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RUBÉN RAMÍREZ

University of Puerto Rico, Río Piedras (Puerto Rico)

ruben.ramirez1@upr.edu

https://orcid.org/0000-0002-8082-635X

Post-Convergent Mediatization: Toward a Media Typology Beyond Web 2.0

Abstract. In this article, I argue that the concept of convergence, as is still applied to media theory, has become an insufficient way for examining the current state and future of media phenomena. This is substantiated by the fact that digital media continue to exponentially percolate into human experience in ways that transcend mere integration. I contend that a recognition of post-convergence as a theoretical realization is crucial to future developments in media theory because it presumes that digital media are progressing toward a "digitization of life" in ways that are envisioned within the very logic of digitality. As post-convergence continues its way to become a theoretical realization, media theory should begin posing its questions about the digital not in terms of how traditional media and its attributes prevail in the digital, but of how digitality as an objective reality engenders experiences of the real requiring approaches that can only be formulated from the logic of post-convergence. From such theorization, I propose a working typology for conceptualizing the possible nature and direction of post-convergent media: hyper-mediation, bio-digitality, hyper-connection, and hyper-simulation.

Keywords: post-convergence; digital media; digital mediatization; Web 2.0; Web 3.0

For the past decade, the concept of convergence has gained a privileged place in media and information studies. The concept has been useful for understanding a specific historical conjuncture. In this context, digital technologies progressively, and decisively, have entered important dimensions of existence, such as economic, professional, technological, and cultural spheres.

Discussions about convergence, which have gained their force in the context of specific media, such as journalism, and dimensions, such as culture, have rendered the concept commonsensical, as the necessary starting point from which an analysis of the current state of digital media – their impact, scope, and projection – can be conjured. In this sense, convergence becomes an explanation *de rigeur* that accounts for the changes brought about by digital mediation and its future.

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For those paying attention to the implications and evolution of digital technologies, the concept of convergence has served as a starting point from which to speak about digital media, but never to become an absolute theoretical truism. That is to say, as digital media evolve and become not an addendum but an indispensable aspect of existence, the effect of convergence they evoke increasingly becomes effaced from their most-apparent structure – only an evolutionary trait in a trajectory yet fully unchartered.

Convergence and Digital Media

The concept of convergence has been in use for at least the past decade and has had a prominent place in media theory. Its first implications for communication can be traced to the increasing incursion of emerging digital technologies in communication processes and media. In the 1970s, convergence begins to be formulated as a concept to describe how emerging telecommunication technologies were creating an intersection of processes and procedures that were expanding mediation capabilities and transforming traditional modes of communication. For instance, David Farber and Paul Baran (1977), in "The Convergence of Computing and Telecommunications Systems", explain how they were able to write their article, in spite of being 500 miles apart, using a "computer communication system". Exposing the waste and inefficiency of traditional publishing, they offer an early glimpse into media convergence: "Once the words in this article have been entered into the computer system, they are in fact »published« if a copy has been stored in a publicly accessible memory portion of the computer communications system" (Farber & Baran, 1977, p. 1166).

In media theory, the concept of convergence has been widely used to describe the effects of emergent digital technologies in everyday life. In this respect, digital technologies have made it possible for other forms of media (and initially older media, such as television, radio, and telephone) to coincide within another medium. One of the first elaborations of this notion of "media convergence" was proposed by Nicholas Negroponte (1991). By 1979, he was elaborating an argument for media convergence in which he envisioned a Venn diagram depicting the convergence of "Broadcast and motion picture industry", "Computer industry", and "Print and publishing industry", and predicted that "the overlap between the three circles would become almost total by 2000" (Gordon, 2003, p. 59). Later, he described the context through which the digital would transform telecommunications: "Broadcast spectrum is scarce, whereas fiber, like computing power, is something we can just keep making more of. Those facts mean that the channels for distributing different types of information (...) will trade places" (Negroponte, 1991, p. 104).

As digital technologies continued to infiltrate traditional media, more complex theories of convergence emerged. Jay D. Bolter and Richard Grusin (2000) applied this logic more explicitly to media through their concept of "remediation", as "each

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new medium is justified because it fills a lack or repairs a fault in its predecessor, because it fulfills the unkept promise of an older medium" (p. 60). In terms of culture, Henry Jenkins (2006) coined the term "convergence culture" to describe how digital media were not only transforming media technologies themselves, but also how we use and behave in terms of digital technologies, through a "flow of content across multiple media platforms" produced by diverse subjects (Jenkins, 2006, p. 2). In this respect, convergence implies not only a coming together of media, but also of formats and content, which result in an increasing complexity of mediation through digital technologies entailing profound changes in culture.

From this point onwards, the concept of convergence has been applied to different dimensions as a way to describe and explain the incursion of the digital in social life. Examples of this tendency include professional convergence, in which diverse competencies and skills come together within a single profession (such as journalism) becoming increasingly common and even required. For instance, in relation to the transformations of journalism in the digital age, some scholars explain convergence as having multiple dimensions, such as organizational, technological, professional, and communicational. They describe convergence in practical terms, observing how "convergence culture" transforms all facets of life, including business practices, content generation, and even training and education in media professions (Salaverría & García Avilés, 2008).

The term "convergence" continues to flourish in academic work related to media and is still used for explaining the communicative changes brought about by digital mediation, such as a "new form of mediated communication: interactive communication" (Velásquez García, 2013, p. 128). Attributing the profound transformations in commercial modes of communication to convergence may seem understandable, as advances in digital media have not, up to this point, entirely effaced historical ideas about traditional media (i.e. the screen of a smart TV still evokes the idea of "television"). Nevertheless, convergence, as it has evolved in the context of media and culture, has become a "commonsensical" construct that, instead of advancing studies of the digital, have stagnated discussions of media evolution in terms of the specific qualities, attributes, and effects that digital technologies can bring to increasingly anachronic ideas about media. In this respect, the commonplace theorization of convergence is unable to account for the observable direction of digital technologies as they evolve on unchartered territories far from mere convergence.

Convergence in a Post-Convergent Context

Given how the digital ecosystem is evolving, there are several ways in which the concept of convergence is unable to account for the current evolution of media. Applying convergence to emerging forms of media production, representation, and con-

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sumption entails the assumption that the evolution of digital media is dependent on the collision of old and emergent media. That is, it insists on preserving the identity of traditional media in the face of digital evolution, even as the lived experience of the digital continues its trajectory of sedimenting these meta-narratives of media under new ones. As such, convergence places its emphasis on nostalgia for media instead of the elaboration of an ontology of the digital, as its inherent logic is to discern how media objects and practices enter the realm of the digital, the place of convergence.

To apply a theory of convergence, as described here, to this emerging digital media context is to insist on a sort of "ground zero" for describing digital media and life. That is, the place where different media, content, and behaviors converge becomes the locus of "digitality", while its outside is preserved indefinitely as the very condition of convergence. Discussions about convergence necessitate this duality, which inherently denies the expansion of convergence into a totality. One problem of the more unsophisticated theorizations of convergence is that it becomes too facile to equate convergence with innovation, as is often the case in convergence literature, since convergence in this sense *becomes* digitality, the state through which digital media find their way to material experience.

As digital mediation continues to evolve, this characterization of convergence loses its capacity to be more than a generational descriptor, since it places too large an emphasis on old media. Thus, discussions about convergence rely on the history of the media that find their way to the place of convergence. In this sense, the idea of a "digital native" depends on the increasingly historical notion of "non-natives"; professional convergence in journalism is governed by the historical role of the journalist and the traditional competencies required of him or her; technological convergence is dictated by the notion that traditional media, formats, and content still dictate how media, formats, and content exist and will exist in the digital.

Convergence must then be understood as a moment in the evolution of digital media technological development, a transition to territories and ecologies that still must be charted and examined. As a theoretical point of inflection, it was always destined to become obsolete within its own logic. What I mean is that the very logic of the digital is to continue to push the boundaries of the analog and subsume all forms and modes of representation under digital representation and consumption. As exemplified by Moore's law, in which digital technologies exponentially become more powerful, smaller, and cheaper, the feasibility of quantum computing, and current fundamental developments in artificial intelligence, digital technologies will undoubtedly continue to move further and further away from the stage of convergence and into the terrain of post-convergence and its implications.

In this respect, a theorization of post-convergence is needed for developing media theory that can account not only for the current state of digital developments in laboratories all over the world that have yet to become mass commodities, but for upcoming developments in production, representation, and consumption, includ-

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ing the possibility of unparalleled rendering of graphics, immaterial interfaces, and artificial intelligence. That is, how does the concept of post-convergence account for the exponential advancement of the digital? What could its explanatory potential be when digital media cease to be discreet units that come together through an electronic environment, but simply *become* the environment through which mediation of the real is possible? That is, what happens when the very interstice of convergence – its place of coming together – becomes the only space there is?

Theorizing Post-Convergence: Software, Digitality, and the Web

To conceptualize post-convergence, one must examine the evolution of digital technologies and their rapid takeover of all facets of media. During the past decade alone, computation has exponentially evolved into an increasingly powerful and pervasive phenomenon, with devices getting smaller and digital computation gaining a crucial role in the operation and organization of human processes. Digitality (as coined by Negroponte, 1995) continues to gain an ever-increasing role in all human dimensions, from healthcare, education, and defense to entertainment, information, and consumption.

The submission of media into the digital is at the center of this transformation. One key aspect of this paradigm shift is the fundamental trait of the digital: programmability. As Lev Manovich (2001) asserts, even if digital media are grounded on numerical representation, modularity, automation, variability, and transcoding – characteristics that he has identified in non-digital media – it is their programmability which is the only characteristic without a historical precedent over previous media. That is, digital media exist only in their capacity to be dynamically invoked, encoded, and arranged within a codified environment.

In this respect, Manovich (2013) has asserted the totalizing role of software and has argued that any understanding of the digital must pay attention to the increasing role of code and its effects in the material world. According to him, "»digital media« is a result of the gradual development and accumulation of a large number of software techniques, algorithms, data structures, and interface conventions and metaphors" (p. 34). As software continues to evolve and be more efficiently served through more powerful and compact hardware and interfaces, we can expect the digital to become increasingly synergized in our lived experience. For Bruno Latour (2011), speaking about digital networks, this has transposed the frontiers of the material and the virtual, as "the expansion of digitality has enormously increased the material dimension of networks: The more digital, the less virtual and the more material a given activity becomes" (p. 802).

While the history of computation and digital technology is out of the scope of this article, it is important to briefly examine the nature of one crucial component

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of digitality: the World Wide Web. The web, together with the hardware that makes digital computation possible, conforms one of the fundamental structures through which digitality is possible. Its rapid and expansive evolution has become the main organizer of the global network of processes and interactions that constitutes the world we live in.

The World Wide Web has been in existence for more than two decades, yet its clear evolution from a vertical to a rhizomatic system has been only recently discerned. It is clear that the World Wide Web has marked a shift from the more passive, monolithic nature of older media. The transcendence of space and time, for instance, and the ubiquitous quality of hypertext signaled a fundamental change in the way information is circulated and consumed.

The first stage of this technological paradigm, referred to as Web 1.0, involved reading as its main organizing principle. The first iteration of this system was characterized by a still "inert" quality, inasmuch as it only produced information that could be accessed unilaterally. This version of the web, which has been defined only in retrospective relation to the current web, was characterized by static web pages that portrayed mostly immutable information, as web usage was mostly centered on the access to information.

At this point, the main components of digitality were coming together: hypertext, self-production, and the disruption of space-time. However, reading became a dominant characteristic in the sense that the web's mode of information was mostly static (as opposed to dynamic), and could only be accessed through more or less direct means (i.e. literal searches, precise URLs). HTML and more complex computer code were the only gateways for creating on the web. The scarcity of interfaces for interacting with the web meant that the capability of creation and interaction was not yet widely distributed, which supported a "read-only" approach to digitality. Thus, the logic of hypertext, although crucial in the evolution of the dynamic web, was mostly a horizontal organizing agent linking to more static information. This is why Christian Fuchs et al. (2010) describe Web 1.0 as a "tool for cognition" (p. 43), as its model relied primarily on the logic of reading (Aghaei, Nematbakhsh, & Farsani, 2012, p. 3).

The next stage of digitality was brought about by what has been referred to as Web 2.0. This stage has been characterized by a "read-execute" mode of information. At this stage, the experience of the digital is becoming increasingly dynamic and pervasive. The commonality and power of interfaces allows users to not only read information, but also to produce and, more importantly, operationalize data for multiple purposes (execute data). Thus, as data is dynamic and executable, the use of the web becomes a highly social endeavor, as users are linked by the use and usability of data.

This iteration of the web has effectively augmented the logic and scope of hypertext to transform the web from a space of knowledge to a space of interactions. Following Bolter and Grusin, Web 2.0 has in this sense "remediated" (both as in "fix" and "rearticulate") the logic of Web 1.0 by "fulfilling the broken promise" of the hyperlink.

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In this sense, the web and its objects are now reproduced not as products, but as services that are fueled and sustained by human interaction. This phenomenon is what Tim O'Reilly (2007), in one of the first systematic analyses of the Web 2.0, described as an "architecture of participation" (p. 22).

The novelty of Web 2.0 applications, according to Xavier Ribes (2007), lies in the new communicative uses and situations that arise from the interconnection of new data to already existing data. This iteration of the web has evolved grounded on databases, dynamic computing languages, interfaces, crowdsourcing, and social media. Its logic is founded on the fluid interaction between material and virtual experience. It is sustained by a platform logic that depends on people-centered computation for its deployment. A platform, in this sense, becomes a specific locus upon which people can build and create, both literally and metaphorically. Through this model, traditional paradigms of content consumption, characterized by a monolithic source of information and passive reception, are no longer relevant. Instead, consumers of information also become its producers, as interconnection across systems and devices makes possible a cross-platform environment through which real-time interoperability between material and digital action is possible.

Through Web 2.0, our lived experience becomes increasingly intertwined with its networks of information – in real time – enabling a significant shift in the construction of meaning. This effect, exemplified by the mantra of collective intelligence, points to a novel metaphor in which mediation enables a brain-machine processor through which "distributed labor networks [use] the internet to exploit the spare processing power of millions of human brains" (Howe, 2006, para. 8). The social and the virtual become entangled in constant exchanges of information, which, in turn, result in a feedback loop that has come to organize human behavior and social institutions.

There is growing theorization that we have effectively entered the next stage in digital development, which logically can be referred to as Web 3.0. Some authors attribute the beginning of this stage to a stronger presence of ubiquitous computation, embodied by the smartphones that are so central to our lives. Geo-location, thicker-client applications that run from smartphones or tablets, and context-based search engine intelligence become harbingers of the evolution of the digital ecosystem (Cabage & Zhang, 2013). However, the most convincing trait of this stage has to do with a fundamental effect of Web 2.0: the massive amounts of data it produces.

There is already an ongoing effort to make sense of, and put to personalized use, this vast amount of data. The expectation beyond Web 2.0 is to produce intelligent systems that are able not only to find, collect, and make sense of data, but to correlate it in terms of our preferences, wishes, and even intentions. As Tim Berners-Lee (2001), the inventor of the World Wide Web, stated, Web 3.0 as "Semantic Web will bring structure to the meaningful content of Web pages, creating an environment where software agents roaming from page to page can readily carry out sophisticated tasks for users" (para. 8).

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Web 3.0 will focus on back-end processes, in which "the concept of website or webpage disappears, where data isn't owned but instead shared, where services show different views for the same web/the same data" (Naik & Shivalingaiah, 2008, p. 502). In this respect, it becomes an actionable database that is no longer external to human activities, but a constitutive agent. Its operational logic is to "link, integrate, and analyze data from various data sets to obtain a new information stream" (Aghaei, Nematbakhsh, & Farsani, 2012, p. 5). It leverages data in order to "graph" the meaning of its content as it relates to human existence. As a technology, it works toward the moment of becoming aware of itself.

There is also speculation about a post Web 3.0 context, referred to as Web 4.0 but also as Web OS (web as operating system), in which there is "interaction between humans and machines in symbiosis" (p. 8). In this stage, "machines would be clever on reading the contents of the web, and react in the form of executing and deciding what to execute first to load the websites fast with superior quality and performance and build more commanding interfaces" (Choudhury, 2014, p. 8100). At this point, the digital and the material fuse in an interconnected relationship of dependence. Digital mediation, in this respect, is no longer an "external" phenomenon. All human processes would be dependent on the digital. It would be the epitome of post-convergence.

Post-Convergence and Digital Media

The concept of post-convergence has only been marginally discussed in terms of media. When it has been discussed, its nature, relevance, and utility with reference to media theory has been presumed or implied. As a concept, it is subdued to the tenacity of convergence. Its ontology remains largely unexamined.

However, theorizations of post-convergence are crucial to the progression of media theory. Post-convergence is not simply the next stage of convergence, but a context that reflects fundamental insights about the future of life through and within digital media. More importantly, post-convergence pushes us to think now about the nature of media that are a fundamental product of a net digital ecology. Post-convergence pushes us to develop metaphors and methodologies for examining emergent media that go beyond those that have been shaped by previous understandings of media and the digital. That is, it obliges us to examine the digital from the point of view of the native digital.

Anders Fagerjord (2010) offers an attempt, albeit indirect, to describe post-convergence (the context of "after-convergence"). Examining YouTube, he intuitively discerns a manifestation of digital media that marks a radical shift from a previous medium (television), one that forges something that is fundamentally new about the medium. He is correct in stating the fundamental assertion that "convergence is over. The media have already converged" (p. 188). However, he misses the point in

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offering "remix" as the natural successor of convergence, since that concept entails the configuration of discreet units into a single media production, conceptualizing the units as the fundamental aspect of the result. Moreover, as I am arguing here, the realization of post-convergence does not entail predefined forms or predictions but constitutes the very ground upon which the uniqueness of emergent digital media can be theorized.

From the point of view of digital design, Adam Nash (2010, 2013), nonetheless, represents one of the few instances in which post-convergence is examined more closely. In his work about affect in digital data and multi-user environment media, he offers a lucid description of what a post-convergent medium is:

> It designates the phase in the development of a new medium when it recognizes itself as such, when practitioners begin operating within the medium to explore its intrinsic qualities – as opposed to mere expressions of its content, that is, prior media – to create work that is only possible in the new medium. (Nash, 2013, p. 13)

Following this logic, a post-convergence approach to emergent media raises the question "what can be done in this medium that cannot be done in any other?" (Nash, 2010, p. 31).

As the precursor of post-convergence, convergence as a theory of digital media was always destined to become obsolete within its own logic and promise. It provided the necessary platform from which to launch a new theoretical ground from which to map and delineate a terrain that we are only beginning to discern and understand. Thus, post-convergence should not be understood simply as a theory for explaining any and every specific aspect of media. Instead, it should be viewed as an ontological truism that can only enable observations, theories, and methodologies about digital media as they become fit. That is to say, post-convergence is not a theory in itself, but a *theoretical realization*.

A reflection of post-convergence is of critical importance for current and future media theory. If convergence was the point of inflection that signaled the moment digital media began to penetrate life in profound ways, then the future of media will only exist in post-convergence. Media theory, therefore, must assume this realization in order to elaborate explanations that can situate the current state of media phenomena while transcending obsolete notions about the digital and the evolution of media. More importantly, a realization of post-convergence obliges media theory to go beyond the present in order to imagine the future of media and its implications in order to provide assessments, predictions, and interventions that can accommodate to the velocity of digital evolution.

I argue that a theorization of post-convergence should not be taken for granted, as its implications for theories of media and culture are too profound. Post-convergence, in the sense I am proposing, is not a mere concatenation of convergence, but rather

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its main aspiration. That is, post-convergence always was the implied analytical goal of convergence, as convergence as the coming together of different media implicitly invokes its full realization into post-convergence. This assertion can only be true within the context of rapidly evolving digital technologies which, as I have tried to demonstrate in these pages, has already signaled the commencement of a post-convergence era.

Theorizations of post-convergence, therefore, assume a "digital materialistic" approach, that understands social, cultural, economic, and political processes as tenaciously traversed by digital processes. In this respect, the digital and the material, and their analysis by post-convergent subjects, obey – what Quentin Meillassoux has called – "correlationism", the notion that "knowledge of the world is always the result of a correlation between subject and object" (Galloway, 2013, p. 354). The digital materialism that evolves from an acceptance of post-convergence observes the materiality of digital media and, following Jussi Parikka (2012), its task is to "think [digital] materialisms in a multiplicity in such a way that enables a grounded analysis of contemporary culture" (p. 99); that is, *culture in the digital*.

The analysis of digital media, within the lens of post-convergence, is not only preoccupied with how the digital interacts with life, but also presumes that the digital has become a fundamental aspect of it. It presupposes that the stage of interaction corresponds to convergence, while that of symbiosis corresponds to post-convergence. Thus, post-convergence assumes the view that digital processes, events, and affects are not only "blended" in the lived experience but that they have acquired a "gravity" of their own – a material density – that has the potential of fully abandoning the virtual in order to become a new kind of real. It understands that the "modalities of differentiation in [digital] media do not only occur at the level of display, nor at the level of programming, but in a genuinely ontological way" (Clemens & Nash, 2015, p. 9). In this respect, while convergence implies an *encounter* of discreet media objects, events, contents, and cultures, post-convergence goes beyond the encounter in order to accept a synthesis of life and the digital, which results in new forms and affects that must be examined in their own right, from the digital.

Toward a Typology of Post-Convergent Media

Although the specific manifestations of post-convergence media cannot be accurately specified, the direction of current digital media developments suggest possible characteristics and dimensions. The evolution of hardware, becoming cheaper, smaller, and more powerful, combined with software that increasingly relies on and perfects upon narrow artificial intelligence, media applications that organically integrate with various dimensions of everyday life, and a global network that increasingly amasses the data of everything, digital mediation is directed toward the fusion of digitality and the experience of reality. Once a symbiosis between the digital and everyday ex-

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perience has been achieved, there emerge modes of mediation that effectively erase the line between medium and mediation.

Given the current state of digital mediation, I suggest four categories that exemplify the direction of a post-convergent media ecology: hyper-mediation, bio-digitality, hyper-connection, and hyper-simulation. While these categories do not encompass the totality of what post-convergent media may become, they do encompass an observable starting point for thinking about mediation beyond the boundaries of convergent media.

Hyper-Mediation

Hyper-mediation entails the capability to access reality with integrated support of semantic digital information systems. Through hyper-mediation media, data is compiled, accessed, and served through semantic communication codes. Vast amounts of data are created, processed, and configured in post-convergent "human-readable" terms. This means that data points and metadata are processed and rendered as semiotic information, but also that "human-rendered" data, in linguistic code, is "comprehensible" by software. In this sense, post-convergent media, through hyper-mediation, can effectively produce semiosis.

This also entails that mediation goes beyond the realm of entertainment, as all facets of reality become increasingly mediated. In a hyper-mediated context, mediation becomes a necessity of everyday existence, as representation technologies become an intrinsic aspect of objects and places (such as cars, classrooms, offices, and living spaces) and everyday activities – such as work, play, and social relations – are effectively affected, virtually and *in situ*, by these technologies.

In a hyper-mediated context, everyday dimensions of existence and experience can be sampled. Health, productivity, parenting, and sociability exemplify the reach and scope of everyday life affects. The data collected is rendered as visual media representations that provide feedback loops, graphic metrics, real-time behavioral modification, and augmented environmental intelligence.

Bio-Digitality

Bio-digitality points to the fusion between the body and nano-hardware, creating the possibility of permanent virtual connection. This intimate connection between media technologies and the body enable the necessary infrastructure for post-convergent media since it affords a form of mediation from within. It enables the sampling, collection, and rendering of data not from an external, artificial source, such as the web, but from an internal, natural source, such as the body.

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In this sense, bio-digital mediation allows for the tracking and processing of organic systems through data-collection points across living organisms. The tracking from within the human becomes the epitome of bio-digitality, as it becomes a surpassed frontier of hyper-mediation. Data are not only processed from cognitive outputs (for instance, as traces of human-produced information on the web) but collected from involuntary stimuli from bodily systems.

Bio-digital mediation adds a layer of complexity to hyper-mediation as it converts into data what is otherwise a continuum. In addition, it allows for the integration of mediation technologies, such as those related to representation, within the body. In this respect, lenses (screens) that integrate with human sight or audio interfaces become examples of bio-digital media.

Hyper-Connectivity

Hyper-connectivity refers to the ubiquity of access points of post-convergent forms of mediation. Access, in this sense, refers to a connection capability to digital systems of computation and software. It entails constant, seamless exchanges between internal and external systems and organizing networks of information, such as the web.

This type of connectivity also entails ubiquitous access to data and networks throughout everyday displacement and location. For instance, cars, offices, parks, streets, and so on, would provide high-speed Internet access, eventually effacing the idea of access points and allowing for an *access continuum*. This would unleash a hyper-connected context in which bio-digital and hyper-media would be able to sample and process natural, social, and computer information and feed it back to an organizing network (such as the web). Different devices connect seamlessly through continuous-access networks. In effect, hyper-connectivity becomes a condition of hyper-mediation.

Hyper-connective media are not only shaped by access, but by their capacity of ubiquitous mediation (hyper-mediation) through *accessibility* of representation. Hyper-connectivity would allow the disappearance of interfaces that are anchored to (external) screens and would depend on nano-visual, auditory, and tactile interfaces that would be either discreet or invisible. Bio-digital media, in this respect, can augment and support hyper-connectivity through its incorporation (or eradication) of the interface as an internal mode of representation.

Hyper-Simulation

Finally, these forms of mediation would lead to a state of hyper-simulation. Biological reality and virtual realities, based on perfect simulations of the known world, would coincide in organic and non-linear forms.

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Hyper-simulation is based not only on the ubiquity of representation, as part of bio-digital, hyper-mediated, hyper-connected experiences and affects, but also on the quality of the representation. Quality here refers to the representation's ability to coincide with its referent, what Ferdinand de Saussure called the sign's "level of motivation" with respect to its referent. However, as Jean Baudrillard (2006) asserted more than three decades ago, the simulacrum is able to exceed the referent by fusing the signs of the referent with the signs of the simulation. In this sense, computer graphics, with data sampled or generated from social, biological, or computer sources, is not only capable of reproducing the known world but also that which is unknown to us, in a network of "natural" and "artificial" representations.

Hyper-simulation, as a typology of post-convergent media, manifests itself through virtual reality, augmented mediation, multiple and multidimensional planes of interaction, and seamless computer imagery and visualizations. These characteristics manifest themselves through bio-digital, hyper-mediated, hyper-connected experiences that augment or superimpose on reality. Virtual workplaces and relations, computer-generated celebrities, or simulated vacations exemplify commonplace manifestations of this type of post-convergent mediation.

Conclusion: Toward a Typology of Post-Convergent Media in a Digital Ecology

The main objective of this article has been twofold. First, it has been to formally theorize the concept of post-convergence in the context of digital mediation. Second, it has been to propose a working typology for conceptualizing the possible nature and direction of post-convergent media, consisting of four initial characteristics: hyper-mediation, bio-digitality, hyper-connection, and hyper-simulation

I have argued that the concept of convergence, as it is still applied to media, has become an insufficient way for examining the current state and future of media phenomena as digital media continue to exponentially percolate into human experience in ways that transcend mere integration. Furthermore, the concept of post-convergence as such has not been properly examined within current media theory or its meaning and significance have been cursorily implied.

Post-convergence recognizes the foundational usefulness, yet imminent obsolescence, of convergence and the need to theorize beyond the place of encounter of traditional media phenomena. As digital technologies continue to become more powerful and portable, and software becomes more developed in terms of understanding the meaning of data, post-convergence will only solidify as a state in which the past of media is no longer apparent, or even useful, to our understanding of post-convergent media. Instead, post-convergence phenomena will require theories and methodologies that are inherent to the digital.

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I contend that a recognition of post-convergence as a theoretical realization is crucial to future developments in media theory because it presumes that digital media are progressing toward a "digitization of life" in ways that may not seem obvious or plausible now, but that are envisioned within the very logic of digitality. This is exemplified by the exponential transformation of the World Wide Web from a "read-only", "desktop-bound" ecosystem to the "read-write", dynamic, portable social web that we know today, to the "executable", "semantic web" that has begun to emerge, and beyond.

Finally, as post-convergence continues its way to become a theoretical realization, media theory should begin posing its questions about the digital not in terms of how traditional media and its attributes prevail in the digital, or how previously theorized behaviors find their way to the digital, but how digitality as an objective reality engenders experiences of the real that necessitate approaches that can only become from the logic of post-convergence. For instance, what experiences of mediation can emerge from a technological context in which the web organizes life, work, and pleasure in intelligent ways? How do we define representation in a hyper-simulated, ultra-high definition context of virtual reality? What would become of the very notion of media in a time when material interfaces become obsolete? Post-convergence, in this respect, marks the beginning of the future of media and their understanding.

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