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Bounded Rationality in Digital Culture: Yahoo's Taxonomy

Dijital Kültürde Sınırlı Rasyonalite: Yahoo'nun Taksonomisi

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Abstract

This study examines, through a case analysis conducted within a theoretical framework, how a leading organisation that fails to abandon its existing orientations in the face of transformations grounded in relationality and algorithmic reproducibility in the digital ecosystem is drawn into an entropic process. With its taxonomy-centred corporate orientation, Yahoo rose to a leading position in the digital ecosystem, but for the same reason it lost this position. The study's theoretical framework is built on bounded rationality and the behavioural theory of the firm, together with exploration–exploitation balance and imperfect environmental matching, which are closely associated with this tradition. This framework explains the reasons why, when the organisational learning capacity cannot read environmental transformation holistically, the organisation cannot make a systemic transition to a dynamic equilibrium. Accordingly, Yahoo is examined as a distinctive case. The method rests on qualitative and intrinsic single-case analysis and aims to produce analytical insights that can be tested/transferred across different contexts rather than to make statistical generalisations. Instead of Yahoo's corporate sources, the analysis relies on Gil Press's (2016) published Forbes article, which draws on multiple references and situates Yahoo within its historical context and environmental dynamics; thus, the case is evaluated from an external perspective, avoiding one-sided corporate narratives. The findings show that due to bounded rationality, the priority of routines (in this case, taxonomy-based information orders) shifts the exploration–exploitation balance in favour of exploitation, which in turn leads to an increasingly imperfect match with the environment and, ultimately, to entropic dissolution. In conclusion, in relation to organisational sustainability, the establishment of an adaptive dynamic equilibrium requires designing organisational rationality to treat the environment as a domain to be explored, together with its risks.

Öz

Bu çalışma, dijital ekosistemde ilişkisellik ve algoritmik/yeniden-üretilebilirlik temelli dönüşümler karşısında mevcut yönelimlerini terk edemeyen lider bir örgütün entropik bir sürece nasıl sürüklendiğini, kuramsal bir çerçevede yürütülen vaka analiziyle inceler. Taksonomi-merkezli örgütsel yönelimiyle Yahoo, dijital ekosistemde lider konuma yükselmiş, ancak gene aynı nedenle bu konumunu kaybetmiştir. Çalışmanın kuramsal çerçevesi, sınırlı rasyonalite ve davranışsal firma kuramı ile bu gelenekle yakından ilişkili keşif–kullanım dengesi ve kusurlu çevresel eşleşme kavramları üzerine kuruludur. Bu çerçeve, örgütsel öğrenme kapasitesi çevresel dönüşümü bütüncül okuyamadığında, örgütün sistemik olarak dinamik bir dengeye geçiş yapamamasının nedenlerini açıklar. Bu doğrultuda, özgün bir vaka olarak Yahoo incelenmiştir. Yöntem, nitel ve özsel (intrinsic) tekil vaka analizine dayanmakta olup, istatistiksel genelleme yapmak yerine farklı bağlamlarda sınanabilir/aktarılabilir analitik içgörüler üretmeyi amaçlar. Yahoo'nun kurumsal kaynakları yerine analiz, Yahoo'yu çok sayıda referansa dayalı olarak tarihsel bağlamı ve çevresel dinamikleri içinde ele alan Gil Press'in (2016) *Forbes* makalesine dayanır; böylece vaka, tek taraflı kurumsal anlatılardan kaçınılarak dışsal bir perspektiften değerlendirilir. Bulgular, sınırlı rasyonalite nedeniyle rutin önceliğinin (bu vakada taksonomi-temelli bilgi düzenlerinin), keşif–kullanım dengesini kullanım lehine kaydırdığını, bunun da çevreyle giderek kusurlu bir eşleşmeye ve nihayetinde entropik bir çözülmeye yol açtığını göstermektedir. Sonuç olarak, örgütlerin sürdürülebilirliği ile ilişkili olarak adaptif bir dinamik dengenin kurulabilmesi, örgütsel

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rasyonalitenin çevreyi riskleriyle birlikte keşfedilmesi gereken bir alan olarak ele alacak biçimde tasarlanmasını gerektirir.

Keywords Bounded rationality · behavioural theory of the firm · exploration–exploitation balance · imperfect environmental matching · organisational learning

Anahtar Kelimeler Sınırlı rasyonalite · davranışsal firma kuramı · keşif–kullanım dengesi · kusurlu çevresel eşleşme · örgütsel öğrenme

Introduction

A corporate organisation, after undergoing a crisis, may implement improvements in the problem areas that produced it and thus shift to an equilibrium different from its previous state. However, when this new equilibrium is established by focusing only on issues directly related to the crisis, the organisation is deprived of the capacity to confront environmental changes and to develop a holistic adaptation in concert with them. More plainly, this means that the organisation loses sight of large-scale transformations occurring simultaneously in its environment. Accordingly, the resulting equilibrium cannot be regarded as environmentally compatible and flexible at the macro level, that is, as a genuinely dynamic equilibrium. Rather, the organisation has merely shifted to another equilibrium that is new yet still static.

Each organisational transformation effort is constrained by its *organisational learning* capacity. If the internal learning capacity lacks sufficient sensitivity to the environment, the organisation, even when it generates innovations, will largely tend to sustain its static condition in another guise. In such a case, the environment's potential to pull the organisation back into crises is quite high, since the nature and intensity of environmental change will determine whether the organisation again encounters crises of similar or different kinds. Yet until a new crisis emerges, the organisation may continue to function within this limited, narrow-scoped equilibrium. In organisations of this sort, the fundamental precipitant of crisis is, as a rule, the organisation's systematic failure to register ongoing, system-level environmental transformation.

When the organisation fails to develop a holistic paradigm capable of managing this environmental awareness at the macro level, the response it offers and the changes it undertakes in the wake of a crisis remain inadequate, limited in scope and direction, and ultimately superficial.

This study examines constrained adaptation patterns through the lenses of *bounded rationality* and the *behavioural theory of the firm*. In particular, it shows how the *exploration–exploitation balance* and the bias commonly termed *imperfect environmental matching* reinforce tendencies under uncertainty to revert to routines and avoid risk. Within this framework, *dynamic equilibrium* is construed as a capacity for systemic reconfiguration. The accelerating transformations of the digital ecosystem, rooted in relationality and algorithmic reproducibility, generate a structural misfit for organisations locked into *static equilibrium*.

In this regard, the Yahoo case makes visible, at the process level, how clinging to taxonomy-centred information orders and a priority on routines, combined with a failure to read environmental transformation holistically, produces narrow-scoped solutions and an increasingly imperfect environmental match. The study proceeds as a qualitative intrinsic single-case design based on a press-sourced reading of the data; its aim is not statistical generalisation but to generate analytical insights that can be tested and transferred across contexts. The findings reveal, within the stated conceptual frame, why Yahoo's organisational equilibrium failed to become dynamic and situate this to discussion in the context of the digital ecosystem.

Theoretical Framework

This section integrates bounded rationality and the behavioural theory of the firm with the exploration–exploitation balance and imperfect environmental matching, treating them as a unified analytical lens for crisis-driven adaptation.

First introduced by Herbert A. Simon in *Models of Man* (1957), the term bounded rationality highlights the decisive role of cognitive limitations in individuals' decision-making processes (Simon, 1957, as cited in Wheeler, 2024). According to Simon, individuals' rational choices are shaped not only by goals and external conditions but also by the following internal constraints (Simon, 2000, p. 25):

- The information that is possessed, remembered, and usable
- Forecasting ability
- The capacity to design the necessary courses of action
- Reflexes developed in response to uncertainty reflexes
- The ability to choose among contradictions.

These cognitive bounds that operate within decision-making naturally a decisive role in shaping organisational and managerial behaviour. Especially in situations of crisis, where uncertainty and complexity are high, the principle of bounded rationality exerts a more pronounced influence on organisations' decision-making processes.

These limitations directly affect organisations' adaptive capacity, their ability to establish equilibrium, and their crisis-response strategies. Because organisations lack perfect information, flawless foresight, and unlimited processing capacity, it is unsurprising that, at the organisational level, adaptation efforts are often superficial and constrained. For the same reason, although renewal is perhaps the most frequent response to crisis, the underlying tendency is to avoid genuine transformation and maintain the prior static equilibrium.

Simon's (2000, p. 25) central point is that cognitive limitations inevitably constrain rationality within decision-making processes. This provides the basis on which he combines these observed limits with the concept of rationality, thereby developing the notion of bounded rationality. In his words, "rationality denotes a style of behavior that is appropriate to the achievement of given goals, within the limits imposed by given conditions and constraints" (Simon, 1972, p. 161).

According to Weick (2019), March and Simon's 1958 study aspired to "replace fancy with fact in understanding the human mind and human behaviour in an organizational setting" (p. 1527), thereby setting a foundational behavioural agenda for organisation theory. In turn, the emphasis on cognitive limits in individual decision-making has served as a pivotal point of departure for the behavioural foundations of organisation theory. In this context, March and Simon (1993, p. 52) state that they focus on exploring the limitations that individuals exhibit or encounter within organisations, including motivational assumptions, conflicts of interest, and human cognitive and computational constraints.

In *A Behavioral Theory of the Firm* (1963), the core assumption is that organisational decisions and strategies are not oriented towards the future environment and, indeed, are formed by assessing only selected parts of the current environment (Greve & Zhang, 2022, p. 3; see also Cyert & March, 1992). Within the behavioural theory of the firm tradition, this bias is commonly discussed as imperfect environmental matching (Hagen, Su, & Junge, 2024, p. 2640; see also Cyert & March, 1992). Under conditions of uncertainty, organisations avoid anticipating long-run uncertain events and instead emphasise short-run feedback; they also make the decision situation manageable by imposing plans and standard operating procedures on their

environment (Cyert & March, 1992, p. 167), which tends to narrow the range of solutions (Hagen et al., 2024, p. 2641). However, most strategic actions are intrinsically linked to risk-taking (Hagen et al., 2024, p. 2651).

In crisis conditions, organisations tend to pursue narrowly scoped solutions within existing procedures and routines (Hagen et al., 2024, p. 2641), thereby focusing strategically on selected targets while overlooking others (Greve & Zhang, 2022, p. 4). At the same time, a prevailing propensity for risk aversion further constrains their range of strategic latitude (Hagen et al., 2024, pp. 2641, 2651).

Organisations should be able to posit that a more rational alternative is possible and anticipate that environmental transformation will, sooner or later, press them towards a dynamic equilibrium. Although producing such an equilibrium may not be feasible in the short term due to existing limitations, taking steps in this direction is, within the scope of this study, regarded as a critical move towards overcoming those limitations.

When environmental change manifests as a crisis within the organisation, a holistic rather than segmented reading of that change enables the organisation to attain a dynamic equilibrium aligned with its environment. In this vein, adaptation can be operationalised as an intention to converge on a specific subenvironment (e.g., institutional or competitive), and that intention should be examined independently of any performance outcomes that may follow strategic change (Sarta, Durand, & Vergne, 2021, pp. 60–61). Put differently, the organisation should generate behaviourally aligned outputs and internalise them in a durable, sustainable manner. Otherwise, it remains a passive taker of environmental influence, affected by the environment but unable to shape it, thereby merely adapting to its environment rather than mutually adapting with it, and becoming more susceptible to subsequent crises.

Taken together, these points indicate that intelligent adaptation requires a balance between exploiting what is already known and exploring what could be learned in the future (March, 2003, p. 3). The exploration–exploitation balance was first formulated by March (1991). March (2003, p. 5) further argues that no strictly optimal balance between these two tendencies can be specified; nevertheless, because organisations typically rely more heavily on existing knowledge, skills, and routines while attending less to potential opportunities, adaptation processes become structurally biased. March's observation aligns with Sarta, Durand, and Vergne's (2021, pp. 60–61) account of adaptation as a strategic orientation. Accordingly, while the repetitive use of existing knowledge and resources may buffer the organisation against risk, directing those same assets to nourish exploration is critical for securing the organisation's future viability.

March (2003, p. 6) offers a twofold observation regarding the difficulty of sustaining this balance. First, when greater weight is placed on exploration, which involves moving into relatively uncharted domains, the likelihood of achieving balance decreases. Second, relying too heavily on existing experience to preserve a static position gradually excludes new alternatives, thereby weakening the organisation's capacity to establish an interactive, dynamic equilibrium.

In contrast, in the contemporary context, the capacity to affect transformation at this order of complexity or to sustain a dynamic equilibrium has become significantly more problematic. In a global system where multiple variables intertwine and deepen uncertainty, it is hardly surprising that environmental conditions swiftly eliminate organisations that lack the necessary cognitive and structural capacities. Current practice bears out this pattern. Accordingly, organisations that fail to build sufficient capacity at both the strategic and the tactical levels find sustainability nearly unattainable.

This theoretical framework explains why, within the digital ecosystem, organisations that persisted with taxonomy-based indexing while failing to internalise the transition to relational and algorithmic information architectures were driven into crisis.

Research Design

Research Approach and Method

This study aims to understand, in a multidimensional and fine-grained manner, the strategic and organisational causes underlying the adaptation challenges experienced by Yahoo during its digital transformation. The case under examination is situated within a complex system in which numerous variables such as environmental change, cognitive limitations, and organisational strategy operate interdependently. In such contexts, single-case studies often provide deeper and richer insights than multiple-case designs.

The study is designed as a qualitative, *intrinsic single-case study*. Intrinsic case studies are commonly employed in the social sciences when the case under study represents a unique or rare situation that demands a deep understanding (Coombs, 2022). According to Creswell and Poth (2018, as cited in Coombs, 2022), intrinsic case studies focus on a single, bounded phenomenon, offering a rich description akin to narrative inquiry while maintaining the analytic procedures specific to case-study research.

In this research, Yahoo's challenges within the digital ecosystem are explored inductively, focusing in particular on the company's strategic orientations and organisational behaviours. At the same time, because the analysis is anchored in a robust theoretical framework, it enables deductive inferences specific to the organisational context by tracing processes in detail. In this way, the study yields a fine-grained, processual empirical account that goes beyond the confines of a conventional single-case analysis.

Analytical Framework

The analytic foundation of this research rests on Herbert A. Simon's (1972, 2000) concept of *bounded rationality* and its extension to the organisational level by Richard M. Cyert and James G. March (1992) in *A Behavioral Theory of the Firm*. This framework explains decision-making processes under conditions of uncertainty, positing that organisations tend to adhere to existing routines and avoid risk, thereby shying away from innovative transformation. Building on this, the *exploration–exploitation balance* foregrounded by March (2003) brings into focus organisations' tendencies under uncertainty to default to routines and avoid risk. Within the behavioural theory of the firm tradition, these tendencies are commonly characterised as *imperfect environmental matching* (Hagen et al., 2024). Accordingly, the theoretical framework clarifies why, in constantly changing settings, such as the digital ecosystem, the pursuit of static equilibrium is unsustainable.

Scope, Limitations, and Case Selection

Yahoo emerged as a pioneering actor in the early phase of the digital ecosystem; however, over time it failed to cultivate the visionary depth required by algorithmic transformation and thus shifted from a position that shaped the system to one shaped by it. This trajectory from leadership to entropic dissolution offers a coherent and apt case for analysing how Yahoo failed to operationalise systemic adaptation due to bounded rationality and the resulting imperfect environmental matching, which prevented it from achieving a viable exploration–exploitation balance.

The analysis relies not on the company's internal records but on Gil Press's (2016) article published in *Forbes*. The piece examines Yahoo's decision-making processes within its historical context and environmental dynamics, supported by its own references and citations; it therefore presents the case from an external perspective distinct from the company's one-sided corporate narratives. Furthermore, Press's article, supported by its own references, enables an evaluation of Yahoo within a process-oriented framework rich in both context and concept. Its content provides a discursive scope that allows triangulation across multiple references through a chronology reconstructed from contemporaneous evidence. The limitation of

relying on public reporting rather than internal records is partially offset by the article's references and by the theoretical comparisons developed in the Discussion section.

Press-Based Case Profile: Yahoo

As an early leader in the digital ecosystem, Yahoo failed to cultivate the visionary depth required by algorithmic transformation and, over time, moved from shaping the system to being shaped by it. The press-based case profile draws entirely on Gil Press's 2016 *Forbes* analysis; quotations are reproduced from Press's text, and no authorial commentary is offered in this section. Assessments are reserved for the Findings and Discussion section.

Press's piece, "Why Yahoo Lost and Google Won," opens by contrasting Yahoo's decline with Google's rise through the latter's success in organising information. Yet, as the author argues, Yahoo's failure stemmed less from Google's particular method of information organisation than from Google's ability to capture the Web's true spirit.

Press notes that, in *Weaving the Web*, Tim Berners-Lee writes that the Web's revolutionary character lies in its ability to reveal "associations between things that might seem unrelated but for some reason did actually share a relationship." According to Berners-Lee's account, as reported by Press, sequential, hierarchical organisation of information was becoming obsolete, giving way to pathways for reassembling information within diverse relational structures.

Press reports that Google's founders invested in Berners-Lee's relational insight by redesigning information retrieval around cross-references (links) and the density of those links (page popularity). He characterises this algorithmic design, grounded in dynamic inter-page connections, as revolutionary and transformative relative to approaches based on taxonomy-indexed and other predefined classification systems. In Press's account, Google set itself apart from competitors, including Yahoo, which, despite a first-mover advantage, continued to organise the Web's rapidly expanding content within a fixed taxonomy by operationalising the Web's natural connectedness and adopting relational, algorithmic information architectures. Press treats this contrast as evidence that there are no universal "business laws."

Press also recalls Vannevar Bush, who in 1945 proposed that access to information could be mechanised by association rather than by indexing. Following Berners-Lee's approach, which enabled information to be obtained by association via cross-references rather than by indexing, Press reports that Yahoo, described by Danny Sullivan as still presenting the Web like a card catalog, had become an actor unable to meet the demands of the age.

Press recounts how, in the preface to the 1728 London edition of the *Cyclopaedia*, Ephraim Chambers described his innovative system of cross-references. Chambers noted that entries were treated not only in absolute and independent terms, as things in themselves, but also in relative terms. Through cross-references linking wholes and parts, one could move from generals to particulars, from premises to conclusions, and from causes to effects. One could also proceed in the reverse direction, reaching generalities from particulars. Chambers explained that the aim was essentially to open channels of communication among the various parts of a work. Press emphasises that this encyclopaedia represented one of the earliest attempts to connect and interrelate all that was known at a given moment.

Press notes that, in a supplement to the 1758 edition, Chambers observed that some regarded the use of such dictionaries unfavourably, believing that as the difficulties of accessing information diminished, superficial knowledge would become easier to obtain while access to the essence and deeper structure of knowledge would become more difficult. Press illustrates this concern, greatly amplified today by modern computing, with a line from the 1957 film *Desk Set*. The head librarian declares, "They cannot build a machine

to do our job; there are too many cross-references in this place," and ultimately she proves the point by winning a contest against the so-called "Electronic Brain" (computer).

Press argues that the central issue in automation is "scale." As data volumes grew, the need to render them processable and interlinkable emerged as a scaling problem, which in turn required systemic reconfiguration, namely a new form of automation. Press reports that Yahoo fell short in developing this new automation to replace librarians and card catalogs, whereas Google succeeded in executing the transformation.

Addressing concerns that such automation might erode cognitive depth, Press turns to Vannevar Bush. Bush argues that the human mind operates by association, and that this associative flexibility confers extraordinary speed. Although this structure of the mind cannot be fully replicated artificially, it is possible to surpass the mind in the permanence and clarity of items retrieved from storage. Thus, Press notes, while such automation will remain limited relative to the mind's capacity for mental processing, it can nevertheless overcome the mind's natural barriers with respect to memory access.

Findings and Discussion

A brief review of the digital ecosystem's history will be provided to enable a context-sensitive discussion. The roles through which Yahoo stood out in this ecosystem will then be examined, with why no forward-looking position was sustained. Within this frame, an account will be offered of why Yahoo did not transition to a dynamic equilibrium but instead shifted from one static equilibrium to another.

Looking briefly at the history of the digital world (Heslop, 2019): Beginning in the 1940s, the digital revolution enabled the conversion of analog technologies into digital formats, thereby paving the way for profound transformations across many domains of life. In the 1970s, home computers entered the market, and firms increasingly used data entry practices to convert analog records into digital data. In the 1980s, automation began to be incorporated into the labour system, and information-based technologies found growing space within organisational structures.

One of the most groundbreaking products of the digital ecosystem is the World Wide Web. Developed by Tim Berners-Lee and built on a distributed hypertext infrastructure, the Web was designed to address information loss and linkability problems in complex settings (Berners-Lee, 1990). For this architecture to become broadly functional for users, an early guide was needed. Gupta (2023) notes that this guide took the form of a manually compiled hierarchical directory that enabled navigation across categories of websites and was launched in 1994 under the name Yahoo. The same piece reports that Yahoo, functioning as an entry point to the internet, soon began to receive substantial fees from independent sites seeking banner advertisements. It also states that Yahoo turned to data tracking to identify user-interest categories and, accordingly, began developing a range of products and services, including chat rooms, shopping, file sharing, games, sports, and finance.

In the late 1990s, the World Wide Web became widely accessible and served as an integrative medium of international culture (Heslop, 2019). This period marked a critical threshold at which the building blocks of the digital age were laid. Early-1990s browsers, such as Mosaic and Netscape Navigator, made the internet more accessible and user friendly, and pioneers such as Amazon (1994) and eBay (1995) laid the foundations of the e-commerce revolution (Team DigitalDefynd, n.d.). Consequently, digitalisation acquired a mass character, and a global cultural outlook, novel as a mode of world perception, took its place on the world stage. According to Gupta (2023), Yahoo, which began as a web directory, had become synonymous with the internet by the early 2000s. Yet after this bright period, Gupta (2023) reports that Yahoo began to lose ground for two reasons: first, the bursting of the dot-com bubble bankrupted many rapidly inflated companies and

pushed firms that relied on the internet into insolvency, producing a serious financial shock for Yahoo; second, Yahoo's directory had to be updated manually for every new website, and the rapid increase in the number of sites made this method unsustainable.

At the root of both disruptions are emerging global demands. The neoliberal order that took shape after the 1980s was grounded in information technologies and was transforming the world in informational terms. Accessible information channels interlink cultural systems across the globe, thereby exposing people in different parts of the world to greater diversity and fostering a growing desire to engage with worlds new to them.

These psychodynamics did not so much motivate individuals to close knowledge gaps as encourage them to consume products within their reach, often guided by propagandistic cues encountered through information flows. In effect, a vast world market emerged. In a market expanding at this scale, classifying companies and their products through manual directories inevitably became unsustainable beyond a certain point. This dynamic, which Yahoo failed to anticipate, pulled the company rapidly downward.

In market contexts, the salient question is less what a new technology produces than how it restructures the market. This holds for digital technologies as well. Yahoo, however, reads the data volumes afforded by information technology, whether genuine or spurious, chiefly through the lens of firm growth and expected returns. Meanwhile, these firms were reconfiguring the world market into a space of intensified consumption, and this process continually multiplied products, brands, and corporate actors. Under such conditions, it should have been anticipated that manual, taxonomy-based directory maintenance would become untenable.

The metaparadigm of digital technology, which represents the latest long wave in humanity's socioeconomic evolution, centres on turning data into usable information and automating that transformation through algorithms (Hilbert, 2020, p. 189). The connectivity afforded by this technology as a networked architecture not only links individuals across the globe but also mobilises their psychodynamics in specific directions. Standardised by modern life, individuals increasingly seek to escape that standardisation by opening themselves to difference, much like the impulse to taste a fruit never experienced before. These dynamics have generated vast market demand and enabled a proliferation of firms offering an ever-wider array of products and services. Under such conditions, neither production nor the marketing and curation of offerings, nor the marketplace itself, can be sustained by manual arrangements. A digital universe at this scale cannot be organised or maintained through manual, taxonomy-based systems; it requires relational and algorithmic information architectures.

While Yahoo failed to transition to this new systemic order, some digital actors drew lessons from the crisis and moved towards more sustainable models. According to Team DigitalDefynd (n.d.), the dot-com collapse in the early 2000s made the need for sustainability in digital business models salient, and firms that survived the crisis developed software-as-a-service (SaaS) models to integrate and automate their processes.

Yahoo's central misjudgment was to treat algorithmically networked information circulation as a merely technical phenomenon, failing to anticipate how it could generate specific psychodynamic patterns that would, in time, crystallise into societal-level sociodynamics. The information technology industry is, ultimately, an industry sustained by capital, and capital does not, in the long run, support arrangements that fail to yield accumulation. Therefore, it is not sufficient for information flows simply to fuel corporate growth; there must also be effective demand, that is, buyers willing to purchase the products and services that firms bring to market.

Through global network architectures, the new information industry brought individuals standardised by modernity into sustained contact with differences around the world. Algorithmically networked information circulation enabled them to wear other societies' clothes, taste their foods, and consume their cultural products. In this way, a systemic leap emerged in which the market and its buyers were co-produced. Yet the basic logic of capitalism remained intact. The familiar configuration of capitalism persists in this new system, with senders, receivers, products, and markets coexisting. The difference lies in scale and simultaneity, since never before has capital orchestrated such extensive, worldwide coordination. It now achieves unprecedented consolidation that effectively turns the globe into a single market while narrowing and homogenising subjectivities.

As in every period in which capital is reshaped, certain fundamental tensions remain. A glance at human history reveals a persistent contradiction between what people wish to live and what capital compels them to live. Today's networked environment brings people together and enables them to experience difference, if not in physical space, then in virtual domains. Whether such encounters yield material or cognitive value for individuals depends largely on how this new technical infrastructure orients the mind.

At first glance, the digital ecosystem appears to offer opportunities to encounter diversity and difference; however, this often amounts to a superficial variety of information. In reality, the near-ubiquity and instantaneous circulation of information via digital communication have given rise to the oft-noted problem of information overload among individuals whose mental capacity is strained by the aims of the knowledge economy, thereby placing serious pressure on the mind's ability to transform information into meaningful knowledge (Hilbert, 2020, p. 192). Consequently, the process by which information becomes knowledge is disrupted, leading to the formation of information societies rather than knowledge societies.

The year 2002, when digital data storage first surpassed analog storage, is widely regarded as the symbolic starting point of the digital era (Hilbert & López, 2011, as cited in Hilbert, 2020, p. 191). However, the proliferation of information that cannot readily be rendered into knowledge constrains individuals' capacities for perception and interpretation, leaving differences as numerical or symbolic data rather than situating them within intelligible contexts. Consequently, this universe is less a genuine domain of diversity than a virtual realm in which uncertainties accumulate. Within this realm, the distinction between information and knowledge becomes increasingly blurred. Such a cognitive configuration aligns less with classical, binary logics and more with the flexible modes of thought associated with fuzzy logic. At a further remove, it is not only human perception that becomes diffuse; the environmental and social structures constructed by humans likewise assume a progressively indeterminate form.

James R. Beniger, in *The Control Revolution: Technological and Economic Origins of the Information Society* (1986), argues that digitisation, by transforming mass media and their contents, not only dissolves distinctions between the transmission and processing of information but also blurs boundaries between humans and machines, and even among different kinds of knowledge (as cited in Katsh, 1993, p. 417). In his view, digitisation enables communication from persons to machines, among machines, and from machines to persons. Moreover, it makes it possible for different kinds of knowledge and even sensations to be stored, processed, and transmitted in the same digital form.

It may be argued that every transformation is, in essence, chaotic, given the interdependent interplay of multiple mutually conditioning factors as a whole. From this premise it follows that any organisation undergoing transformation inevitably confronts the imperative of establishing a dynamic equilibrium. If an organisation recognises environmental change and the need to shift to a new equilibrium but, consistent with bounded rationality, either fails to apprehend the transformation holistically or deems such an

appraisal inappropriate or unnecessary for material, institutional, or cognitive reasons, it is inclined to treat a partial transformation as sufficient under prevailing conditions.

When an organisation's capacity for comprehensive transformation proves inadequate in the face of environmental change, the ensuing effort to reestablish equilibrium tends to take shape not as a dynamic form attuned to that change but as a static, albeit differentiated, new equilibrium. Over time, such an organisation may advance its transformation incrementally and, by developing a more comprehensive alignment with a changing environment, approach a dynamic equilibrium. In some cases, however, the initially established static equilibrium cannot be deepened, soon becomes unsustainable, and begins to prove inadequate vis-à-vis environmental dynamics. At that point, the very equilibrium first achieved becomes a threat to the organisation's sustainability. The Yahoo case precisely exemplifies this systemic impasse.

Founded in 1994, Yahoo was among the first actors to grasp the potential of the digital ecosystem and quickly became a major web directory through the manual classification service it offered to users during the internet's formative years. This rise can be read as the successful establishment of an organisational equilibrium within the emerging system. The manual system, structured around a web-directory logic, aligned with the technical infrastructure and user expectations of the period. In line with prevailing conditions, Yahoo produced a new static equilibrium and, with its manual cataloguing model, became one of the institutional gateways to the internet.

This success was shaped not only by technical factors but also by cognitive constraints. In the context of Herbert Simon's (1972, 2000) concept of bounded rationality, Yahoo's decision-makers interpreted digital transformation through the sequential and predictable production-consumption cycle of industrial society and therefore failed to develop a reading attuned to the diffuse, polycentric, and associative character of the digital age. Assessing digitalisation, one of the core dynamics of the neoliberal world order, or, more broadly, the information industry, within a traditional industrial logic through a modernist lens amounts to assigning static meanings to a dynamic world oriented towards continuous change.

Yahoo sought to segment and control information flows through a taxonomy-based manual directory system. Yet the nature of the Web, in keeping with the spirit of the age, was not linear but associative and chaotic. This approach, misaligned with the associative, connective, and dynamic Web architecture described by Berners-Lee (1990), prevented Yahoo from responding adequately to the digital world's rapidly changing and multilayered demands. In this vein, the company even created roles such as "Chief Ontologist" to support human-driven indexing processes (Press, 2016), but the taxonomic model became increasingly ineffective within the complex relational logics of the new networked economy.

Viewed through the lens of Simon's (1972, 2000) theory of bounded rationality, the organisation's cognitive limits, its capacity to manage uncertainty, and its reflexes for resolving contradictions proved inadequate for making sense of the growing mass of data. The problem was conceptual as well as technical: although Yahoo excelled at ordering information, it failed to anticipate how that ordering would trigger associations in users' minds. Consequently, the organisation rapidly lost competitiveness in a Web environment where dynamic, multidimensional, and associative informational structures had become decisive. As the *Forbes* piece underscores, Google's success derived from grasping the Web's relational nature (Press, 2016). Organised through links, cross-references, and algorithmic relations, the Web no longer followed a sequential logic but an associative and reproducible one. In other words, in line with the new world, knowledge expanded in a chaotic manner. By contrast, Yahoo attempted to generate universal information structures within an order that resists universality and therefore could not meet the digital system's demands for flexibility, uncertainty tolerance, and reproducibility.

The fundamental structural problem stems from organisation's inability to read environmental data contextually and holistically across time, linked to the past and oriented towards the future, not merely in the moment. While Yahoo's manual, taxonomy-based approach presented information in a static and sequential manner, the digital environment had shifted towards an associative and chaotic mode of information processing. The spirit of the Web is increasingly shaped not only by what has been found but also by what remains to be found. By prioritising the possession of information, Yahoo overlooked the system's core demand for a continuous meaning-making capacity. As a result, an organisation configured merely to respond to existing demands proved inadequate at envisioning the future and evolving accordingly. In this way, an organisation governed by bounded rationality gradually insulated itself from its environment, thereby entering an entropic trajectory of disintegration.

Yahoo's initial attempt to adapt to the digital ecosystem yielded a successful short-term positioning; however, this success proved unsustainable because the company failed, over the long term, to interpret the multilayered and rapidly changing, chaotic character of environmental transformation. Yahoo's architecture was oriented not towards deriving meaning from information but towards categorising data. In other words, it prioritised classifying masses of data under fixed headings rather than presenting users with meaningful wholes. Although this structure offered categories that ostensibly represented diversity, it did not enable users to make sense of those categories. Detached from meaning-making processes, the organisation gradually became insensitive to users' evolving needs. At the same time, individuals whose capacity to produce knowledge weakened within this superficial information environment became more susceptible to consumption-oriented steering, and Yahoo, often unwittingly, turned into an instrument serving the reconfiguration of capital through advertisers. In this respect, Yahoo focused on the technical dimension of digital transformation while overlooking its entanglement with individual psychodynamics and broader social dynamics.

Conclusion

This study advances a process-focused framework explaining why taxonomy-based information orders become structurally inadequate when organisations fail to continually reposition themselves within interaction-driven relationality. While the design centres on a single case, it yields analytical, process-level insights that are not readily accessible through breadth-oriented approaches. A single-case design limits generalisability in a statistical sense but offers processual depth and causal plausibility, complementing breadth-oriented evidence with a fine-grained explanatory account.

This case shows that an organisation may adapt to environmental conditions and establish a new static equilibrium, yet sustaining that equilibrium requires a capacity to continually reread environmental dynamism and reconfigure itself accordingly. In the absence of such a capacity, organisations governed by bounded rationality remain confined within their cognitive and institutional limits and fail to transition from static to dynamic equilibrium. Despite its first-mover advantage, Yahoo did not achieve a holistic alignment with changing conditions and entered a process of systemic unravelling. This unravelling was driven not only by competitors' ascent, such as Google, but also by Yahoo's failure to grasp the Web's associative, connective, and continuously reproductive networked information architectures.

Grounded in a theoretical account of digitalisation's dynamics, the analysis suggests that Yahoo fell behind environmental dynamism and did not develop the epistemic flexibility required to carry its present into the future. Because the *present* in the digital ecosystem is not a fixed point of reference and the *future* is continually reproduced, Yahoo's early success was not a revolutionary break but rather a remodelling of the existing structure. For an organisation to attain a genuinely revolutionary trajectory, regardless of any initial advantage, it must possess the capacity to generate a dynamic equilibrium through a holistic approach.

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