

Centers of data appropriation: evidence from a Nordic hotel chain

Centers of data
appropriation

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Abstract

Purpose – Research suggests that centers of calculation, empowered by accounting inscriptions, are similar to maps: they provide a useful, albeit simplified, version of reality. The purposes of this paper are to examine whether and how digital platforms change the nature of centers of calculation, and to improve the understanding of the relationship between digital platforms and accounting.

Design/methodology/approach – An in-depth, single case-study design is used to empirically investigate how a Nordic hotel chain competed with global online travel agencies (OTAs) in the quest for the “new oil” – customer data.

Findings – The paper demonstrates how the case organization created a local alternative to global digital platforms with the aim of acquiring customer data, thereby moving from a center of calculation (CoC) to what authors label a “center of data appropriation” (CDA). While CoCs are guided by accounting inscriptions that enable “mapping”, CDAs are constructed around accounting inscriptions with other properties that enable digital “mirrors” of the economic domain. The authors find that this has two governing effects. First, multiple centers emerge that compete for access to the periphery. Second, future forms of competition can follow dynamic trajectories, where mutual dependence between CDAs may lead to cooptation.

Originality/value – Scholars have suggested that surveillance capitalism creates market-power imbalances. This study indicates that the transformation of local organizations into CDAs enables them to challenge global digital-platform organizations. Therefore, authors argue that local organizations may retain some market power by establishing local CDAs.

Keywords Center of calculation, Center of data appropriation, Surveillance capitalism, Inscription, Digital platform, Case study

Paper type Research paper

1. Introduction

Over the course of the last two decades, the emergence of a range of new and interconnected technologies has changed the nature of information, the economy and business. Technologies

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such as digital platforms, mobile technologies, the internet of Things, machine learning and business analytics have enabled the production and use of more granular and personalized data (Al-Htaybat and von Alberti-Alhtaybat, 2017; Arnaboldi *et al.*, 2017b; Bhimani and Willcocks, 2014; McAfee and Brynjolfsson, 2012; Moll and Yigitbasioglu, 2019; Quattrone, 2016; Warren *et al.*, 2015). In fact, the significance of data in the digital economy has given rise to the expression “data is the new oil” – a resource that must be found, extracted, refined and processed before it can yield dividends (Al-Htaybat and von Alberti-Alhtaybat, 2017).

Fueled by this technological development, organizations of today work to capitalize on the existence of big data and personalized data in particular. Several practitioners argue that big data accumulation is moving incredibly fast and companies that fail to take it into consideration risk losing power on the competitive market (MIT Technology Review, 2016). The competitive pressure for data has fostered an emergent logic of accumulation. This logic, and the actions this logic fuels, has been seen as new form of capitalism, referred to as surveillance capitalism (Zuboff, 2015, 2019) where the appropriation and accumulation of data is the core activity.

Contrary to conventional resources in traditional markets, data is an intangible, non-consumable resource that increases in value as it increases in scope. It is composed of a variety of scarce, often unique pieces of information and has created a new type of competition based on the asymmetrical distribution of power among actors (MIT Technology Review, 2016). The rise of surveillance capitalism is viewed as problematic because it enables an asymmetrical redistribution of power that is “weighted towards the actors who have access and the capability to make sense of data” (West, 2019, p. 20). Given the increasing production and centrality of big data, how actors deal with this asymmetrical redistribution of power in the competition for data resources is a subject of increasing interest.

Digital platforms arguably represent the most notable space in which this emergent logic of accumulation is materializing (Zuboff, 2015) given the asymmetrical redistribution of power between actors on these platforms (Kornberger *et al.*, 2017). As data accumulation lies at the core of surveillance capitalism and digital platforms, management accounting is deeply involved in the facilitation of this emergent logic because the purpose of management accounting is to identify, accumulate and analyze business-related information (Horngren *et al.*, 2005). Accounting scholars have previously discussed how the development of big data can supplement and enhance traditional accounting information (Warren *et al.*, 2015). They have also debated how big data allows for improved inferences and predictions (Schneider *et al.*, 2015) in order to enable better decision-making (Brown-Liburd *et al.*, 2015).

Accounting scholars have also begun to investigate the role of accounting in the development of the digital-platform economy (Arnaboldi *et al.*, 2017a; Begkos and Antonopoulou, 2020; Jeacle, 2017; Jeacle and Carter, 2011; Mcdaid *et al.*, 2019; Scott and Orlikowski, 2012). In this stream of research, increasing emphasis has been placed on understanding how platform owners mobilize accounting to remain in power over (and sometimes in control of) platform users (Agostino and Sidorova, 2017; Kornberger *et al.*, 2017; Leoni and Parker, 2019). However, less is said about how digital platforms shape accounting practices inside digital-platform organizations. This issue warrants attention in the modern era of surveillance capitalism.

Theoretically, we are interested in critically examining how the burgeoning logic of data appropriation through digital platforms influences the use of accounting information. In particular, we aim to shed light on whether and how the use of digital platforms in the hotel industry has changed the nature of centers of calculation (CoCs) (Robson, 1992) and the role of accounting inscriptions (Agostino and Sidorova, 2017; Gullberg and Weinryb, 2021; Rose and Miller, 2010). While the emergence of CoCs played an important role in the rise of global neoliberal capitalism (Miller and Rose, 1990), we aim to develop our understanding of whether and how new modes of capitalism may shape the emergence and use of new accounting

inscriptions and, consequently, new forms of CoCs. To that end, we rely on a framework consisting of the qualities of CoCs and inscriptions, namely quantification, visualization and governance, used to analyze the data.

Empirically, we scrutinize how global digital platforms interact with local businesses and the consequences of those interactions over time. To do so, we conduct a qualitative and interpretative study in which we mobilize the theoretical discourse on accounting inscriptions and CoCs in the digital-platform setting, which provides us with a framework useful for understanding changes in accounting information and governance structures. Our main research question is: *Whether and how do digital platforms change the nature of centers of calculation?*

By addressing this research question, this study contributes to the debate about digital platforms and accounting in two ways. First, we contribute to the literature on accounting inscriptions and CoCs (Latour, 1987; Miller and Napier, 1993; Qu and Cooper, 2011; Robson, 1992; Rose and Miller, 2010) by highlighting the influence of big data on the mobilization of data (by way of quantification) and by improving our understanding of the rationale behind this influence (through visualization). While we acknowledge the continued significance of CoCs, we also point to the rise of a new type of center, which we label “center of data appropriation” (CDA). Whereas CoCs are guided by accounting inscriptions that enable the “mapping” of the economic domain, CDAs are constructed around accounting inscriptions with other properties that enable digital “mirrors” of the economic domain. We claim that there is an emerging rationality at work for digital-platform organizations, which demonstrates how accounting “changes in both content and form over time” (Miller and Napier, 1993, p. 631). We suggest that the move from CoCs to CDAs represent a shift in how accounting inscriptions are gathered, transmitted and assimilated. Second, our study contributes to the interdisciplinary discourse on the impact of surveillance capitalism on the trajectory of competitive forms in general (West, 2019; Zuboff, 2015) and to the debate on digital platforms in relation to accounting in particular (Agostino and Sidorova, 2017; Kornberger *et al.*, 2017; Leoni and Parker, 2019). We find two organizational governance effects emerging from the shift to CDAs.

One governance effect is the changing nature of the relationship between the center and the periphery. We argue that CDAs differ from CoCs owing to the emergence of multiple centers that compete for access to the periphery. This shift points to the previously unexplored notion in accounting literature that centers need to compete for the appropriation of data. The other governance effect is the rise of local CDAs, which creates new dynamics among centers and leads to a shift towards *coopetition* (Luo, 2007) – a situation of both competition and cooperation. This finding contradicts Zuboff’s (2015) assertion that the trajectory of new, competing forms is deterministic. We show that accounting is involved in the dynamics of the relationships among different digital platforms and that these dynamics play a role in the development of a less deterministic trajectory of surveillance capitalism.

The article is structured as follows. In section two, we first introduce an overview of the shift from neoliberal capitalism towards surveillance capitalism before we review the literature on digital platforms in accounting. In section three, we outline our theoretical lens based on the fundamental concepts of CoCs and accounting inscriptions. This is followed by an explanation of our method in section four and the presentation of our empirical findings in section five. Lastly, our concluding discussion and ideas for future research are offered in section six.

2. Surveillance capitalism and the role of accounting in digital platforms

2.1 From neo-liberal capitalism to surveillance capitalism

Globalization was a principal factor in the development of neoliberalism and it transformed industrial practices around the world. Neoliberalism is defined as “a theory of political

economic practices which proposes that human well-being can be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade” (Harvey, 2005, p. 2). The influx of neoliberalism diluted the economic role of the state. In its place, a complex set of ideas and policies that ideologically underpin free trade and privatization arose (Free and Hecimovic, 2020).

Neoliberalism is seen as a stage in capitalism (Chiapello, 2017) that opened up for increased flows of trade, labor, capital and technology, thereby giving rise to new types of business models. Among the most prominent business models arising from this development is that of digital platforms, whereby digital-platform owners rely on the appropriation of individual behavioral information. Although neoliberalism has been extensively debated in critical accounting research (see Chiapello, 2017, for an overview), subsequent stages of capitalism have not been sufficiently addressed. In light of the importance of novel technology-driven business models, Zuboff (2015) introduced the notion of surveillance capitalism – a new type of capitalism based on the appropriation and use of individual behavioral data.

In the traditional (and neoliberal) versions of capitalism, private individuals or businesses can own capital goods. Based on the seminal work of Smith (1976), the common belief has been that free markets are governed by an “invisible hand” that dictates what should be produced and how it should be priced. Competition is understood as the mechanism that creates an effective system with three pillars: the division of labor, the pricing mechanism and the medium of exchange (i.e. money) (Smith, 1976).

Surveillance capitalism, on the other hand, is associated with a different mode of governmentality, as the “invisible hand” does not work as expected. It is governed by a new logic of accumulation with new politics and social relations that replace contracts, the rule of law and social trust with the sovereignty of what Zuboff (2015) refers to as “Big Other”. Big Other is described as the “absence of legitimate authority and is largely free from detection or sanction (. . .). Big Other may be described as an automated coup from above: not a *coup d’état*, but rather a *coup des gens*” (Zuboff, 2015, p. 83). In short, surveillance capitalism establishes a new form of power in which contracts and the rule of law are supplanted by the rewards and punishments of a new kind of invisible hand.

The emergence of surveillance capitalism warrants an examination of its theoretical and practical implications. As accounting represents the “technical lifeblood” (Guthrie *et al.*, 1999, p. 211) of capitalism, it has been used to understand the functioning of neoliberalist economic regimes. Similarly, we argue that accounting scholars should study the role of accounting under surveillance capitalism, as we lack an understanding of the consequences of this changing economic regime. Based on its logic of accumulation (Zuboff, 2015), surveillance capitalism introduces important areas for accounting scholars, such as novel forms of information, changes in governance structures and the emergence of other competitive forms. One notable space where this logic of accumulation is materializing is on digital platforms; as such platforms have become arenas for social participation, thus generating assemblages of personalized data with still uncertain consequences for accounting.

2.2 The relationship between accounting and digital platforms

As the concept of surveillance capitalism was only recently introduced, our understanding of its implications for accounting is still incomplete. In fact, to the best of our knowledge, only two published papers explicitly examine this relationship. Andrew *et al.* (2021) focuses on organizational disclosures in relation to accountability, while Alharthi *et al.* (2022) are concerned with surveillance capitalism’s influence on marketing practices. From a management control perspective, however, Andon *et al.* (2003) discuss the influence of digital technologies on employee surveillance within post-industrial organizations. They

mobilize Foucault's (1977) notion of the panopticon to discuss modern modes of surveillance and their implications for governance and management control. Contrary to Zuboff (2015), who focuses on the societal level, these authors adopt an intra-organizational level of analysis. They observe that the digital transformation of accounting inscriptions is a feature that was absent from the pre-industrial contexts studied by Foucault (1977).

Andon *et al.* (2003) call for more research on the influence of digitally enabled surveillance. For example, they raise questions regarding the meaning of the "digitization of accounting inscriptions" (Andon *et al.*, 2003, p. 138) for accounting and the nature of those inscriptions. The authors conclude that the "enigmas and tensions present in digitized forms of surveillance (...) constitute an interesting and challenging set of problems for future accounting research in a post-industrial context" (Andon *et al.*, 2003, p. 148). More recently, an emerging body of literature has devoted attention to the characteristics of the digital economy in relation to accounting (Agostino and Sidorova, 2017; Kornberger *et al.*, 2017; Leoni and Parker, 2019).

Kornberger *et al.* (2017, p. 79) examine the role of accounting in digital platforms, which they define as "distributed and often switch-role producers (sellers) and consumer (buyers) interacting with each other, digitally mediated by third party, the platform owner". In a quest to illuminate some of the mechanisms of digital platforms in contemporary capitalism (Kornberger *et al.*, 2017), the authors unpack how platforms' business models rest on their ability to ensure trust between buyers and sellers. This is achieved by creating a specific accounting regime known as an evaluative accounting infrastructure. Through evaluative infrastructures, digital platforms provide platform owners with privileged access to scads of consumer data (Kornberger *et al.*, 2017; Srnicek, 2016). Kornberger *et al.* (2017) argue that platform users control the platform, while platform owners are in a position to analyze, mine and sell the data and, hence, remain in power over the platform.

Similar to Andon *et al.* (2003), Leoni and Parker (2019) study how novel digital technologies influence governance and management control. In their examination of the use of accounting systems on digital platforms, they find that platform owners govern the digital platform from a central position of power, where they exert formal bureaucratic control over a large number of physically distant platform users. This aligns the users' behaviors with the platform owner's performance objectives. In theory, the distant platform users should enjoy high degrees of autonomy because they are not constrained by formal employment contracts. However, the platform owners exert considerable pressure on distant platform users owing to the increased opportunities to generate data, develop calculations (e.g. performance measurements) and introduce status-recognition controls. The authors therefore question the ability of the new (sharing) economy to deliver an alternative version of capitalism that can empower ordinary people.

Agostino and Sidorova (2017) explore the role of accounting in enabling action on distant customers and show that the adoption of social media (i.e. digital platforms) reconfigures CoCs. They conclude that social media facilitates action at a distance and simultaneously blurs the lines between the center and the periphery. In this study, we engage with this stream of literature and advance the debate on the relationship between digital platforms and accounting by examining the implications of surveillance capitalism for accounting.

3. Centers of calculation and accounting inscriptions

In order to analyze our empirical data, we mobilize the theoretical concepts of accounting inscriptions and CoCs – concepts that always have been an important part of technologies for governing at a distance (Latour, 1987; Miller and Rose, 1990; Rose and Miller, 1992). Latour (1987) introduced the CoC concept in his seminal work *Science in Action*, while Robson (1992) paved the way for the analytical application of the concept in accounting research.

When quantitative practices began playing a substantial role in a range of intellectual disciplines and in society at large, a sharp rise in the development of inscriptions and CoCs occurred. From the mid-1850s, a strong, positivistic orientation in society gave rise to a wave of quantitative practices (Hacking, 1981). In accounting and other disciplines, quantification now serves as the dominant form of information due, in part, to its reputed ability to provide “rigor” and “objectivity” (Robson, 1992). In the apparatus of quantitative practices, inscriptions play a dominant role.

Inscriptions can be understood “as the ‘material’ bases for the development of knowledge” (Robson, 1992, p. 689), most often in the form of numbers and quantification. In short, inscriptions refer to how we make an object or event known using such techniques as writing, recording, drawing or tabulating (Robson, 1992). Since the mid-1850s, we have become increasingly used to understanding the world through inscriptions. In fact, according to Latour (1986, p. 13), we have become so accustomed to a world of prints and images that we are hardly able to understand knowledge “without indexes, bibliographies, dictionaries, papers with references, tables, columns, photographs, peaks, spots, [and] bands”. Therefore, a relevant question in modern society is whether there is any knowledge without inscriptions. Together, inscriptions become maps (Lowe and Koh, 2007) through which we orient ourselves and make sense of the world.

CoCs emerged along with the pervasive production of inscriptions. CoCs are certain entities or locales (i.e. a person, group or organization) that accumulate information and knowledge by acquiring inscriptions (Agostino and Sidorova, 2017; Rose and Miller, 2010). By acquiring information and knowledge about the periphery, a CoC is able to “dominate [...] the periphery” (Latour, 1987, p. 232) and, thereby, to exert control over it. To Rose and Miller (2010, p. 238), the inscriptions that CoCs can accumulate about the periphery make them powerful because they are “in the know about that which they seek to govern”. This enables CoCs to take action at a distance on something (i.e. the periphery) that is distant from the center (Agostino and Sidorova, 2017). Previous studies have shown that CoCs can govern at several distances, which may be temporal (Qu and Cooper, 2011; Quattrone and Hopper, 2005), geographical (Preston, 2006), or of another form (see, e.g. Ahrens and Chapman, 2007; Dambrin and Robson, 2011; Ezzamel and Willmott, 1998).

Even though previous research has thoroughly examined the roles of CoCs and accounting inscriptions in governance processes, few researchers have questioned the assumptions regarding the economic regime under which contemporary organizations operate (e.g. via the use of digital platforms). Under surveillance capitalism, we expect the transformation of, access to and distribution of big data via digital platforms to change the nature of incoming and outgoing flows of information as an economic resource that can be mobilized in new types of accounting inscriptions and, therefore, change the nature of CoCs. Previous studies (Zuboff, 2015, 2019) assume that surveillance capitalism creates a change in the competitive situation by creating an asymmetrical distribution of power that favors the actors that have access to information and the ability to make sense of it. Thus, we expect new, economically relevant information to be produced and new types of accounting inscriptions to be mobilized to become competitive on the market.

Given this background, we ask *whether and how do digital platforms change the nature of centers of calculation?* We aim to answer this question by studying the use of digital platforms in the hotel industry. The broad and important changes discussed in this paper have not been driven by digital platforms alone but also by the rise of a number of interconnected digital technologies. However, we assert that digital platforms represent the most notable space in which the logic of accumulation materializes. Thus, we focus on this space. Furthermore, we examine how surveillance capitalism unfolds as well as its consequences. In order to do so, we draw on the accounting-inscriptions and CoC literature to highlight three important areas for our research, which are summarized in Table 1.

First, accounting inscriptions can be understood “as the ‘material’ bases for the development of knowledge” (Robson, 1992, p. 689), most often in the form of numbers and *quantification*. In short, inscriptions refer to how we make an object or event known using such techniques as writing, recording, drawing or tabulating as well as categorizing, gathering, measuring and aggregating (Robson, 1992). CoCs requires “infrastructures of codes” (Robson and Bottausci, 2018) that explain the subjects or objects to which the numbers refer. To bring remote contexts into a calculation by introducing new text or numbers, one must engage in a process of reduction of traces and reference – amplification of the reference to a form allows for greater compatibility and, therefore, results in the loss of some matter deemed inessential (Robson and Bottausci, 2018). As such, in order to answer our main research question, we need to first understand *the accounting inscriptions that are measured and communicated in the shift towards digital platforms*.

Second, inscriptions have *visualization* effects (Busco and Quattrone, 2015; Qu and Cooper, 2011; Quattrone, 2009). Inscriptions can be understood as intended “fact fabrication” and, therefore, constitute economic objects to be communicated and their importance to be visualized. Through visualization, inscriptions become objects for manipulation and governance. However, as the creation of an inscription involves selectivity, inscriptions are always imperfect representations of an underlying economic reality that the inscriptions are meant to visualize. This selectivity requires a rationale for representation and meaning that assign to such a representation, making the rhetoric behind the visualization important. Therefore, in order to answer our main research question, we also need to understand *the rationales behind and the meaning of the choice of new accounting numbers and the intended implications of their visualization in the shift towards digital platforms*.

Third, inscriptions have *governance* effects and are expected to mobilize action across CoCs. Thus, accounting inscriptions are not neutral, as they create new spaces of representation and, therefore, new disciplinary and governance regimes that are expected to enable organizational change (Christensen *et al.*, 2019) and work across distances. Inscriptions are meant to mobilize economic reality at a distance and, in this sense, facilitate action at a distance. Thus, inscriptions bring the outside world into the local world of interaction (Burfitt *et al.*, 2020) and, therefore, change the nature of society and businesses by creating reciprocity between signs and actors, and “do things by making each other speak” (Fauré *et al.*, 2019, p. 337). Therefore, in order to answer our main research question, we need to understand *the governance effects of new accounting inscriptions in the shift towards digital platforms*.

4. Methodology

Our empirical foundation is a single case study (Ahrens and Dent, 1998). In order to examine whether and how digital platforms change the nature of CoCs, we study how a large Nordic hotel chain evolved following the emergence of global digital platforms. The study is a theoretically informed interpretative case study, which “offers a way of examining the

Element	Qualities
Quantification	Knowledge development through the use of signs, texts and numbers. What accounting numbers are measured and communicated?
Visualization	Inscriptions are imperfect representations of reality. What is the rationale behind the choice of the number and what are the intended implications of its visualization?
Governance	Inscriptions enable and condition actions at a distance. What are the governance effects of inscriptions?

Table 1.
Qualities of CoCs and inscriptions

cumulative characteristics of organizational change and the changes in accounting processes that the organization has been subject to" (Bourmistrov and Kaarbøe, 2013, p. 199). The aim of our case study is to contribute to theoretical development by providing general insights (Flyvbjerg, 2006) or analytical generalizations (Parker and Northcott, 2016). Moreover, explorative case studies are well suited for uncovering questions for further exploration.

4.1 Company background and case selection

Our empirical setting is the travel industry. The case organization is a large Nordic hotel chain, which we call "CASE Hotel". It is among the biggest players in the Nordic hotel industry with more than 200 hotels, 14,000 employees and 8 million guests annually (pre-pandemic figures).

We chose CASE Hotel based on suggestions made by others in our research group who had previously conducted interviews with representatives of CASE Hotel and identified interesting areas for further enquiry. These existing relations eased our access to the organization. As such, this study was initially based on convenience sampling (Brewis, 2014). However, we conducted a more thorough assessment of the selected case organization before undertaking the study. In this process, we identified three rationales for the use of CASE Hotel as our empirical setting. First, the organization was located in the Nordic region, which is known for its digital maturity (Norwegian Ministry of Local Government and Modernisation, 2017). Second, the travel industry was a leader in collecting, collating and capitalizing on individual customer data through the use of digital platforms (Bulgakov, 2018). Third, CASE Hotel had a certain level of market power in the Nordic countries, which provided it with the ability to invest in digital technologies in order to compete against the global digital players. Specifically, CASE Hotel is among the four largest hotel chains in the Nordic region. Over the course of the past five years, each of these players has had a market share in the range of 10–20%. In terms of revenue, CASE Hotel had annual revenue in the vicinity of \$1.5 billion in 2021. The closest competitors show relatively comparable figures. The Nordic hotel market is thus characterized by an oligopolistic market structure, dominated by hotel operators who primarily serve the mid-market segment.

In sum, these promising case characteristics convinced us that CASE Hotel represented a critical case that could provide interesting, general insights into the use of new forms of information collected through digital platforms and into a local player's relationship to a global digital-platform owner.

4.2 Data collection

We collected our empirical data from various parallel sources (Corvellec *et al.*, 2018) in two periods, as we adopted an abductive research approach. Theory building in organizational studies requires disciplined imagination (Weick, 1989) and inspiration (Rivard, 2014), both of which often follow an evolutionary process. Consequently, an abductive approach was adequate.

An abductive approach involves an iterative process in which the researcher moves back and forth between empirical data collection and its theoretical interpretation (Lukka and Modell, 2010). This approach helped uncover how the process dynamics of an entity change or develop over time. In our study, we noted how the trajectory of the relationship between CASE Hotel and the online travel agencies (OTAs) developed dynamically over time. Such circular research processes (Flick, 2009) are seen as fruitful if the researcher aims to "discover new things" (Dubois and Gadde, 2002, p. 559), which was an aim of this study.

In total, we drew information from 32 [1] interviews conducted in two periods. In the first period, we read transcripts of interviews with several managers in CASE Hotel, some of whom were members of the top management team. These interviews were conducted from

2015 to 2018 by other researchers in our research group. A large portion of these interviews were characterized as open and explorative in nature. Four of these interviews were included in our study. The transcripts of these interviews provided us with an initial understanding of CASE Hotel's relationship with the OTAs and some notion of the importance of customer data.

In the second period, which ran from 2019 to 2020, we conducted seven additional interviews with representatives from various organizational levels in CASE Hotel and one interview with an OTA representative. These interviews were more targeted in nature but semi-structured in form, thereby allowing for surprises to surface. Some interviews were conducted by phone due to time restrictions on the interviewees' behalf. Relevant interviewees were identified by CASE Hotel representatives in a manner similar to a snowball sampling technique (Noy, 2008).

As one interview took place at the organization's headquarters, the primary researcher was able to engage in participant observation for approximately two hours. During these two hours, the primary researcher was allowed to observe informal meetings of CASE Hotel's management team and to engage in informal conversations with those involved in strategic management about the role of OTAs and the importance of customer data. These were clearly issues that engaged CASE Hotel's management team, as the primary researcher was kept in the headquarters lobby for continued discussions long after the agreed timeframe. Directly after these meetings, the researcher took hand-written notes in an effort to connect novel insights to existing ones. Moreover, the authors attended various events hosted by CASE Hotel with a total duration of four hours. During these events, C-level executives explained CASE Hotel's current and future strategic challenges, often highlighting the competition for and importance of individual data. The interviews and the participant observations served as our primary data sources.

In addition, we collected secondary data from several sources. We were granted access to detailed annual reports and performance reviews produced for internal use. Organizational documents may contain valuable empirical material because they are "elements of institutionalized practices" (Garfinkel, 1967, p. 197). As such, they provide a window into the organizational practices and procedures under which they were produced. By examining annual reports from 2014 to 2020, we were able to study CASE Hotel's reflections on and strategies concerning the increasing influence of OTAs in the hotel industry. These reports provided valuable information about the emergence of different accounting inscriptions over time and how those inscriptions were assigned different levels of importance at different stages in the process. In addition, the reports ensured that our conjectures of the organizational changes were accurate. Thus, the secondary data helped to mitigate any potential biases. The last source of data consisted of general information acquired from CASE Hotel's own website and mobile application as well as information and inscriptions from the two major OTAs' digital platforms. Table A1 details our empirical data collection.

The triangulation of the collected data (Denzin, 1978) highlighted three distinct empirical phases in CASE Hotel's relationship with the OTAs (see Figure 1). Several rounds of follow-up emails verified that our understanding was adequate. The first phase commenced when CASE Hotel joined the OTAs in the early 2000s and ended when it actively took a stance against the OTAs in 2012. The second phase started with CASE Hotel's withdrawal from the

Phase I: 2002-2011	Phase II: 2011-2018	Phase III: 2018 -
Becoming part of the OTAs	Taking on the fight against the OTAs	Moving towards cooptation

Figure 1.
CASE Hotel's changing
relationship with
the OTAs

OTA platforms in 2012 and ended with the emergence of a reconfigured relationship between CASE Hotel and one of the OTAs in 2018. This reconfigured relationship represented the start of the third phase, which was characterized by cooptation.

In order to present the changing dynamics in this case, we use temporal presentations of our findings, as they allow the researcher to reveal emerging themes and to maintain the integrity and transparency of the findings (Reay *et al.*, 2019).

5. Empirical findings: moving from CoCs to CDAs

CASE Hotel was founded in 1990. Until the end of the 1990s, the organization was managed in a highly traditional manner. For instance, the only customer-contact channels were phone or fax, and the hotel mainly operated with fixed prices, normally listed on a laminated A4 sheet kept behind the counter. At the time, the only customer data CASE Hotel recorded were names and phone numbers. In short, information acquired about customers was sparse, recorded manually and of limited analytical interest. CASE Hotel traditionally used earnings before interest, taxes, depreciation, and amortization (EBITDA) to monitoring each hotel's performance, which was consolidated and discussed at the executive management and board levels.

5.1 *Becoming part of OTAs – a new actor takes charge in the hotel industry*

After the dot-com bubble burst in the initial years of the new millennium, equities entered a bear market. Investors and companies lacked both the confidence and the capital needed to make new IT-related investments. The terrorist attacks on September 11, 2001, aggravated market conditions, leaving the hotel industry in a state of crisis. This series of events made room for a new player in the hotel industry – OTAs. CASE Hotel's Vice President reflected on the market conditions in the early the 2000s:

[We joined the OTAs] shortly after they were established in Scandinavia. After 9/11, the whole industry was in a state of crisis and bookings of hotel rooms plummeted for everyone. This was when these actors [the OTAs] saw an opportunity to take charge of the industry – when everyone else was panicking.

Throughout the first decade of the 2000s, the influence and power of some OTAs grew significantly. Through a number of consolidations, two strong actors became the dominant forces: Booking Holdings and Expedia Group. Notwithstanding the growing influence of these actors, CASE Hotel saw OTAs as a new and beneficial distribution channel it could exploit to reach new customers in previously uncharted territory. Hotel Manager 2 considered the emergence of OTAs:

It started as an advantageous distribution channel for our overseas markets. If we wanted to sell to Asian or American customers, we had no problem paying an "OK" commission for that.

However, by 2008, the OTAs had gained enough influence to leverage the increasingly asymmetrical power balance in a way that CASE Hotel found problematic:

In 2002/2003, we were not that conscious of the OTAs' demands and they were not particularly influential. However, by 2008–2009, they had started to become strong. For us, the problem was that they made completely unrealistic demands regarding profit [commissions] and access to our rooms. (Distribution Key Accountant Manager)

Hotel Manager 2 had worked in the hotel industry throughout his career and had been with CASE Hotel since 1997. When asked about CASE Hotel's relationship with the OTAs, he quickly replied:

I like to talk straight. To tell you the truth, it is a love-hate relationship. (. . .) For example, on issues regarding price-parity, [2] we joined forces [with other hotel chains] in Scandinavia and got that sorted. We agreed to work together [against the OTAs] and said “enough is enough”.

The increasing influence and power of Booking Holdings and Expedia Group resulted in rising commission fees and, consequently, a negative perception of the OTAs:

We did take high commission rates, which did not create a good environment for further collaboration. (Market Manager, OTA)

The demands concerning commission rates and access to rooms were not the only issues CASE Hotel faced. Access to and ownership of customers and customer data also surfaced as a key issue. A corporate manager explained:

We did not receive any customer information from the OTAs. Even the guests’ contact information was unavailable to us. Therefore, we had to contact the respective OTA if we had a message for a customer.

Throughout the 2010s, digitalization became increasingly important in the hotel industry. Together with the rest of the corporate world, CASE Hotel started to realize the potential value of customer data. The harvesting of customer data and the treatment of it as a resource on its own became a chief priority for the organization. However, the OTAs were unwilling to share data with CASE Hotel:

If you book a room via [OTA 1], for example, an email address with a reservation number will be sent to the hotel but that email address is only a temporary one that [OTA 1] creates for you. Then the OTA has to forward any mail from the hotel to the customer’s real email address. The hotel never sees the customer’s real email address. The OTAs do not want us to send marketing content to what they refer to as “their” customers. [Customer data] is alfa and omega. (Vice President)

This was a central part of the negotiations with OTA 1:

From [OTA 1], we receive the guests’ first and last names. We do not get any other information or insights. That has been one of the main issues in our negotiations with [OTA 1], but . . . no (C-level Executive)

An OTA representative shared this understanding of the situation:

Market Manager, OTA: We create an alias for guests who book through our platform. We assign them a [temporary] email address, which is the email address the hotels receive, such that the communication between the hotel and the customer goes through us. We are not supposed to provide the real email address or home address.

Interviewer: Why is that?

Market Manager, OTA: That is something we have never done and something we are not going to do. A central question is “Who owns the customer?” In our view, we own the customer until he or she steps through the hotel’s doors.

In sum, the costs of meeting the OTAs’ demands became too high for CASE Hotel. Dissatisfaction with the OTAs’ high commission rates was also evident among the other major hotel chains in the local market. In a joint effort to stifle the increasing influence of the OTAs, the hotel chains backed out of their agreements with the OTAs near the end of 2011. In this phase, CASE Hotel noted how the platform owners became stronger as a result of their centralized power (Kornberger *et al.*, 2017). This power asymmetry resulted in even higher commission demands as well as a continued lack of direct access to customers and customer data, both of which CASE Hotel found increasingly problematic.

In terms of the use of accounting inscriptions during this period, CASE Hotel management was still using EBITDA to monitor its hotels' performance and it faced increasing competition from OTAs for access to customer data. It also introduced new accounting metrics focused on the cost of sharing customers with OTAs. These metrics, such as "revenue reduction due to commission rates", highlighted the rising dissatisfaction with OTAs' exclusive access to customer data. Table 2 summarizes the development of accounting inscriptions in all three phases.

5.2 Taking on the fight against OTAs – realizing the importance of harvesting customer data

Shortly after CASE Hotel and the other major Norwegian hotel chains left the OTAs in 2011, they entered into new rounds of negotiations. After only three months, CASE Hotel rejoined the OTAs. The rationale for this quick U-turn was two-sided. On the one hand, CASE Hotel was able to negotiate a better deal with the OTAs, which demonstrated that the hotels were still able to influence the OTAs. On the other hand, CASE Hotel had experienced a severe downturn in bookings after leaving the OTAs, especially bookings from the international market.

According to several managers, the most important issue for CASE Hotel was its increasing distance from customers, which inhibited data appropriation, although commission fees were still high on the agenda. Given its dissatisfaction with the lack of access to customer data and its general relationship with the OTAs, CASE Hotel decided to establish a new corporate entity dedicated to understanding and tackling the challenges brought about by digitalization. Among the main concerns of the new corporate entity was finding ways to harvest and analyze customer data. The establishment of the new entity also demonstrated CASE Hotel's willingness to continue the fight against the OTAs with the explicit aim of appropriating customer-related information. Initially, the principal task of this corporate entity was to launch a new mobile application, which functioned as CASE Hotel's own digital platform. Through the mobile application, CASE Hotel could meet its customers and appropriate data:

You might say our counterstrategies against the OTAs are the things we do in our own channels. For example, our current strategy is to stifle the influence of the OTAs. Therefore, we added the mobile application as part of what we offer. That is one of our countermoves against the OTAs; the app is clearly a part of that. (C-level Executive)

The importance of customer data was emphasized by the same C-level executive:

[The problem is] that we have become too distant from our customers—the platforms come in between. Part of the risk with [OTA] platforms relates to our margins, but data is arguably even more important. We do not get data about our customers [when the customers book a stay through third-party platforms].

When asked whether the need to reduce commission payments was the main reason for introducing the mobile application, a revenue manager responded:

It is not only commissions. What is really essential nowadays ... is who owns the customer; customer data. (. . .). They [the OTAs] sit on a lot of data that is very valuable to us.

Figures 2–4 are screenshots from CASE Hotel's 2016 annual report. They highlight the somewhat hostile relationship between CASE Hotel and the OTAs as well as the importance of the mobile application in CASE Hotel's efforts to appropriate customer data (see Figure 5).

Before the launch of the new digitalization initiatives in late 2015, the main sales channel was the call center, which did not systematically register customers' preferences. After the launch of the mobile application on July 3, 2016, the hotel directed its customers to its online



Figure 2.
Screenshot from the
2016 Annual Report on
CASE Hotel's aim of
challenging OTAs:
“Third party” refers to
the OTAs

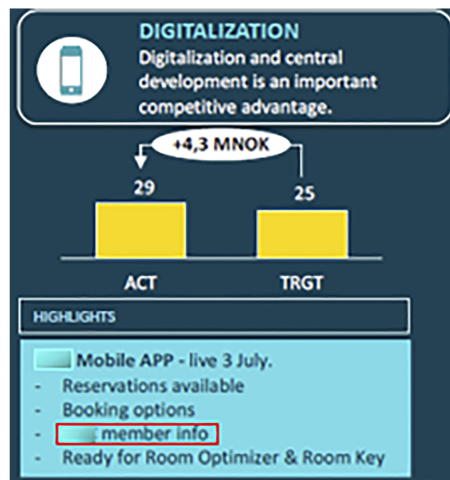


Figure 3.
Screenshot from the
2016 Annual Report on
CASE Hotel's ambition
to make digitalization a
competitive advantage
and to harvest member
information

booking platforms (the application and the website) where customers could customize their stay according to their preferences:

[We have now enabled customers] to choose a specific room. We have even allowed them to design their hotel room – how it should look, feel and smell. (C-level Executive)

These options gave customers a chance to tailor their hotel rooms to their preferences. This enabled CASE Hotel to appropriate customer data, including data on customers' sensory preferences. The launch of the app contributed to more appropriation of customer data for CASE Hotel. However, the OTAs also deployed strategies that reflected the competition for

Figure 4.
Screenshot from the
2016 Annual Report on
the application's
launch

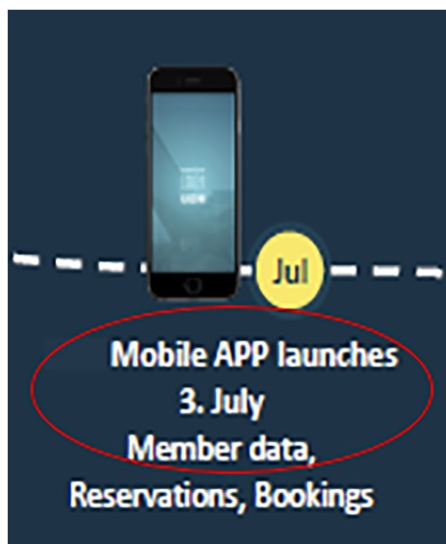
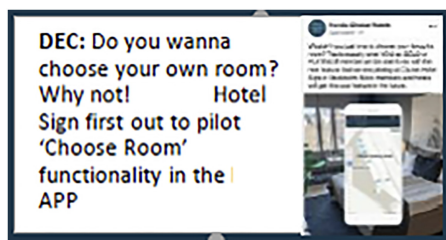


Figure 5.
Screenshot from the
2018 Annual Report on
the new application's
functionality



access to customers' data. A Market Manager from one of the OTAs underlined how highly detailed information about customers gets collected and how new performance indicators have emerged as a result:

We keep track of "clicks" [on the digital platform] (. . .), such as information on the number of clicks compared to last year or the number of clicks compared to competitors. We pay attention to that information. In addition, we register conversion rates – the percentage of people who "click" and then actually book [a room].

Listing practices on OTA platforms was another reason CASE Hotel fought against the OTAs. Advanced data models determined which hotels appeared in which order when customers searched for hotels through, for example, the Google search engine:

The OTAs have very advanced data models that they use to rank hotels on their platforms. The fact that we sell rooms at a lower price on our own homepage than on the OTA platforms "kills" our ranking on the platforms. In other words, we appear farther down on the OTA page if you make a general search on an OTA platform for, for instance, "hotel Stockholm". (Corporate Manager)

We asked a representative of OTA 2 about the determinants of hotel listings on its digital platform. Specifically, the interviewer asked: "What determines which hotels I see when I log onto [OTA 2]?" The representative replied:

We . . . Let me see . . . That is a question with a range of nice and correct answers. We have products for visibility. We have something called a “sponsored listing” [a paid listing service]. It is also about you as a person. For instance, do you delete your cookies? Your previous searches and “clicks” . . . we gather information on those things. If you consistently book budget hotels without deleting your cookies, we will probably suggest a budget hotel. (Market Manager, OTA)

These measures increased the distance between potential customers and the hotels in which they would eventually stay. Consequently, informal practices emerged in CASE Hotel that aimed to reward customers booking directly through the hotel’s own channels in a quest to appropriate data from the customers. One hotel manager stated that:

If you are a customer who books directly through one of our web services – especially if you are a potential or existing CASE Hotel member – then the odds that you will be offered an upgrade are far higher. Few will tell you this upfront, but it is true. This is because we will get more information and we can get to know your preferences. We get so little of this kind of information from the third-party channels [the OTAs].

Similarly, a corporate manager indicated that:

The key is to get the customer’s email address when they are standing at the counter. Chances are that customers can get up to a 20% discount on their next stay if they provide us with their email addresses.

In their efforts to access customer information, CASE Hotel also launched a new strategy in 2018 labeled the “Second-visit Strategy”. This strategy reflected CASE Hotel’s acknowledgement that, despite its efforts to direct customers to its hotels through its own channels, most customers still booked hotels through OTAs. The Second-visit Strategy proclaimed that 80% of all returning customers should book their second (and n th) stay through CASE Hotel’s own online channels (i.e. the website or the application). To incentivize returning customers to do so, CASE Hotel offered discounted rates (a minimum of 5%) and other member benefits. This strategy was important because – if successful – it would provide the organization with more and better customer data. At the same time, it would directly increase net profit. According to a corporate manager, the organization could not make a profit if all customers booked through the OTAs as long as the net profit of “OTA customers” was 15–25% below that of “direct customers”. The partial success of the Second-visit Strategy was used to explain how the company reached a “magical EBITDA” of approximately 100 million euros in 2018. Purely economic rationales and access to data were the driving forces behind the strategy. Figure 6 presents an excerpt from the 2018 Annual Report highlighting the Second-visit Strategy.

In 2015, directing customers through its own distribution channels (website/application) became a central priority for the organization. This gave rise to changes in focus concerning the key performance indicators (KPIs) in use and to numerous new KPIs, which were closely monitored. For instance, “revenue reduction related to commissions” was used to show how commission rates paid to OTAs flattened out. The KPI “share of room nights per distribution channel” appeared in 2017, through which the percentage of sales via OTAs was directly compared to the percentage of direct digital sales. In 2017, new measures such as “number of application downloads” and “number of new unique users” were introduced. By 2018, the use of the application was becoming increasingly important and CASE Hotel started to rank its own hotels based on “number of customers using [the] application for check-in/check-out and using mobile key”.

2. VISIT STRATEGY

2nd Visit Strategy and initiatives have been launched both locally and centrally, and the strategy is starting to get traction - WEB/APP was our fastest growing channel in 2018!

Figure 6.
Second-visit strategy
from the 2018 annual
report

A distribution key account manager agreed that customer data had become very important for the company, but she also shed light on the customers' perspective. She explained that not only did customers accept that CASE Hotel appropriated data about them but they also *expected* it in exchange for a frictionless experience with the booking system:

Customer data has definitely become more important. [. . .]. For good or bad, I think we have reached a point where we expect the system to recognize us. In a way, it sounds horrible but with all of the digitalization going on in all segments of society, that is what we do. Everyone who has a member card here only has to type in their phone number. Then [the system will say] "Oh hi, [name]! Is it you?".

Hotel Director 2 envisioned how CASE Hotel could exploit appropriated customer data in new ways. He explained:

We have been successful in sending out information [to customers] one to two days before their stay. That is like the old-fashioned "mass mailing", but the opportunity is there to tailor the information to the individual using the new technology. (. . .) When you land at the airport in, for instance, Oslo, I want your cell phone to automatically receive a message from us saying "Hi and welcome to Oslo! Press this link to book your stay with us".

This hotel director also stated:

There are a few things we humans take for granted that we are rather critical about in reality, like temperature, scent and lighting – things that go through our senses. If we could [tailor] these elements to our customers, it would give us a huge advantage. You could, for instance, write in your CASE Hotel profile that you want the room temperature at 22 °C, a certain level of humidity and a particular scent – perhaps you could choose from five different scents – and you want a certain type of lighting. After you check in, our systems swing into action. Our system is set up to start the ventilation in your room and turn on the TV with your name on the screen the second you check in, [but] we still have a way to go. The challenge is to send different signals [in terms of scent, humidity level, etc.] to different rooms but that is just data input. The infrastructure is already there. The only thing left for us to do is to pair the system with our appropriated [individual] data. (Hotel Director 2)

The statements made by Hotel Director 2 demonstrate the importance of individual data for driving the changes and innovation CASE Hotel envisioned.

In summary, in the second phase, CASE Hotel did not remain a passive actor but instead took action and established a dedicated corporate entity with a mandate to develop an application that would facilitate the appropriation of customer data – CASE Hotel's own CDA. By mobilizing digital technologies, CASE Hotel could influence asymmetrical power balance between the OTAs and itself. The launch of the Second-visit Strategy accentuated CASE Hotel's ambitions to regain a hold on its customers.

5.3 Towards *cooperation*

In 2018, CASE Hotel's corporate management changed its discourse about the OTAs. It began to seek out more collaboration and partnership, especially with one of the OTAs:

A few years ago, [. . .] at our annual conference, [corporate management] talked a lot about the "fight against the OTAs". Now this has changed completely and we view them as collaboration partners. (Hotel Manager)

[Our relationship] with one of the OTAs is changing. Now our best friend is [OTA 2]. We established a new contract last year and, hence, our working relationship has intensified. (Revenue Manager)

The Vice President explained that, in many cases, CASE Hotel sought out common ground with the OTAs. When that did not work, a more competitive attitude emerged. Thus, CASE Hotel's relationship with the OTAs (especially OTA 2) was simultaneously characterized by a cooperative and a competitive nature:

You can have a collaboration in which you have coinciding interests. If we are unable to negotiate good deals, we start to bid against each other. What sets CASE Hotel apart from many other actors in this industry is that we managed to actively redirect volumes [customers] between actors [from “expensive” OTA 1 to “less expensive” OTA 2] and, thus, demonstrate that we can manage the channels through which the sales take place. When you have done that, it is easier to come to the negotiation table with them. (. . .) Then we seek win-win situations. (Vice President)

A relatively new feature for CASE Hotel was that it had customers who were loyal to CASE Hotel but still booked their stays through the OTAs:

What I like about [OTA 2] is that we have started to gain loyal customers through them. More people come back to the hotel time and time again. That is good because it reduces the distance between the customer and the hotel. (Hotel Manager)

This quote highlights the notion that customer–hotel distance is key. In this context, “distance” does not refer to spatial distance. Instead, it is used to describe the intimacy of the customer–hotel relationship. The level of intimacy in the relationship was also evident when a hotel manager described the “new normal” of working with OTA 2:

What is positive is that they also try to help us. It feels like that anyway. It is no longer a faceless relationship and [a unidirectional] emphasis on price.

OTA 2 also perceived the relationship as resurrected. A representative of OTA 2 reflected on the situation:

Interviewee: We now have a very good relationship with most hotel chains. I have to say that CASE Hotel was the one standing at the forefront of that development and we are very happy about that. (Market manager, OTA)

Interviewer: Is it correct to say that there was previously a bigger divide between you [the OTAs] and the hotels?

Interviewee: Absolutely. It was a clear “us against them” attitude. However, we have come extremely far. (. . .) We are working towards (. . .) more than – what should I say? – a fight against each other. (Market Manager, OTA)

In summary, we see that after joining the OTAs’ digital platforms in the early 2000s, CASE Hotel realized that the OTAs’ demands were unrealistic. Initially, the main issues were related to commissions and access to rooms. However, CASE Hotel soon recognized that access to customer data was bound to become highly important. According to a C-level executive, access to and ownership of customer data evolved into the main concern for CASE Hotel.

The OTAs were initially unwilling to enter into negotiations on this issue. At CASE Hotel, this resulted in the creation of an in-house “digitalization company” and the development of a mobile application aimed, in part, at appropriating customer data. In 2018, the character of CASE Hotel’s relationship with OTA 2 changed. Respondents from both OTA 2 and CASE Hotel alluded to a new situation of *coopetition* – an example of how new the “post-industrial economy is sustaining ‘new modes’ of inter- and intra-organizational functioning” (Andon *et al.*, 2003, p. 135).

Table 2 summarizes our empirical findings for each of the three phases in relation to the elements of inscriptions: quantifying, visualizing and governance. Our main observation is that accounting inscriptions of an economic nature, especially EBITDA were used in all phases and acted as a relic from the initial phases of the organization’s history. However, other inscriptions also appeared that were characterized by weaker links to the economic domain, such as the “number of unique users (via application)” or the “share of rooms of rooms per distribution channel”. These inscriptions were more weighted towards the organization’s aim of appropriating data.

Table 2.
Inscription
development in CASE
Hotel and OTAs

Element	CASE hotel becoming part of OTAs (2002–2011)	CASE hotel versus OTAs: The fight for customer data (2011–2018)	CASE hotel and OTAs: Towards a new normal (since 2018)
<i>Quantifying</i> (What is inscribed?)	<i>CASE Hotel</i> • EBITDA decomposition for all hotels • Commission rates to OTAs (e.g. “revenue reduction due to commission rates”) <i>OTAs</i> • Price-parity agreements	<i>CASE Hotel</i> • EBITDA decomposition for all hotels • Commission rates to OTAs (e.g. “revenue reduction due to commission rates”) • Share of room nights per distribution channel (including OTAs versus website/application (digital direct sales)) • Number of application downloads • Number of unique users (via application) <i>OTAs</i> • Poor rankings of “rebel” hotels on the OTA search platforms • OTAs take over relevant hotel-related search words • KPIs related to customer clicks • Conversion rates • Rewards for direct hotel bookings – aim for 80% bookings through CASE Hotel for second visits • Increased individuality through “choose-room functionality” in the application • Frictionless customer experience due to data access on the platform • Recognition of a mutual interdependence between OTAs and CASE Hotel • Attract customers by mobilizing individual information • Reward customers who provide personal information at the counter (increased likelihood of an upgrade)	<i>CASE Hotel</i> • “Magical” EBITDA • “Revenue reduction due to commission rates” • Share of room nights per distribution channel • Number of application downloads • Number of unique users (via App) • Ranking of own hotels based on number of customers using application for check-in/check-out
<i>Visualizing</i> (Rationale for the inscription)	• All customers are OTAs’ customers (and not the hotel’s) • Temporary customer e-mail address assigned by OTA platforms		• Intimacy in customer-hotel relationships
<i>Governance</i> (Effects of the inscriptions)	• OTAs created distance between CASE Hotel and its customers by “surveilling” communication • Emerging unhealthy environment for cooperation between OTAs and CASE Hotel	• Partnership and cooperation between an OTA and CASE Hotel • Reduced distance between customers and CASE Hotel • Redirect customers from OTA 1 (expensive OTA) to OTA 2 (“less expensive OTA”) • Aim to mobilize more individual information to provide added customer value • Individualized advertisements	

6. Concluding discussion

This paper aimed to improve our understanding of how digital platforms function from an accounting perspective (Agostino and Sidorova, 2017; Kornberger *et al.*, 2017; Leoni and Parker, 2019). In particular, we examined *whether and how digital platforms change the nature of CoCs* in order to enhance our understanding of how the use of digital platforms may shape accounting practices and the nature of accounting information.

Based on our empirical study, we propose that by facilitating the enactment of data appropriation, digital platforms give rise to CDAs, thereby moving beyond traditional CoCs. In this transition, accounting inscriptions take on a different meaning, as accounting information that supports this tradition is moving beyond the financial orientation to include a wider set of information without direct links to the economic domain.

Our theorization of how CDAs differ from CoCs constitutes our first contribution. In Table 3, we summarize the different properties of CoCs and CDAs. In Sections 6.1 and 6.2, we discuss our first finding by elaborating on quantification and visualization, respectively. In Section 6.3, we discuss our second finding by elaborating on the effects of CDA and governance. Section 6.4 details the study's limitations and outlines suggestions for future research.

6.1 Digital platforms and the rise of CDAs – new quantifications and inscriptions

First, this study contributes to the literature on accounting inscriptions and CoCs (Latour, 1987; Miller and Napier, 1993; Qu and Cooper, 2011; Robson, 1992; Rose and Miller, 2010) by highlighting the influence of big data on what data is mobilized and the rationalization behind that mobilization. By examining the accounting inscriptions that are measured and communicated in the shift towards digital platforms, we also show the evolution of CoCs into CDAs.

The extant literature on accounting inscriptions emphasizes that inscriptions contribute to knowledge development by making an object or event known through quantification and aggregation (Robson, 1992; Vaivio, 1999). We concur with the extant literature and find that traditional inscriptions still play a central role in CASE Hotel. By maintaining old inscriptions and simultaneously adding new ones, it is notable how inscriptions play a role in both accumulating (and eroding) management systems over space and time (Cooper *et al.*, 1996; Martinez and Cooper, 2019). For instance, EBITDA is the most prominent example of the continued existence – and importance – of traditional inscriptions. In fact, a pre-determined level of EBITDA was referred to as the “magical EBITDA” in several annual reports, signaling a continued focus on this inscription. The commission rate paid to OTAs was another financially oriented inscription that was present in all phases. Thus, the focus on financial performance was not abandoned or downplayed. As noted by Robson and Bottausci (2018), such traditional inscriptions are characterized by their aggregate and reductionist nature, which allows the power of the inscribed reference to be garnered.

However, in contrast to previous studies, we find that the introduction of digital technologies and digital platforms with an emergent logic of accumulation fueled the rise of

Element	CoCs	CDAs
Quantifying	Focus on financial performance	Focus on data-appropriation performance
Visualizing	Maps of reality	Mirrors of reality
Governance	Center dominates the periphery	Multiple centers compete (and/or cooperate) for access to the periphery

Table 3.
CoCs versus CDAs

new types of inscriptions, as demonstrated in Table 2. While previous studies in accounting (Chua, 1996; Robson, 1992) have demonstrated accounting inscriptions' strong relations to the economic domain, our case is indicative of an influx of non-economic inscriptions that reflect the increasing use of and reliance on digital platforms.

These inscriptions are characterized by their lack of direct link to the economic domain. The "share of room nights per distribution channel (OTAs versus website/application)," the "number of application downloads," the "number of unique application users" and several rankings surface as novel, highly prominent inscriptions in CASE Hotel. As such, we demonstrate the role of new inscriptions in prompting managerial innovation (Busco and Quattrone, 2018). These new forms of inscriptions (Ezzamel *et al.*, 2004) are used to convey information about a new and increasingly digital reality, a reality in which data appropriation is not only an important competitive factor but also expected to be the fertile soil from which future economic benefits may be reaped. Notwithstanding the increasing credence given to these new inscriptions, they still co-exist with traditional inscriptions and function as increasingly important supplements. While the appearance and content of these new inscriptions are not surprising *per se*, the underlying logic of the new inscriptions epitomizes the shift towards a new economic rationality.

6.2 Digital platforms and the rise of CDAs – from maps to mirrors of reality

We further develop this finding by examining the rationales behind the choice of new accounting inscriptions and the implications of their visualization in the shift towards digital platforms.

The *modus operandi* of CoCs is calculative accounting practices aimed at reducing heterogeneity, complexity and ambiguity (Cuganesan, 2008; Robson, 1992; Rose and Miller, 1992). As we have seen, CASE Hotel also relied on economic inscriptions, such as EBITDA calculations at the hotel-unit and brand levels. Such aggregated inscriptions create maps of reality (Lowe and Koh, 2007) that are imperfect representations of the world. Along these lines, the "purposeful quantification" (Vaivio, 1999, p. 690) orientation suggests a deductive approach to the acquisition of inscriptions. In other words, prior to data collection, CASE Hotel had a clear idea about what data should be collected and measured (e.g. financial performance of hotels) in order to facilitate comparisons and performance assessments. In CoCs, an inscription is always an imperfect representation of the underlying reality that the inscriptions are meant to visualize (Busco and Quattrone, 2015; Dambrin and Robson, 2011).

Our study indicates that there is a different, emerging rationality at work for digital-platform organizations and demonstrates how accounting "changes in both content and form over time" (Miller and Napier, 1993, p. 631). In the individual customer segment, detailed customer data are perceived as extremely important. CASE Hotel's goal was to appropriate enough personal data about customers to enable the digitalized booking system to recognize every customer and their preferences. In this respect, we observe a fundamental shift away from combining and translating data into "higher-order and more aggregated degrees" (Cuganesan, 2008, p. 83) towards a state in which new accounting inscriptions motivate increasing data appropriation, where all data is assumed to have value on its own.

In other words, more data is always assumed to be better. This stands in contrast to CoCs, where inscriptions are given credence for the purpose of control (Lowe and Koh, 2007). While CoCs struggle to manage all of the data accumulated at the center (Cuganesan, 2008), CDAs both desire and manage to harvest and mobilize data by employing digital technologies. Consistent with Zuboff (2015), our empirical material suggests that no entity of data is too small or irrelevant to be appropriated. We suggest that the move from CoCs to CDAs represents a shift in how data is gathered, transmitted and assimilated and that new accounting inscriptions that support this transition also emerge.

The genesis of CDAs was primarily enabled by the massive increase in computing capacity and individuals' willingness to provide their personal data on digital platforms. These shifts enabled the OTAs and CASE Hotel to appropriate detailed data, sometimes in real time. While [Lowe and Koh \(2007\)](#) stress that inscriptions in CoCs are akin to maps because they provide an aggregated and simplified version of reality, we contend that the visualizing effects of accounting inscriptions in CDAs are more similar to mirrors because they provide a highly detailed version of reality, often in real time – creating a digital twin of a customer. While CoCs are characterized by the deductive approach to the acquisition of inscriptions, we argue that CDAs are driven by a more inductive approach. This is evident, for example, in CASE Hotel's ambition to acquire "member information". Although certain categories of member information were pre-determined, CASE Hotel's ambition was to acquire whatever information was available about present and future guests. This suggests a turn towards a more inductive approach in this respect.

The case material, which illustrates a clear focus on appropriating personal data, offers a unique window into how accounting inscriptions are moving from *homogenous, complexity-reducing pieces of information* ([Cuganesan, 2008](#); [Robson, 1992](#)) to *heterogeneous, highly detailed pieces of individual information*. Several studies in accounting ([Busco and Quattrone, 2015](#); [Qu and Cooper, 2011](#); [Quattrone, 2009](#)) have stressed that visualization of inscriptions is about the construction of realities and rationales rather than the mere representation of financial rationales. As such, one implication of our advocated shift from maps of reality to mirrors of reality is the construction of a new economic regime characterized by strong assumptions about the future economic returns of data appropriation. By identifying and explaining this development, we also answer [Ezzamel et al.'s \(2004\)](#) call to shed light on the attributes and effects of new forms of accounting inscriptions.

6.3 Digital platforms and the rise of CDAs – governance effects

The second contribution relates to the interdisciplinary discourse on the impact of surveillance capitalism on the trajectory of competitive forms in general ([West, 2019](#); [Zuboff, 2015, 2019](#)), and to the debate about the relationship between digital platforms and accounting in particular ([Agostino and Sidorova, 2017](#); [Kornberger et al., 2017](#); [Leoni and Parker, 2019](#)). By analyzing the governance effects of new accounting inscriptions in the shift towards digital platforms, we find two governance effects for organizations: the changing nature of centers versus the periphery and the creation of new dynamics between centers in the form of a shift towards cooptation.

The extant literature that examines how digital platforms may change the relationship between CoCs and the periphery highlights intra-organizational controversies concerning the question of "Who is the customer?" ([Agostino and Sidorova, 2017](#)). In our case, the related but different question of "Who owns the customer?" was a central issue in discussions between CASE Hotel and the OTAs. In this situation, the hotel acted as a local CoC and the OTAs acted as a global CDA. Due to the asymmetrical power relationship, only the global CDA was able to appropriate valuable data about the customers, which motivated CASE Hotel to start its own digital platform and convert to a local CDA. In this regard, our study adds to the extant literature on digital platforms and accounting ([Agostino and Sidorova, 2017](#); [Kornberger et al., 2017](#); [Leoni and Parker, 2019](#)) by recognizing that digital platforms open up a space for competition between local and global CDAs.

In CoCs, calculative practices are viewed as technologies of governance ([Miller, 2001](#); [Rose and Miller, 1992](#)). The center has knowledge about the periphery and is, therefore, able to dominate it ([Rose and Miller, 2010](#)). However, our case study suggests that in CDAs, the digital platform enables one center (i.e. the global OTAs) to dominate another center (i.e. the local hotel chain). The central shift in governance effects in CDAs can be summarized as the

emergence of multiple centers that compete for access to the periphery (e.g. customers). The consequence of this is a notion previously unexplored in the accounting literature – a situation in which multiple centers might need to compete in the collection of data.

Interesting notions also arise with regard to the role of the periphery. Under CoCs, the center is able to exert power and control over the periphery by acquiring information and knowledge about it (Latour, 1987; Rose and Miller, 2010). In the extant literature, the role of the periphery in this control relationship is not sufficiently problematized, but the implicit assumption is that the periphery must accept the center's control over it. However, in CDAs, the center is not in a unilateral relationship with the periphery in which it can appropriate data without some form of customer consent. Rather, the development from CoCs to CDAs is fueled by the actors appropriating data (i.e. the OTAs) and by the periphery (i.e. the customers) donating data. Notably, most customers have come to not only accept data appropriation but also expect it. In exchange for their personal data, customers expect to be recognized which ensures a frictionless meeting with the data systems.

In this respect, we argue that surveillance capitalism, enabled in large part by the rise of digital platforms, gives rise to a novel form of panopticon (Andon *et al.*, 2003) in which the governed party not only (implicitly or explicitly) accepts but also expects to be governed in exchange for convenience. This finding seems highly relevant for our understanding of how surveillance capitalism and digital platforms function from an accounting perspective (Agostino and Sidorova, 2017; Kornberger *et al.*, 2017; Leoni and Parker, 2019) as well as our understanding of their role in shaping the new economy (Kornberger *et al.*, 2018).

The second governance effect we highlight is the creation of new dynamics between centers owing to a shift towards *coopetition* (Luo, 2007). In contrast to existing views on surveillance capitalism, we do not envision the future trajectory of competing forms to be highly deterministic, as the extant literature contends (Zuboff, 2015, 2019). Instead, our empirical analysis suggests that the future of competing forms may well follow a dynamic trajectory. Our analysis shows that the dynamic trajectory of the relationship in our case was fueled by asymmetrical power relationships in terms of appropriating and controlling access to customer data. Initially, the global CDA could govern CASE Hotel by making it a hostage in its own business. It did so by catching CASE Hotel by surprise and, consequently, depriving it of access to detailed customer data. Therefore, OTAs as global CDAs exerted a kind of centralized control (Leoni and Parker, 2019) that forced CASE Hotel to follow the OTAs' policies. Remarkably, CASE Hotel's introduction of its own digital platform (a mobile application) reduced the asymmetry in the power relationship between the global OTAs and CASE Hotel.

In this respect, our paper adds interesting nuances to Kornberger *et al.*'s (2017) study. In contrast to that study, we show that access to customer data provides the platform owner with high levels of centralized power and control. When CASE Hotel realized that the OTAs completely controlled the data on customer bookings made through their platforms, it fought back against the OTAs in order to appropriate the customer data itself. Counteracting mechanisms contributed to the dynamic trajectory of this case which may foreshadow a more nuanced version of surveillance capitalism.

As the two actors in our case were mutually dependent on each other, they were forced to find new ways to both compete and cooperate in their fight for loyal customers and customer data, leading to a situation of *coopetition*. As platform owners, OTAs control the global digital infrastructure and have access to international customers but they still depend on the local services that the hotels provide to customers. The local hotels, in turn, provide services to customers but still need access to international customers.

6.4 Practical implications, limitations, and future research

This study brings novel and important theoretical and practical understandings of the role of accounting under surveillance capitalism to the fore, but limitations still exist. First, our research draws on a single case study and can, therefore, only offer general insights. More research on this topic is warranted in order to nuance and advance the theoretical concept of CDAs, including their creation and maintenance. For example, do they exist in other digital-platform settings and industries?

Second, our findings could be contingent on the particularities of the context. The rather liberal and democratic market environment in which CASE Hotel operated may have positively influenced its ability to act against the OTAs. Nevertheless, the counteract against the OTAs still required a coordinated effort amongst the dominant actors in the Nordic hotel market. Thus, one practical implication emanating from this study is that for small-scale hotels (e.g. family-owned) or hotels operating in minor markets, the ability to negotiate with OTAs may be limited. Increased bargaining power could be contingent on cooperation or the creation of networks among small and medium-sized actors in the hotel industry. Future studies should observe how local market conditions determine the future trajectory of power relationships in digital-platform settings. Important practical and political discussions could emerge in the wake of such findings.

Third, in terms of profitability, offering a large pool of customers' tailor-made services is not necessarily more profitable. Rather, customer engagement should be matched by internal processes in a way that supports profitability. Accounting practitioners should carefully assess the potential financial implications before considering significant investments in tailor-made services. Investments in tailor-made services to appropriate customer data will not necessarily be a profitable endeavor without the required programs and technologies in place. Our study did not enter into an inquiry concerning these issues, but future research could evaluate the degree to which organizations are dependent on developed technological infrastructures before turning data into dollars. Relatedly, future studies could critically assess the consequences of moving towards a dependence on highly detailed, individual information. While this study shows the strong belief in the maxim that "more data is always better", practical and theoretical questions concerning relevance once again become highly pertinent. One way forward could be examining the role of accountants in the interpretation of information. [Qu and Cooper \(2011\)](#) suggest that inscriptions are subject to negotiation and reinterpretation. What happens when data become detailed enough to exhaust all room for negotiation and reinterpretation?

Lastly, our conclusions build on the assumption that customers will continue to donate personal data. Although that trend is strong, customers might come to view the downsides of data donation as stronger than the benefits. What would happen if customers self-selected away from organizations dependent on the donation of personal data? Irrespective of the trajectory of such developments, more work is needed to understand accounting's role in the creation and maintenance of surveillance capitalism as well as its implications for individuals, organizations and society.

Notes

1. We drew on a sample of 32 interviews, 24 of which were conducted by others in our research group. From this population of 24 interviews, 4 were particularly relevant for our study. Thus, statements from these interviews are included here. We conducted an additional eight interviews. Consequently, the interview data in this study was gathered from 12 interviews conducted in two separate periods.
2. Price-parity clauses generally oblige hotels to provide rooms to OTAs on terms at least as favorable as those offered on other online and offline distribution channels.

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Appendix

Data type	Quantity	Original data source	Data source classification
Interviews from 2015 to 2018	4 (mean duration: 70 min)	Informants (Deputy CEO, Chief Digital Officer, Vice President Distribution, Head of Marketing Technology and Sales)	Primary
Interviews from 2019 to 2020	8 (mean duration: 60 min)	Informants (Vice President Distribution, Head of business Performance x 2, Head Profit Cluster, Hotel Director 1, Hotel Director 2, OTA representative, Distribution Key Account Manager)	Primary
Participant observation (2019–2020)	6 h	Observation of informal meetings, discussions with various actors holding corporate positions at HQ and participants at seminar organized by CASE Hotel	Primary
Internal annual reports from 2014 to 2020 (not publicly available)	7	Annual reports from CASE Hotel Financial Services department	Secondary
Digital corporate platforms	2	General information acquired from the company's website and its application	Secondary
OTA platforms	2	Visits to the two major OTAs' platforms to assess rankings and other relevant information	Secondary

Table A1.
Data sources

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