require actions on various fronts, which deserve specific attention, as outlined below. *Second* would be to study complementor vulnerabilities through disciplinary lenses that are ill-equipped to address the governance challenges at hand, typically because of a poor understanding of the real-world behavioral drivers critical to Platform – complementor interactions.

In contrast, we apply and extend TCT thinking on safeguard mechanisms to support complementors in designing governance mechanisms that will ultimately support their interests when facing typically much larger and resource-rich Platforms. The latter generally also benefit from intrinsic asymmetries in the realm of information, dependency and dedicated transactionspecific investments. The fundamental concern of TCT is to: "devise contract and governance structures that have the purpose and effect of economizing on bounded rationality while simultaneously safeguarding transactions against the hazards of opportunism" (Williamson, 1985: viii). The classic works on TCT (Williamson, 1985, 1996) discuss many types of safeguard mechanisms. For example, formal contracts specify the terms of an agreement and can include the codification of informal promises, different phases of task execution, and the expected output from each party to the contract. In contrast, relational norms are common expectations on how parties to an agreement will behave in a variety of situations; they are embedded in a social context and build upon interpersonal information exchange. It is critical to understand that governance is an intermediate variable, providing the conduit between entrepreneurial enactment among parties of opportunities to create and capture value and the actual realization of this value and the ensuing distribution thereof.

As we explain below in the context of complementors, from a governance perspective, safeguarding mechanisms can contribute in five different ways towards mitigating vulnerabilities, collectively representing what we call the *MIDAS* model. *Monitoring* is the foundational element of governance and focuses on information collection and interpretation; *Insuring* prepares parties to transactions to mitigating worst-case scenarios, but without

necessarily requiring any change in the planned business activities themselves; *Dependency creating* and *Attachment creating* focus on strengthening the relationships between parties, in this case complementors and Platforms; and *Shifting* refers to developing backup alternatives for parties. In our case, shifting is focused on complementors considering or crafting options to move away from the current Platform towards other commercially viable opportunities to create and capture value.

These different approaches can in principle all be deployed to protect complementors against any type of BRel emanating from the Platform. We do not propose that some MIDAS mechanisms would be more effective than other ones in addressing a particular expression of BRel. But thinking about (potential) Platform commitment failures as the result of BRel rather than as the outcome of mere opportunism or strong-form self-interest permits taking emotions out of decision-making on safeguards. Recognizing that the intent of a Platform may not be malevolent allows focusing on what truly matters, namely that commitments may be reneged upon and that complementors will suffer as a result. Not only is it critical for complementors to dissociate themselves from romanticized and inaccurate notions of Platform benevolence, it is equally important to avoid assumptions of systemic and dispositional opportunism by this same Platform: the former can lead to inefficient contracting with insufficient safeguards that will ultimately be detrimental to the complementor; the latter can lead to paralysis and foregoing valuable opportunities for creating and capturing value. The behavior of Platforms is not one systemically driven by benevolence, nor is it one where self-interest seeking with guile inevitably rules.

We do not discuss here governance mechanisms focused on changing the fundamental structure or functioning of the Platform itself through collective action by complementors, nor

government regulatory action, nor initiatives from unions and other labor-driven alliances (see Cutolo and Kenney, 2021; Lv and Schotter, 2024, and Rahman et al., 2024). Aligned with Lv and Schotter (2024) we think that current regulatory systems and their implementation apparatus are mostly ill-adapted to monitor digital markets and the societal performance outcomes thereof, including effects on industry competition. New regulatory guardrails for Platforms may well need to be developed that will permit, *inter alia:* (a) assessing the structural conditions that could result in the extortion of complementors; (b) imposing novel information transparency and disclosure rules adapted to digital markets; (c) curbing unduly restrictive firm-level practices imposed on other (weaker) market participants. System-wide changes in Platform governance imposed by regulators may represent the best approach to protect complementors' interests in the long run, but such institutional changes are typically complex and occur at a slow pace (Lv and Schotter, 2024). In contrast, our framework focuses on the practices that complementors can adopt before legal and policy changes take place.

#### *Monitoring (M)*

According to TCT, a critical first step in governance design is related to bounded rationality reduction through putting effort into information gathering and processing, which in itself will reduce the possible scale and scope of BRel: "Transaction cost analysis supplants the usual preoccupation with technology and steady-state production (or distribution) expenses with an examination of the *comparative costs of planning, adapting, and monitoring task completion under alternative governance structures*" (Williamson, 1985: viii). We use the term monitoring in a somewhat broader sense – rather than just controlling task completion – to include information gathering and processing by the complementor on Platform functioning, especially where this can have material effects on value creation and capture. Monitoring does include

evaluating continuously whether common goals are still being pursued by both actors, and also assessing whether revisiting these goals –and if feasible renegotiating them– is in order.

Current research on Platforms and complementors has noted actions by the latter related to monitoring, though the motivation of such monitoring is often to search for gaps in algorithms. In the discussion of independent, individualized courses of action for complementors to counter the power of Platforms, an approach named "bottom-up accountability through intimate knowledge of Platform algorithms" (Rahman, Karunakaran, and Cameron, 2024: 261) suggests that complementors need to develop a detailed understanding of algorithms, and more generally Platform rules and managerial practices, through their day-to-day interactions with the Platform. Complementors can identify gaps in algorithms, rules and managerial practices, and then use these gaps to their advantage. For example, at a low level of sophistication, Lyft and Uber drivers observed that they would be assigned farther pick-up locations if they logged into the Platform app and waited for a ride request for a longer time, so they would exit and re-log into the app periodically to avoid being assigned to distant ride requests by the algorithm (Lee et al., 2015).

Different from the above approach, TCT-based monitoring focuses on the potentially negative effects of a Platform's behavioral proclivities. The intent is to continually monitor behavior and to communicate with the Platform as soon as contract execution appears to 'go off' the rails', for instance when actions undertaken by the Platform negatively affect value creation and capture by the complementor. Some dysfunctional behavior may be relatively easy to identify, for instance when the Platform *Unity Engine* charged a 'runtime fee' to developers each time a game developed with the engine was downloaded (Stuart, 2023) or when the investment Platform *Interactive Investors* made unilateral changes to its fee structure (Uddin, 2023).

However, other types of behavior may be more challenging to monitor. For example, Farronato et al. (2023) found that Amazon does engage in self-preferencing, namely giving preferential treatment and a higher ranking to Amazon branded products over similar products in search results. Given the information asymmetry and unilateral dependency at hand, and the related difficulties to collect information on what can reasonably be viewed as Platform unreliability, the effective monitoring of Platform behavior can be costly for complementors. But gaining knowledge about (emerging) unreliability of a Platform is a critical first step towards avoiding the trap of an unwarranted 'trusting' relationship with this Platform.

### Insuring (I)

TCT is about identifying, explicating, and mitigating hazards through efficient governance. When substantial hazards might arise over time and *ex ante* incentive alignment between parties does not fully resolve this problem, insurance can be an appropriate response and be part of *ex post* governance (Williamson, 1996: 14-15), in this case taken unilaterally by complementors to safeguard their own interests. Insurance is an often-ignored approach by complementors to mitigate hazards if a worst-case scenario materializes. For instance, in the context of Amazon, Weigel (2023: 29) noted that: "as long as Amazon is automatically suspending tens of thousands of businesses and confiscating their funds [for instance after customer or competitor complaints], it makes sense for sellers to seek insurance, if they can."

Whether or not to consider some form of insurance can be a hard choice, especially when a complementor is at the early stages of building up its business. For instance, if a complementor is a seller on the Amazon Platform and operates an international supply chain, it may be prudent to consider various types of insurance associated with these operations that may be interrupted for many reasons, including Platform unreliability. For complementors working as individuals for a Platform such as Uber, it may also be prudent to take personal insurance beyond the coverage provided by the Platform, for example in the realm of injury protection. Insurance contracts may not mention explicitly potential Platform unreliability such as dishonest contract breach but can go a long way towards reducing complementor vulnerabilities if a worstcase scenario unfolds. Insurance protection can take many forms commonly used in non-Platform-related business transactions, including liability insurance, business interruption insurance, professional indemnity insurance, cyber insurance, contractual liability insurance, etc. *Dependency creating (D)* 

Bonding represents a major *ex post* governance mechanism to secure credible commitments. Williamson discusses four major forms of *ex post* costs of contracting, including: "(1) the maladaptation costs ..., (2) the haggling costs ..., (3) the setup and running costs ..., and (4) the bonding costs of effecting secure commitments" (Williamson, 1985: 21). We discuss two types of bonding meant to reduce these costs from the viewpoint of the complementor, namely 'dependency creating' through technology and 'attachment creating' through relationships.

Dependency creating through technology refers to making the complementor technologically more 'indispensable' to the Platform (i.e., creating a two-sided or symmetrical dependency, rather than the one-sided one favouring the Platform). Extant research has recognized the dependence of complementors on Platforms, the related hazards, and mitigating mechanisms (e.g., Cutolo and Kenney, 2021), but it has focused primarily on dependence rather than interdependence. This has meant neglecting the opportunities for complementors to create more technological interdependence, in the sense of heightening the needs of the Platform for access to their technological resources in creating or delivering products and services. Huber, Kude, and Dibbern (2017: 573-574) describe an example of this approach. A complementor was able to sign a dyadic contract with a Platform, with the complementor providing an industry solution and the Platform selling and marketing this solution, and providing maintenance and technical support. The arrangement created a technological interdependence, as stated by the complementor's liaison officer: "If our software does not work, then nothing works [at our clients' sites]. We are running their core business and if something is wrong [with the software], then we are jeopardizing their existence" (Huber et al., 2017: 574). The above is obviously only feasible if complementors are more than only 'technology-takers.'

#### Attachment creating (A)

A second type of bonding is attachment creating through relationships, especially with lower levels in the Platform's hierarchy and with other Platform stakeholders, thereby fostering more mutual dependency. An important insight from research on governance practices is that 'partnership managers' working for Platforms often have the ability and authority to enact and develop differentiated practices, while still enforcing network-wide rules and guiding principles (Huber et al., 2017). As a result, relationships developed at the dyadic level between partnership managers and complementors (or their representatives) can function as safeguard mechanisms against unreliability.

For example, Huber et al. (2017: 571-573) described a case of a relationship unfolding between a complementor's liaison and a partnership manager working for a Platform. The partnership manager was initially not convinced of any value co-creation opportunities suggested by the liaison, but risk taking and demonstrable success by the complementor increased mutual confidence in each other's reliability and strengthened relational capital between the liaison and the partnership manager. A virtuous cycle ensued, whereby formal arrangements became less important over time than confidence in the reliability of the partner (Huber et al., 2017: 573). However, it should be noted that attachment creating may require years of partnership and multiple reinforcing elements (e.g., initial signals of reliability and up-front investments) to cultivate norms of reciprocity. Furthermore, changes of employees responsible for coordinating the linkages between complementor and Platform may disrupt the relationship building process. *Shifting (S)* 

Differential transaction costs associated with alternative governance approaches are at the core of TCT, with questions raised such as: "If a contract becomes maladapted by reason of an unanticipated disturbance, is it easy for the parties to get relief by turning elsewhere, or do they need to work through the problems together?" (Williamson, 1996: 5). We thus view shifting as a safeguard strategy for the complementor that includes contemplating and preparing for alternative ways of creating and capturing value, such as diversification and the nurturing of 'backup' options, not involving the current Platform. These backup alternatives can include the following, each with a particular 'distance to be traveled' for the complementor from its present functioning with the current Platform: (a) usage of multiple Platforms; (b) usage of different channels (e.g., non-platform transaction channels; (c) 'bottom-up accountability through disintermediation', e.g., by finding customers on Platforms and then conducting off-Platform transactions (Rahman et al., 2024); and (d) income diversification, e.g., with complementors on content-based Platforms such as YouTube, Facebook, and Instagram gaining extra Platform income sources, such as through merchandise sales, in-video product placements, and donations) (Cutolo and Kenney, 2021; Rahman et al., 2024). Shifting can achieve more than just functioning as a safeguard mechanism against Platform unreliability. Other benefits can include cross-Platform scale economies and the accessing of more users, i.e., increased value creation and capture (Chen et al., 2022b; Chen et al., 2022c; Chung, Zhou, and Ethiraj, 2024).

Despite the incentives for complementors to contemplate and act upon shifting opportunities, Platforms may try to discourage actions such as multi-homing by imposing penalties or exclusivity rules (cf.: Meijerink, Keegan & Bondarouk, 2021). In addition, the need for the complementor to align its practices with a single Platform network in its entirety and to cope with this network's complexity can create a further lock-in and increase the difficulty for complementors to effectively engage in shifting (Chen et al., 2022a).

In summary, the *MIDAS* model comprises five types of safeguard mechanisms for complementors to protect themselves against the potential unreliability of Platforms, with each type preventing or mitigating different facets of such unreliability:

- Monitoring focuses on intelligence gathering and usage to reduce information asymmetries vis-à-vis the Platform and on improving the complementor's information processing capacity.
- 2. *Insuring* typically involves a third party providing an insurance product to the complementor to mitigate the effects of potential Platform unreliability.
- Dependency creating implies making the Platform vulnerable to the complementor's actions, e.g. by having the Platform rely on the complementor's specific technology and with substantial irreversibility and exit costs thereof for the Platform.
- 4. *Attachment creating* means that the complementor strengthens relational bonds with the Platform, typically involving lower-level employees from both parties.

5. *Shifting* refers to a complementor actively contemplating and seeking backups as substitutes for –or additions to– transactions with the Platform. A reduction of the complementor's unilateral dependence on the Platform ensues.

# Platform Complementors Assessing the Platform's Behavioral Proclivities: The Platform-

#### **Based Distance Analysis**

Above, we proposed that boundedly reliable Platforms may engage in actions detrimental to (at least some) complementors, thereby suggesting that complementors should pay special attention to safeguards in order to protect their own interests. However, one challenge is that even complementors with substantial technical knowledge and sophistication may misjudge and underestimate Platform unreliability. A second challenge is that even if they do assume potential unreliability, some complementors may lack the requisite resources and ability to establish effective safeguards. Below, we focus on factors that can influence complementors' assessment of Platforms' proclivities towards unreliability. We propose that various distance dimensions between complementors and Platforms, such as cultural, administrative, and geographic distance, will tend to result in complementors misjudging and underestimating Platform unreliability. Here we focus on complementors' perceptions, which is at odds with the mainstream approach in the literature, focused on the Platforms themselves (e.g., Das and Rahman, 2010).

The framework of cultural, administrative, geographic, and economic distance was initially developed in Ghemawat (2001) to conceptualize how cross-border distances affect internationalization. This framework was extended to distance in the realm of cyberspace to analyze the adoption of digital innovations internationally (Shaheer and Li, 2018). In the present paper, we further extend this thinking and argue that higher distance vis-à-vis the Platform can affect complementors' understanding of the Platform's behavioral proclivities. In essence, this is a bounded rationality problem that in turn can affect complementors' assessment of the Platform's BRel. We focus here on the cultural, administrative, and geographic distances between the Platform and its complementors that can affect the latter's understanding of the former. Economic distance by itself is unlikely to play an important role in creating bounded rationality problems for complementors, because this distance is often the main driver of the value creating opportunities perceived by Platform and complementor alike (somewhat similar to a multinational enterprise working with a distant, offshore original-equipment-manufacturer to produce components cheaply according to specifications).

#### Platform-related Cultural Distance

Platform-related cultural attributes, such as language and social norms, can influence how complementors perceive the Platform and develop mental models about this firm. *First*, the usage of specific language and terms related to Platforms matters. Platforms such as Uber, Airbnb, etc. have been referred to as the heart of the sharing economy and the peer-to-peer economy, despite these Platforms being mostly ordinary private businesses (Oei, 2018). Inaccurate verbiage describes Platforms merely as exchange intermediaries that permit bringing together workers and service providers, or vendors and consumers, and more generally complementors on the supply side and users. This type of narrative portrays the Platform as the 'knowledgeable middleman', who designs fair rules of operation for all involved when using the Platform. This same verbiage generally downplays the role of the Platform firm as (mostly) a for-profit business with its own financial and other performance-related goals. As one example, Uber Eats frames itself as providing intermediation services and describes gig workers as users who receive services from the Platform, thereby avoiding the more accurate description of gig workers offering services to the Platform. Similarly, Deliveroo defined itself as an "optimizer of

supply and demand in the food delivery market" (Meijerink et al., 2021: 4040). Here, complementors can easily suffer from an identity misconception that downplays the conventional, commercial nature of the Platform firm.

*Second*, relational capital (and its supposed equivalent, namely 'trust') has been considered an essential coordination and (broader) governance mechanism for Platform-based transactions (Yao, Baker, and Lohrke, 2022). For online transactions between strangers facing high uncertainty and information asymmetries, the creation of relational capital can supposedly be beneficial to all actors involved, including the Platform and the complementors, who thus have an incentive to build up such capital (Ferreira, Papaoikonomou, and Terceno, 2022).

The development of relational capital between complementors and Platforms needs to be developed over time. Complementors must typically have an initial sense of Platform reliability, which may result from their own disposition to expect partner reliability but also from visible Platform characteristics such as its reputation for honest business dealings (cf. the ABI – ability, benevolence, integrity model in Mayer, Davis, and Schoorman, 1995; Yao, Baker, and Lohrke, 2022). If complementors perceive the Platform as user-friendly, credible and logically designed with a satisfactory technology, these technical elements may override any initial concerns in the BRel-sphere. Furthermore, if subsequent interactions with the Platform demonstrate it makes good on its commitments, complementors may develop a more permanent, knowledge-based sense of Platform reliability.

The relational capital also depends on the characteristics of the parties to transactions and the strategies they select. The Platform, with its central position in the network and lead-firm status, could potentially be the main facilitator in crafting institutional mechanisms and adopting various strategies towards the development of relational capital. For example, Ferreira et al.

(2022) identified six practices that Platforms in this realm, in the crowdfunding space. These practices include humanizing the Platform to make it less impersonal, building reputational capital, entrenching the Platform in existing and recognized institutions, building the brand name as an experienced market player, ensuring transparency and security of the Platform, and facilitating continued use. For complementors, relational capital is vested in the institution of the Platform itself, which refers to the situation whereby: "one believes the necessary impersonal structures are in place to enable one to act in anticipation of a successful future endeavor" (McKnight, Cummings, and Chervany, 1998: 478). With relational capital vested in the Platform, encourage benevolent transactions, and eliminate problematic users (Moysidou and Hausberg, 2020).

However, the complementors' expectation of benevolence has two problems associated with it. The first problem is that the complementors' view may be entirely unfounded and based simply on the fact that multiple other complementors believe the same and that some of those actually do command relational capital (a situation akin to 'cult-like' thinking) (cf. Mohlman, 2021). The second problem is that beliefs about relational capital can involve *inter alia* faith in the ability and in the benevolence of contracting partners (Oberg, 2021). Digital intermediation by the Platform could mean that complementors would mainly develop ability-based beliefs, but given the lack of social interaction with the Platform, repeated virtual interactions with this firm can result in the intertwining of beliefs in the ability and in the benevolence of the Platform. Such intertwined beliefs can further temper any perceptions that the Platform might act in an unreliable fashion.

In the above discussion on cultural distance and relational capital, we treated the latter as influencing both cultural distance and complementors' erroneous assessment of the Platform's

behavioral proclivities. Different from the extensive debate about opportunism versus trust as opposing assumptions to guide managerial decision-making (e.g., see Notes 9 and 23 in Kano and Verbeke, 2015), we propose that complementors' 'trust' in the Platform, sometimes enhanced by the latter's marketing ploys, can lead to heightened vulnerabilities and the perception that no safeguards are required. This potential misalignment also echoes recent debate about the relationship between 'trust' and control as substitutional, complementary, or paradoxical (e.g., Lumineau et al, 2023). Although relational capital developed between complementors and their Platform might on the surface appear to justify a substitutional relationship between relational capital and safeguard mechanisms, we would like to caution against the inherent hazards of such substitution for complementors. If relational capital is based on tangible elements such as complementor experience that the Platform systematically makes good on its commitments, then this relational capital reflects mainly an earned reputation. However, past behavior is not necessarily the full predictor of future behavior. The dark side of 'trust' implies that all 'trust' without safeguards in situations of asymmetrical information, asymmetrical dependency, or asymmetrical, irreversible investments, is not only unwarranted but plain stupid from a business perspective. We summarize the comparison between our framework and relational capital-related frameworks in Table 1.

Insert Table 1 about here

#### Platform-related Administrative Distance

Platform-related administrative distance refers to the incomplete information complementors have about the administrative routines and managerial practices of Platforms. Extending the argument about the importance of incomplete or distorted disclosure of information in the realm of opportunism (Williamson, 1985), we predict that incomplete information held by complementors will influence their perceptions of the BRel of Platforms. However, our view is that such incomplete information about Platforms will not necessarily affect such perceptions in a negative fashion.

Substantial asymmetries exist between the information available to Platforms and that available to complementors. Such information asymmetries can arise from Platforms having privileged access to data from customers and other parties involved in network functioning, and the analysis thereof (van de Waerdt, 2020). An individual complementor often lacks knowledge about what Platforms can do with the information collected from all complementors or all buyers of final products. For example, Uber uses driver rating scores, both to provide guidance to passengers and to encourage socially acceptable behaviors, but it does not communicate the cut-off points it uses to remove the drivers from the Platform when their ratings fall below these thresholds. As a result, its drivers are incentivized to chase the highest possible rating (Uzunca and Kas, 2022). Similarly, Airbnb hosts realize that information about the algorithmic Platform is largely hidden but accept this as a normal business practice (Cheng and Foley, 2019).

Most complementors are likely to view such information asymmetries as normal practice. Information asymmetries between complementors and Platforms therefore do not lead to perceptions of BRel on the part of Platforms and are on the contrary widely considered efficiency-enhancing. Perhaps paradoxically, negative information about the Platform coming directly from other complementors (as a kind of 'wake-up' call), are more likely to trigger perceptions of Platform unreliability than a focal complementor's first-hand observations (as in: 'don't believe your lying eyes').

## Platform-related Geographic Distance

Digital Platforms function as an intermediary to facilitate commercial transactions between at least two parties, namely complementors and customers, or workers and customers. In this realm, Duggan et al. (2020) identified three types of gig work: capital Platform work, crowd-work, and app-work. In capital Platform work (e.g., Etsy and AirBnB), complementors typically sell or make available underutilized assets in an e-commerce environment. In crowd-work (*e.g.*, Amazon MTurk), an individual remotely undertakes a task posted by an organization or individual. In app-work (e.g. Uber), workers complete the tasks in a local, physical market environment. Although geographic location seems to matter only for app work because tasks such as food delivery must be performed locally, all complementors, whichever Platform they work for, tend to be geographically dispersed and complete tasks in isolation or interacting solely with customers. Such geographic dispersion and isolation may affect complementors' assessment of BRel.

*First*, geographic dispersion and isolation make it difficult to collect and interpret information about either the Platform owners or other complementors. For example, Wells et al. (2920:9) argued: "The socio-spatial isolation of the Uber workplace seems to have a point: to keep Uber drivers in the dark. The drivers that we interviewed and surveyed did not understand the rules or policies of the Platform, a significant barrier in itself to worker agency." Although complementors can still collect information from other sources such as news media, the presence of geographic separation can create emotional separation and reduce emotional sensitivity, thus adding barriers to developing empathy with a Platform's 'victims' and to interpreting reality accurately (e.g., Lojeski and Reilly, 2020). For instance, a Platform's opportunistic behavior towards a complementor may appear inconsequential to other complementors if the latter read about it in the news or on social media, rather than being conveyed the information by the 'victim' itself.

*Second*, geographic separation can also create barriers to engaging in collective action as proposed in the literature (Rahman et al., 2024). Although collective mobilization such as through online communities or temporary free spaces (e.g., parking lots, grocery stores) have been used to share grievances and build solidarity among complementors, this has typically resulted in limited success (Wells et al., 2020: 10).

#### **Practical Implications**

Our discussion not only calls for complementors to be alert to BRel issues in Platform relationships, but also provides practical guidance. The *first* point of attention is a much-needed change of mentality toward Platforms. Multiple reasons may prevent complementors from adopting adequate safeguard mechanisms (e.g., Ferreira et al., 2022; Rietveld, Schilling, and Bellavitis, 2019; Yao et al., 2022). Some may feel defenseless when confronted with the sharp power difference with the Platform; others may place 'trust' in a Platform's reputation, brand, and benevolence towards complementors, and are lulled into a possibly false sense of security; and still others may suffer from optimism bias and assume that bad things (even when publicly reported by victims or when being a public secret) will not happen to them. Our framework suggests that even without opportunism, other expressions or BRel may still result in negative impacts on complementors.

*Second*, complementors need to stay vigilant, for instance by monitoring industry news sources, Platform policy updates, algorithm changes, etc. Of special significance in this realm is communication by other complementors about negative experiences and concerns related to the same Platform. Usage of software and artificial intelligence tools can support complementors in

tracking closely variations in contractual agreements with Platforms and the enforcement thereof. Periodical reviews of Platform priorities can also help identify areas where negative impacts could arise (e.g., in areas where the Platform introduces products similar to those of its vendors).

*Third,* complementors can selectively adopt the arsenal of safeguards included in the *MIDAS* model, depending on switching costs and the extent to which the governance structure is favorable to them. Where exit costs are low, complementors may focus on Shifting (S) and conduct business across multiple platforms. In contrast, under conditions of high switching costs and favorable Platform governance, complementors might want to prioritize Attachment Creating (A) and Dependency Creating (D), by carving an essential role for themselves within the Platform's network.

*Fourth*, one barrier to applying the *MIDAS* model is that complementors may lack requisite resources and capabilities. Helfat and Raubitschek (2018), adopting a dynamic capabilities perspective, have attempted to explain how a mix of innovation capabilities, environmental scanning and sensing capabilities, and integrative capabilities underpin value creation and value capture by Platform leaders. In a similar vein, selecting safeguard mechanisms requires complementors not only to command related capabilities or to develop these, but also to allocate their limited managerial capacity to making safeguards function. For example, underlying any monitoring are environmental scanning and sensing capabilities to detect early expressions of unreliability by a Platform. In practice, this may require complementor executives to deploy their limited reservoir of cognitive capabilities towards assessing Platform behaviors, and this means identifying relevant signals, recognizing patterns, and collecting and interpreting data. Complementors, due to their limited resource reservoirs, may not prioritize investing in safeguards.

#### **Future Research Avenues and Conclusion**

We have proposed that a Platform's potential unreliability towards its network partners is not truly distinct from that of any other type of business firm engaged in commercial transactions. Such potential unreliability should incentivize complementors to develop adequate safeguard mechanisms to protect their own interests. Governance safeguards are critical to execute on viable opportunities for joint value creation with the Platform and its network, and to achieve acceptable value distribution. Our analysis opens opportunities for future research on Platform governance and complementors.

*First*, we call for researchers to devote more attention to complementors and to their governance choices and related behaviors. Most current research involving Platforms focuses on the behavior of the Platforms themselves rather than on complementors. In contrast, we have provided a theoretical framework for complementors to manage their relationships with Platforms. The research on complementors has been growing, but much remains to be learned about the behavior of these actors. For example, what processes do complementors follow to adopt specific safeguard mechanisms? How do they select the Platform(s) they will collaborate with? Do they re-evaluate their relationship with a Platform when the rules designed by this Platform change? Do firms' behaviors differ between those working with Platforms and those operating in traditional markets? And what are the key determinants of complementors' performance? Switching from Platform-centric research to a more complementor-oriented approach may require not only a significant finetuning of extant theories, but also specifically designed empirical research to test the complementor-focused hypotheses put forward.

*Second*, the discussion about capabilities in the last section suggests that complementors need various types of resources to support safeguard mechanisms. Helfat and Raubitschek (2018)

discuss three types of dynamic capabilities that Platform leaders must command to achieve value creation and value capture (innovation capabilities, environmental scanning and sensing capabilities, and integrative capabilities), but they do not discuss the types of capabilities that complementors require. Future research should build theoretical frameworks modelling the interactions among the complementors' resources, their choice of safeguard mechanisms and their ultimate performance, whether in financial terms, growth level, or another outcome variable considered relevant.

*Third*, the *MIDAS* model includes several safeguard mechanisms, but their relative effectiveness and their complementarity versus substitutability is not entirely clear. Here, we would suggest comparative analyses of alternative approaches, whereby optimal safeguard configurations may be hypothesized in specific situational contexts. Each type of safeguards may be optimal in narrow contexts, may require specific resources, and may produce different outcomes, and future research should aim to compare the unique benefits and costs of alternative safeguard configurations (for instance through the usage of fsQCA). Such comparisons should involve an analysis of the antecedents driving complementors' selective usage of the *MIDAS* model and the outcomes of the approaches selected.

*Finally*, we have presented an arsenal of safeguard mechanisms that complementors can adopt, synthesized in the *MIDAS* model (see Figure 1). Unfortunately, complementors often appear overly optimistic about the Platform's behavioral proclivities. When combined with comparatively weak capabilities to protect against the Platform's BRel (mostly related to the complementor firms' small size and limited resources), complementors may lack both the motivation and ability to mitigate their governance vulnerabilities. The simultaneous presence of motivation and ability is required for complementors to adopt adequate safeguarding

mechanisms against the vagaries of decision-making by Platforms. Absent this dual condition being met, complementors will tend to remain under-protected and in dire need of additional governance tools to insulate themselves against not entirely predictable, but still expectedly unreliable, Platform behavior.

One might argue that innocent victims are ostensibly non-existent, particularly when complementors decide autonomously either to affiliate with a Platform or to stay away from such business relationship. Yet, it is imperative to acknowledge the insidious nature of information asymmetries and grandiloquent narratives extolling the technological prowess and societal contributions of Platforms; these elements obfuscate the inherent impediments to efficient contracting, which are rooted in bounded rationality and BRel. Every participant vulnerable to commercial interactions in the modern digital economy, including complementors engaged with Platforms, bears the onus of navigating these complexities. The unfortunate destiny of many complementors lies in their potential subjugation unless they imbue their initial engagements with Platform firms with extraordinary – but now most necessary – attention to effective safeguards. An unfortunate destiny is avoidable but requires a multi-pronged strategy of defiance.

# **References:**

Agarwal, S., & Kapoor, R. (2023). Value creation tradeoff in business ecosystems: Leveraging complementarities while managing interdependencies. *Organization Science*, *34*(3), 1216-1242.

Argyres, N., Lumineau, F., & Zanarone, G. (2025). Strategic Management Meets the Economics of Relational Contracts. *Strategic Management Review*, forthcoming.

Boudreau, K. J., & Jeppesen, L. B. (2015). Unpaid crowd complementors: The platform network effect mirage. *Strategic Management Journal*, *36*(12), 1761-1777.

Ceccagnoli, M., Forman, C., Huang, P., & Wu, D. J. (2012). Cocreation of value in a platform ecosystem: The case of enterprise software. *MIS Quarterly*, *36*(1), 263-290.

Cenamor, J. (2021). Complementor competitive advantage: A framework for strategic decisions. *Journal of Business Research*, *122*, 335-343.

Cennamo, C., Ozalp, H., & Kretschmer, T. (2018). Platform architecture and quality trade-offs of multihoming complements. *Information Systems Research*, *29*(2), 461-478.

Cennamo, C., & Santalo, J. (2013). Platform competition: Strategic trade-offs in platform markets. *Strategic Management Journal*, *34*(11), 1331-1350.

Chen, M. K., Rossi, P. E., Chevalier, J. A., & Oehlsen, E. (2019). The value of flexible work: Evidence from Uber drivers. *Journal of Political Economy*, *127*(6), 2735-2794.

Chen, L., Tong, T. W., Tang, S., & Han, N. (2022a). Governance and design of digital platforms: A review and future research directions on a meta-organization. *Journal of Management*, *48*(1), 147-184.

Chen, L., Yi, J., Li, S., & Tong, T. W. (2022b). Platform governance design in platform ecosystems: Implications for complementors' multihoming decision. *Journal of Management*, *48*(3), 630-656.

Chen, L., Zhang, P., Li, S., & Turner, S. F. (2022c). Growing pains: The effect of generational product innovation on mobile games performance. *Strategic Management Journal*, *43*(4), 792-821.

Cheng, M., & Foley, C. (2019). Algorithmic management: The case of Airbnb. *International Journal of Hospitality Management*, *83*, 33-36.

Chung, H. D., Zhou, Y. M., & Ethiraj, S. (2024). Platform governance in the presence of withincomplementor interdependencies: Evidence from the rideshare industry. *Management Science*, *70*(2), 799-814. Cusumano, M. A., Yoffie, D. B., & Gawer, A. (2019). *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power*. Harper Business.

Cutolo, D., & Kenney, M. (2021). Platform-dependent entrepreneurs: Power asymmetries, risks, and strategies in the platform economy. *Academy of Management Perspectives*, *35*(4), 584-605.

Das, T. K., & Rahman, N. (2010). Determinants of partner opportunism in strategic alliances: a conceptual framework. *Journal of Business and Psychology*, *25*, 55-74.

Duggan, J., Sherman, U., Carbery, R., & McDonnell, A. (2020). Algorithmic management and app-work in the gig economy: A research agenda for employment relations and HRM. *Human Resource Management Journal*, *30*(1), 114-132.

Eisenmann, T., Parker, G., & Van Alstyne, M. W. (2011). Platform envelopment. *Strategic Management Journal*, *32*(12), 1270-1285.

Farronato, C., Fradkin, A., & MacKay, A. (2023). *Self-preferencing at Amazon: evidence from search rankings* (No. w30894). National Bureau of Economic Research.

Ferreira, V., Papaoikonomou, E., & Terceno, A. (2022). Unpeel the layers of trust! A comparative analysis of crowdfunding platforms and what they do to generate trust. *Business Horizons*, *65*(1), 7-19.

Gawer, A. (2021). Digital platforms' boundaries: The interplay of firm scope, platform sides, and digital interfaces. *Long Range Planning*, *54*(5), 102045.

Gawer, A., & Cusumano, M. A. (2014). Industry platforms and ecosystem innovation. *Journal of Product Innovation Management*, *31*(3), 417-433.

Ghemawat, P. (2001). Distance still matters: the hard reality of global expansion. *Harvard Business Review*, *79*(8), 137-147.

Ghoshal, S., & Moran, P. (1996). Bad for practice: A critique of the transaction cost theory. *Academy of Management Review*, 21(1), 13-47.

Guo, X., Haupt, A., Wang, H., Qadri, R., & Zhao, J. (2023). Understanding multi-homing and switching by platform drivers. *Transportation Research Part C: Emerging Technologies*, *154*, 104233, https://doi.org/10.1016/j.trc.2023.104233.

Hein, A., Schreieck, M., Riasanow, T., Setzke, D. S., Wiesche, M., Böhm, M., & Krcmar, H. (2020). Digital platform ecosystems. *Electronic Markets*, *30*, 87-98.

Helfat, C. E., & Raubitschek, R. S. (2018). Dynamic and integrative capabilities for profiting from innovation in digital platform-based ecosystems. *Research Policy*, *47*(8), 1391-1399.

Hennart, J. F., & Verbeke, A. (2022). Actionable and enduring implications of Oliver Williamson's transaction cost theory. *Journal of International Business Studies*, *53*(8), 1557-1575.

Huber, T. L., Kude, T., & Dibbern, J. (2017). Governance practices in platform ecosystems: Navigating tensions between cocreated value and governance costs. *Information Systems Research*, *28*(3), 563-584.

Iansiti, M., & Levien, R. (2004). Creating value in your business ecosystem. *Harvard Business Review*, *3*(1), 68-78.

Jacobides, M. G., Cennamo, C., & Gawer, A. (2018). Towards a theory of ecosystems. *Strategic Management Journal*, *39*(8), 2255-2276.

Johnson, N. E., Short, J. C., Chandler, J. A., & Jordan, S. L. (2022). Introducing the contentpreneur: Making the case for research on content creation-based online platforms. *Journal of Business Venturing Insights*, *18*, e00328.

Kano, L., & Verbeke, A. (2015). The three faces of bounded reliability: Alfred Chandler and the micro-foundations of management theory. *California Management Review*, *58*(1), 97-122.

Kapoor, R., & Agarwal, S. (2017). Sustaining superior performance in business ecosystems: Evidence from application software developers in the iOS and Android smartphone ecosystems. *Organization Science*, *28*(3), 531-551.

Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: The new contested terrain of control. *Academy of Management Annals*, *14*(1), 366-410.

Kretschmer, T., Leiponen, A., Schilling, M., & Vasudeva, G. (2022). Platform ecosystems as meta-organizations: Implications for platform strategies. *Strategic Management Journal*, *43*(3), 405-424.

Lashinsky, A. (2017). Wild ride: Inside Uber's Quest for World Domination. Penguin.

Lee, M. K., Kusbit, D., Metsky, E., & Dabbish, L. (2015, April). Working with machines: The impact of algorithmic and data-driven management on human workers. In *Proceedings of the 33rd annual ACM conference on human factors in computing systems* (pp. 1603-1612).

Leiblein, M. J. (2003). The choice of organizational governance form and performance: Predictions from transaction cost, resource-based, and real options theories. *Journal of Management*, 29(6), 937-961.

Leiblein, M. J., & Reuer, J. J. (2020). Foundations and futures of strategic management. *Strategic Management Review*, *1*(1), 1-33.

Liang, X., Luo, Y., Shao, X., & Shi, X. (2022). Managing complementors in innovation ecosystems: a typology for generic strategies. *Industrial Management & Data Systems*, *122*(9), 2072-2090.

Lojeski, K. S., & Reilly, R. R. (2020). The power of virtual distance: A guide to productivity and happiness in the age of remote work. John Wiley & Sons.

Lv, D. D., & Schotter, A. P. (2024). The Dark Side of Powerful Platform Owners: Aspiration Adaptations of Digital Firms. *Academy of Management Perspectives*, 1–20. https://doi.org/10.5465/amp.2022.0169

Lumineau, F., Long, C., Sitkin, S. B., Argyres, N., & Markman, G. (2023). Rethinking control and trust dynamics in and between organizations. *Journal of Management Studies*, *60*(8), 1937-1961.

Maffie, M. D. (2020). Are we 'sharing'or 'gig-ing'? A classification system for online platforms. *Industrial Relations Journal*, *51*(6), 536-555.

Mayer, R. C., Davis, J. H., & Schoorman, D. F. 1995. An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709–734.

McIntyre, D. P., & Srinivasan, A. (2017). Networks, platforms, and strategy: Emerging views and next steps. *Strategic Management Journal*, *38*(1), 141-160.

Meijerink, J., Keegan, A., & Bondarouk, T. (2021). Having their cake and eating it too? Online labor platforms and human resource management as a case of institutional complexity. *The International Journal of Human Resource Management*, *32*(19), 4016-4052.

McCann, C., 2015. Scaling Airbnb with Brian Chesky – class 18 notes of Stanford University's CS183C.

McKnight, D. H., Cummings, L. L., & Chervany, N. L. (1998). Initial trust formation in new organizational relationships. *Academy of Management Review*, 23(3), 473-490.

Möhlmann, M. (2021). Unjustified trust beliefs: Trust conflation on sharing economy platforms. *Research Policy*, *50*(3), 104173.

Moysidou, K., & Hausberg, J. P. (2020). In crowdfunding we trust: A trust-building model in lending crowdfunding. *Journal of Small Business Management*, *58*(3), 511-543.

Nambisan, S., & Baron, R. A. (2021). On the costs of digital entrepreneurship: Role conflict, stress, and venture performance in digital platform-based ecosystems. *Journal of Business Research*, *125*, 520-532.

Öberg, C. (2021). Disruptive and paradoxical roles in the sharing economies. *International Journal of Innovation Management*, *25*(04), 2150045.

Occhiuto, N. (2017). Investing in independent contract work: The significance of schedule control for taxi drivers. *Work and Occupations*, *44*(3), 268-295.

Oei, S. Y. (2018). The trouble with gig talk: choice of narrative and the worker classification fights. *Law & Contemp. Probs.*, *81*, 107.

Parker, G. G., Van Alstyne, M. W., & Choudary, S. P. (2016). *Platform Revolution: How Networked Markets Are Transforming the Economy—and How to Make Them Work for You.* W.W. Norton & Company.

Pierce, L. (2009). Big losses in ecosystem niches: How core firm decisions drive complementary product shakeouts. *Strategic Management Journal*, *30*(3), 323–347.

Pisano, G. P. (1990). The R&D boundaries of the firm: An empirical analysis. *Administrative Science Quarterly*, *35*, 153–176.

Polidoro Jr, F., & Yang, W. (2024). Porting learning from interdependencies back home: Performance implications of multihoming for complementors in platform ecosystems. *Strategic Management Journal*.

Rahman, H. A., Karunakaran, A., & Cameron, L. D. (2024). Taming platform power: Taking accountability into account in the management of platforms. *Academy of Management Annals*, *18*(1), 251-294.

Reuer, J. J. (2024). Revisiting research on the governance of interorganizational relationships. *Journal of Management Scientific Reports*, 2(3-4), 267-279.

Rietveld, J., Schilling, M. A., & Bellavitis, C. (2019). Platform strategy: Managing ecosystem value through selective promotion of complements. *Organization Science*, *30*(6), 1232-1251.

Rysman, M. (2009). The economics of two-sided markets. *Journal of Economic Perspectives*, 23(3), 125-143.

Saadatmand, F., Lindgren, R., & Schultze, U. (2019). Configurations of platform organizations: Implications for complementor engagement. *Research Policy*, *48*(8), 103770.

Scheiber, N. (2022). How Uber uses psychological tricks to push its drivers' buttons. In Ethics of data and analytics (pp. 362-371). Auerbach Publications

Shaheer, N. A., & Li, S. (2020). The CAGE around cyberspace? How digital innovations internationalize in a virtual world. *Journal of Business Venturing*, *35*(1), 105892.

Singh, N., Munjal, S., & Kundu, S. K. (2023). Marketplace platforms as game changers: Internationalization of smaller enterprises. *Journal of International Management*, 101035.

Stuart, K. (2023). Game developers furious as Unity Engine announces new fees. *The Guardian*, https://www.theguardian.com/games/2023/sep/12/unity-engine-fees-backlash-response

Tiwana, A. (2014). *Platform Ecosystems: Aligning Architecture, Governance, and Strategy*. Morgan Kaufmann.

Tschang, F. T. (2021). Platform-dependent entrepreneurs: Participants in an expanding universe of platforms? *Academy of Management Perspectives*, *35*(4), 696-701.

Uddin, R. (2023). Battle over investment platform fees intensifies. *Financial Times*, https://www.ft.com/content/e732c638-60d3-4347-9ebf-6144997f500b.

Uzunca, B., & Kas, J. (2022). Automated governance mechanisms in digital labour platforms: how Uber nudges and sludges its drivers. *Industry and Innovation*, 1-30.

Vallas, S., & Schor, J. B. (2020). What do platforms do? Understanding the gig economy. *Annual Review of Sociology*, *46*, 273-294.

van de Waerdt, P. J. (2020). Information asymmetries: recognizing the limits of the GDPR on the data-driven market. *Computer Law & Security Review*, *38*, 105436.

Verbeke, A. (2003). The evolutionary view of the MNE and the future of internalization theory. *Journal of International Business Studies*, *34*, 498-504.

Verbeke, A. (2013). International Business Strategy. Cambridge University Press.

Verbeke, A., & Greidanus, N. 2009. The end of the opportunism versus trust debate: Bounded reliability as a new envelope concept in research on MNE governance. *Journal of International Business Studies*, 40(9): 1472–1495.

Wang, R. D., & Miller, C. D. (2020). Complementors' engagement in an ecosystem: A study of publishers'e-book offerings on Amazon Kindle. *Strategic Management Journal*, *41*(1), 3-26.

Wang, R. D., & Miller, C. D. (2020). How Third-Party Sellers Can Make Amazon Work for Them, *Harvard Business Review Digital Articles*, pp. 2–5, Available online: https://hbr.org/2020/07/how-third-party-sellers-can-make-amazon-work-for-them [Accessed 25 April 2021]

Walker, G., & Weber, D. (1984). A transaction cost approach to make-or-buy decisions. *Administrative Science Quarterly, 29*, 373–391.

Weigel, M. (2023). *Amazon's Trickle-Down Monopoly: Third-Party Sellers and the Transformation of Small Business*. New York: Data & Society Research Institute.

Wells, K. J., Attoh, K., & Cullen, D. (2021). "Just-in-Place" labor: Driver organizing in the Uber workplace. *Environment and Planning A: Economy and Space*, 53(2), 315-331.

Wen, W., & Zhu, F. (2019). Threat of platform-owner entry and complementor responses: Evidence from the mobile app market. *Strategic Management Journal*, *40*(9), 1336-1367.

Williamson, O. E. (1985). *The economic institutions of capitalism: Firms, markets, relational contracting*. The Free Press.

Williamson, O. E. (1991). Comparative economic organization: The analysis of discrete structural alternatives. *Administrative Science Quarterly*, *36*(2), 269–296.

Williamson, O. E. (1996). The mechanisms of governance. Oxford University Press.

Yao, Q. M., Baker, L. T., & Lohrke, F. T. (2022). Building and sustaining trust in remote work by platform-dependent entrepreneurs on digital labor platforms: Toward an integrative framework. *Journal of Business Research*, *149*, 327-339.

Zabel, C., O'Brien, D., & Natzel, J. (2023). Sensing the Metaverse: The microfoundations of complementor firms' dynamic sensing capabilities in emerging-technology ecosystems. *Technological Forecasting and Social Change*, *192*, 122562.

Zhu, F., & Liu, Q. (2018). Competing with complementors: An empirical look at Amazon. com. *Strategic Management Journal*, *39*(10), 2618-2642.



# Figure 1. Effective Safeguards: A Critical Challenge for Platform Complementors

# Figure 2. Safeguard Mechanisms in Complementor - Platform Relationships



Ex ante imposed on the complementor

Ex ante negotiated with the lead firm

Ex ante safeguard mechanisms

|                                     | The bounded reliability (BRel)<br>framework                                                                                                                                          | Relational capital (trust) based frameworks                                                                                                                                                                                                                                  |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main behavioral<br>drivers          | Bounded reliability (opportunism,<br>benevolent preference reversal,<br>and identity-based discordance),<br>enabled by bounded rationality                                           | Trust (e.g., the ABI model, which<br>includes ability, benevolence, and<br>integrity)                                                                                                                                                                                        |
| Assumptions                         | Fluidity of behavioral drivers<br>between individual and<br>organizational levels<br>Bounded reliability of Platforms<br>can (potentially) result in Platform<br>commitment failures | Fluidity of behavioral drivers<br>between individual and<br>organizational levels<br>Selected business models might<br>mitigate negative behavioral<br>proclivities of Platforms;<br>complementors rely on relational<br>capital to govern transactions<br>with/on Platforms |
| Vulnerabilities of<br>complementors | Potential unreliability of<br>Platforms harms the interests of<br>complementors                                                                                                      | (Unfounded) expectation of<br>benevolence; intertwining of<br>beliefs in the ability and<br>benevolence of the Platform                                                                                                                                                      |
| Safeguard<br>mechanisms             | The <i>MIDAS</i> -model: Monitoring,<br>Insuring, Dependency creating,<br>Attachment creating, and Shifting<br>(backups)                                                             | Minimal attention devoted to safeguards                                                                                                                                                                                                                                      |

Table 1. Comparison between the BRel and Relational-Capital Based Frameworks