[3]

Organization Is the Message: Gray Media

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Epistemic Things

The concepts of *media* and *organization* are quite diffuse. This should not however be seen as a lack. Rather, they resemble "epistemic things" (Rheinberger 1997, 28). Situated between phenomenon and concept, they are what one does not yet know. Their irreducible vagueness carries the activity of research forward. So, what would happen if one would relate media and organization? More diffuseness and complexity, for sure. Yet, three distinct fields of inquiry or ways of seeing take shape. First, there is an organizational definition of media: they are the things that organize. This idea is mostly news to organization studies but not to media studies. The organizational understanding of media has been around for a long time; it has even helped shape the discipline's identity. Second, the question arises of how media are organized. How do institutions, conventions, power structures, and broader technological environments shape "the things that organize"? Here media are not understood as cohesive and self-contained but rather as entangled with their concrete settings of use and application—with their habitats. Third, a normative question appears that scrutinizes what it means for media to be *well* organized. In search of media and in terms of media, what is a *good organization*? While perhaps

an unanswerable question, it raises the unavoidable issue of the "task of governance" (Rossiter 2006, 17).

To unpack these three approaches, and what they allow us to see, implies drawing on the fields of media studies, organization studies, science and technology studies, information systems research, and business history. Complementing and materializing this discussion, perhaps like an empirical test-bed of some of the claims extracted from the literature, I will weave in descriptions of, and reflections on, the phenomenon of enterprise resource planning software (ERP). Considering media in the context of formal (or traditional) organizations leads more or less inevitably to enterprise software. Over the past thirty years, these software packages have emerged as the new standard infrastructure of organization and administration. They are a paradigmatic example of gray media, a term Mathew Fuller and Andrew Goffey (2012, 1) use for those unremarkable media "most recognizable from the world of work and administration," such as databases, accounting records, forms, and planning tools. Today ERP and related software packages are crucial media of organizing, and we are in the middle of witnessing the reconfigurations that this will bring about.

Things That Organize

LISA CONRAD: I always find it awful to get acquainted with a new computer program. . . . It takes time. . . .

MRS. J.: I also dreaded Infor [enterprise software] back then. . . . Something new again, oh dear . . . but actually, it was easier than I had imagined. This is also what I'm thinking now [with the upcoming introduction of SAP]. Why shouldn't it work? . . .

LC.: Sure. And there are also some kinds of parallel systems, so it does not all depend on SAP. If SAP sort of—

J: Drops out?

LC: Yes, then you can still—

J: Then I can still—well I wouldn't be able to do any pro-
duction orders. I could . . . without the system I couldn't
do anything. No, I couldn't do an order, because without
Infor or without SAP it isn't working. . . . I don't know. Well,
you cannot imagine the world without system anymore.
It doesn't work. No. Back to the work folder, that doesn't
work.

This conversation[1] between J. and me quite literally deals with
the technological condition of organizing. We are encountering
media theory's central thesis not between dusty book covers but
in the real world and in action. Without the system, you "couldn't
do anything." Going back to work folders is hard to imagine. The
processes of organizing are entirely enmeshed with networked
computers running on a common database, with workstations on
every desk displaying an interface for data entry and with every
newly entered piece of data turning into the informational base
of all the other workstations in real time. It is not conceivable, but
also not feasible, to work beyond this infrastructure. The account
should not be taken as an isolated, peculiar case. Extending from
their base in manufacturing, ERP systems have been adopted in
almost every productive and service sector (Pollock and Williams
2009). Today it would be difficult to find a company with more
than twenty employees that does not utilize some kind of business
software to manage stock, staff, customers, orders, processes, and
finance. The public sector, too, is widely equipped with software
packages stemming from private providers (Pollock and Williams
2009, 3). ERP systems are on the brink of turning into "mature
technological systems"—ordinary, unremarkable, and unlikely to
prompt wonder or inquiry (Edwards 2003, 185). They have become
everyday infrastructures.

Formal (or traditional) organizations and digital technologies are
thus thoroughly interlaced (e.g., Zuboff 1988; Orlikowski and Scott
2008; Conrad 2017). Mrs. J. says, "Without the system I couldn't
do anything. No, I couldn't do an order, because without Infor or

without SAP it isn't working." This kind of dependence is, of course, not new. Previous forms of organization emerged from and depended on paper (e.g., Kafka 2012; Hull 2012; Vismann 2008; Siegert 2006). Now networked computers equipped with enterprise-wide software are the central and standard means of organizing. "Back to the work folder, that doesn't work." There are numerous providers of these software packages, the biggest of which are Oracle, Microsoft, Infor, and SAP. However, SAP (Systems, Applications, Products in Data Processing) is widely recognized as dominating the market. Founded by five former IBM engineers from Mannheim, Germany, in 1972, SAP has become the new *sap* of organizational life, its vital force. SAP's most successful software products, R/2 and R/3, have defined what ERP software is and should do. The SAP chroniclers Ludwig Siegele and Joachim Zepelin (2009, 33) argue that SAP's software packages—creating new structures of organizational perception and action—have shaped the recent phase of economic and logistical globalization. The authors propose an analogy to double-entry bookkeeping: it has never been merely a tool of *documenting* what goes on in an organization, but it profoundly *transformed* businesses as well as the economy as a whole (cf. Quattrone and Puyou, forthcoming). In the same way, ERP systems have significantly *intervened* into the way global businesses run and interact with each other (Siegele and Zepelin 2009, 29).[2] "The best-run businesses run SAP," as one of the company's advertising campaigns has claimed.

How is the field of organization studies responding to this profound infrastructural shift in the setup of organizing? There is a dispersed stream of research that is interested in the "stuff" of organization. It looks at the intertwining of organizational practices and the technological infrastructures businesses rely on. In a short text on "Organizing as a Mode of Existence," Bruno Latour condenses many of these arguments that have been made in the tradition of ethnomethodology, practice theory, pragmatism, and process philosophy. The text acknowledges the "mass of work" that has been done in organization studies to complicate and rede-

scribe notions of organization (Latour 2013, 47).[3] One of the crucial
points that Latour carves out is the idea to conceive of organiza-
tions as "always *immanent* to the instrumentarium that brings them
into existence" (49, emphasis original). "There is no inertia at all
in an organization. But if you stop carrying it along: it drops dead"
(41). Accordingly, carrying out an organization means translating
it, hence taking it from one moment to the next. It is this focus on
the "tiny transcendence" (50) that leads to "the precise *tools* that
allow the organization to shift from one sequence . . . to the next"
(47, emphasis original). He lists writing devices, organizational
speech acts, instruments of accounting, and auditing as examples
for "those humble tools" on which organizational work relies (48).[4]
Thus Latour points to an emerging definition of organizing ensuing
from its means. Starting from concrete and "tiny" practices of or-
ganizing, this understanding conceives of organizational practices
as being inseparable from their material and technological means.
They are not independent of their instruments, of their carrier
media, neither today nor in the past. What we are able to do and
what we can imagine doing is "*immanent*" to the characteristics of
the tools at hand.[5]

To media studies, this line of argumentation is nothing new. The
intimate connection between technological infrastructures and
organization is a focal point of media studies. In fact, organization
would be a quite suitable term to define media studies' central
and identificatory concept, as John Durham Peters (2015) has
recently demonstrated. His book *The Marvelous Clouds* starts with
an elaboration of the "intellectual landscape" leading to the media
concept that is crucial to the book's argument and that reaches
"beyond messages to habitats" (14–15). Further outlining this
"expanded sense of the media concept," he describes media as
"vessels and environments, containers of possibility that anchor
our existence and make what we are doing possible" (1–2). With
recourse to Elihu Katz, Peters chooses "organization" to elaborate
on this. According to Katz (1987, 30), there are three paradigms
within media and communications research, namely, information,

ideology, and organization. Information is concerned with media as means of "transmitting information in a political system" (27). Ideology, alternatively, deals with the hegemony of certain media outlets as well as with practices of resistance to them. Last but not least, organization occupies "the more elementary idea that the essential attributes that characterize a predominant medium might affect social order, or, in other words, that the media may tell us both how to think and how to organize" (29). In this paradigm, the effects of media are considered to be "on organization—empire, market, science, church" (30).

For Peters (2015, 17), "Katz's diagnosis helps to show the edge space in which this book sits, namely, the third or technological tradition." This realm, Peters continues, has been developed by a range of different scholars, such as Lewis Mumford, James Carey, Harold Innis, Marshall McLuhan, André Leroi-Gourhan, Friedrich Kittler, and Bruno Latour (18). Even though "not all of [them] recognize 'media' as their central theme," they nevertheless have contributed to an understanding of media as "civilizational ordering devices" (5), "fundamental constituents of organization" (19), or "materials to manage time, space and power" (20). To these researchers, organization is the main effect of media. But maybe it makes sense to put it the other way around and claim that it is these scholars' interest in matters of organization that has led them to media. This would then point to an organizational defini-tion of media. It is the capacity to order, to manage, to arrange, to structure, and so on, that turns an object into a medium.

The work of Harold Innis and its strong ties to the social and economic sciences encapsulates such an organizational definition of media. Indeed, throughout his career, Innis remained "faithful to his political economy origin" (Drache 1995, xiv). From the 1920s on, Innis was employed at the University of Toronto, where he later met and collaborated with Marshall McLuhan. He studied the history of the Canadian Pacific Railway (Innis 1923), fur trade (Innis 1930), and cod fishery (Innis 1940) in Canada.[6] In the course of this, he developed an explanation of the economic development

of Canada that links it to its staples and basic goods, which are, in their turn, linked to the character of the landscape. For instance, "extensive waterways and the dominant Pre-Cambrian formation" provide the conditions for collecting furs in the northern regions and transporting them to the centers of trade (Innis 1950, 3; Innis 1930). He concludes that the character of the landscape, dominant staples, transportation systems, and means of communication crucially shape the specific development of states and societies. As if to test this argument, Innis then begins to devote himself to historic empires—especially their rise and fall—and how they relate to transformations in the material and technological environments. *Empire and Communications* (Innis 1950) traces stone, clay, parchment, papyrus, the alphabet, and paper in ancient Egypt, Babylonia, Mesopotamia, and medieval Europe but also the emergence of mass media from the fifteenth century on, such as printed books, newspapers, and, eventually, radio.

Innis's work is often received as consisting of two phases. The first phase is associated with his exploration of Canadian economic history and the development of the so-called staples approach. The second phase, starting with *Empire and Communications,* is considered as providing contributions to the theory of media and communication. But "to think that the later Innis was concerned strictly with cultural issues while the early Innis of the staples was narrowly focused on economic development is plainly wrong," stresses Daniel Drache (1995, xl), who revived and reframed the reception of Innis's work in the 1990s. Quite the contrary, it can be argued that throughout his career, Innis was interested in questions of organization. This is what unites his objects of research: waterways, natural resources, basic goods, trading routes, means of transport, means of communication, and practices of administration—they organize commercial and labor relations, social and political institutions, and cultural conventions. Each is an "organizing mechanism" (Drache 1995, xlv) generating different configurations of resources, people, knowledge, and power. Hence Innis is concerned with the connection between the way certain

regions, cities, states, or empires are organized and the material features of those things that afford transport, exchange, overview, coordination, control, and so on. For "those things" he uses the term *media.* Therefore, to Innis, media are not only that which organize the mass democracies and consumer societies of the twentieth century but also that which organize early civilizations, antique city-states, medieval Christianity, the Industrial Revolution, or the Canadian economy. This means that an organizational definition of media includes "classic" mass media (e.g., newspaper, radio), gray media used in administration and business (e.g., stone tablets, papyrus, paper), and elemental media (e.g., rivers, mountains, valleys) alike (Peters 2015).[7]

In the reception of the Toronto School of Communication, Innis has taken on the role of Marshall McLuhan's boring older brother. However, the basic anchors of McLuhan's media theory "had already been developed, as McLuhan admitted, in the writings . . . of Innis" (Pooley 2016). These are the focus on carrier media instead of messages, the concentration on "the character of the material, particularly its relative permanence" (Innis 1950, 6), but also the vanishing point of *social organization,* a term both scholars use. For McLuhan ([1964] 1994, 8), the criterion to consider an artifact as a medium is the "change of scale or pace or pattern that it introduces." With *The Gutenberg Galaxy,* he explicitly undertakes "a study of the divergent nature of oral and written social organi-zation" (McLuhan [1962] 2002, 1). He claims that new dominant media cause a reconfiguration of perception and cognition. Via this twist of "the kaleidoscope of the entire sensorium" (55), media have significant effects on the organization of social life. For instance, before writing, there is an "intense stress on auditory organiza-tion of all experience" (24). Nonliterate societies—he describes them as gossipy, entranced, and obsessed with magic—are "the product of speech, drum and ear technologies" (8). Writing and printing, conversely, bring about a sociality that is structured by centralism, individualism, commercial spirit, and powerful scientific institutions. Eventually, Friedrich Kittler (1999)—working

"in strict accordance with McLuhan" (xl–xli)—famously claims that "[media] determine our situation" (xxxix). In Kittler's writings, the primal interest in media as effectors of organization is carried on. Focusing on technical media in relation to cultural production, such as literature and music, he follows the poststructuralist program of questioning knowledge and truth.

McLuhan ([1964] 1994, 7) coined the slogan "the medium is the message." The cybernetician Norbert Wiener ([1950] 1989), on the other hand, titled one of his chapters "Organization as the Message."[8] Looking at these statements from the perspective of the organizational stream of media studies, they seem to be saying the same thing. It could be paraphrased as "the medium is organization and organization is the message." Research on cybernetics serves as a fruitful example to show where the organizational stream of media studies has been heading in the recent decades (e.g., Pias 2003; Hagner and Hörl 2008; Peters 2016). Cybernetics can be described as a 1950s-universalist scientific project but also as a powerful utopian narrative that inspired the application of its ideas in various fields of practice (Medina 2011; Kline 2015). Though the definitions are manifold, cybernetics developed a model of thinking (and designing) that revolves around the principle that machines/organisms/humans receive information from the environment, which then effects a regulation of behavior so as to adapt to the environment. These information-feedback loops are assumed to be at work in all kinds of systems—physical, biological, technological, and social. Hence the universalist claims of cybernetics. It carries the promise of explaining, but potentially also regulating and controlling, the behaviors of these systems.

Ronald Kline (2015, 6) considers cybernetic thinking as coevolving with the development of the first digital computers during that period of time. He relates the "cybernetic craze" of the 1950s—the unexpected popularity of its models and terms—to "a lively public discourse about the changing relationship between humans and machines, a discourse stimulated by the invention of electronic computers" (69). There was an enthusiasm about "some fantastic

world of the future peopled by robots and electronic brains" (Boulanger, cited in Kline 2015, 7), but there were also worries about a sweeping automation that would lead to "devaluing brains in industry," as a newspaper headline has put it (Kline 2015, 71). Thus cybernetics—the science, the applications, and the fantasies—are part of an atmosphere of coming to grips with a new generation of machines "creating a new economic and social order" (5). By now, sixty years later, it has become common sense that ubiquitous networked computing technologies are triggering new value-creation chains, new business models, new divisions of labor, new forms of exploitation, new forms of governance, of activism, of criminality, and so on—in short, a new organization of life. Perhaps it is accurate to speak of a "process of cybernetization of all modes of existence" (Hörl 2016, 26). More and more areas of life are permeated and reorganized through networked computer systems. Wherever possible, computer-based information-feedback systems are applied to regulate flows of supply and demand by aggregating data, signaling capacities or constraints, and prompting appropriate reactions.

Thus the organizational stream of media studies that developed and established a concept of media as being fundamentally related to issues of organization has been around for a long time. In this sense, we could even consider the genealogy of media thinking as shaped by organization. Media scholars continue to scrutinize the things that organize. Exploring the way media create certain patterns of organization and how the lens of organization defines what we consider to be a medium is the first line of inquiry exposed by the relation between media and organization. It is a defining and strongly resonating feature of media research.

Media Are Organized

The second field of inquiry that the relation of media and organization carries with it complicates the first one. Media organize, but they are, in turn, also organized. This field draws on an under-

standing of media not as cohesive and self-contained effectors of certain forms of organization but rather as messily interlaced with social institutions as well as all sorts of other media. It can be found within the aforementioned organizational stream of media studies (e.g., Vogl 2007), but especially in more recent social science (and STS) inflected research projects (e.g., de Laet and Mol 2000). Thus the focus does not lie on causal effects but rather on "assemblages or constellations of certain technologies, fields of knowledge, and social institutions" (Horn 2007, 8). These constellations are always on the move, so to say, with every part constantly shaping and being shaped by all the others. By now there is, for instance, a real substream of research looking at the way literary genres, concepts of authorship, and the copyrights form and are formed by paper, handwriting, or word processing software (e.g., Siegert 1999; Dommann 2014; Gitelman 2014; Tenen 2017). Interestingly, also Harold Innis, whom I presented as standing for the position stressing the organizational capacities of media, can be cited as being aware of media's organizedness through social institutions. His staples approach comprises the idea that a geographic and economic area is rarely untouched by some prior "social framework that organized land, labour, and capital" (Drache 1995, xix). There are old elites, social conventions, and different cultural backgrounds interacting with the less social structures, such as the character of the land and its principal trading commodities. To carve out this less linear and less causal understanding of media's relation to organization, I will first come back to the case of business software—the example this text has started out with. I will then move on to the work of other scholars who have sketched and stressed the organizedness of media.

Already when taking a very broad historical perspective on the integration of computing technologies into the world of business, a *mutual molding* and a *mutual organizing* become evident. Ever since tinkerers and inventors came up with electromechanical computing technologies toward the end of the nineteenth century— such as Herman Hollerith with the punched-card tabulator—these

technologies were envisioned as "business machines."[9] They were made in a way to swiftly enter the field of private and public organizations (e.g., Yates 2000; Heide 2009). Historians of business and technology have shown how information technology providers and user industries interacted with and pressured each other. On one hand, companies synchronized their processes as well as their products or services to the technological capacities available. On the other hand, research and development efforts of the technology companies were oriented toward application in corporate contexts. For instance, Yates gives an account of U.S. insurance companies being among the first organizations to integrate punched-card technology (from about 1910 onward). By the 1950s, the insurances' actuarial calculating practices as well as many of their business practices, such as billing, run on punched-card systems (Yates 1993, 49). Concomitantly, the need of this "'information-based' industry" to handle large amounts of data continued to rise (Campbell-Kelly 1992, 118). Therefore insurance companies were also among the first to purchase the newly available computers for civil use, Remington Rand's Univac (1951) and the IBM 650 (1953). Technologically, the IBM 650 was less sophisticated than the Univac, but it was compatible with the punched-card environment that had proliferated within these companies. It presented an "easy migration path" from punched cards toward the upcoming computer technologies (Yates 1999, 7). It created significantly more demand than the Univac, and by 1955, IBM had already taken the lead in computer sales (Yates 1999, 18). Thus, throughout the twentieth century, computer technologies have permeated offices, factories, and workshops. While they persistently widened their area of application—changing organizational practices one by one, creating new visibilities and possibilities for action—developments in computing were geared toward compatibility with the existing technological and organizational infrastructure.

Afore I had mentioned that SAP has set and become the standard of ERP software. But as research on standards has shown, there

is always some kind of "legacy system" that a new standard has to lock into (Star and Lampland 2009, 16). It has to be backward compatible with prevailing standards—be they technical or institutional standards. In the case of SAP, the story goes like this: the company's first customer, a fiber plant of Imperial Chemical Industries (ICI) located in Östringen, Germany, had commissioned a "Material Information and Accounting System." However, the SAP founders and computer scientists Dietmar Hopp and Hasso Plattner knew next to nothing about material management and accounting. They needed to tap into this existing field of practice. To do so, they first managed to hire the economist Claus Wellenreuther, also a former IBM colleague, holding a degree in business administration. In this early stage of the company, his expertise on the standards of business administration was indispensable. Hopp says in retrospect that he would not have started the enterprise without him (Siegele and Zepelin 2009, 47). Second, to comprehend the existing standards of business that the new software would have to take up, they undertook something akin to an ethnographic exploration of its first customer. "They started in the middle of the daily practice. Day after day the young entrepreneurs of SAP talked with ICI employees in order to understand how the fiber plant was pulsing and ticking and what it held together" (52). They studied the very concrete procedures of business administration and accounting in great detail. These insights were then translated into the slowly evolving software package. Thus the SAP standard software incorporated preceding practices of doing business, such as established procedures, classifications, and norms. It did not start from zero but inserted itself into an existing structure by making sure that it was compatible with it (Star and Bowker 2002; Pollock, Williams, and D'Adderio 2007). Today SAP is said to be "tightly anchored in the Old Economy"—in the structures of the nineteenth- and twentieth-century corporations (Siegele and Zepelin 2009, 90).

But the SAP standard software not only incorporates existing ways of doing business; it also incorporates the existing geopolitical

order of the nation-state and—more importantly—of overcoming it through supranational governance. This aspect of being postnational is said to have been SAP's main advantage over other ERP software packages in the 1980s, and it is said to relate to its European origin. This simply means that the software was built in an environment where operating across national borders was promoted and facilitated by supranational regulation. Early on, SAP developed different country-specific versions (Mormann 2016, 81). Thus the software was made to display and to switch between different languages, currencies, measuring units, and county-specific fiscal and legal norms (70). In an interview in 1997, Plattner explains that SAP allows to handle different currencies, and moreover, it allows to deal with two currencies in one country: the new common currency, the euro, will run "on top, in parallel." Supposedly, this is "a complexity the American software doesn't handle well" (Plattner, cited in Mormann 2016, 72). SAP's continuous dissemination in the world of big business seems to be crucially related to its compatibility with transactions across nation-states. The software does not clash with national particularities such as language, currency, metrics, and legal norms. Quite the opposite, it serves as an adaptor between these national standards.

ERP software and especially SAP's market-dominating products R/2 and R/3 have profoundly reconfigured the way global businesses run. Nonetheless, as this section has aimed to show, ERP software itself is organized by various long-standing institutions, practices, conventions, rules, and so on. It has been construed in a way to fit the well-trodden paths of business and administration. It is socially, practically, and materially backward compatible.

Today press and politics do not talk about cybernetics anymore. Instead, the magic word is digitization. It marks the contemporary sentiment of living in a new period of techno-organization—the impression of experiencing a profound change in the way sociality is organized. Media scholars Geert Lovink and Ned Rossiter are among the first to take seriously the reorganization of sociality through so-called new media since the 2000s. They start from

the basic media-theoretical position that these media are having profound effects on the way we live and work. "Organized Networks"—the term Rossiter (2006, 23) chooses to describe a new technological and social mode of organizing—"institute new modes of networked sociality." "That much is obvious," he resumes (43), but what is neglected is the way previous institutional forms, such as the nation-state or the business firm, continue "to play a substantive role" (43). He considers digital media technologies as situated within specific geopolitical, social, and economic contexts. Their technical standards are "shaped by economic and political interests," and patterns of stratification are preserved through an "uneven geography of information flows" (35–36). Digital media technologies are entangled with institutions such as property rights, the (supra-)national provision of infrastructure, or "alpha males scheming in the back rooms" (36). Hence digital networks do not unfold on a blank page but rather enter and emerge from a field populated with structures, institutions, conventions, and patterns of behavior. Media organize, that much is obvious, but they, in turn, are organized by certain social structures. In a similar vein, Geert Lovink (2012, 1) claims that "business interests from both the Old and New Economy, in close harmony with governments and the 'moral majority' will do whatever they can to limit the potentials of new media." Thus, according to Lovink, the organizing potential of new media is impaired by existing accumulations of power and agency and the interest to preserve them.

Hence media organize. But media are not universal, uniform, or given (Orlikowski and Iacono 2001, 131). They emerge from other media and their respective institutions. In a way, they are interlocked with and held back by preceding media, institutions, and their practices. Media are not just effectors of organization—of a certain mode of perceiving, interacting, attributing, processing, and so on—but media are inserted within a context that organizes them. This context is made up of powerful structures and the struggles over them; of institutions established decades and centuries ago; and of lifestyles, stocks of knowledge, habitus, and

forms of subjectivation corresponding to these institutions. Media are organized by the patterns and features of the places they are emerging from (Larkin 2004). These features and patterns are, for instance, subterrestrial power transmission grids, an administration running on punched cards, or a national currency. Media organize, but media are not of a piece, whole and monolithic. They are intermeshed with the context from which they emerge and in which they exist.

The Good Organization

Eventually, there is a normative aspect to the relation between media and organization, even if (or just because) this kind of normativity is often sidelined in media theory, or itself seen as entangled with mediatic conditions. Media organize and media are organized, but what does it mean for them to be *well* organized? What would constitute a "good organization"?[10] And how is this idea of the good organization (of the internet, or a company, or a community) influenced by the existing constellation of technologies and institutions? In the following section, I sketch some of the ways this notion has been and could be pursued.

To approach the thorny issue of what is good or desirable, the early thinkers of organizational media studies, Harold Innis and Marshall McLuhan, can be consulted once again. With regard to the development of the Canadian economy, Innis (1950, 3) says, "Each staple in its turn left its stamp, and the shift to new staples invariably produced periods of crises in which adjustments in the old structure were painfully made, and a new pattern created in relation to a new staple." However, Innis displays a "deep-founded and ongoing skepticism about markets as a universal mechanism of well-being" (Drache 1995, li). Instead, he advocates "to study actual economic life" (xix), and he explicitly calls for state intervention to preserve "long-term stability and economic security" (li). Hence, with a new organizing mechanism, adjustments in the old structure have to be painfully made, but Innis sees it as the task of governance to mitigate the painfulness. McLuhan's surprisingly

applied and interventionist side sounds like this: quoting the biologist John Z. Young with the statement that "great changes in ways of ordinary human speaking and acting are bound up with the adoption of new instruments," McLuhan ([1962] 2002, 6) grumbles, "Had we meditated on such a basic fact as that long ago, we might easily have mastered the nature and effects of all our technologies, instead of being pushed around by them." Hence McLuhan deems it possible to *master* technologies rather than just being exposed to their effects, but it demands great efforts at the cultivation of "critical habits of mind" (Pooley 2016). Therefore, resting on the classic theme of critical theory, the good organization by and of media should not be left to market mechanisms alone.

Geert Lovink and Ned Rossiter argue for "a passionate pragmatism to define and shape the architecture of new media" (Lovink 2012, 1). Lovink reflects on this move "into practicality" as follows: having practiced "postmodern metaphysics, 'deep irrelevance' European style," himself for years, he started to miss acting toward a political framework. "I experienced a lack of strategy amongst cultural critics who were unable to effectively do something against the hegemony of global neo-liberalism" (4). Underpinning this, the first sentence of Rossiter's book reads, "There is an urgent need for new institutional forms." According to him, encompassing computer networks have produced "uncertainties of labour and life" that are exposing "the limits of prevailing institutional systems" (Rossiter 2006, 13). Reminding of Innis, he claims that to "recompose labour and life in ways that furnish a sense of security and stability," it is necessary to organize the new sociotechnical configurations, meaning to make an intervention and to "attend to the task of governance" (17).

What does it mean to attend to the task of governance? In the afterword of their recent publication *Organization after Social Media* (and echoed in the afterword of this volume), Rossiter and Lovink lament the lack of organizedness among the Left manifested by its exceptional "downward trajectory." They ask, "How has populist politics organized as movements, while the radical left seems as

incapable as ever to crystalize a collective imaginary that is in sync with the current social media condition?" To them, attending to the task of governance—or at least articulating one's voice with regard to governance—seems to be related to finding a form that corresponds to the technological environment. One example for this correspondence they give is the "umbrella movement" sparking in Hong Kong in 2014. Using an off-the-grid Bluetooth network (FireChat), the protesters were able to communicate among each other—and to organize themselves—without having been dependent on an internet connection and without having fueled the police's database. Such a distributed media practice troubles the centralizing, aggregating, and correlating use of network media by those in power while still making use of networks. Also, Lovink and Rossiter (2018, 3) suggest that strong ties and long commitments are needed in a technoculture that works precisely against them. But how can this be achieved—"the organization of passions that endure"? What are networks organized in a way that they are capable of making decisions, taking action, and making a long-term difference? Does an answer lie with think tank like "secret societies"? If the internet actually resembles a schoolyard where people hang out, chat, and harass each other, then a way to balance these tendencies could indeed be more organization as we learned it from clubs, associations, unions, or bureaucracy.

Last, and thus coming back to the beginning, what does the wobbly question of "the good organization" mean for the case of ERP software? How do the "adjustments painfully made" manifest themselves? How could they be eased for the sake of "security and stability"? What comes to mind are the frequent stories of SAP introductions not turning out as intended (e.g., Westelius 2006; Ciborra 2000). This means the implementation of the software package leads to significant organizational chaos, in extreme cases causing temporary shutdowns or even the cancellation of the implementation project. The most recent story comes from the German discount grocer Lidl. In July 2018, Lidl stopped the introduction of SAP HANA/Retail after seven years of development

and 500 million euros of investment. Apparently, what had led to this development was the well-known conflict between software customization, on one hand, and organizational reengineering, on the other hand. SAP offers a standard software that works best if the company adapts its processes to the software. Customizing the software so as to accommodate a company's existing processes makes it more complex, more expensive, less stable, and less reliable. The latter is said to have happened to Lidl. It commissioned wide-ranging changes to the software unprepared to transform its own structures. In the end, the software was not performing well, while the costs continued to rise (Kolf and Kerkmann 2018).

Extensively covered by industrial sociology, there are also stories of individual employment biographies being disrupted by new technologies and the competences it demands, or rather, the competences it renders obsolete. In this sense, a new ERP software terminates preceding and often well-established actor-networks. For instance, Becker, Vering, and Winkelmann (2007, 202) report on certain sectors running entirely on systems without graphical user interface, hence they are handled only via keyboard. In interaction with these systems, the employees had learned to work "blindly," meaning they relied on the beeps and thereby achieved high speed. With a new system, such a skill becomes worthless. In situations like these, and depending on their age, employees prefer (or are encouraged) to leave their jobs instead of acquiring the skills necessary for the new generation of software. This is certainly also a fear the interviewee Mrs. J. had when the introduction of SAP was announced. But she took on the self-understanding of being an eager and lifelong learner. Something new again, but it will be feasible. When I talked to her two years later, she was in full control of the SAP system. Even more, she realized that the system would produce "total chaos" if she did not correct it constantly. These corrections were based on her experiential knowledge of working at company N. for twenty years. Thus, in adjusting the system, she continued to be valuable to the company.

How do media and organization relate to each other? In this text, I gathered arguments from media studies, organization studies, and neighboring streams of research and complemented them with the case of business software, an exemplary case of gray media. In doing so, three ways of drafting the relation between media and organization appeared. The first one bears upon the proposition that "media organize" (Martin 2003), and it explores media in terms of their organizing capacities. The second line of inquiry complicated the first one by pointing to the organizedness of media. It revolves around media's entanglement with institutional cultures and broader technological environments. Last, a normative question arose: media organize and media are organized, but what does it mean for them to be organized *well*? I outlined some of the research efforts addressing this question.

In September 2018, the founding conference of the Munich Center for Emancipatory Technology Studies took place. Speakers from science, politics, unions, and civil society investigate ways of governing technology that aim at "good jobs, lived democracy, a self-governed life and ecological sustainability" (Zentrum emanzipatorische Technikforschung 2018). At this point, the ghost of Kittler could be summoned to undermine all efforts of realizing a good organization of media based on thoroughly understanding their nature and their effects. "Understanding media," Kittler (1999, xl) has written, "remains an impossibility precisely because the dominant information technologies of the day control all understanding and its illusions." But then again, why not summon another authority in response encouraging us to attempt "the art of not being governed quite so much" (Foucault 2007, 45)?

Notes

1   It was part of fieldwork I conducted at the medium-sized metalworking business N. between 2012 and 2015. Publications based on this fieldwork are Conrad (2017, forthcoming-a, forthcoming-b).

2   Siegele and Zeppelin quote from Werner Sombart's "Der moderne Kapitalis-

mus": "One plainly cannot think capitalism without double-entry bookkeeping: they relate to each other like form and content" (Sombart [1917] 2012, 118, translation by the author).

3   This calls for a definition of organizing: What kinds of actions does this term refer to? What is not-organizing? I am not sure there is a satisfying answer to this. In organization studies, to talk of organizing instead of organization(s) implies being part of the process philosophy school of thought that criticizes the discipline's occupation with organizations as entities. Representatives say that "to organize is a process, whether it is a matter of fixing a door, writing a letter or restructuring a large corporation. It does not really matter in terms of analysis whether we fix a door or restructure a corporation" (Hernes 2008, xvi–xvii). Today organization studies is a thoroughly interdisciplinary field without a consensus about its area of competence. Scholars deal with a barely sortable range of phenomena and concepts (cf. Hernes 2008, 147–48). On the undisciplined, creole, pidgin, and bazaar-ish character of organization studies, see also Czarniawska (2003) and Beyes (2007).

4   "Humble tools," or gray media, are also addressed in Joanne Yates's research in business history. She attributes a crucial role to them: "From the U.S. Postal Service to typewriters, vertical files, and adding machines, technologies and techniques of information gathering, storage, manipulation, and communication have figured prominently in the evolution of firms and business practices" (Yates 2005, 1).

5   These tools can be shiny and innovative or ordinary, unremarkable, and infrastructural. This depends on the degree of newness ascribed to them and the degree of familiarity acquired with regard to them (Edwards 2003, 185).

6   In this phase, Innis conducted what has later been called "dirt research": in a kayak, he traveled the country westward along the continent's interlocking lake and river systems and gathered all kinds of information related to staple production (cf. Creighton 1957, 49–60; Rossiter 2012).

7   Today an understanding of landscape as material power can also be found in cultural geography, for instance, in Mitchell's (2002) *Landscape and Power.*

8   In this chapter, Wiener basically describes the possibility of teleportation. Because he assumes a human being (an individuality) to be constituted by certain patterns of information (generated through past development and continued development along these lines), he deduces that "there is no absolute distinction between the types of transmission which we can use for sending a telegram from country to country and the types of transmission which at least are theoretically possible for transmitting a living organism such as a human being" (Wiener [1950] 1989, 103).

9   Herman Hollerith's Tabulating Machine Company (1896) merged into the International Business Machines Corporation (IBM) in 1924.

10   "The Good Organization" was the general theme of the 2017 colloquium of the European Group for Organizational Studies (EGOS). It revolved around the notion that organization could be "a force for the greater good, public as well as private," while being reflexive about the history and normativity of this idea.

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