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A Diffusion-of-Innovation-Based Strategy for the Deployment of TV 3.0 (DTV+) in Brazil from 2026 Onward

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Abstract—This research-in-progress paper proposes a strategy for the deployment of TV 3.0 (DTV+) in Brazil from 2026 onward based on the Diffusion of Innovations framework and complemented by a concise multi-sided platform perspective. The study compares the diffusion conditions of the Brazilian analog-to-digital television transition with the emerging broadcast-broadband environment. Market-research and official statistical evidence show that smart TVs, connected television, streaming services, and Internet access through television sets are no longer marginal phenomena in Brazil. Consequently, DTV+ will enter a market in which many digital features are already familiar to viewers. The paper argues that adoption will depend on visible and differentiated free-to-air services, coordinated participation by broadcasters, viewers, advertisers, and manufacturers, and the gradual reduction of device and usage barriers. Live sports are presented as a candidate initial use case rather than an empirically established choice. Dedicated DTV+ services or channels may contribute to observability and trialability, but their implementation must consider rights, costs, spectrum, interoperability, accessibility, and universal free-to-air access. The proposed strategy remains conceptual and requires validation through audience studies, field pilots, and industry experiments.

Index Terms—TV 3.0, DTV+, diffusion of innovations, multi-sided platforms, connected television, broadcasting, hybrid media, Brazil.

I. INTRODUCTION

THE introduction of TV 3.0, also referred to as DTV+, marks a new stage in the evolution of terrestrial television in Brazil. More than a transmission upgrade, DTV+ can be understood as a hybrid media environment combining scalable free-to-air broadcasting with broadband connectivity, interactive applications, improved audiovisual quality, personalization, and data-enabled services.

The diffusion conditions of DTV+ differ from those of the earlier analog-to-digital transition. Digital television provided benefits that viewers could readily observe, including improved picture and sound, reduced interference, and more stable reception. By contrast, several features associated with DTV+, such as high-resolution video, interactive interfaces, applications, personalization, and on-demand complementary content, are already familiar through smart TVs and Internet-based video platforms.

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The central challenge is therefore not limited to technical feasibility. It also involves constructing a sufficiently clear relative advantage for viewers and coordinating the participation of broadcasters, advertisers, manufacturers, and the audience. Broadcasters may hesitate to invest in differentiated services while the installed base of compatible receivers is limited. Viewers may see little reason to replace their devices while few differentiated services are available. Manufacturers, in turn, may delay large-scale production when demand remains uncertain, while advertisers may wait for sufficient reach and reliable measurement.

This paper addresses the following research question:

How can the deployment of DTV+ in Brazil be strategically sequenced to strengthen its perceived relative advantage and coordinate the participation of broadcasters, viewers, advertisers, and manufacturers?

To address this question, the study combines Rogers' Diffusion of Innovations framework [1] with a concise discussion of network externalities and multi-sided platforms [2]–[4]. The central proposition is that DTV+ should not initially be communicated only as a general replacement standard. Instead, its deployment should first create visible value through selected free-to-air use cases and then broaden participation as compatible devices, services, and supporting business arrangements become more widely available.

II. RESEARCH DESIGN

This research-in-progress adopts an exploratory conceptual and comparative design. The unit of analysis is the diffusion process associated with major generations of terrestrial digital television in Brazil. The study compares the analog-to-digital transition, referred to here as the TV 2.0 cycle, with the emerging DTV+ deployment environment.

The analytical categories are derived from Rogers' five perceived attributes of innovation: relative advantage, compatibility, complexity, trialability, and observability [1]. These categories are complemented by the concepts of indirect network externalities and multi-sided coordination [2]–[4].

The empirical material consists of secondary data from two sources. The first is the 2025 edition of the *Antena no Espelho* market survey, based on 11,774 face-to-face household interviews with individuals aged 18 or older. Data collection was conducted by Ipec between October 19 and December 2, 2024, covering 476 municipalities, all 26 Brazilian states, and the Federal District [6]. The second source is the Information and Communication Technology module of the Brazilian

National Continuous Household Sample Survey, conducted by the Brazilian Institute of Geography and Statistics (IBGE) [7].

The proposed diffusion strategy was developed by relating adopter categories to candidate value propositions and coordination requirements. Accordingly, the strategy should be interpreted as an analytically grounded proposition for subsequent testing, not as a forecast of adoption rates or implementation dates.

III. FROM DIGITAL MIGRATION TO A CONNECTED-TV ENVIRONMENT

The Brazilian analog-to-digital television transition provides an important reference for understanding which conditions may or may not be replicated in the DTV+ cycle. Its implementation involved regulatory coordination, spectrum planning, communication campaigns, industrial participation, and measures to support access by vulnerable households [5].

From a diffusion perspective, the transition combined four favorable conditions. First, viewers perceived a clear relative advantage over analog reception. Second, the improvement in picture and sound was highly observable. Third, digital television remained compatible with the established habit of watching free-to-air television. Fourth, coordinated institutional action reduced uncertainty for households, broadcasters, and manufacturers.

DTV+ inherits the institutional and technical legacy of this transition, but enters a different media environment. The *Antena no Espelho* survey estimates that 94% of Brazilian households had at least one television set in 2024. It also indicates that smart TVs were present in 68% of households, corresponding to an estimated 53 million households. The proportion was 73% in metropolitan regions and state capitals and 65% in the interior [6].

The same survey estimates that 61% of Brazilian households, corresponding to approximately 48 million households, had a connected television. Among households owning a smart TV, 81% reported connecting the device to the Internet. Overall, 91% of households had some form of Internet access, while 79% had access to at least one streaming service on some device [6].

These indicators provide a current national picture, but a single survey does not establish a temporal trend by itself. The longitudinal evidence is provided by IBGE. Among Internet users aged 10 or older, the proportion accessing the Internet through a television set increased from 11.3% in 2016 to 53.5% in 2024 [7]. This sustained increase, combined with the current prevalence of smart and connected televisions reported by *Antena no Espelho*, supports the interpretation that television-based Internet access has become a consolidated trend in Brazil.

The two sources refer to different statistical universes and should not be directly combined. The market survey describes household equipment, connectivity, and service access, whereas IBGE measures the devices used by individual Internet users. Nevertheless, the results converge in showing that the television screen has become an established point of access to digital video and Internet services.

This transformation raises the threshold for DTV+'s perceived relative advantage. The innovation will not be introduced into a technological void. Many households are already familiar with applications, connected interfaces, streaming catalogs, and personalization. DTV+ must therefore differentiate itself through the integration of scalable free-to-air distribution, service continuity, audiovisual quality, low-delay live delivery, accessibility, and broadband-enabled interactivity.

IV. THEORETICAL FRAMEWORK

A. Diffusion of Innovations

Rogers' framework [1] is especially useful because it explains why technologically sound systems may still diffuse slowly when social perceptions, communication channels, and inter-organizational incentives are misaligned. The theory classifies adopters into five groups: innovators, early adopters, early majority, late majority, and laggards. The trajectory of diffusion depends not only on the innovation itself, but also on how potential adopters evaluate it according to five attributes: *relative advantage*, *compatibility*, *complexity*, *trialability*, and *observability* [1].

Applied to DTV+, these dimensions suggest the following interpretation. Relative advantage is currently ambiguous for broad audiences because several features associated with DTV+ are also available through broadband platforms and connected-TV environments. Compatibility is mixed: DTV+ preserves the familiar habit of watching free-to-air television, but also asks viewers to update their understanding of what that experience can provide. Complexity is manageable from a technical standpoint if user interfaces and service implementations are well designed, but the ecosystem may appear confusing if the value proposition, device compatibility, and connected functionality are not clearly communicated. Trialability is potentially limited because viewers cannot easily experiment with the new standard unless retailers, broadcasters, public pilots, and event-based demonstrations actively create opportunities for exposure. Observability, finally, depends on highly visible use cases and on communication capable of translating engineering capabilities into tangible viewer benefits.

Therefore, the initial strategic task is to strengthen relative advantage, trialability, and observability in selected use cases and potential early adopter groups, rather than attempting immediate universal appeal. In this paper, Rogers' adopter categories are employed as strategic ideal types rather than as empirically measured population segments. Their actual size, composition, and propensity to adopt DTV+ in Brazil remain questions for future empirical investigation.

B. DTV+ as a Multi-Sided Platform

For the purposes of this study, DTV+ is treated as an ecosystem-level multi-sided media platform enabled by a common technical standard. Four principal groups participate in this ecosystem:

- 1) broadcasters, which provide free-to-air content, applications, and service interfaces;

- 2) viewers, who obtain free access to audiovisual and interactive services through compatible receivers;
- 3) advertisers, which finance content and services in exchange for access to audiences and communication opportunities; and
- 4) manufacturers, which supply compatible televisions, receivers, and related equipment.

The platform literature shows that participation by one group can affect the value perceived by another [3], [4]. In DTV+, a larger base of compatible receivers may make investment in new services more attractive to broadcasters and advertisers. A greater variety of differentiated free-to-air services may, in turn, increase the relevance of compatible devices to viewers. Expected viewer demand influences manufacturers' decisions about the availability and positioning of compatible equipment.

This does not mean that each relationship has already been empirically demonstrated or that all stakeholders respond in the same way. Rather, the multi-sided perspective identifies a coordination problem: each group may wait for clearer participation by the others. Network-effects research indicates that the availability of complementary products and services may increase the value of compatible technologies [2]. In this paper, this mechanism is treated qualitatively, without mathematical modelling or estimation.

The implication is that DTV+ deployment requires coordinated signals. Broadcasters need credible device availability, manufacturers need evidence of viewer interest, advertisers need relevant reach and measurement, and viewers need clear free-to-air benefits. A generic launch message centered only on technical specifications may be insufficient to align these expectations.

V. CONCEPTUAL COMPARISON

Table I summarizes the conceptual differences between the adoption conditions of TV 2.0 and DTV+. The comparison is based on the theoretical attributes discussed in Section IV-A and on the multi-sided coordination problem examined in Section IV-B. The classifications represent analytical propositions rather than direct measurements of consumer perceptions or empirically identified adopter segments.

VI. PROPOSED DIFFUSION STRATEGY

The strategy is organized into three conceptual stages. The stages are defined by deployment conditions rather than fixed calendar intervals, because the available evidence does not support precise estimates of their duration.

A. Stage 1: Demonstration and Potential Innovators

The first stage should emphasize use cases that make the integrated advantages of DTV+ visible. A candidate initial segment may be found at the intersection of technology-oriented consumers and highly engaged live-event audiences. Live sports, with football as a candidate application in the Brazilian context, may provide a suitable demonstration environment because live events make delivery delay, audiovisual

TABLE I
CONCEPTUAL COMPARISON OF TV 2.0 AND DTV+ ADOPTION

Dimension	TV 2.0	DTV+
Relative advantage	Clearly visible improvement over analog reception	Integrated value must be differentiated from connected-TV alternatives
Main reference	Analog television	Smart-TV and Internet-video environments
Compatibility	Continuity of established free-to-air viewing	Continuity of free-to-air viewing combined with connected services and new interfaces
Complexity	Limited change in the basic viewing experience	Potentially higher if interfaces, compatibility, and connected functions are unclear
Trialability	Reception demonstrations	Retail, broadcast, pilot, and event-based demonstrations
Observability	Directly visible improvement in picture and sound	Dependent on visible use cases that translate technical capabilities into viewer benefits
Coordination risk	Migration logistics and institutional coordination	Interdependence among broadcasters, viewers, advertisers, and manufacturers
Strategic emphasis	Broad transition to digital reception	Selected use cases aimed at potential innovators and early adopters

quality, synchronized information, and collective viewing directly observable.

This proposition should not be interpreted as evidence that sports audiences are already willing to replace devices specifically for DTV+. The research analyzed in this paper does not measure willingness to adopt DTV+ receivers or establish that football is the optimal initial service. The proposal is instead based on the alignment between technical capabilities and a use case in which timing and simultaneous collective viewing are important.

A flagship live-sports experience could conceptually combine scalable over-the-air delivery with broadband-enabled complementary resources, such as selectable video feeds, synchronized statistics, accessibility features, alternative audio, additional information, or audience interaction. The differentiation would not arise from any individual feature, many of which are also available in Internet-video environments, but from their integration with free-to-air broadcasting.

Dedicated DTV+ services, event-based applications, or exclusive channels may increase trialability and observability. However, exclusivity must be treated cautiously. Its feasibility depends on content rights, production costs, spectrum and capacity, coverage, receiver availability, interoperability, and regulatory conditions. Exclusive services should also not restrict general free-to-air access to content of broad social or cultural relevance. The appropriate balance between differentiation and universal access requires empirical and regulatory assessment.

B. Stage 2: Service Broadening and Early Adoption

After initial demonstrations, the second stage should broaden the range of free-to-air services and participating broadcasters. Possible applications include major cultural events, journalism, public-interest information, entertainment, accessibility resources, and interactive advertising.

At this stage, the main objective is to reduce perceived complexity and make the platform compatible with ordinary household routines. Consistent navigation, clear indications of connected functionality, privacy-aware data practices, and reliable operation across manufacturers are therefore important.

Advertisers may participate through sponsorship, interactive communication, and addressable advertising, subject to applicable privacy and consumer-protection requirements. Advertising innovation should support the free-to-air model rather than introduce payment barriers for viewers.

Manufacturers have an important role in broadening the availability of compatible receivers and reducing initial price differentials. Retailers and broadcasters can contribute by explaining compatibility and demonstrating services. These coordinated activities can provide more consistent signals to viewers than isolated technical communication.

C. Stage 3: Early Majority and Scaled Diffusion

Mainstream diffusion becomes more plausible when compatible receivers are available across a wider range of models, differentiated services are regularly offered, and the user experience is sufficiently standardized. At this stage, adoption is expected to depend less on technological novelty and more on affordability, reliability, social visibility, and practical usefulness.

The *Antena no Espelho* survey shows why this process may be gradual. Although 68% of households already had a smart TV, approximately half reported an intention to purchase or replace a television set within the following five years [6]. This indicator does not measure DTV+ demand, but suggests that natural receiver-replacement cycles may constrain the speed of compatible-device diffusion.

Scaled diffusion therefore requires attention to certification, interoperability, equipment availability, consumer information, accessibility, and regional inequalities in connectivity. Broadband features should enhance the platform without making the basic free-to-air service dependent on a high-quality Internet connection.

VII. BUSINESS, POLICY, AND GOVERNANCE IMPLICATIONS

DTV+ should be evaluated not only as a transmission system but also as an environment for sustaining free-to-air broadcasting. Potential applications include addressable advertising, interactive communication, enhanced sponsorship formats, audience measurement, accessibility services, and complementary information.

These applications affect the four sides differently. Broadcasters require sustainable service and production arrangements. Advertisers require relevant audiences, appropriate

measurement, and brand-safe formats. Viewers require understandable, useful, and free services. Manufacturers require stable technical requirements and sufficient demand to incorporate DTV+ into product lines.

Public policy remains important because Brazilian free-to-air television has civic, cultural, and universal-access functions. Connected capabilities introduce requirements related to privacy, cybersecurity, consent, data minimization, accessibility, and interface transparency. Inconsistent implementations may increase complexity and fragment the user experience, thereby weakening diffusion.

The use of connected services should not convert DTV+ into a subscription proposition. Its strategic distinction is the capacity to preserve free-to-air access while complementing broadcast delivery with optional broadband functionality. Households without broadband access or with limited connectivity should continue to receive the essential linear service.

VIII. DISCUSSION

The evidence supports the central premise that DTV+ will enter a mature connected-TV environment. The market survey indicates broad smart-TV, connected-TV, Internet, and streaming presence, while the IBGE time series demonstrates sustained growth in Internet access through television sets. Together, the sources provide a stronger empirical foundation for characterizing the environment in which DTV+ will be introduced.

This context does not make DTV+ irrelevant. Rather, it changes the basis on which relative advantage must be constructed. DTV+ cannot rely only on higher resolution, applications, or personalization, since these features are already familiar. Its proposition must emphasize the integration of free-to-air reach, scalable broadcast delivery, live-event performance, accessibility, service continuity, and connected functionality.

The multi-sided platform perspective also clarifies that viewer adoption cannot be analyzed in isolation. The participation decisions of broadcasters, advertisers, viewers, and manufacturers are interdependent. Nevertheless, the present study does not estimate the strength of these relationships, identify a definitive platform orchestrator, or establish which actor should bear the initial coordination costs.

Live sports remain a plausible demonstration case, but not a proven solution. This proposition should be compared with alternative applications. Public-interest information, major cultural events, entertainment, journalism, and accessibility services may produce different combinations of relative advantage, reach, and social value.

IX. CONCLUSION

This paper proposed a diffusion-oriented strategy for DTV+ deployment in Brazil. By combining Rogers' Diffusion of Innovations with a concise multi-sided platform perspective, it argues that adoption depends on both viewer perception and coordinated ecosystem participation.

The comparison with the earlier digital transition indicates a central difference. TV 2.0 offered a visible improvement over analog television, whereas DTV+ enters an environment

in which smart TVs, connected television, streaming, and television-based Internet access are already established. Accordingly, DTV+ should begin by demonstrating differentiated free-to-air value in selected use cases and then broaden its services and participants as devices and interfaces become more widely available and consistent.

The study has four main limitations. First, it is conceptual and does not empirically test the proposed stages. Second, the two empirical sources use different units and statistical universes and cannot be directly combined. Third, neither source measures willingness to adopt a DTV+ receiver. Fourth, the multi-sided relationships are discussed qualitatively and are not empirically estimated.

Future research should compare alternative initial use cases, identify potential adopter profiles, measure perceived relative advantage, and examine the influence of receiver prices and replacement cycles. Pilots, conjoint surveys, controlled retail demonstrations, usability studies, and broadcaster–manufacturer experiments could test whether proposed services increase trialability, observability, and adoption intention. Research should also examine privacy, accessibility, interoperability, advertising acceptance, and the implications of dedicated or exclusive services for universal free-to-air access.

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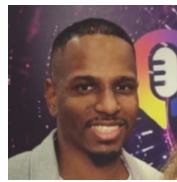
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