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Digital Dawn: Toward a Framework for Assessing the Efficacy of ePapers in the Ugandan Press

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Are electronic newspapers (ePapers) efficacious? Does digitalisation enable newspapers to perform traditional and contemporary roles in developing-world contexts like Uganda? The question begs ready answers. As newspapers globally succumb to digital media technologies concurrent with novel political economy shocks, we lack cogent assessments of their efficacy. Some scholars view dwindling print-copy circulations and readerships, online platforms, news aggregators, and alternative online news sources as portending doom for print newspapers. In Uganda, printed newspaper circulation is falling. Several newspapers have digitised, forming online versions, ePapers, to reach wider audiences. However, media scholarship lacks a framework for assessing their efficacy. The framework we propose—based on a qualitative review of theoretical and empirical literature—combines theoretical resources from technological determinism and critical political economy. It offers three parameters, with corresponding indicators, for assessing ePapers' efficacy in Uganda's press: sustaining traditional media roles; widening readership; and revenue/profit generation. Under traditional media roles, indicators are: allowing information access, reader education, and facilitating accountability demands. Under readership, we propose attracting new subscribers, actual ePaper readership, and ePaper cross-referencing. Under revenue generation, we suggest ePaper-usage revenues, and revenue changes (from subscription, advertisement) over time. We recommend mixed methods for empirically testing the framework in and beyond Uganda.

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INTRODUCTION

The newspaper has turned digital. It continues to digitalise. Published through various internet-based platforms, today's newspapers are electronic spaces for information access, education, entertainment, and reader reflections. Abundant digital media outlets exist thanks to changing political economy contexts, technological revolutions like broadband internet and Artificial Intelligence (AI), and online information platforms. Economic downturns and alternative media have strained traditional newsrooms (Newman, 2024), forcing newspaper companies to privilege digital platforms, such as social media and AI. Amidst these industry, contextual, and technological aspects of digital transformations, one question remains: is an electronic newspaper (hereinafter, "ePaper") an efficacious media outlet? We lack answers to this question partly because media scholarship tends to conceptually conflate ePapers with social media, views ePapers as techno-destinations (as ends, not means to ends), and lacks parameters for assessing the efficacy of ePapers.

Yet scholars observe dwindling circulations and advertising revenues, concurrent with increasing online readerships (Bhuller et al., 2024; Salaverria & Martínez-Costa, 2024). This implies that market imperatives, such as electronic distribution, global access, and digitalised sales, have altered newspapers' *modus operandi* (Sorescu & Schreier, 2021). Newspapers now fight for relevance due to media market disruptions and unpredictable online-consumer expectations (Keach, 2021; Verhoef et

al., 2021). In many areas, these challenges create difficulties for news media to resist pressures and influence from powerful business entities or governments (Newman, 2024) as they operate in digital spaces that developing-world economies and politics hardly control.

In Africa, there are worrisome declines in print newspaper readership. Traditional print-media houses, especially newspapers and magazines, have declined in circulation and readership, with immediate impact felt in East Africa (Atuhaire, 2024; Gbasha et al., 2024). This decline manifests in many ways: several news companies have undertaken staff cuts and shifted to digital options, measures that are attributed mainly to the proliferation of digital platforms. Readers are increasingly attached to their smart devices. For instance, in both English and Kiswahili newspapers, the digital universe seems to be stealing readers from traditional media, forcing some to transition to e-publishing (Kipkoge, 2019). This implies that the crisis facing traditional media has been exacerbated by proliferating new media technologies as Africa's predominantly young populations go digital.

Despite these empirical observations and practical experiences, scholars on media transformations, digitalisation, convergence, and internet cultures (e.g. Taremwa, 2021) hardly examine the efficacy of ePapers. The question of whether ePapers are an effective mechanism for information, entertainment, education, and business remains less well answered. For instance, most scholars view ePapers as mere extensions of print versions

(Tripathi et al., 2024). We lack a scholarly understanding of the efficacy of ePapers, partly due to inadequate conceptual clarity about ePaper efficacy and how to measure it vis-à-vis traditional newspaper roles. Therefore, the need for a framework to assess the efficacy of ePapers cannot be overemphasised. The current framework paper addresses this gap.

By developing a cogent framework for assessing the efficacy of newspaper digitalisation, this paper provides a scholarly basis for empirical observations before dismissing a newspaper as a bygone artefact of an antiquated age. We propose three parameters—sustaining *traditional media roles*, expanding *readership*, and sustenance of *revenue and profit generation*—each with indicators for assessing the efficacy of ePapers. We further propose methodological testing for this framework, assigning empirical testing of this framework to future research on digital media. This portends novel directions for media scholarship in the developing world, where digital media is now indispensable.

In section one, we summarise the current transition to ePapers (digitalisation) and draw implications for the newspaper industry in Africa. The second section outlines the main conceptual issues we deal with – ePapers and ePaper efficacy. The third section summarises the theoretical framework, drawing from Technology Determinism (TD) and Critical Political Economy (CPE). The fifth and concluding section derives a call to action and justification for scholarly testing of our framework in studies of ePapers across varying contexts.

The Digital Transition in Newspapers

Digital technology is integral to contemporary human society (Oztunc & Budak, 2025) and the communication industry. Newspapers have embraced these techno-transformations and digitalised their services (Badreldin et al., 2025).

Maltaverne (2017) defines “digitisation” as conversion from analogue to digital. It is a process of using or exploiting digital technologies for business innovations, operations, and adaptations to new technological changes. Unruh and Kiron (2017) consider the process a “digital transformation”, by which they imply shifts from offline to online platforms by designing or adopting new technologies and new ways of doing things that generate online value.

In the newspaper industry, digitalisation opens borderless opportunities for media to curate stories, distribute them across multiple platforms, and electronically assess their efficacy (Khan & Shnaider, 2021). Digital technologies demand a new digital business model to enable traditional newspapers to reach new audiences by providing reliable platforms for archival and storage of important news content (Mpoza & Maqsood, 2021; Tamara et al., 2021). Digitisation processes are henceforth a priority for newspapers that seek to embrace opportunities presented by emerging digital technologies, thanks to changes in media-consumption patterns, paradigm shifts in media habits, audience and market responses, and alterations in business and revenue models of traditional mass media.

The internet revolution has brought many opportunities to the media. In countries like Uganda, internet traffic is reshaping consumption patterns and bolstering innovations. E-commerce in Uganda is fast-growing. Revenues from the sector are expected to double to \$421 million and user penetration to hit 29.1% in 2025 (MoICT, 2021). Technological changes drive the pace and trajectory of adjustments in the communication industry generally and the press in particular. New or digital media technologies bring fortunes to existing newspapers, trigger new transformations within the media landscape, and their rapidity brings widespread and substantial transformations. Thus, digitalisation toward ePapers is both a consequence

of and a response to technological changes catalysed by the internet revolution.

Yet, while digitalisation presents numerous opportunities, shrinking margins and falling circulations afflict media industries. Newspapers are forced to publish online versions in order to bring their reported world to readers' desktops, mobile phones, and other digital devices. Indeed, an upward trajectory of the digital media sector is visible in Africa. There were 38.19 million internet users in South Africa in January 2021, having increased by 1.7 million from 2016 (Kemp, 2021; Nyanduko, 2016). A Reuters Institute survey in 2024 established that out of 56 million Kenyans, 89% accessed news online through smartphones (94%), computers (82%), and tablets (48%) (Gicheru & Nyabuga, 2024).

While the foregoing observations underscore the inevitabilities of technology adaptations that newspaper companies must undertake, they leave a lacuna about the efficacy of ePapers in enhancing or augmenting traditional roles of newspapers, broadening readerships, and bringing revenue to media industries. In other words, the efficacy of this digitalisation requires critical examination, for little is known about the extent to which ePapers remain *newspapers* once they become digital. This limits our understanding of the transition, and the fate and future of the newspaper industry in a rapidly changing digital world.

Scholars examine the political economy factors undergirding this transition (Golding & Murdock, 2000; Hardy, 2014). However, an integrative synthesis of the technological and political economy imperatives of digitalisation might offer a more nuanced framework for assessing whether or not ePapers are reliable channels or a new phenomenon altogether. The need for such a framework is consistent with the prescriptions of scholars like Wahl-Jorgensen et al (2016) who advocate discussions about the future of the

newspaper. Digitalisation processes involve technological, organisational, economic, and journalistic changes that pave the way for innovations that affect these media functions (Puijk et al., 2021). Besides, digitalisation is taking place in an industry that already operates in a constraining political-economy environment. This necessitates a synthesis of the interplay between technological pressures and political-economy influences in understanding whether or not ePaper adaptations really present (mis)fortunes (Ihlström and Kalling, 2007).

In Africa, a possible explanation for limited inquiries into the efficacy of ePapers might be that digital newspapers are still a new phenomenon. This dearth of scholarly attention translates into a less-researched subject matter despite notable scholarship on the changing media landscape. Available studies on digital media, such as Kakooza (2017), Namasinga (2018), and Tayeebwa (2016), concentrate on the growing influence of social media but hardly view ePapers as separate digital news channels from social media, online-only news sources, and blogs. This renders ePapers as footnotes in media scholarship. For example, Namasinga (2018) and Tayeebwa (2016) view social media as spaces for newspapers to thrive. They opine that newspapers need social-media spaces to further digitalisation, thus subsuming ePapers under social media. The failure to conceptually and empirically distinguish ePapers from social media presents a hindrance to understanding the adaptations of preexisting media channels and new ones incubated by the technology revolution.

These inadequacies present challenges for media scholarship. The conceptual lumping of ePapers with social media subsumes old and new media outlets. It strangles theoretical understanding of the metamorphosis of newspapers in a changing technological and political economic landscape. Social media studies (e.g., Namasinga 2018;

Tayeebwa 2016) ought not to be misrepresented as general studies about digital media; this erodes empirical distinctions between ePapers and other digital media outlets. We thus need frameworks for assessing digital adaptations vis-à-vis the functionality of the pre-Internet press.

Scholarship needs guidance for grasping the fate and future of ePapers as a contemporary and distinct press category that coexists with other digital media spaces. For example, ePapers in Africa are recent: in Uganda, *The New Vision* and *Daily Monitor* mention ePapers around 2015 (Kamanzi, 2015). No model has been offered, even suggested, for analysing the efficacy of this transition. Extant scholarship is insufficient about this otherwise important phenomenon in Uganda. We provide a starting point for addressing this lacuna.

Our proposed framework conceptually specifies ePapers and develops methodological guidance for assessing their efficacy. This effort is important because newspapers need to digitalise with the view to capturing the attention of netizens through headlines and news bits that are as attractive, informative, entertaining, and educative (Prihantoro et al, 2019) as pre-digitalisation newspapers did. This framework paper contributes new directions for media scholarship in emerging economies in Africa and the non-African developing world, where digital media technologies are becoming a common mode of communication. In this effort, we conceptualise ePaper efficacy in order to develop three theoretically-anchored parameters, each with indicators for assessing the effectiveness of ePapers. Theoretically, we ground our framework in critical political economy (CPE) and technological determinism (TD).

CPE derives from the political economy theory of media and foregrounds the importance of economic, political and ideological structures and contestations that underpin technology; informs its deep embeddedness in systems of power,

ownership, and control that tend to be concentrated in the hands of a few corporations or powerful entities. This locus of control and ownership influences technologies, institutions, and practices, with which the production and distribution of communication goods and services takes place. This forces the media to reproduce dominant economic and political interests in society, recycling vested interests that undergird the transformation of contemporary media to commercially-oriented business entities in capitalist environs (Golding & Murdock, 2000; Mbaine, 2019).

TD, on its part, views technology as the primary driving force for societal metamorphosis, whereby new technological developments have autonomous effects on individuals and communities and transform society at the level of institutions, social interactions, and individual choices (Chandler, 1995). Dominant media technologies, at some historical junctures, take a central position in society and force communication investors to follow suit. From this viewpoint, digital media's influence increases as a function of interaction between technology and young generations through social media, e-magazines, and ePapers, which become new digital business models for information and news (Tamara et al., 2020).

Together, CPE and TD provide conceptual resources for understanding the intersection between vested interests (in technological changes and communication investments) and technological influences in the press. A combination of these theories helps us to derive a parametric assessment of the efficacy of ePapers, the empirical application of which we recommend for further scholarly work.

Conceptual Issues

An ePaper is simply a newspaper that has been published on an e-paper device (like an electronic reader, e-reader), with the possibility to enable one to read high-quality news at any time of the day

(Ihlström & Kalling, 2007). As digital-format newspapers, ePapers are searched quickly, reliably, and remotely (Deacon, 2007). The ePaper takes different forms, such as web pages or mobile applications accessible with personal computers and mobile devices like tablets and (smart) phones (Shapira et al., 2009). The ePaper differs from its print version in form and from online-only news websites. Its format differs from print media due to virtuality and emphasis on visual aspects. Constant updates preclude absolute deadlines.

This offers ePapers a three-pronged defining element:

- They are *electronic*. Published on the internet as websites or applications, ePapers are like other digital news, blogs, information noticeboards, and websites. But they are news-based electronic products that differ from information websites, online videos, and television shows.
- They are *as close to the same as possible in content*, possibly also in layout, *to their print versions*. What one sees online is visually similar to what one sees in print, indicating similarity (if sameness) between print newspapers and ePapers. Some newspaper companies have both online and print versions; others are online only ePapers.
- Like traditional newspapers, which require on-spot purchase or periodic subscription, ePapers *require subscription* to access online content. They reveal only limited content, such as headlines, allowing only subscribers full access, so as to achieve paid-up online access.

In this paper, therefore, ePapers are taken to be replicas, or digital versions, of their print newspaper editions (Ihlström et al., 2005). These ePapers constitute a new digital business model through which online consumers search and locate news (Bucher et al., 2005; Tamara et al., 2020). Differing from online-only newspapers, news websites, or hybrid newspapers (Soni, 2020), ePapers are, by

nature, digital document-like. They are also available in Portable Document Format (PDF), a technology that offers open standard features for sharing, archiving, retrieving, and printing.

ePaper Efficacy

An ePaper is a newspaper. It can be assessed on the basis of whether or not it plays the functions of a newspaper. Traditionally, newspapers played specific roles: provision of information, education, entertainment, revenue generation for newspaper investors, and influencing public opinion. The contemporary newspaper has hardly deviated from these roles. Schultz (1998), for instance, suggests that the media, otherwise known as the 'Fourth Estate,' act as watchdogs of the actions of public officials and political institutions. They hold officials accountable for their actions in the public interest. The ePaper, therefore, can be assessed on these roles given its growing importance in the contemporary media landscape. For instance, the worldwide market for ePapers witnessed substantial revenue growth estimated at US\$8.43bn in 2024 (Statista, 2024).

In this paper, *ePaper Efficacy* is assessed against traditional roles and expectations about newspapers, plus non-traditional/contemporary functionality. Since any newspaper seeks to widen its readership, an ePaper's efficacy in broadening newspaper readerships by maintaining existing readerships and attracting new audiences indicates the viability of digitalisation for revenue generation and profit maximisation. From this viewpoint, digitalisation of newspapers is an adaptation strategy, much like distribution by street vendors over short urban distances, using motorbikes and cars, and/or shipping over long distances. These measures served to widen readership, increase revenues, and address customers' other needs and expectations. In today's internet age, digital audiences are the marketplace for ePapers serving similar roles.

It follows that an efficacious ePaper serves the same traditional roles of a newspaper with added digital benefits like adaptation to digital readers' expectations, becoming an effective communicant, on-spot access for subscribers with internet access, convenience (no need to move an inch to access and read a newspaper), and taking cognisance of the varied news and information sources available to online readers compared to print-media consumers. The efficacy of ePapers is the degree to which they serve and transcend traditional newspaper roles as heretofore outlined.

The notion of profitability and revenue generation, for instance, by no means presupposes that all newspapers—electronic or print—seek profit maximisation. This is to say that, save for newspapers which have some special funding sources, state and non-state, lack profit-making motives. The ePaper seeks to maximise profit, or remain viable in terms of production, distribution, and marketing costs, as does a print newspaper. Even a non-profit newspaper, as would be a propaganda outlet for a religio-spiritual, political, or philanthropic organisation, seeks to maintain or expand its readership. This requires sufficient funding, the ability to employ capable and numerically enhanced distributors, advertisers, or marketeers, and design-visual enhancers. These actors and processes render funding requisite. This emphasis is important because, save for a few exceptions related to non-profit journalism (Requejo-Alemán & Lugo-Ocando, 2014), ePapers are increasingly being read by users from anywhere and anytime, from whom much revenues are generated (Parvin et al., 2022).

To assess ePaper efficacy, therefore, we need to account for theoretical and conceptual assumptions about print media roles and expectations. This helps us to determine whether ePapers conform or deviate from the newspaper as a news channel. Sustenance of media roles and expectations, and broadening of newspaper readership, are key parameters here.

Revenue generation being equally important, indicators for assessing whether or not ePapers generate revenues are crucial for developing possible research questions for determining profitability-related efficacy. These parameters and indicators, however, need to be theoretically anchored. Our framework offers guidance for achieving this goal.

A SYNTHETIC THEORETICAL FRAMEWORK

In this paper, the convergence of two theoretical approaches in communications research—CPE and (TD)—informs a framework that caters to both interest-based and technological imperatives of digitalisation in the newspaper industry. CPE addresses the vested interests that inform newspaper-production processes, the media-industry drivers of digitalisation of newspapers, and political economy imperatives of capitalist investment in the communication industry. TD addresses adaptations that newspapers make amidst changing technologies and the new pressures these adaptations engender. Thus, digitalisation takes place in a political economy environment, but is also both a process and a response to technological imperatives.

Critical Political Economy

CPE examines how communication industries produce, distribute, and exchange goods and services and the sociopolitical order in which communication institutions proliferate (Golding & Murdock, 2000; Hardy, 2014). How communication goods and services are consumed; the power relations [that need to be] negotiated in production and consumption processes; the decision-making imperatives regarding media-industry investments, production, distribution and consumption; and how these processes are founded, funded, and controlled, are critical to our understanding of media roles in a given society (Graham, 2007; Jansen, 2013). Newspapers face

complex processes when we consider the operational dynamics and constraints that founders and managers face in everyday news production and dissemination.

Contemporary media mostly operate as commercially-oriented business entities (Golding & Murdock, 2000; Mbaine, 2019) that must meet policy expectations and navigate political interests. An analysis of how media are organised and funded reveals much about how they execute their roles to meet society's expectations (Hardy, 2014). CPE addresses these and other issues. CPE looks beyond mere economic considerations and considers different power structures and societal relations, local cultural spheres, and political and historical contexts of media adaptations (Golding & Murdock, 2000; Wasserman, 2018). This reveals how economic motives equate media content to salable commodities depending on the nature of ownership and support mechanisms within media organisations (Mansell, 2002). How political and other vested interests play out in the broader newspaper operating environment also influences media behaviour and content (Garnham, 1990; McChesney & Schiller, 2003; Mosco, 2015). From these observations, therefore, CPE is suited for this framework paper because it offers a set of parameters that can reflect a mixture of economic, political, and cultural processes, pressures, and adaptations that are critical in digital media spaces.

The decision of major newspapers to transition to ePaper platforms bears similar attributes: adaptation to changing political, economic, cultural, and ideational landscapes. Therefore, a theoretical standpoint that addresses distributive, ownership, commercial decision-making, consumptive, and regulatory imperatives would be based on CPE assumptions. For instance, contemporary media (e.g., ePapers) tend to come with marketing communications in branded content that reflects the convergence of media technologies and advertising imperatives. This may be rooted in decision-making

power in a corporate media environment such as that of *The New Vision* and *Daily Monitor* in Uganda, *The Vanguard* in Nigeria, and/or the partisan *All People's Communication* and *Sierra Leone Daily Mail* in Sierra Leone.

Scholars use several theoretical lenses to study media processes in Africa. Examples include media convergence and networked journalism (Namasinga, 2018); political economy of media and communications; normative theories of media (Mbaine, 2019); and social network and social learning theories (Kakooza, 2017). These frameworks are inadequate for assessing the efficacy of ePapers, for they do not consider foundational and adaptive processes undergirding digitalisation. While media convergence and social learning theories appear close, as would the political economy of media, they would not address the contemporariness of issues addressed in CPE and TD together. From a theory like CPE, we can address both contemporary (e.g., changing sociocultural environments, new political pressures incubated by neoliberal processes) and traditional (e.g., power, resource interests, profit motives) newspaper aspects to overcome possible conceptual challenges necessary for developing indicators for assessing the efficacy of digital media.

We recognise extant criticism against CPE. Its obsession with how power relations and social structures shape communication industries may not meticulously explain all communication activity. It tends to underrate other technology-related forces and dynamics (Wasko, 2014), yet digital technologies themselves drive changes in media practices that define relationships between individuals, media, government, and society beyond CPE's theoretical reach (Krone & Pellegrini, 2020). However, capitalist communication relations, as articulated by CPE, can regulate this new paradigm shift because of the need to accommodate the political and economic interests of major players and media practitioners. Emphasis on issues like

truthfulness, accuracy, objectivity, impartiality, fairness, and public accountability is rooted in these political economy imperatives (Hesmondhalgh 2017; Seignani 2019).

CPE assumes a methodological holism, from one macro-phenomenon (such as capitalist organising in media as an analytic framework) to another macro-phenomenon (the necessity of orienting media content toward sales or vested interests) (Krone & Pellegrini, 2020). Yet, capitalism is neither a monolithic nor a “pure” entity. There are degrees of capitalism. Several macro and micro phenomena obtain within capitalism. Thus, one can think of multilevel and multidimensional capitalisms. Because CPE underestimates the value of social barriers to the commodification of media, the theory is unable to address broad and diverse media nuance (Garnham, 2011; Murdock & Golding, 2016; Seignani, 2022). But since no theory explains everything about a given phenomenon, we lay emphasis on the core parameters that are rooted in CPE theory to assess the efficacy of ePapers. This paper also draws from TD to augment CPE for a comprehensive framework for assessing the effectiveness of ePapers.

Technology Determinism

Conventionally amplified by Harold Innis (1951) and Marshall McLuhan (1962), TD asserts that dominant media technologies tend to take a central position in a given historical era. These techno-dominants may last for some time, such as did print media since the invention of the printing press; the drum and flute in simple societies; and the typewriter in a modern pre-computer world. Soon, media techno-dominants are replaced by new media when three conditions are met. First, new technologies can be developed and used to articulate different media. An example is the use of telephones to communicate over long distances, replacing drums, flutes, horns, and long-distance travel. Second, dominant media technologies stop serving

(or fail to serve) societal functions due to deviation from their original purpose or societal metamorphosis. Finally, dominant societal ideas and interests change and demand different media spaces. The shifts from analogue to digital television, from nationalist propaganda to globalist viewpoints, exemplify this ideational trend.

Today’s information societies arise from innovations and new technologies as key movers of social, political, ideational, and economic interests and change (Kunz, 2006). Slow, stagnant societies are compelled by technologies to adapt or be left behind. TD explains how new technologies transform multi-level institutions, social interactions, and individual choices (Chandler, 1995). In the media landscape, TD views innovations and new technologies as affecting our lives in a transformative manner (Hauer, 2017). Having a generational imperative, technologies become more dominant as new generations adopt new technologies and/or discard previous ones. As newer adaptations increase in numbers, reach, and influence, older technologies gradually become unhelpful. Others may be pushed aside due to rapid technological changes, the interests they generate, and as technology producers lay aside old ones. Where media channels like newspapers fail to adapt to new techno-pressures, they lose market share not because the information, news, education, and entertainment they provided are no longer necessary, but because the channels, outlets, and platforms of engagement have remained unchanged (become digital) in a rapidly changing world.

McLuhan and Fiore (1967) observe that TD theory places the medium as *the* message; the new medium and message take on the form of communication technologies. McLuhan (1988) posits technology as playing the role of enhancement, obsolescence, retrieval, and reversal in media contexts. Augmentation places new media, such as ePapers, at the centre of cognitive perceptions in a society characterised by greater connectivity and

networking. Technology becomes both the driver and modifier of media adaptations. Technology may not be the antecedent factor informing the founding and operations of a medium, such as a newspaper, but once the medium is in place, technology seriously intervenes: the efficacy of an ePaper becomes beholden to digital technology. Since digital society is characterised by greater connectivity, networking, and broader readership audiences, digital-communication efficacy can improve revenues for newspaper industries, such that ePapers acquire a deterministic tendency in the publishing industry.

TD has been criticised for its reductionist and simplistic approach (Lin & Paragas, 2015). However, technology does not happen in a vacuum because ePapers are extensions of and replicas of their print versions. Technology is a continuum, not a dichotomous fit between technology and society. Thus, TD makes a good fit for constituting a band between CPE and itself to frame a theoretical guidance for an efficacious study. In other words, vested political and economic interests, and their institutional proliferations, require technologies of rule, interest articulation and negotiation, communication with broader societal audiences, and adaptation to societal and technological changes. New/digital technologies, in turn, also require certain political economy contexts to thrive and proliferate. This creates a techno-political economy landscape in which vested interests and new/digital technologies become interwoven bedfellows in the articulation and instrumentalities of ePapers.

FROM SYNTHETIC FRAMEWORK TO PARAMETERS AND INDICATORS

How, then, do CPE and TD, when fused, constitute a framework? Theory integration is a powerful way of developing explanatory frameworks by drawing from different theoretical resources to construct a richer framework (Grant & Osanloo, 2014). After integration, the new framework need not become a

fused theory; it can be a different theoretical proposition or methodological guidance. While combining theories has its virtues and vices, when drawn from similar philosophical traditions, integrated theories can augment or strengthen paradigms or posit new directions for future research. In so doing, groundwork is laid for developing a new theory, depending on how researchers adapt and apply the new framework. The resulting theory need not be finite; it can be an integral part of a paradigm.

Our framework is an applied-research one. We sidestep possible paradigmatic tensions that may arise from these theories' ontological conceptions about the role of agency and process in media studies as well as epistemological views about the role of theory, method, and analysis (Modell, Vinnari & Lukka, 2017). For instance, does CPE consider ePaper owners as more important than their operating environment? Does it place analytic emphasis on the environment (including techno-environment or political economy context) or the newspaper itself (actor)? If TD stresses technology-driven change in the newspaper landscape, how does it address decision-making imperatives of digitalisation? Sidestepping these ontological and epistemological questions, we stress the degree to which digital/electronic newspapers remain efficacious in a political economy and technologically changing landscape.

It follows, however, that combining theories that inform media studies lays the foundation for further assessments of the most current media-related phenomenon: newspaper digitalisation. This is crucial given the shift from analogue/print to digital/online. The shift entails various societal-essential features adapted to new technologies. The CPE-TD framework is consistent with expectations about analyses of socially-important phenomena, such as ePapers, since both theories address different but complementary aspects of the same phenomenon.

From CPE, we derive propositions about whether ePapers play traditional roles that newspapers have played since the first known newspaper. This in no way raises questions about whether or not newspapers' roles have changed, but whether those roles are catered for under a technologically-driven transformation. It is an issue of whether digitalisation enables the newspaper, as a value-production actor in a political economy marketplace, to serve its founders', owners', profit motives and business resilience. We posit newspapers as profit-making entities, but are aware of non-profit and public-interest news production. From DT, we tease out whether or not digitalisation acts as an enabler for reaching or widening readership audiences in line with the traditional roles of newspapers now operating in a changed

technological landscape. TD can also answer questions about trust that an ePaper can build with its audience as a communicant, which needs audience/consumer trust to retain a competitive advantage over online rivals.

From the CPE-TD synthesis, we come to the conclusion that technological forces operating in a given context can trigger new transformations within an existing media landscape. Notwithstanding political economy imperatives of newspaper operations, digital technologies create exogenous and endogenous pressures which force newspapers to digitise. The resulting ePapers are techno-operationally distinct from print newspapers but play similar roles, on the basis of which their efficacy can be assessed.

Table 1: Parametric Derivations from the Theoretical Framework

Theoretical Notions	Implications	Parametric Convergence
1. CPE	<ol style="list-style-type: none"> ePapers produce, distribute, and exchange commercial goods/services Decision-making agency and interests matter Power relations in news production and consumption matter Corporatised environment with political, economic, cultural, and ideological factors 	<ol style="list-style-type: none"> Media roles, functions, mandates, and expectations remain important. Readership and audiences – interest in expansion remains Economic considerations, such as profit-making, market dominance, and competitiveness, remain important
2. TD	<ol style="list-style-type: none"> Dominant media technologies (techno-dominants) in a given historical era Techno-determinants change with technological changes Technological innovations are key movers of media-related social, political, ideational, and economic interests and change Technology as intervening variable: media enhancement, obsolescence, retrieval, and reversal triggers specific cognitive perceptions which engender a highly-connected, electronic, and networked society – a Netizenry. 	<ol style="list-style-type: none"> The question of techno-trust in rapidly-changing digital landscapes – trust by Netizens is as important as trust by traditional readers.

Sources: *Authors' Analysis.*

Parameter 1: Sustaining media roles and expectations: An efficacious newspaper, digital or print, sustains traditional roles and expectations of news media as enshrined in McQuail's (2005) theoretical postulations. These include: holding authorities to account; performing education, information, and entertainment functions; acting as forums for citizen debate. CPE offers entry points for developing indicators along this parameter to assess ePaper efficacy.

The newspaper has played specific roles since ancient times. Since the publication and circulation of *Acta Diurna* in Rome in 59 BC, the newspaper informs, educates, and entertains the human race (Wright, 2016). It promotes marketable goods and services. It is a source of scientific research (Ohlsson, 2015; Tanackovic et al., 2014). Newspapers traditionally mediated power relations, watched over public officials, and informed accountability demands upon public authorities. Even as they evolve due to technological changes and global market demands (Ekman et al., 2019), newspapers produce and distribute communication commodities (Bukar & Mohammed, 2022; Wadbring, 2020; Wasko, 2014). Thus, traditional newspaper roles have been adaptive but resilient. Has digitalisation allowed the digital newspaper to play both these traditional and new roles?

With internet proliferation, contemporary media have morphed into centralised, state-controlled, professionalised, commercialised, and concentrated media ownerships and combinations of several of these (Davis, 2013). This metamorphosis has influenced the ways in which media perform traditional roles. The internet also poses challenges for traditional newspapers, but opportunities for ePaper innovations have emerged and contribute to enhancing traditional roles and expectations about the media (Islam & Ahsan, 2020; Mbozi, 2021). Ihlström et al. (2005) stress this contribution: they predicted that ePapers would change editorial and advertising workflows, affect media houses and

their relations with different market players, and have a bearing on how power relations are exercised and expressed.

In the United Arab Emirates (UAE), for instance, Cherian and Farouk (2015) observe that the new development helps young readers to get news rapidly and easily, indicating generational imperatives of digitalisation. In Asia, Parvin et al (2020) report that ePapers helped citizens of Iran, South Korea, Singapore, Bangladesh, and India to make meaning of the deadly COVID-19 pandemic while prioritising the economy over and above health crises. This underscores ePapers' capacity to mediate socio-economic and public-health pressures that are critical to the fight against complex public health emergencies like pandemics that interweave economic resilience and non-economic survival.

Empirically, it follows that ePapers augment traditional roles. They remain part of broader media industries. In this landscape, several platforms with capitalist tendencies focus on generating maximum returns to shareholders through crafting symbolic goods for direct sale, by assembling audiences to market to advertisers (Murdock and Golding, 2016), and triggering new-online-product demands. To measure ePaper efficacy, therefore, we need to ascertain its ability to sustain media roles and expectations, such as acting as space for advertising/market-access spaces and information dissemination through cross-referencing with other publications, allowing for expressions of opinions (through columns and cartoons), facilitating interfaces between state and non-state public entities and the population, and enabling meaning making during difficult situations.

Parameter 2: Broadening newspaper readership: Readership or audience is critical for newspapers. Readership is one of the clearest motives behind the transition from print to ePapers. The envisaged extent and diversity of ePaper readership are

important here. Online platforms shape and influence their audiences by keeping current and attracting new audiences. TD provides conceptual and analytic resources for assessing ePaper efficacy in this regard: technology shapes society's institutional dynamics, drives certain continuities, and enables humanity to monitor or anticipate changes.

Using technology's transformative power, ePapers can and do affect readers' outlook and futuristic orientations through online news/content (Hauer, 2017; Soni, 2020). This implies that newspaper digitalisation creates avenues for reviewing day-to-day activities and events, enabling ePapers to change our reading patterns compared to traditional newspapers (Veluchamy et al., 2021). In the process, ePaper audiences can expand or contract depending on their potential to effectively replace printed newspapers to enable direct interactivity with customers. Therefore, interactivity, ease of access, and changes in reading patterns reflect CPE's theoretical assumptions about individual readers' rights of access to information in a given political economy context.

The COVID-19 pandemic altered many businesses around the world, including the ePaper. It helped the print industry to survive through electronic circulation and access (Veluchamy et al., 2021) because ePapers enabled news to easily spread, sometimes via social media platforms, reaching new and wider audiences during times when print access was difficult or impossible due to pandemic-induced lockdowns and movement restrictions. This gap-filling role of ePapers indicates that digitalisation maintains and widens readership without necessarily rendering the print newspaper obsolete.

As ePapers gain worldwide and multi-user popularity, their content and accessibility should augment traditional notions of access and readership. Ihlström et al (2005) observed that

ePapers have the potential to attract new, younger readers thanks to their attractive design and reading experience. They predict ePaper innovation evolving into a genre that converges print and online. In Uganda, newspapers such as *New Vision* and *Daily Monitor* have created ePaper versions in order to win over new online readerships (Nyombi, 2020).

From a TD perspective, digital newspapers allow for new audience terrains, turn traditional reporters into multi-media and multi-spatial journalists, and provide access to reported news through various technology channels and compatible devices. These advantages broaden reader-audience satisfaction. This theoretically attracts new readers, advertisers, and other online visitors. To answer the question of whether digital and print newspapers can co-exist for maximum reader satisfaction, audience growth, and diversification of the publics they appeal to, one needs to examine, even predict, the limits and dangers of complete digitalisation across space and context. Maintaining print editions alongside e-versions can provide credible news and information to expand newspaper reach and attract new circulation and advertisers (Harris, 2020; Hassan et al., 2021).

Limited evidence, if any, predicts the possible demise of print newspapers due to readership concerns. To empirically assess whether ePapers will thrive, researchers need to ascertain expectations of newspaper founders, managers, and users about ePapers' ability to broaden and expand readerships and audiences in a context-relevant manner. This transcends perception inquiries; it is futures research and modelling too.

Parameter 3: Revenue generation/profit maximisation: Observing ePapers as generators of revenue and profit is consistent with expectations of the newspaper industry as a capitalist investment landscape. Consider indicators like ePaper subscriptions (level, nature, number); payment

models; pricing; advertising and subscription revenues; and profitability. Evidence of these aspects is important for assessing efficacy along revenue-generation parameters.

Proponents of ePapers predict that because people easily and freely access news online, it is difficult for newspaper companies to generate revenues via print (Simutanyi *et al.*, 2015). Major global publishers, like *Le Monde* and *Vogue*, recognise this wave. They use technology to generate higher volumes of traffic because of the potential these volumes portend for traditional media to survive (Smith 2013). African countries like Uganda continue to experience an upsurge in the use of new ICTs (Nakiwala & Kakooza, 2020). This begets new revenue-generation opportunities for existing media and endless gains for digital brands.

Contemporary mass media are profit-seeking, capitalist-industrial, commercial organisations. They produce and distribute communication commodities in an information marketplace (Murdock & Golding, 2016; Wasko, 2014). Major producers of public communications are assumed to be privately owned and/or seek to generate maximum returns to shareholders by crafting symbolic goods for direct sale or assembling advertisement audiences (Murdock & Golding, 2016). Here, revenue and profit maximisation assume centre-stage. Through content, cover price, circulation, distribution, subscription, and advertising, ePapers can generate revenues and profits for shareholders and incomes for managers. In a private-sector-led economy, such as Uganda, this expectation is as simple as it is obvious.

The viability of ePapers is a global phenomenon (Huded & Naikar, 2021). Revenues from ePapers were projected to reach US\$7,247m in 2021, with an annual growth rate of 6.43%, and growing digital advertisement expenditures in a world where two-thirds of the global population were online by the end of 2024 (World Digital Report, 2021 & 2024).

This is estimated to result in a market volume of US\$9,297m by 2025, with most of this revenue generated in the United States alone (Statista, 2021). At the beginning of 2025, 41% of editors, CEOs, and digital executives were confident about the prospects for journalism in 2025, even when 74% were worried about a potential decline in referral traffic from search engines in 2025. Moreover, subscription and membership remain a key revenue focus for 77% of online publishers, with reliance on event advertisements (48%), affiliate revenue (29%), donations (19%), and related businesses (15%) (Newman & Cherubini, 2025). Media technology influences contemporary media in terms of subscriptions, readership, circulation, and advertising revenue (Hassan, 2021). Thanks to the internet, advanced new media technologies, such as ePapers, are improving newspaper market share (Mudgal & Rana, 2019), which enables them to expand their online reach.

Views about the viability of ePapers have proliferated within the industry. Online presence is flaunted to explore cheaper production and distribution methods to save on buying costly newsprint, attract new/younger readers, and develop new advertising potential. Gradual advertisement shifts from print to digital media platforms offering colourful visual representations (Haugfos *et al.*, 2024), with advertisers using visual symbols on digital platforms to transmit their ideas and achieve ideal advertising effects (Zhu & Chen, 2022). In France, Finland, Germany, and the UK, newspapers recorded fortunes after embracing emerging new audience consumption trends in Europe's digital environment (Jenkins & Nielsen, 2020). Therefore, ePapers have the potential to attract new circulation and advertisers (Harris, 2020; Hassan *et al.*, 2021) even if newspaper companies continue to choose to maintain their print products.

In Africa, low subscription pricing in Zambia, for instance, made easy access to ePapers possible. With declining internet costs, newspaper revenues

improved their online presence (Kalombe & Phiri, 2019). Necessarily, print media ought to diversify and use digital presence to reach more customers and promote more benefits to advertisers (Tamara, 2020). In Uganda, *The New Vision* reported that digitisation, through the ePaper and Augmented Reality Technology (ART), resulted in a 2% revenue growth in 2021 (Twaha, 2021). The ePaper registered 24,000 readers, 1,280 of whom became regular-paying subscribers due to Covid-19 restrictions that accelerated its digital transition. Electronic subscription to ePapers seems to be promising. The gains to celebrate about ePapers notwithstanding, digitalisation can have its pains to overcome (Suijkerbuijk 2014). Screen sizes, internet speeds, and difficulties with ICT systems

afflict ePaper readers. Tarus (2017) guides media houses to make ePapers easily searchable and accessible through most internet-connected devices.

Based on the foregoing, one can assess ePaper efficacy on revenue generation as we adapt to e-payments and e-money transfers (mobile money) in a world of growing e-commerce (MoICT, 2021). Researchers need to ascertain the extent to which ePapers generate higher or lower revenues than print papers. This requires within-case (e.g. across time periods within the same newspaper company) and cross-case (e.g. between/among newspaper companies) comparisons between print and electronic newspapers.

Table 2: Parameters & Indicators for Assessing ePaper Efficacy

Parameters	Indicators	Possible Empirical Interests (Data to Collect)
1. <i>Sustaining media roles and expectations</i>	a. ePaper provides access to <i>information</i> on policy and politics	The degree to which new information on policy and politics is <i>relayed</i> and <i>accessed</i> by readers via ePapers.
	b. <i>Education</i> to readers about new phenomena, important issues	Numbers and kinds of new, important issues about which <i>readers are educated</i> via ePapers.
	c. ePaper facilitating <i>accountability demands</i>	Numbers and expressions of demands for accountable governance and accountability responses are publicised and accessed via newspapers.
	d. ePaper provision of <i>entertainment</i>	New forms of entertainment are <i>relayed</i> and <i>accessed</i> via ePapers.
2. <i>Broadening newspaper readership and/or audiences</i>	a. New subscribers attracted to ePapers.	Numbers and kinds (individual vs. institutional) of new subscribers the ePaper receives over the period.
	b. Actual readership for ePapers	The number of readers of ePaper compared to the sales made via the print version.
	c. Non-subscriber audiences	Number of visits to ePaper websites - potential for new subscribers.
	d. Cross-references for ePapers	Numbers and regularities of readers' reference to ePaper/during their online activities.
3. <i>Revenue generation/profit maximisation</i>	a. Revenues collected from online advertising	Amounts of revenue collected from online advertisements via the ePaper.
	b. Revenues collected from online	Amounts of revenue collected from online subscriptions.

Parameters	Indicators	Possible Empirical Interests (Data to Collect)
	subscriptions or readerships	
	c. Changes in subscriber & advertisement revenues over time	Improvements or declines in revenues over 10 years.

Sources: *Authors' Framework (parameters with corresponding indicators)*

Testing this Framework

As summarised in Table 2, the parameters and indicators for assessing the efficacy of ePapers start with understanding newspapers' traditional and contemporary roles. The efficacy of an ePaper is the degree to which it serves these roles, as a newspaper, not any other digital or online news source. An ePaper is efficacious when it sustains media roles, the indicators of which are providing relevant and useful *information*, public *education*, facilitating *accountability demands* upon authorities, and reader *entertainment*.

The second parameter, *broadening readership audiences*, underlines the assumption that newspapers seek to expand and deepen their reach, in terms of numbers, diversity, and reader/audience commitment. The indicators: attraction of new subscribers/readers, actual readership (both subscribers and non-subscribers), non-subscriber consumers, and cross-referencing in visitors' online activities, are methodologically used to ascertain readership breadth. The broader the readership audience, the greater is the ePaper's ability to serve traditional and contemporary roles.

Finally, *revenue generation* and/or *profit maximisation* address the business/private-sector elements of newspapers in a capitalist political economy. Newspaper companies are business-oriented, profit-making entities. Non-profit-oriented newspapers need revenues to sustain operations unless they have unique funding sources for reasons beyond this framework. Indicators of revenue generation are revenues from digital

advertising, revenues from online subscriptions/readerships, and changes in revenues over time. Since revenues are not the same, methodological disaggregation of their varied sources helps researchers to show that different revenue sources imply signify different things to newspaper owners and managers.

Each of the above parameters and corresponding indicators requires empirical tests, the conduct of which would necessitate appropriate data collection on each indicator. The parameters and indicators are interrelated, indicating that assessing the efficacy of ePapers can enable a holistic understanding of their political economy and digital-technology processes and dynamics.

More detailed guidance on how to collect, analyse, and interpret data related to the proposed indicators could strengthen the framework's practical application, but this might bias inquiry or narrow the leverage of researchers seeking to test this framework. Highlighting data collection challenges, encouraging context-awareness, and proposing dynamic and mixed-methods approaches could further enhance the framework's utility and relevance in diverse media environments. We avoid assuming that data-collection challenges, whether on the desk or in the field, remain the same across time and space. Any seasoned researcher understands the importance of conceptual clarity (as provided in the indicators), measurements (as seen in the kinds of data to be collected under each indicator), methodological rigour and ethical considerations necessary to overcome data-collection and analysis challenges. This advice is

important for making inferences based on the knowledge generated using this framework.

CONCLUSION

Determining whether ePapers, especially in Uganda, are making headway requires addressing newspaper digitalisation vis-à-vis newspaper roles and functions. The growing reach of digital and social media, which have become major news sources for millions of people (Mabweazara et al., 2020; White & Mabweazara, 2018), means that ePapers operate in a competitive digital landscape. Yet their efficacy remains understudied, possibly due to limited conceptual clarity, theoretical framing, and methodological guidance.

This paper proposes a framework for assessing the efficacy of ePapers, the application of which enriches our understanding of this digital transition: Are we still dealing with newspapers or some other yet-to-be-understood media phenomenon? Whether or not we understand what is going on, the starting point is to assess whether or not ePapers are making headway before reaching any conclusions. Empirical assessments based on the parameters and indicators proposed in this framework provide important findings for ascertaining the degree to which ePapers sustain media roles, broaden readerships and/or audiences, and generate revenues that are critical for profit maximisation in the media market landscape.

We call upon scholars to test this framework to contribute toward its refinement and improvement going forward. A mixed methods approach combining qualitative and quantitative methodologies would be suitable for this framework. We recommend mixing them to achieve methodological complementarity, though either methodological tradition that follows the core tenets of science should be sufficient for testing this framework.

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