

Toward a media maintenance approach (MEMA): Maintenance as a theoretical tool for media studies

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Abstract

This paper introduces and discusses a theoretical approach for media scholars: the media maintenance approach (MEMA). Maintenance is not a new subject of study in social sciences and humanities, but it has been rarely addressed by media studies so far. After reviewing literature about maintenance in history of technology, philosophy of technology, and STS, and defining the concept of “maintenance”, the paper turns to media studies and examines how current (sub)fields, such as media archaeology, ecomedia, media sustainability, media history, media evolution, audience and users’ studies, labor studies, and PEC have already addressed issues related to maintenance and to maintaining forms or practices of communication. MEMA can gather, connect and enrich these existing perspectives and can advance a unified and integrated approach able to combine continuity and change, but also conservation and innovation in media studies. In the conclusion, the paper addresses three “benefits” that MEMA can bring to media studies, all dealing with different degrees of temporalities.

Keywords

maintenance, repair, change and continuity, media archaeology, ecomedia, media history, media evolution, PEC, audience and users studies, labor studies, media maintenance

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Introduction

After decades of focus on disruption, revolutionary media, and newness in media as drivers of cultural, social, political, and economic change, media studies are slowly changing perspective. Several authors have claimed that oldness instead of newness (Natale, 2016), media resilience (Coyer, 2011; Freedman, 2015), media persistence (Balbi et al., 2023), continuities instead of changes (Driessens, 2023), media evolution instead of revolution (Scolari, 2023; Stöber, 2004) are relevant and that focusing just on the newest technologies is misleading. What lasts, what persists, and what slowly evolves matters as much as innovation.

This approach to media is not mainstream yet. Discourses around new technologies and revolutions are appealing to the public sphere, for researchers, and funding institutions. For example, AI promises to change everything one more time and previous and resilient media appear outdated. One of the reasons for the popularity and persistence of these discourses is a lack of theoretical concepts able to combine continuity and change, but also conservation and innovation.

This paper aims to introduce a theoretical approach which might help media scholars to cope with these dichotomies: *media maintenance approach (MEMA)*. Maintenance is not a new term or subject of study in social sciences and humanities, but at the crossroad of history, philosophy of technology and STS, several scholars have been applied a “broken world thinking” since at least the early 2000s, studying and reasoning about how we cope with “erosion, breakdown and decay, rather than novelty, growth and progress” (Jackson, 2014: 221). Some works have introduced maintenance into media studies as well (see Balbi and Leggero, 2020, 2024; Peil, 2024, 2025), and many of the constitutive ideas of the MEMA are in different forms existing in or connected to recent trends in media studies. However, this paper wants to follow a unified approach, gathering topics and (sub)fields in media studies that have reflected on issues connected to maintenance or have already used maintenance as a theoretical tool, finally showing which benefits a maintenance approach can really bring to media studies.

Defining the media maintenance approach (MEMA)

The term “maintenance” retains two basic elements in its etymology. From the Latin verb *tēnere* (to hold), it refers to the commitment to “make last” and, so, to realize existence in time. From *manu* (hand), it refers to actions and to the work required to support the existence of technologies (including media) over time (Oxford English Dictionary, 2025b). Accordingly, philosophers Young and Coeckelbergh (2024) provide an introductory definition of maintenance as “the different activities that people must perform in order to ‘keep things going’” (p. 1). Maintenance has been also defined as “all the work that goes into preserving technical and physical order” (Russel and Vinsel, 2018: 7), or, together with repair, as “interventions with the temporal aim of prolonging the time an object can stay in use” (Weber and Krebs, 2021: 11). Hence, a maintenance-oriented approach is interested in what is stable over time, recognizing persistence as a goal pursued through decisions and activities, not as a trivial fact often taken for granted.

Some scholars discuss maintenance and repair as one, others distinguish them. According to the sociologists Denis and Pontille (2022), “repair” consists of dealing with failures, while “maintenance” support something not yet broken, to avoid subsequent outages. In this sense, repair is a punctual and visible act performed after a failure, while maintenance is a constant and less visible “daily pulse” (p. 51). That brings to a crucial discussion on maintenance, which deals with its invisibility (Young, 2021) and with one of the reasons why it is overseen. Maintenance operates on what is *already* working, with the goal of make it continue. Yet, for instance in media systems and infrastructures, except for major outages, usually also breakdowns are invisible for most users, and repair and maintenance are similarly constant and (usually) invisible. For this reason, from now on we will consider repair and maintenance altogether.

The dichotomy maintenance vs. innovation is openly discussed too. The historians of technology Vinsel and Russell (2020) claim that we tend to appreciate too much innovation, while we underestimate maintenance. Weber and Krebs (2021) also show maintenance and repair as particularly intriguing, because there is an “innovative nature of repair [. . .]. Repairers often alter the original structure of things, textiles or other objects” (p. 10). In this sense, maintenance truly combines innovation and persistence.

Also, maintenance and repair do not face just failures. Expectations about technology mutate according to time and users (Kozinets et al., 2017; Rose, 2014). Tolerated noises become intolerable, some features are or not perceived as imperfections, others from upscale are then considered as indispensable, or from crucial become unnecessary (Balbi and Ortoleva, 2023: 84–89). In this sense, technologies need to be articulated according to always changing social, political, and economic needs. In doing so, maintenance and repair show their already mentioned “innovative nature”.

Applying these ideas to media studies, the paper aims to introduce a *media maintenance approach (MEMA)*, based on three main features. Firstly, MEMA is an attitude of analysis and research focused on persistence and what enables it, including adaptation and incremental development of media over time. Secondly, since maintenance develops over time and its goal is to make things durable over time, MEMA is interested in processes, in past media lasting, and in present media extending into the future. These processes are often additive: maintenance, repair, and successive adjustments layer on top of each other over time, mixing, as mentioned, continuity and innovation. Thirdly, even if maintenance looks mainly technology-related, MEMA can be seen and can explore not only the material aspects of media, but also how these relate to politics, the economy, and users related issues.

Media maintenance in current fields and trends of media studies

In this section, we will provide some examples of how current research in media studies can benefit or be complemented by a media maintenance approach; also, we will highlight how some elements of MEMA already appear in different trends and fields, needing to be correlated in a unified approach.

The selection of these (sub)fields and trends is based on a revision of the most recent tendencies in media studies and some of the most established (sub)fields, looking for

noticeable or possible points of contact with MEMA. Of course, this is a tiny selection of all the possible (sub)fields which might be touched and illuminated by a maintenance perspective and we invite scholar to adopt this theoretical approach to other fields and trends not mentioned here.

Materialities: Media archaeology, ecomedia, media sustainability

MEMA is certainly indebted to the “material turn” (Bennett and Joyce, 2010), as the first domain of application of maintenance is the material dimension. David Edgerton (2007) claimed that “things cannot exist without maintenance” (p. 100) and we could subsequently argue that *media cannot exist without maintenance*. The material turn is relatively recent in media studies, although it finds deep roots far back to Harold Innis, Marshall McLuhan, and Friedrich Kittler. The emphasis on materiality in media studies has taken on different meanings within different theories (Gillespie et al., 2014; Goddard, 2014; Starosielski, 2019), but usually it recognizes the forms of media and communication as mutually shaped by the “content” and the “artifactual dimension” (Siles and Boczkowski, 2012: 227).

A field of research radically involved in media materiality is *media archaeology*. It conducted a “shift away from textual analyses of media contents to investigations of the material, technical, and operational properties of media” (Huhtamo and Galili, 2020: 334). The points of contact with MEMA are numerous, and maintenance and repair could foster and widen media archaeology research, adding a reflection on how the past media – which are at the core of media archaeology research – were and sometimes are kept running.

In Jussi Parikka’s (2012) book-manifesto *What is Media Archaeology?*, a chapter maps the layering – the Foucauldian archaeology – of media focusing “on noise and disturbances, on anomalies of media culture” (p. 91) or, in other terms, of what does not work properly in media technologies. By developing a “cartography of noise” (p. 109), media archaeology aims to reveal the layering of temporalities that constitutes the media present: “Through noise, through anomalies, we are able to decipher a range of crucial issues concerning politics, aesthetics and cultural processes of media” (p. 110). If media archaeology studies the interruptions or disturbances of “unintended and intended” communications (p. 92) in order to achieve a deeper understanding of media in the past and present, MEMA studies the continuous struggle against the same interruptions to achieve similar result. Noise and maintenance, repair and disruptions are two sides of the same coin; a coin, however, that media archaeology has rarely observed from either side.

Beside media archaeology, media materiality could also shed a light on the environmental effects of unprecedented media uses – a topic which has boomed in media studies in recent times (see Kannengießer, 2019, 2020; Lopera-Mármol and Jiménez-Morales, 2021; Parks and Starosielski, 2015; Parikka, 2018; Starosielski and Walker, 2016). Scholars explore the impact of media on climate change, pollution, resource depletion, and subsequent social inequality. A recent (sub)field in media studies is the so called *ecomedia studies* (see López et al., 2023; Rust et al., 2015), a field researching “media about the environment and media in the environment” and reframing media as ecological media; that is, media are a material reality that are in, and a part of, our environment in

the broadest sense(s)” (Starosielski and Walker, 2016: 3). Also, *ecomedia studies* are interested in “the insights of ecocriticism, environmental communication, and ecocinema regarding rhetoric, symbolic resources, and discourses [. . .]. The aim is to balance our understanding of media between representations and their materiality” (Ivakhiv and López 2023: 21–22). MEMA can bring new insights into ecomedia, stressing the role of maintaining media infrastructures in the environment, to prologue their material lives, and to consider media artifacts in the long term.

This brings to a contemporary keyword in media studies and elsewhere: sustainability. Sustainability and maintenance have similar etymologies, both from the Latin word “*tenere*” (to hold), both referring to endurance of something, being *-tainable* in sustainable or *-tenance* in maintenance (Oxford English Dictionary, 2025a). They similarly have long term perspective, dealing with the relation between the past, the present, and the future, both aiming to preserve things and usually related practices and effects. For environmental sustainability, the goal is to prolong and defend life and ecosystems. For media maintenance, the aim is to make media systems and infrastructure persist. Of course, reusing, maintaining, and repairing media artifacts means avoiding throwing them away, as well as the “right to repair” our devices (Perzanowski, 2022) might have some positive environmental outcome. Yet, media maintenance is not necessarily sustainable, nor does media sustainability necessarily require maintenance.

Temporalities: Media history and media evolution

“One way of looking at history is to examine continuity and change in the way in which they interact”, wrote media historian Jane Chapman (2005: 5). Also MEMA looks at media persistence and transformation in time, often in long term perspective (see Balbi and Leggero, 2024). Therefore, *media history* is one of the fields where MEMA provides relevant food for thought.

Media history is often deployed by linear narratives, focusing on new inventions (often called innovations) and on the first years where media appeared and were used mainly in Western societies, instead for example of studying when media become popular, widespread, and used by the general public, included in the non-Western world. This linearity is also reflected in the need for “grand theories and periodization” (Balbi and Kittler, 2016), and for “teleological narrative based on sequenced eras of communication” (Kortti, 2021: 448): media history is obsessed by the telegraph age, the television age, of course the digital era, and so on.

MEMA deploys more intricate discourses, considering how media evolve through the resistance to decay, also as combination or adaptation of earlier technology. It provides a long-term perspective on their histories, examining how societies – after the first adoption and spread – have managed, maintained, repaired, adapted, or abandoned them. In fact, by placing media on a continuum that extends to the present, MEMA enables historians to examine what endures, aka the old in today’s media and the processes through which it has transformed. In this sense, media historians can focus on mundane media technologies or their related practices, recognizing them as by product of the past. In some cases, this perspective leads to a shift toward “technology-in-use”, highlighting the “seemingly old” media that still shape our lives (Edgerton, 2007: 209). In other cases,

MEMA produces a recognition of elements of continuity in what is apparently new and disruptive.

The need to move beyond linear, innovation-focused narratives in media history has been addressed by some recent media theories. Among them, Scolari (2013, 2023) proposed a *media evolution* approach. In dialogue with media ecology, it is a “complementary approach” (p. 29) to media history, “a proto-discipline that studies media change from a long-term, holistic, intermediate, reticular and complex point of view” (p. 60). Using evolutionism as a core metaphor, media evolution frames media in a complex network of relationships among technologies and escapes “the construction of linear (sequential) series” (Scolari, 2013: 1420), allowing for a rich analysis of changes over the long term. In media evolution, “Media are understood as the connection between a communication technology and a dual social practice of production and interpretation” (p. 11).

MEMA can further complexify this model and expand the domain of media practices to maintenance, repair, and articulation activities. It underlines how, to adapt and evolve, media have first and foremost to be maintained. So, MEMA matches the evolution of media theorized by Scolari with a continuum “daily pulse” of activities.

A fundamental model in media evolution is “media life cycle”, describing the phases of evolution of a medium. The “natural life cycle of new media evolution” proposed by Lehman-Wilzig and Cohen-Avigdor (2004: 712), used and discussed by Scolari, presents five initial steps (birth, market penetration, growth, maturation, defensive resistance) and three possible final outcomes (adaptation, convergence or obsolescence). It is worth noting that maintenance is crucial at each of the five steps, even at the first one. Indeed, often media or media infrastructures needs to be re-adapted or modified immediately after their first release (“The emergence of a new communication technology [. . .] entails a series of challenges that need to be met in the only way possible: trial and error”, Scolari, 2013: 1423). Market penetration, growth, and maturation require a media infrastructure to be maintained to be kept in function, to be attractive in the market, and to work when it is mature and enters in everyday habits of people. Finally, even defensive resistance needs maintenance, since the old medium needs to be framed as “safe”, reliable, and to work properly especially if compared with new. In sum, maintenance can shed new light to the entire media life cycle. If the five steps are like frames in a movie, maintenance is the force that makes the film run forward. And, even when long steady scenes are displayed, and nothing moves on the screen, MEMA recalls that the movie is still running.

Of course, there is a relevant difference between media and natural evolution: for media, evolution does not happen without people or institution taking on the agency of change or persistence (remember the etymology of maintenance with the word “manus”, *hand*). *Media are maintained; they are developed*. Media evolution does not happen but is acted, and the role of “maintenance actors” is the focus of the next section.

People: Labor, audience, and user studies

Who makes things last? Who are the maintainers? The question is genuine, because media studies – which for decades underestimated materiality and its dynamics – has

very rarely dealt with maintainers. Generally, the interest in labor, that “has been started before but never became central” (Cucco, 2025: 140) to the discipline, is growing in the last years but it is still minoritarian (e.g., see Bonini and Treré, 2024; Chow and Celis Bueno, 2025; Yang and Jiao 2024). Yet, MEMA brings into the frame the daily effort of those who continually adapt or repair media and media infrastructures, the hidden work of media technicians.

Maintainers, repairers, developers, or broadly speaking technical workers enter the classical dichotomy between producers and consumers and are primarily confronted with technical specificities and material issues. This is a class of professionals whose work has a direct effect on media, but whose impact on them is scarcely considered (among the few articles on media maintainers, see Chirumamilla, 2018; Hadlaw, 2021; Houston, 2019; Meneghello, 2024; Starosielski, 2021). But their recognition is relevant for media studies: far from being just “technicians”, professional maintainers shed light on how media develop over time, who decides to make them run or stop, or how technical problems and their practical resolutions impact societies and users. Media studies need to consider the workers making media work.

However, professional maintainers are not alone. Especially after the “revolution” on media theories brought by the cultural studies, media studies have started to focus more on users and the ways audiences engage with the media. Scholars like Stuart Hall (1980), David Morley (1992), and Roger Silverstone (Silverstone and Hirsch, 1992), among others, have focused on how audiences are active in front of the TV and how media and technologies of communication have to be integrated in the daily routine of users (the so-called “domestication”). According to Philip Napoli and Steve Voorhees (2017), audience studies and audiences are changing in recent years, but the “nature of the relationship between media audiences and the media content, organizations, and technologies” and “the ways in which users engage with the media” are still central: maintenance can be and actually is crucial to understand both dimensions as shown by a few researchers.

At the crossroads of domestication and maintenance, Corinna Peil (2024, 2025) has recently analyzed how users usually perform “everyday practices of media maintenance” such as “seemingly peripheral yet often intricate technical, organizational, and administrative tasks [. . .] which include frequent updates, app configurations, addressing error messages, responding to system inquiries [. . .] essential for sustaining media’s smooth operation” (Peil, 2024: 139, 135). Peil’s work is a brilliant example of how maintenance practices are relevant for traditional and digital media and, at the same time, of how media practices and uses evolve. On the one hand, it underlines the stability of practices and needs over time, since media users are often confused and upset by the continuous change in everyday activities forced by media companies; on the other hand, domesticating a new medium is a continuous struggle in time and the maintenance labor “is particularly relevant in the early appropriation phase, but remains significant throughout the entire domestication process” (Peil, 2025: 37). Users literally engage with the media *taking care* of them, cleaning the screen of their smartphones, as well as managing picture’s galleries in their devices or in their online profiles; through the media, users take care of their social interactions, their memories, or their public image if we consider social media.

Also, Sigrid Kannengießner (2019), studying how users repair their media in repair cafés, highlighted maintenance as a social issue. Repair activities turned to be intimately linked to “how people engage politically with and comment critically on the material dimension of digital media technologies” (p. 124). Maintenance, while dealing with technical and material issues, goes far beyond this dimension and enters in a political economic domain, even when not professionals but mere users perform it.

Powers: Political economy of communication

The Political Economy of Communication (PEC) is one of the most established fields in media studies (Mosco, 2009; Pedro-Carañana et al., 2024; Winseck and Dal Yong, 2011). PEC is considered a discipline focusing on the political and economic dimension of communication, on public and private management of the media, but it also “presupposes continuous historical change and human agency, both individual and collective. The scale or level can also refer to the temporality chosen for a study (‘conjuncture,’ short term, medium term, long duration)” (Sánchez-Ruiz, 2024, p. 44). PEC deals with histories, temporalities, and human agency, as already underlined above for MEMA.

One of the “founding fathers” of PEC, Vincent Mosco, defined political economy as:

[. . .] the study of *control and survival* in social life. Control refers specifically to how a society organizes itself, manages its affairs and *adapts, or fails to adapt, to the inevitable changes* that all societies face. Survival means how people produce what they need to *reproduce themselves and to keep their society going*. [. . .] (The field) was founded on the idea that power is central to society, economics largely ignored it (2009, 3 and 5, *emphasis added*).

This definition suggests a straightforward relation between PEC and MEMA. They both deal with adapting to societies’ changes, to control how society evolves, persists (“survival”), and self-reproduces (“keep society going”). If PEC focuses on the relationships between institutions, political parties, private companies and users in media production, regulation, and management, with a political perspective and a strong critical approach, MEMA encourages a closer analysis of some under-considered activities related to these.

The key concern of PEC is, as in Mosco’s words, power. And power is a crucial element in maintenance approach as well, since maintaining is always a “political” choice linked to power distribution (Balbi and Leggero, 2024). For example, the persistence and reliability of a media system or infrastructure arises tensions between several stakeholders, involving allocation of resources, needs of users and citizens, usually their geographical distribution, and the management of their operation and operators in time. This is also at the heart of PEC, such as “forms of interaction between human and non-human processes in mediatised communication which have a direct impact on the governance model, data management, transparency, emerging rights, and the threats to planetary life of every kind” (Sierra Caballero and Monje, 2024: 330). In this framework, what is maintained and updated, or not, through media *is* economic and political power.

In 2004, Robin Mansell claimed that the field of PEC needed to be revitalized by “innovation studies”, which meant at that time to consider properly media like the

Internet, the Web, mobile phones. According to her, researchers should ask themselves: “How is technological innovation in the new media field being structured; by whom and for whom is it being negotiated?” (p. 103). In the early 2000s, when Meta (Facebook, Instagram, and WhatsApp), Alphabet (Google, YouTube), and Amazon were still at the beginning of their growth, this claim could sound sharp. But now, when they are the most relevant global companies, and when what we called “new media” are just “the media”, we should maybe consider to revitalize PEC thanks to maintenance: how can Big Tech preserve or maintain their dominant position over time? How are they structured to keep their service running in future, constantly and globally? By whom and for whom (including themselves) do they maintain their services? Those are questions of *control, survival, and power* in social lives, to conclude with Mosco.

Conclusions: How MEMA can benefit media studies?

Maintenance could be an innovative theoretical tool for media studies, functional in supporting an approach exploring media materialities, temporalities, people working in and using the media, and power. Those topics have been addressed by several (sub)fields but especially media archaeology, ecomedia, media sustainability, media history, media evolution, labor studies, audience studies, and political economy of communication. MEMA gathers, connects, and enriches existing perspectives scattered in different domains, proposing a unified and integrated approach. We consider it as a catalyst, capable of linking concepts developed in different disciplines and fields of research. At the same time, it fosters a systematization which can benefit media studies, sometimes dealing specifically with technologies (as in media materiality, archeology, and evolution), others in the direction of their impact in media management, usages, and politics. Our hope and invitation to other scholars is to apply this approach to different (sub)fields in search of other possible development.

As a provisional conclusion, MEMA can bring to media studies three general “benefits”. Firstly, MEMA demonstrates how media *need* to be managed over the long term. Devices, systems, and infrastructures neither last nor fade “naturally”; their trajectories are shaped by maintenance over time. In this sense, persistent media technologies, far from being taken for granted, incorporate and stratify previous decisions and negotiations that need to be confirmed, unearthed, and analyzed. While maintenance negotiations are related to materiality, they also involve interaction with politics, business, technical workers, and everyday users. Especially professional maintainers play a crucial role which is rarely addressed by media studies, but it can influence how media work and develop and how users *rely* on them.

Secondly, MEMA can help to balance old and new media, continuity and change, innovation and conservation. Furthermore, keeping things running involves viewing a medium, a practice, a service or a way of managing the media in constant tension between the past and the future. Considering this ongoing negotiation, the distinction between old and new blurs within more complex temporalities, forming part of a continuum. According to Rubio et al. (2025) “Beginning with repair and not with building is really important. It helps us to see that the finished form of something is not its final state, but rather a moment in a cycle where repair is always necessary, yet never finalised” (p.

184). Accordingly, media are also continuously created through “-tenance”, and media studies could reflect on the temporalities of the discipline and its object of study by following this suggestion.

The third and final benefit deals again with temporalities. Media studies have often overlooked the fact that media infrastructures need time to be established and time to be eradicated and closed, even if media evolution and archeology reflect on the persistence of technology. Similarly, ways of managing the media are slow to be changed, political and business mentalities for example are not easy to be reshaped when new technologies and new services enter the market, or users’ relationships with the media cannot change on daily basis, since our habits persist over time. MEMA can contribute to this under considered aspect in media studies and can help to visualize the struggle and cry of contemporary media users, regulators and perhaps media studies itself: slow down! The focus on preserving the existing, reducing the degree of technological substitution (and saving resources) and constantly reshaping everyday habits is a request to prolong the comfort zone in how we use, regulate, and study the media. And, to conclude, this is ironically evident in the French and German etymologies of maintenance: *entretenir* means entertaining a person and spending some time with her/him, and *wartung* originally comes from the verb “warten”, meaning “to wait”. Please, media studies, wait a moment and look at the peacefulness of maintenance.

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