

Extension in the Platform Age: How Far Are We and What's Holding Us Back?

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Introduction and Literature Review

Land Grant Universities (LGU) Extension has a long-standing history and mission to bring university-based knowledge and research to the public through informal educational programs to support innovation, and community development (King, 2018; Seevers et al., 1997). The promise is to place the best science within local reach and make science accountable to local needs. The current decentralized structure spanning over 100 universities and 2,900 county offices is facing challenges to maintain relevance and visibility in the digital age (Ostrom, 2022; Weibe, 2024). Advancement in digital technologies, policy shifts, scientific breakthroughs, and industry practices have amplified both the volume and complexity of agricultural information. On the one hand, publics are receiving a flood of commercially motivated or poorly vetted competing and fragmented content, leading to information pollution and poor farming decisions (Anderson et al., 2024; Steede et al., 2018). On the other, faculty members are struggling to engage the public in scientific dialogue, as Rampold et al. (2024) indicated by asking, “if nobody hears us, do we really make a sound?” This situation leads to “*epistemic crisis*,” where the spread of misinformation erodes public trust in and authority of scientific institutions (Anderson et al., 2024).

Although Extension has adopted several digital systems to keep pace with advancements and better reach the audiences, the approach is expert-driven (Ostrom, 2022; Van Alstyne et al., 2016) with weak online presence (King, 2018). Today, 90% of search traffic occurs on Google where sponsored content dominates and online searches for Extension declined by 50% between 2004 and 2010 (Rader, 2011; Steede et al., 2018). Even if research-based content gets published frequently, the sites are functioning as static repositories with limited interactivity, poor search engine optimization, and low visibility (Anderson et al., 2024; Steede et al., 2018). With all these issues, the LGU Extension system is facing what Ostrom (2022) called a ‘relevancy problem.’ The central issue is not lack of expertise or commitment within Extension, but the structural adjustment required to build relationships among its actors. Currently, audiences are treated as recipients of the information rather than co-creators of its value and knowledge exchange. This pipeline approach to information dissemination is not sufficient to gain user engagement and build trust. This study stresses that Extension must move beyond merely publishing content, maintaining a digital presence, or serving as information transmitters, instead adopting a “platform logic” in the platform age.

A platform is an intermediary that connects actors on at least two sides and enables interactions through network effects and generativity, where the platform’s value is co-created by actors rather than controlled by the owner (Armstrong, 2006; Rochet & Tirole, 2006; Van Alstyne et al., 2016; Van Dijck et al., 2018). For example, platforms such as Amazon (connects buyers and sellers on its two sides), Uber (drivers and passengers) and Airbnb (hosts and guests) have integrated strategies that matched public expectations through intuitive, personalized, and interactive experiences. They facilitate exchange, adapt to user behavior, and make improvements based on those experiences. That is why it is easy to buy what we need on Amazon or rent an apartment of our convenience on Airbnb. Fenwick et al. (2019) stated that organizations are left with a tough choice: “become a platform or be killed by one” (p.177). They stressed the need for every organization to operate as platforms, organizations that fail to connect actors as co-creators of value are likely to be left behind and more adaptable ones take over the role of delivering services.

Extension, with its roots in public accountability and community engagement, is positioned to respond to and bridge the research-practice gap, which requires rethinking on how digital infrastructure is used not just to distribute knowledge, but to build relationships, trust, and learning. Scholars have presented the need for participatory and reciprocal approaches in Extension (Franz et al., 2015; Rivera & Sulaiman, 2009). These models highlighted that extension efforts are most effective when audiences are treated as collaborators in knowledge exchange. Building on this, the study introduced the application of platform models to agricultural information exchange by framing Extension entities as platforms that connect content creators (researchers, educators) with clientele (growers, master gardeners) digitally. It explores the transformative potential of Extension to adapt platform logics and ultimately facilitates stakeholder engagement and relationship building.

Theoretical Framework

Drawing on the platform elements framework (Rohn et al., 2021; Gillespie, 2018), this study examines the extent to which Extension integrates these elements to understand its digital engagement and client relationships. The framework consists of six elements of platformization (the phenomenon of platform logics integration): *value creation*, *value delivery*, *public value capture*, *promotion of digital transformation*, *platform architecture*, and *start-up culture* (Table 1).

Table 1

Platform Elements and Corresponding Extension Activities

Platform Element	Example Activities	References
Value creation	Matchmaking (e.g., expert directories), Customer Relationship Management (CRM) tools adoption, interactive feature (feedback)	Rohn et al., 2021; Gillespie, 2018
Value delivery	Search tools, personalization, mobile apps, multilingual content	Constantinides et al., 2018; Bertot et al., 2010
Public value capture	Metrics for engagement and societal impact (e.g., behavior change, community outcomes)	Rohn et al., 2021; Bekkers et al., 2011
Promotion of digital transformation	Training, digital literacy programs, cultural shift initiatives	Rohn et al., 2021; Gillespie, 2018
Platform architecture	Modular systems, interoperable databases, open-source tools	Rohn et al., 2021; Parker et al., 2016
Start-up culture	Pilot projects, agile teams, iterative design	Rohn et al., 2011; Franz et al., 2015

The activities within these elements are reframed to align with the information exchange model where pecuniary exchange does not take place in general (Constantinides et al., 2018; Parker et al., 2016). The elements within *value creation* help connecting experts with users to make knowledge more accessible and useful. *Value delivery* is about tailoring content and services to the diverse needs of audiences. *Public values capture* measures engagement and impact of the service (beyond clicks or visits) to understand social impact and community outcomes. *Promotion of digital transformation* is associated with the need for training, leadership support, and a culture that supports technology integration and use. *Platform architecture* represents how flexible and

user-friendly systems are to grow and integrate other tools. Lastly, *start-up culture* is about experimentation, learning from trials, and adapting to change.

Purpose and Research Questions (RQ)

This study examines the extent of platform elements integration within LGU Extension and associated challenges. Two research questions guide the study:

RQ 1. To what extent does Extension integrate six platform elements in digital operations?

RQ 2. What challenges are associated with the integration of platform elements?

Methods

This study is a part of broader study, where researchers are aiming to map the socio-behavioral relationship between different actors of extension platforms. For this part, a qualitative interview was used with a semi-structured questionnaire with 17 communication managers working in LGU Extension across the United States. Participants were purposively selected based on their roles in overseeing digital outlets and content/web management. A one-hour interview was conducted via Zoom with each participant. All sessions were recorded with consent, transcribed verbatim. The platform element framework matrix was used for organizing elements (row) and associated activities (column) during analysis (Table 1). Each researcher manually coded the transcripts line-by-line based on framework. The team met to compare and discuss areas of similarities and differences, refined codebook and reached consensus on coding decisions (Saldaña, 2021). At subsequent meetings, the researchers confirmed the consistency of codes across the dataset and organized them into themes within each platform element (Corbin & Strauss, 2014).

Results

RQ 1: To what extent does Extension integrate six platform elements in digital operations?

Value Creation

Some Extension platforms have initiated matchmaking functions through searchable expert directories and CRM integration. One participant noted, *“we have rolled out a statewide expert locator linked to our CRM that helps users find specialists by topic and region.”* However, interactive features such as user feedback tools are rarely analyzed or systematically used, some described the use of *“open comment boxes”* or *“surveys at the end of articles.”*

Value Delivery

Search tools are found to be implemented to some extent. Participants emphasized their role in surfacing relevant content: *“our internal search engine pulls from publications, videos, and events, making it easy for users to find what they need.”* The integration of other value delivery elements remains limited. Personalization was very weak due to resource constraints and a lack of centralized data systems. One participant noted, *“we would love to personalize our newsletters or build an app, but with one IT person and no budget, we are stuck with generic web content.”* Mobile apps are rarely used (three of the seventeen). Multilingual content is also limited (four of the seventeen), with low scalability. As one respondent shared, *“we have translated some of key resources, but continuous multilingual support is a challenge without funding.”*

Public Value Capture

Most Extension systems use tools, such as *Google Analytics*, to track digital engagement metrics (e.g., pageviews, time-on-site), but none of them measure behavioral outcomes and societal impacts. A manager admitted, *“we report on web traffic, but we are not evaluating if the content leads to action.”* Some exceptions were noted in grant-funded projects that requires impact

evaluation: *“Only when the grant demands it, we collect data on behavior change or outcomes.”* Overall, public value capture is limited by lack of standardized metrics and capacity.

Promotion of Digital Transformation

Digital training varies from ad-hoc sessions to formal curricula. One manager noted, *“we host monthly digital skills sessions for faculty and staff.”* Cultural resistance among staff was also creating barriers. *“Some still believe Extension should be face-to-face first digital is seen as a backup, not core,”* said another.

Platform Architecture

Some systems are moving toward modular, scalable architectures. Examples included cloud-based content management and integration with campus databases. *“We have adopted open-source platforms to ensure flexibility and avoid vendor lock-in,”* one noted. Yet, others struggled with system issues: *“Our website is built on a decade-old platform; migrating would take a full year and more resources than we have.”* Interoperability remains a goal for many.

Start-Up Culture

Pilot projects are the norm for testing innovations. Some entities use small grants to launch micro-initiatives, *“we run mini pilots with a few counties before scaling statewide.”* Agile approaches and iterative design were mentioned by some, *“we use user feedback to refine tools every year rapid prototyping helps us learn faster.”* However, institutional bureaucracy limits agility, *“innovation slows down once we hit procurement or university IT policy walls.”*

RQ 2. What challenges are associated with the integration of platform elements?

The common challenges reported were related to structural, technical, cultural, and human resource dimensions. Most common was **decentralized administrative structures**, where content and outlets are managed independently across departments, counties, and colleges, making even basic functions like search or navigation difficult. A single Extension system currently manages 200-2000 siloed sites, which makes it difficult for users to locate information, disrupts value creation such as connecting users with experts, adopting CRM systems or interactive features. One participant noted, *“we have 115 newsletters using our central system... that doesn't take into account people who went off and did something else but just creating a mail merge or something,”* indicating how disintegrated communication strategies lead to inefficiencies and duplication. The **absence of centralized leadership** makes it difficult to adopt innovative technologies like CRM tools or AI-driven applications. One participant shared that use of CRM tools remained internal: *“we don't know yet if or when we will release that publicly.”* In addition, many communications team are understaffed; one explained that *“I am the only extension communicator on the team,”* while another noted they were solely responsible for planning web strategy, despite overseeing hundreds of web editors.

Technical challenges such as **outdated content, broken links, and siloed sites** are common. *“Sometimes the college address shows up in my extension site randomly and takes you to a 404 page,”* one participant shared and other added, *“web environment has been so unmanaged, no strategies... people just doing things.”* The fragmented systems also inhibit evaluating long-term outcomes such as behavior change or community impact; therefore, metrics tend to be limited to basic indicators like page views, as one communicator indicated: *“I don't track analytics much.”* Another added, *“we don't track across the organization, but our team has utilized basic analytics more recently.”*

The push toward platformization also faces the issue of cultural inertia. **Resistance to change, limited digital literacy, and insufficient training** hinder staff from adopting new tools. “*It’s so much more comfortable not to,*” one communicator remarked. Another mentioned, “*nobody who works under me was trained on web development.*” Moreover, increasing use of loosely governed and independent sites adds risk to **brand consistency and user trust**. One manager mentioned, “*I think our worst culprits are our rogue people.*” Efforts to build a more agile, innovative culture requires flexibility and support system, but as one communicator put it, “*we don’t have centralized strategy in any aspect of our communications.*” These combined challenges make it hard for Extension to integrate platform elements and fully meet the changing needs of its clientele and function in platform age.

Discussion, Conclusions and Recommendations

This study examined the integration of platform elements into digital Extension systems and associated challenges. Findings indicated some progress in terms of matchmaking and modularity, but there are gaps in the part of personalization, databases interoperability, and developing agile digital teams. Extension still lacks systems that are required to respond effectively to changing community needs, an issue evidenced by the decline in online engagement with extension over the years (Steede et al., 2018). The major challenges reported were fragmented sites, limited human resources, technical difficulties, and cultural resistance to change in the system. Together, these issues demand a well-coordinated and centralized digital strategy that can pull scattered content, streamline operations and serve as a single access point for users. The adoption of platform logics through centralization of content management, and integration of CRM tools that can better connect people, programs, and platforms. The adoption of such was also stressed by Weibe (2024) noting that CRM would make Extension more responsive and capable of building and maintaining long-term relationships with diverse user bases.

To remain relevant and impactful in the platform age, Extension should operate in a fully interoperable, modular and generative digital ecosystem. The transformation would not only be cost effective and efficient, but also improve user engagement, innovation and responsiveness toward community needs. Subsequently, other platform functions like personalization, and behavioral tracking would be optimized, making Extension capable of delivering timely and relevant content. The approach still allows Extension to operate within its core principle of sharing and reciprocity (Ostrom, 2022). Importantly, such a transformation also helps mitigate the epistemic crisis Extension currently faces through transparency, knowledge co-creation and delivery of credible information (Anderson et al., 2024).

Based on findings, we recommend that Extension systems should prioritize investment in interoperable infrastructure that facilitates integration of content, analytics, and user data across platforms. This would be a good strategy to break the current siloed sites and improve scalability. Similarly, adoption of CRM and analytics tools that guide data-informed decisions, behavior tracking, and content customization are equally important. To support adaptation, targeted training and capacity building around digital and platform literacy are needed not only for Extension staff but also for users to promote culture of shared engagement. There are limitations to this study as it sampled only digital leaders of extension, which may have overlooked the perspectives from other actors such as content writers and most importantly users. Future research should triangulate information from user experience as well as faculty viewpoints.

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