A RISK-BASED PERSPECTIVE ON WORK AND ORGANIZATIONAL TRANSFORMATION IN E-COMMERCE: A REVIEW FOR UNDERSTANDING

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A RISK-BASED PERSPECTIVE ON WORK AND ORGANIZATIONAL TRANSFORMATION IN E-COMMERCE: A REVIEW FOR UNDERSTANDING

Research paper

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Abstract

While e-commerce was born with the World Wide Web and continues to be extensively studied, research on work and organizational transformations in e-commerce is scarcer and scattered. This paper offers a review of 80 papers to analyze this phenomenon through a risk-based perspective. We provide a conceptual map of the reviewed literature and identify eight research gaps that hinder a fuller understanding of these transformations. In particular, we point to the neglected role of work transformations and risk allocation among individuals in framing organizational inertia. We then put forth a corresponding research agenda. First, we suggest that research on the allocation of risks among organizations’ members and the accountability mechanisms they rely on would be valuable to inform our understanding of e-commerce inertia. Second, we suggest examining the influence of work transformations on these risks, both in the organization and beyond its boundaries. Lastly, we suggest that research would benefit from further investigations on the concept of culture in e-commerce organizational transformations, on its possible roles in the face of work transformations, and on strategies to manage it.

Keywords: Organizational transformation, work transformation, e-commerce, literature review.

1 Introduction

Since the 1990s and the rise of the World Wide Web, E-commerce has led to critical changes in entire industries such as banking, tourism or the press. E-commerce technologies such as e-commerce platforms and search engines, social media, or customer relationship management software led to drastic changes in B2B and B2C relationships (Barua et al., 2004), organizations (Daniel and Wilson, 2003), and work (Cherry, 2016). These transformations are now fueled by AI, big data and analytics (Chen et al., 2012). 22 years ago, while acknowledging the transformation of work, S. Zuboff (1996) nevertheless questioned the extent of related organizational transformations (OT). Organizations appeared to be reengineered toward efficiency without challenging the 20th century functional hierarchy they were relying on. Without a “proactive adaptation” effort to transform organizational social contract, moral vision, control systems and entrenched interests (Zuboff, 1996, p. 17), organizations remain dysfunctional because of discrepancies between the new nature of work and organizational structures. This changing nature of work, characterized by the blurring of work boundaries (Fuchs and Sevignani, 2013), algorithmic management or electronic control (Cherry, 2016), thus requires transforming components of organizational deep structures such as control systems and forms of authority, organizational arrangements, beliefs and values (Hannan and Freeman, 1984; Tushman and Romanelli, 1985). Because it represents “the set of fundamental “choices” a system has made of (1) the basic parts into which its units will be organized and (2) the basic activity patterns that will maintain its existence.” (Gersick, 1991, p.14) this deep structure is characterized by its inertia. As a force that maintains the
organization on its current trajectory and reinforces the system as a whole (Gersick, 1991), inertia makes OT an uncertain process which can derail or fail. Thus, overcoming it is a fundamental challenge of strategizing and governing transformations (Besson and Rowe, 2012). However, beyond risks of overall failure, OTs and work transformations do not only pose collective organizational risks such as project management, technical, or business risks. They also pose risks of personal loss to organization’s members (Fiedler, 2010). By creating perceptions of a threat, endangering one’s position in the organization or reducing one’s influence, reallocating resources, or disrupting people’s ways of doing or thinking, these risks can be an important source of inertia, which constitutes a possible link between organizational and individual level risks. This relationship between risks and inertia can create vicious circles towards transformation failure thus making strategizing and governing OT politically complex because of the wide range of collective and individual logics it threatens (Clemons et al., 1995).

After 30 years, research on e-commerce diffusion from an institutional (Chatterjee et al., 2002), a customer acceptance (Gefen et al., 2003), or a strategic perspective (Amit and Zott, 2001) has cumulated. However, thorough research on OTs in e-commerce is scattered across various disciplines such as marketing (e.g. Deighton and Kornfeld, 2009), strategy (e.g. Saban, 2001) or supply chains management (e.g. McIvor et al., 2000) and domains of interest such as transformation processes (e.g. Hackbart and Kettinger, 2004), organizational forms (e.g. Elliot, 2006), routines (e.g. Gilbert, 2005) or identity transformations (e.g. Utesheva et al., 2016). As a result, the literature on work and OTs remains fragmented. These rich yet piecemeal results provided motivation for a cumulative effort to inform our understanding of the phenomenon. To this end, we examine knowledge on work and OTs in e-commerce through a review of 80 papers. Through a risk-based analysis, we cast a new look at the risks that stem from these transformations and offer a new perspective on their relation to inertia. We then offer a conceptual model to map current knowledge and highlight parts of the phenomenon which deserve more attention before putting forth a corresponding research agenda.

2 Conceptual framework on work and OT in e-commerce

E-commerce is particularly suited to develop our understanding of IS work and organizational transformations for it transforms organizational deep structures, spans over entire industries and is economically and socially significant. Besides, it uses new forms of digital work and relies on various technologies, which helps to avoid limiting the analysis to the effect of a single one. A starting point for understanding these transformations is the conceptual framework of Besson & Rowe (2012). It puts forth the concepts of organizational inertia, OT processes and governing and working agencies, and finally considers performance. Designed to be independent from the three theoretical perspectives on OT that they identify - evolution, punctuated equilibrium and institutional theories - this framework is highly flexible and can be readily adapted to e-commerce but is also incomplete as it did not address work transformations. We chose to develop a more specific framework to analyze how the literature treats work, risks and organizational inertia to derive research thrusts on work and OT in e-commerce. Indeed, as the foundation for workers identity, cognitive frames, and routine-based efficiency, work constitutes a core part of organizations’ deep structure and is thus inert. Accountability and reliability being central in inertia theory (Hannan and Freeman, 1984), risks are also particularly relevant to the analysis of OTs in that they both a pressure for stabilizing ways of doing and analyzing the environment as well as a threat to individuals. Lastly, we analyzed how the reviewed literature treats organizational inertia since overcoming it is a fundamental problem of organizational transformation.

2.1 Work transformations

Work is particularly relevant to the understanding of OTs because it provides a foundation both for the formalization of action through repeated routines and skills division (Simon and March, 1976), and for the establishment of cognitive frames and professional culture (Bloor and Dawson, 1994). Besides, it is also bound to the formalization of power relationships (Astley and Zajac, 1991) and workers’ identity (Ashforth and Mael, 1989). As such, work transformations are tightly related to OTs, especially in
the case of e-commerce. Not only do OT in e-commerce transform business processes, skills and technologies that automate tasks, but new forms of work also emerge. Firstly, forms of boundaryless work emerge as three frontiers which used to define it are blurring (Fuchs and Sevignani, 2013). In particular, the frontier between leisure and work times is eroding, creating an urge to exploit all time in a productive manner. Similarly, a world of playful work and of productive pleasure appears as the distinction between playing and working collapses. Finally, the distinction between receptiveness and productiveness is blurring as feelings, knowledge and the capacity to produce and absorb them turn into productive work and as being productive requires this receptiveness (Fuchs and Sevignani, 2013).

Secondly, more and more organizations are relying on data to generate revenue. As described by Zuboff (2015), these models focus on accumulating data that may come from a variety of sources (market transactions, SNS data, Internet of things, corporate and government databases, or cameras) without reciprocity and in some instances with no informed consent. This data is sold directly to data brokers or as an access to an audience that has been analyzed based on this data. These extractive models thus transform work in a double yet concealed way. First, they rely on the free audience work of the crowd, which is not performed by usual workers but is nonetheless used as a labor input. For instance, customers provide free work by simply following a specific browsing pattern through an e-shop or by evaluating and commenting products. Such model may also rely on new kinds of digital independent workers who perform micro-work, such as Amazon MTurk workers or photographers selling their pictures on dedicated platforms. Second, these models transform power and control dynamics through the continuous monitoring of everything, including traditional employees (Zuboff, 2015). As an example, customers and sellers are selected on the basis of their ratings by platforms’ algorithms and customers are encouraged to rate previous interactions with customer service operators. We distinguish cases of primary data extraction where an organization extracts and monitors data for its own primary products and services, and cases of non-primary data extraction where it sells it to third parties.

2.2 E-commerce risks

We also examined how the reviewed literature treats risks because their management is critical to the success of the transformation and to operating successfully in e-commerce. OTs are risky and uncertain processes for transforming the organizational deep structure puts its actual survival at stake (Hannan and Freeman, 1984). Risks therefore provide an a priori mean to evaluate the transformation initiative and to modify its design accordingly to mitigate them (Besson and Rowe, 2012). Besides, the target organization will face a new risk portfolio that should be addressed in the transformation design. Some of these risks are anticipated and eventually borne by organization’s members and can hence be a significant source of inertia. Indeed, organization’s members may perceive them as a threat (Hackbart et al., 2003), may prefer avoiding to bear a particular risk (Monsen and Downs, 1965), or may resist work uncertainty (Barrett and Walsham, 1999).

In the e-commerce context, extensive literature exists on the relationship between adoption process and risks as perceived by customers (e.g. Liebermann and Stashevsky 2002; Park et al., 2004) or on project risks management (e.g. Addison, 2003). However, we needed a broader framework to account for the diversity in their nature and in the levels they occur at. We therefore used a Technology Organization Environment (TOE) framework for its capacity to encompass a large variety of risks beyond project management or technical risks. Furthermore, its managerial relevance was empirically tested (Ngai and Wat, 2005). Lastly, it is often used in IS or e-commerce research as a generic innovation diffusion theory (Zhu and Kraemer, 2005) for its adaptability (Baker, 2012), which helps cumulating the literature. These risks can relate to technology (security or requirements risks), the organization (managerial, reengineering risks, risks related to resources), or its environment (legal, outsourcing, vendor quality or cultural risks) (Ngai and Wat, 2005). Because of the importance of trust for e-commerce (Ba and Pavlou, 2002), we also considered risks to organizational reputation. However, some of these risks remain at the organizational level while some others are allocated to organization’s members through accountability mechanisms. We therefore also considered risks that are borne by organization’s members through such governance mechanism. Beyond such formal risk management,
work and OT in e-commerce generate risks to organizations’ members as a direct threat, such as technostress risks (the stress caused by ICTs - Ayyagari et al., 2011), or deskilling risks (Braveman, 1974). We thus analyzed both risks to organizations and to their members in the literature.

2.3 E-commerce organizational inertia

Finally, we analyzed how the literature considers organizational inertia. In OT theories, organizational inertia is at the heart of transformational issues. As a force of continuity that keeps the organization on its current trajectory and impedes change, it is difficult to overcome because it lies in the organizational deep structure (Gersick, 1991). To examine how the literature treats it, we relied on a multidimensional conception which distinguishes five forms of inertia (Besson and Rowe, 2012). First, fears, perception of a threat, aversion to ambiguity or uncertainty generate negative psychology forms of inertia. Second, established work processes, skills, technology and routines generate sociotechnical inertia because of their role in enabling accountability and reliability by establishing repeated patterns of action. Moreover, difficulties in changing one’s mindset, analytical frameworks, culture and values, or cultural mismatches between different groups lead to additional socio-cognitive inertia which lies in established ways of thinking and framing problems. On their part, sunk costs, switching costs, or resource monopolization by exploitation processes can hinder resources reallocation, hence generating economic forms of inertia. Finally, agents self-interested behaviors, coalition rebuilding costs, or conflicting group or functional division interests can produce political forms of inertia. Such inertial forces makes the transformation more difficult and costly, and if strong enough to prevent change, can lead to its failure. They can be present both at the level of the governing agency (G-agency), who is in charge of designing and controlling the transformation initiative, and at the level of the working agency (W-agency) who adapts to the transformation and implements it (Besson and Rowe, 2012). We therefore analyzed which forms of inertia the work and e-commerce OT literature studied.

3 Methodology

This literature review aims at improving our understanding (Rowe, 2014) of work and OT in e-commerce, by relying on the aforementioned framework to map the literature, identify some neglected knowledge areas and propose a research agenda. We therefore favored breadth over depth of analysis and aimed at reaching a good rather than exhaustive coverage of the relevant literature (Rowe, 2014).

3.1 Screening process

In order to identify relevant articles, we used a group of Boolean queries on several scientific databases¹. We searched the management literature (and not IS journals only) through the title, abstract, and keywords fields from 1995 (early days of commercial internet) to 2017. A first series of queries screened for OT related terms combined with e-commerce related terms. A second series loosened constraints on OT terms and searched for digital transformation combined with work related terms, before we performed a full-text control for the presence of an actual OT. Lastly, another series of queries searched for OT related terms, combined with work related terms and “digital” or “virtual”, before a full-text control for the presence of e-commerce technologies was performed. In total, we combined 62 synonyms and related terms (Web Appendix). The 395 unique and potentially relevant remaining items were then manually screened according to practical, relevance and quality criteria, as recommended by Paré et al. (2015). 41 were excluded on the basis of practical criteria (non English, research commentaries, editorials) and 201 were excluded during relevance assessment (not related to OT and

¹ The queries were used on Business Source Complete (EBSCO), ScienceDirect, JSTOR and Emerald databases, before being used on SpringerLink, WileyOnlineLibrary, INFORMS PubsOnline, TaylorFrancis, & AISeL to triangulate the screening process and limit the deficiencies stemming from search engines limitations and necessary changes to the queries.
e-commerce, related to e-government and public IS issues). Finally, 94 more articles were excluded during quality assessment (lack of a theoretical framework or empirical data, poorly reported methodology, professional literature or industry funded journals, preliminary results). 11 additional articles were then included following a forward and backward search. Eventually, 5 more were identified as related to e-commerce and internet-based OTs in Besson and Rowe (2012), and 5 more were known by authors as relevant to the theme, bringing the reviewed literature to 80 articles.

3.2 Coding procedure and results extraction

We derived coding criteria from the conceptual framework described above, then applied them on each selected article. However, because no framework can efficiently capture risks to organizations and to individuals, we combined different detection lenses to capture both these types of risks. We used the aforementioned TOE framework (Ngaï and Wat, 2005) to detect risks to organizations, then triangulated it with the inertia, the two digital work frameworks, and an additional manual screening so we could better detect risks to individuals. For instance, political inertia stemming from the threat of being replaced in the automation process was coded as a risk to lose one’s position. Similarly, when an article was mentioning that a manager was made accountable for managing outsourcing risks, we coded the risk as both organizational and individual. This way, we coded risks to individuals by relying on the complementarity of these frameworks. All codes were then confirmed variable per variable, then article per article, and finally triangulated by cross-researcher coding until reaching an agreement on the appropriate code. Despite this cross-coding process, codes remain a product of our interpretation to some extent. We first applied the coding scheme on a basic level to obtain a general idea of which codes are treated in the review literature and how often they are. Nevertheless, this lower level coding strategy cannot account for the depth of the contribution to the topic. The coded parts of the text were therefore marked in the text then extracted in a spreadsheet for further analysis.

4 Findings and gaps

In the following sections, we present the results of our review and point to some significant gaps in our knowledge on work and OT in e-commerce.

4.1 Digital work

Reviewing how the literature accounts for work transformations in e-commerce highlights two perspectives which hardly build upon each other. An important part of the literature relies on processual or resources-oriented perspectives. Work is then mainly viewed as a process or a set of tasks that is performed through the use of skills and technologies. However, workers and work themselves are essentially absent from most of these studies. On the other hand, a smaller research stream adopts different perspectives on OT in e-commerce by adopting a critical stance on work which comes at the expense of considerations for organizational transformation issues.

For instance, a few articles describe the collapse of the boundaries that used to define work. 9 articles (11%) point to the blurring of the distinction between leisure and work, and 6 (7%) between playing and working (Table 1). This phenomenon is mainly considered positive in the literature. Jobs are seen as more enjoyable (Ash and Burn, 2003), and fun work environments are deemed important to attract digitally savvy workers (e.g. El Sawy et al., 2016). Providing quick answers to customers out of work hours is seen as service improvement (Li et al., 2017) and an hour of home-based work is deemed convenient for managers (Tsai and Gururajan, 2007). On the other hand, the critical stream points to a
new disposable “cybertariat”2 (Fish and Srinivasan, 2012), depicts it as struggling to make a few dollars out of their leisure (Cohen, 2015), or highlights the stress resulting from 24/7 schedules (Matlay and Westhead, 2005). The same literature divide appears on data extraction practices. In our sample, 12 articles consider non-primary extractive business models (table 1). Among these, 7 articles adopt a critical stance and focus on forms of “digital labor”, which they consider exploitative. According to this critical perspective, these business models rely on the commoditization of the time people spend reading, clicking, or commenting (Cohen, 2015), which they view as a new form of digital audience labor (Ogakaru and Archibong, 2017) consisting of the “work of being watched” (Andrejevic, 2002). As Fish and Srinivasan (2012, p.138) put it, this perspective points to parallel conceptualizations of “[…] celebrations of user-generated content emerging out of the free time and willful contribution of millions of people” and on the other hand “accounts of exploitation […]”. Interestingly, one article focuses on a case of collective data extraction for recruitment filtering purpose (Ashuri and Bar-Ilan, 2015), and highlights how personal data screening takes various and unexpected forms. However, the reviewed literature broadly considers that the more data is extracted, the more digitally mature an organization is (Teo and Pian, 2003; Li et al., 2016). These divergent perspectives question the ability of our usual units of analysis to sharpen our understanding of the phenomenon and point to the need for theoretical means to account for such work transformations beyond an organizational or individual perspective (GAP1). Furthermore, our approach to data extraction practices insufficiency depicts their great variety beyond pure data business models. Indeed, even in primarily extractive models, “work can be exported by getting customers or suppliers to do data entry and editing.” (McIvor et al., 2000). This issue goes beyond analyzing consequences of work transformations on people since, for instance, CRM vendors use corporate customers’ data to adjust consumer behavioral models that they then sell to their competitors. However, despite 57 articles focus on cases of primary extraction (table 1), they provide little insight on how and to what extent organizations integrate extractive practices (GAP2).

4.2 E-commerce risks

At least one risk to organizations is mentioned in 48 (60%) articles, while 32 papers mention none. The organizational risks category is the most mentioned (40% of risks, table 2). Technological risks (26%) and environment related risks are also considered (34%). Almost half of this last category relates to outsourcing risks, hence confirming the need to develop means to understand risks and their transfer beyond organizational boundaries.

<table>
<thead>
<tr>
<th>Risk category</th>
<th>n</th>
<th>% of codes</th>
<th>Risk category</th>
<th>n</th>
<th>% of codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>I – Technological</td>
<td>22</td>
<td>26%</td>
<td>III - Environmental</td>
<td>29</td>
<td>34%</td>
</tr>
<tr>
<td>Server Security</td>
<td>13</td>
<td>15%</td>
<td>Outsourcing &amp; Alliance</td>
<td>13</td>
<td>15%</td>
</tr>
<tr>
<td>Requirements</td>
<td>8</td>
<td>10%</td>
<td>Legal</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td>Physical</td>
<td>1</td>
<td>1%</td>
<td>Cultural</td>
<td>4</td>
<td>5%</td>
</tr>
<tr>
<td>II – Organizational</td>
<td>34</td>
<td>40%</td>
<td>Reputational</td>
<td>4</td>
<td>5%</td>
</tr>
<tr>
<td>Resources</td>
<td>18</td>
<td>21%</td>
<td>Vendor Quality</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Management</td>
<td>11</td>
<td>13%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reengineering</td>
<td>5</td>
<td>6%</td>
<td>Total (I + II + III)</td>
<td>85</td>
<td>100%</td>
</tr>
</tbody>
</table>

2 A term originally coined by U. Huws (2001) to designate an emerging class of information processing workers, often working for online platforms, and which cannot be categorized according to usual Marxist social classes.
Table 2. Number of coded organizational risks (framework adapted from Ngaï and Wat, 2005).

The analysis of the reviewed literature also highlights how risks to individuals are not the sole product of organizational risks allocation among organization’s members. The TOE framework detected 85 organizational risks (table 2), but only 9 of these could be attributed to respective agencies (table 3). Similarly, only 7 risks to individuals were detected by both the inertia and the TOE framework, pointing to their differences in nature (table 3). Most of the risks to individuals in our literature sample are borne by the W-agency (56%+15%, table 3). However, only 9 of these state that G-agencies should address them, often without providing guidance or exploring how (table 3). As a result, we lack of knowledge on which risks are collectively borne, which are allocated to individuals, and through which accountability mechanisms (GAP3). Besides, not only are some risks to the W-agency rarely treated, but contrasting findings also highlight the potential work conditions improvements that OT in e-commerce could entail. For instance, in contrast with the deskilling automation perspective, some articles report skill upgrading or overskilling strategies (Verganti and Buganza, 2005), work life quality improvements (Ash and Burn, 2003), or increased autonomy (Tsai and Gururajan, 2007). These seemingly opposite results invite to examine the conditions under which these direct risks to the W-agency emerge, realize, which workers bear them, and through which risk management strategies can mitigate them (GAP4).

<table>
<thead>
<tr>
<th>Risk detected with:</th>
<th>Risk borne by:</th>
<th>G agency</th>
<th>W agency</th>
<th>W &amp; G agencies</th>
<th>Total (% codes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inertia framework</td>
<td></td>
<td>13</td>
<td>18</td>
<td>6</td>
<td>37 (59%)</td>
</tr>
<tr>
<td>TOE framework</td>
<td></td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>9 (15%)</td>
</tr>
<tr>
<td>Boundaryless work</td>
<td></td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>6 (10%)</td>
</tr>
<tr>
<td>Manual screening</td>
<td></td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>10 (16%)</td>
</tr>
<tr>
<td><strong>Total (% codes)</strong></td>
<td></td>
<td>18 (29%)</td>
<td>35 (56%)</td>
<td>9 (15%)</td>
<td>62</td>
</tr>
</tbody>
</table>

Table 3. Number of individually-borne risks codes by agency.

4.3 E-commerce organizational inertia

67.5% (54 articles) of the reviewed literature describes at least one type of inertia. Sociotechnical inertia is the most studied with 35 out of 123 codes, among which 19 are related to skills, processes and routines, and 13 to technological issues, highlighting the extent of the transformation of tasks and skills. Political inertia that stems from the confrontation of divergent interests is also regularly mentioned (28 codes), underlining threats to personal and group interests (e.g. Clemons and Hann, 1999 for G-agencies level; Jackson and Harris, 2003 for W-agencies). 24 articles mention sociocognitive inertia. On the one hand, it can stem from difficulties in changing one’s mindset, culture, or cognitive frames, which is a widely acknowledged antecedent to successful transformation (e.g. Piccinini et al., 2015; Barrett and Walsham, 1999). On the other hand, it is related to cultural mismatches between groups as a result of transversal and inter-organizational transformations (e.g. Ghandour et al., 2004). We found economic inertia in 22 articles, mainly related to resource availability and current endowments. Lastly, we found forms of negative psychology inertia in 12 articles, but apart from few exceptions (e.g. Speier and Venkatesh, 2002; Jarvenpaa and Ives, 1996), it is rarely analyzed in depth.

Our examination of the relation between individual risks and inertia highlights their effect on OTs in e-commerce. Firstly, transformation of roles, tasks and skills can put the W-agency at risk of losing its routine-based efficiency (e.g. Verganti and Buganza, 2005) or of being deskilled (e.g. Barrett and Walsham, 1999). Such risk generate sociotechnical inertia in the form of reluctance to train or change skills, inability to act in the new sociotechnical system, or preference for the known routine (e.g. Jarvenpaa and Ives, 1996). The literature points to the great deal of diversity in sourcing strategies for these skills (training, hiring, outsourcing, crowdsourcing, partnering...). However, except regular outsourcing allowing to swap managerial and resources risks for outsourcing risks (e.g. Tsai et al., 2013), we do not know how sourcing strategies influence risks and inertia, nor how they can be stratized accordingly (GAP5). Furthermore, changes in professional culture and identity (e.g. Utesheva et al.,
2016; Speier and Venkatesh, 2002) generate sociocognitive inertia because of the reluctance to change mindsets which formed the basis of former job identities. Although the literature highlights the need to develop an appropriate culture to perform in e-commerce (e.g. Li et al., 2017; Phillips and Wright, 2009), agreement on its components is limited and little is known on what such culture consist of or how to design it if possible. For instance, articles mention a culture of learning (e.g. Li et al., 2017), of mutual sharing, respect, and trust (Phillips and Wright, 2009), an entrepreneurial (e.g. Audzeyeva and Hudson, 2016) or “no-blame” culture (Piccinini et al., 2015), a playfulness, collaboration and experimentation culture (El Sawy et al., 2016), an innovative (Daniel and Wilson, 2003), agile (Li et al., 2016) or customer-focused culture (Jackson and Harris, 2003). When cumulating the literature, these elements only provide a fuzzy picture of how organizational culture evolves or should evolve (GAP6).

Furthermore, the literature is silent on the effect of data extraction practices and the reliance on external workers on this organizational culture that they do not share (GAP7). Finally, OT in e-commerce also impacts work because it entails a perceived or actual risk of losing one’s position (e.g. Yang et al., 2007; Barrett and Walsham, 1999). Beyond this extreme case, worsening of work conditions is described under the form of additional workloads, longer work hours, less interesting work, or permanent availability (e.g. Staab and Nachtey, 2016; Bak, 2016) and the second most cited source of political inertia relates to losses of autonomy and continuous controls (Hughes et al., 2001; Cohen, 2015).

Such threats generate psychological or political inertia, further emphasizing GAP3 and GAP4 because of the psychological and political dimensions of risks allocation processes. On its side, the G-agency can display some psychological (Jarvenpaa and Ives, 1996; Clemons and Hann, 1999) and economic inertia (Tsai and Gururajan, 2007; Barnes et al., 2003) because it bears the psychological costs of putting scarce organizational resources at risk (e.g. Tsai and Gururajan, 2007). The reviewed literature acknowledges that the G-agency has to be aware of organizational risks in order to manage them (e.g. Boateng, 2016). However, we know little on the psychological process through which they consider risks to the W-agency or on the psychological inertia it generates on the G-agency’s side. The issue is nevertheless important when considering how perceived risks to the W-agency can paralyze the G-agency and how ignoring them may lead to further development of W-agency inertia. In addition, the G-agency engages in political processes in which it balances personal risks and those of various stakeholder groups, thus generating political inertia in the form of confrontational paralysis or conflict avoidance (Jarvenpaa and Ives, 1996; Clemons and Hann, 1999). We nevertheless know little on these political processes, even less when they relate to the design of work in e-commerce. Deeper investigations on these psychological and political processes are needed to inform our understanding of political trade-offs made by G-agencies to accommodate these risks (GAP8).

5 A risk-based model of work and organizational transformation in e-commerce

We mapped the knowledge areas the reviewed literature covers and those which deserve more investigations in Figure 1.
In this model, we put forth a risk-based perspective of work and OT in e-commerce. OTs rely on and generate work transformations. Both these transformations generate direct risks to individuals as well as organizational risks, among which some are allocated to organization’s members through accountability mechanisms. These risks can generate inertia and increase transformational risks, leading to a risks-inertia loop toward failure if left unaddressed. However, depending on governance dialectical processes between G and W agencies, in which they negotiate, and confront their expectations and respective realities, these risks can be addressed to avoid this negative spiral. Such a governance feedback (or anticipation) process helps addressing this loop by tinkering the transformation design. Therefore, we propose to go beyond considering organizational inertia as a transformation risk (Fiedler, 2010) to consider organizational and individual risks as a source of inertia as well. Indeed, neglecting work transformations and risks to individuals could impede our efforts to understand OT in e-commerce, because it can lead to consider a significant share of inertia as simple resistance which would however call for different organizational responses (Rivard and Lapointe, 2012).

### 6 Research thrusts

In this section, we present three research thrusts in order to fill these gaps (Table 4). We first propose to investigate risk allocation between the organization and its members, and among individuals. We then extend this risk-based perspective of work and OT in e-commerce by pointing to potential effects of new forms of sourcing on risk allocation and related inertia. Lastly, we propose a third research path focusing on culture both as a required and eroding element in the face of these transformations.

<table>
<thead>
<tr>
<th>Research Thrusts</th>
<th>Gaps</th>
<th>Research Paths</th>
</tr>
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GAP 2: Under what form and to what extent do organizations integrate extractive practices? Analyses of the different forms of extractive practices and their effects on risks and inertia
Data extraction strategies and alternative strategies

GAP 5: What are the effects of data extraction, crowdsourcing, and use of freelancers on risks and inertia, and how can they be strategized accordingly? Influence of sourcing strategies on risks and inertia
Putting-out strategies to manage risks and inertia
Effect on accountability mechanisms

GAP 1: Through which analytical lens can we account for the effects of work and OT beyond our traditional units of analysis? Use of alternative units of analysis such as risks or tasks
Multi-level analyses of risks and inertia

GAP 6: How can the culture concept be sharpened in the e-commerce domain, and what role does culture play in work and OT in e-commerce? Conceptual definition of organizational culture in e-commerce and its essential components
Role of culture and related strategies in e-commerce
Organizational culture emergence or design strategies, job identity management

GAP 7: What is the effect of new sourcing strategies on culture and its role? Role of culture in putting-out / pulling-in systems
Consequences for HR policies

Table 4. Research thrusts and corresponding gaps and research paths.

6.1 Thrust 1: Allocation of risks between organizations and individuals and among individuals

Despite the identification of numerous organizational and individual risks in the literature, we yet have to sharpen our perspectives on their allocation among individuals (GAP3), on the conditions under which they emerge, realize or can be mitigated (GAP4), and on the psychological and political processes through which G-agencies consider them (GAP7). A closer examination is thus needed to inform our understanding of who bears the actual transformation risks how it influences inertia.

Therefore, we first suggest to update our organizational risks map by identifying and understanding new forms of organizational risks which produce effects both on their allocation among organization’s members and on accountability mechanisms. Despite substantial strides in the understanding of algorithmic bias and in the conceptual identification of datification issues (Galliers et al., 2017; Newell and Marabelli, 2015; Markus, 2017) the empirical literature on organizational risks and on the accountability patterns they generate remains scarce (Günther et al., 2017). For instance, research which analyzes use of SNS for marketing, of retail platforms for generating sales or user reviews through third parties seldom looks at risk counterparts. However, identifying or measuring direct risks to organizations is insufficient to explain organizational inertia because different groups of workers perceive the same transformation as having different outcomes (Barrett et al., 2012). Understanding what inertia organizational risks generate therefore requires examining who actually bears them at the group or worker level, through what accountability mechanism, and against what form of compensation if any. Another interesting research path would require examining how work transformations generate direct risks to W-agencies, such as risks of deskilling, digital marginalization, or worsening of work conditions. Despite recent research suggests that algorithmic learning, for instance, leads to changes in work and occupational boundaries (Faraj et al., 2018), direct risks to workers are often neglected in organization-focused research because they only become an actual problem when reaching an unacceptable or visibly deleterious threshold. This issue is all the more important considering simultaneous yet seemingly opposite effects on W-agency such as work life quality improvements or worsening, deskilling or skill upgrading, increased autonomy or continuous harmful control. These three paths would help identifying how an organization can strategize and govern its transformation by dedicating some of its resources to mitigating risks in order to manage inertia.
Nevertheless, to avoid treating G-agencies as purely rational transformation leaders or designers, investigations on the political and psychological processes through which they consider risks to the W-agency would be valuable. Such insights are essential to the design of G-agencies which can balance their personal risks and those borne by the W-agency. Of course, the psychological stress at the G-agency’s level (Hodkinson and Wright, 2002) is not specific to e-commerce but risks are in part specific to it. Additionally, work and OT in e-commerce are particular on a political aspect because they involve inter-organizational political processes and new internal actors. For instance, G-agencies are responsible for considering power issues in the value chain (e.g. Barrett and Walsham, 1999), risks of opportunism or relationship lock-in (e.g. Kauffman et al., 2010; Tsai et al., 2013) which extend political activities beyond organizational boundaries. Besides, recent research on the role of CDOs and CIOs (Tumbas et al., 2017) as well as on branch or division attempts to develop their own IS resources (Galliers and Newell, 2001) suggests that significant political activity exists among G-agency members. In the face of these political and psychological processes, our understanding of OTs in e-commerce would benefit from investigating G-agency design principles. For instance, structural differentiation provides a means to balance economic and sociotechnical inertia by decoupling threat and opportunity perceptions (Gilbert, 2005). Nonetheless, it could generate political gaps between entities. Other studies suggest that managers’ accountability schemes should balance political personal risks and project functional risks (Clemons and Hann, 1999). In essence, our argument parallels the strategy as practice stream’s call for considering power issues (Marabelli and Galliers, 2017) so we can account for both organizational phenomena and individual logics of action. Yet we suggest that in OT in e-commerce research, such double consideration is needed both at G and W-agency levels.

6.2 Thrust 2: Risks and inertia in putting-out / pulling-in systems

Our second thrust focuses on the effect of emergent sourcing strategies on risks, inertia, and in the end, on work and organizational forms. The reliance on external actors such as freelancers or crowds of internet users can signal the emergence of a new form of putting-out system, where work is increasingly performed outside of the organization (Winter and Taylor, 1996). Similarly, the integration of customers in innovation, production, and control processes can be viewed as a pulling-in phenomenon. However, even if research reflects on data extraction, we need more insights on various forms primary data extraction practices can take and to what extent organizations will use them (GAP2). Besides, we know little on the effects of this double putting-out and pulling-in phenomenon on risks and inertia or how they can be strategized and managed (GAP5). Furthermore, our understanding of these effects beyond organizational boundaries could benefit from using alternative units of analysis (GAP1).

If the willingness to put risks and inertia out of the organization while simultaneously pulling in free crowdsourced work drives this shift, organizations will likely transfer a significant share of risks to these workers. Nonetheless, under what form freelancers or crowds of amateurs bear additional risks and receive compensation remains poorly explored. The issue is worth investigating because such a putting-out of risks and inertia does not mean that inertia is overcome, but rather that its locus has moved beyond organizational boundaries, where direct control cannot be exerted. Hence, this move could generate a new risks and inertia portfolio that the literature seldom studies. For instance, marketing dependence to SNS algorithms and search engines rankings, algorithmic bias in profiling customers or flaws in analyzing their feelings are ignored in favor of praising what data extraction allows for. However, such underexamined sources of inertia could leave room for more nuanced approaches to data extraction such as privacy-based or data minimization strategies, especially in the face of increasing consumer concerns and of the role of trust in e-commerce (Ba and Pavlou, 2002). For instance, because trust is fundamental in their industry, some banks communicate on their refusal to sell their customer data, or recently stated that they will not partner with SNS to analyze customers’ solvability. Although research has made some progress in defining data extraction problems and potential solutions (e.g. Martin, 2015), we still need empirical insights on these issues.

Similarly, the influence of putting-out and pulling-in systems on risks to workers who remain inside the organization is seldom understood. Consider descriptions of continuous crowd-based controls over
hospitality workers (Orlikowski and Scott, 2015). In such case, management can claim it bears no responsibility for how tight and stress-generating these controls are, and may very well use them to make workers accountable for the organization’s reputation in a very direct way. Yet, actual criteria for evaluating workers’ influence over organizational reputation are then out of organizational control. Moreover, increasingly customer-focused processes can lead to a decrease in engagement and motivation at work, as exemplified by this reported quote from a bank employee: “The customer comes first, then the company, and lastly the employees” (Jackson and Harris, 2003, p.504). Despite reported cases of increased autonomy, distributed leadership, or collaborative culture, it may be customers rather than employees who are pulled-in strategic processes in a form of inclusiveness that is oriented toward the outside. Ultimately, if “the formal borders of companies are increasingly tightened, as more and more employees are no longer needed” (Staab and Nachtwey, 2016, p.470), this shift bears consequences on work and risk allocation, and may produce “a satellite system of labor peripheries [where] workers outside the core staff are integrated into the company’s production model only temporarily and partially, while they remain permanently excluded from formal membership […]” (Idem).

Finally, because putting-out and pulling-in systems produce effects beyond organizational boundaries, using alternative units of analysis such as tasks or risks or analyzing how these effects span over different organizations and their respective G and W-agencies would help building a fuller understanding of these transformations. Though it could be argued that researchers and managers do not need to consider these externalities, they are perceived by W-agencies and may generate suspicion toward the transformation initiative. Second, managing these external risks is important if an organization wants to act in an ethical or sustainable way, or claims to do so. Beyond ethics, such a positioning can help preserving organizational reputation, seducing customers, and attracting scarce skilled human resources. Furthermore, such analysis is necessary if research aims at understanding the phenomenon on a larger scale, since a risk which is put out by a focal organization might very well end up in another. Finally, such transformations of work likely produce effects in the organization, for instance under the form of new crowd coordination mechanisms or external controls over members of the organization.

6.3 Thrust 3: Role, design and emergence of culture and job identity

Finally, the work and OT in e-commerce literature considers the development of a particular culture as a necessary antecedent to a successful transformation (e.g. Jackson and Harris, 2003). Implementing it requires overcoming the sociocognitive inertia that lies in inert organizational, subdivisional, or professional cultures or in discrepancies between them. Furthermore, culture is an important element of work and self-perception, which can affect turnover rates, absenteeism, and work quality (Speier and Venkatesh, 2002). However, there is little agreement on its essential components, on its role in work and OT in e-commerce (GAP6), especially in a putting-out and pulling-in context (GAP7).

First, culture remains particularly fuzzy in the reviewed literature because of the many different cultural components identified as required for the transformation. This important variety invites to sharpen our knowledge on which are essential or accessory only, as well as in which cases they are. Indeed, developing such knowledge would be beneficial to researchers and practitioners alike to better understand how culture evolves or should evolve in the context of OT in e-commerce. Besides, despite being adapted to some transformation project teams, some studied elements seem ill-suited to some e-commerce workers. Descriptions of digital culture consisting of being agile, taking risks, adopting distributed leadership, having a “live to work” relationship to the job, and working collaboratively (Kane et al., 2016) can be questioned in the extent of their applicability. Comments moderators are not really supposed to be risk-takers in their daily tasks, warehouse pickers probably do not “live to work”, and digital customer service operators do not have to display a great agility in their work. Yet, these employees could very well be at the heart of organizational inertia and can hardly be ignored. Similarly, we know little on the culture of data extracting workers, who might adopt specific cultural defense mechanisms to face the “dirty” aspects of the work of watching others (Ashforth and Mael, 1989). Investigating how cultural transformations differ among different organizational subunits would thus help better understanding and designing them. These investigations are even more necessary when...
considered in the face of professional identity transformations (e.g. Utesheva et al., 2016) and potential conflicts with organizational culture (Speier and Venkatesh, 2002) because the literature implicitly rejects ideographic conceptions of organizational culture in favor of more holographic perspectives where culture is or should be shared across the whole organization (Albert and Whetten, 1985). This issue is concerning when put in perspective with the role subcultures play, with the inter-organizational aspects of e-commerce, or with possibilities of structural decoupling (Gilbert, 2005). Cultural homogeneity being a factor of sociocognitive inertia (Janis, 1972) and influencing perceptions of risks (Sitkin and Pablo, 1992), refining our knowledge of what role culture can play would be valuable to our understanding of work and OT in e-commerce and their governance. Beyond conceptual issues, the approach to cultural transformations bears implications for human resources policies. Instances of long-term membership in organizations where workers’ identity is bound to the organization rather than to a position are reported (El Sawy et al., 2016). In this case, workers’ professional identity is undermined by frequent role changes in favor of a strong organizational culture. However in putting-out systems, peripheral workers do not formally belong to an organization and do not share its culture, thus questioning the future role of organizational culture. Indeed, designing the appropriate organizational culture might end up as a mere issue of attracting and selecting employees whose personal culture fits the social group, as illustrated by the collective recruitment filtering case (Ashuri and Bar-Ilan, 2015). Such investigations on the role of culture in the face of these transformations could yield interesting insight because it can be approached with various theoretical perspectives. For instance, when considered in relation to managers’ role (Quinn and Rohrbaugh, 1981), forms of crowd management or cultural buffering roles with external workers or pulled-in customers could emerge. If viewed as a control mechanism (Ouchi, 1979), organizations could rely on strong clan controls for their core members and on poorly transparent continuous IT-based monitoring for external workers. However, such control scheme would likely put some underinvestigated socio-emotional consequences out of the organization (Wiener et al., 2016).

7 Conclusion

Through this review of the literature on work and OT in e-commerce, our contribution is twofold. First, we propose a transformation model which considers work transformations to better capture related risks and their allocation. If unaddressed, these risks then bolster organizational inertia, hence creating a negative inertia-risks loop toward failure. Such a model suggests that governing OT in e-commerce requires considering work transformations and risks to individuals to manage them. Our second contribution lies in the identification of 8 gaps and 3 research thrusts to sharpen our understanding of the phenomenon. First, we suggest that research on work and OT risks allocation in e-commerce would be valuable to understand who bears the actual transformation risks and how they drive organizational inertia. Second, such research would benefit from taking into account the putting out of workers, risks and inertia on one side, and on the pulling in of customers on the other. Finally, we suggest undertaking research on the concept and role of organizational culture in e-commerce and in putting-out and putting-in systems, as well as examining various cultural transformation strategies.

8 Web appendix

Appendix A. Search terms for identifying potentially relevant literature and example query
References


