# Strategic Communication for Research Innovation and Technology Transfer: A Theory-Of-Planned-Behaviour Model of Digital Media Exposure and Student Entrepreneurial Intention in Nigerian Universities

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## ABSTRACT

This paper develops a single, internally consistent conceptual model explaining how strategic communication delivered through digital media converts university technology transfer output into student entrepreneurial intention in Nigeria. Nigerian universities continue to generate research findings and innovation prototypes that rarely progress beyond the laboratory or the final-year project stage. Existing explanations for this shortfall emphasize financing, intellectual property, and infrastructural constraints while paying little attention to communication. This paper treats the Theory of Planned Behaviour (Ajzen, 1991) as the anchor model, positions student entrepreneurial intention as the paper's single, explicitly defined dependent variable, and specifies digital-media exposure to strategically communicated technology-transfer content as the key independent variable acting on intention through attitude, subjective norms, and perceived behavioural control. The paper thereby specifies the relationship between technology transfer and student entrepreneurship as a chain running from research and innovation output, through strategic communication and digital-media exposure, to entrepreneurial intention and, distally, entrepreneurial behaviour. The paper is conceptual and desk-based, and it closes with a set of research propositions derived directly from the model, together with implications for university management, technology transfer offices, policymakers, and directions for the empirical research the model is designed to support.

**Keywords:** Strategic Communication; Technology Transfer; Digital Media; Entrepreneurial Intention; Theory of Planned Behaviour; Nigerian Universities

## Introduction

Universities worldwide are increasingly expected to fulfill a 'third mission' alongside teaching and research: directly contributing knowledge and innovation to economic and social development (Etzkowitz & Leydesdorff, 2000). Universities typically realize this third mission through technology transfer—the process by which research findings, inventions, and innovative ideas generated within the university move into practical application, whether through licensing, spin-off companies, or student-led ventures. In Nigeria, where youth unemployment remains high and formal-sector job creation has not kept pace with graduate output, policymakers and institutional leaders have positioned university-based entrepreneurship as a partial solution. In response, many Nigerian universities have established entrepreneurship development centres, innovation hubs, and technology incubation programs.

Yet the presence of research output and institutional entrepreneurship infrastructure does not automatically translate into entrepreneurial activity among students. Prior conceptual work on this gap has tended to treat strategic communication, technology transfer, and digital media as three loosely connected topics, illustrated by three separate theories — Diffusion of Innovation, the Theory of Planned Behaviour, and Uses and Gratifications — without specifying how these theories relate to one another, which variable is being explained, or how technology transfer itself enters the causal picture. This paper addresses that weakness directly. Rather than reviewing three theories as parallel lenses, it nominates one anchor model — the Theory of Planned Behaviour — to explain a single, explicitly defined dependent variable: student entrepreneurial intention. It then specifies the other two theories as subordinate mechanisms that explain how a prior, upstream variable — digital-media exposure to strategically communicated technology-transfer content — is generated and why it varies in strength across students. The result is one coherent conceptual chain, rather than three independent theoretical accounts loosely gathered under a common topic.

This paper therefore sets out to examine, at a conceptual level, how strategic communication of university research and innovation—delivered through digital media—shapes students' entrepreneurial intention in Nigeria, and to explicitly specify the mechanism by which technology transfer output is converted into that intention. It synthesizes literature from strategic communication, innovation and

technology-transfer management, and entrepreneurial-intention theory to build a single integrated model and a set of research propositions derived directly from it.

**Statement of the Problem**

Despite growing institutional investment in innovation hubs, entrepreneurship centres, and research clusters across Nigerian universities, the rate at which student-generated or research-derived ideas convert into registered ventures remains low relative to the volume of research and project work produced annually, a pattern documented across Nigerian higher education more broadly (Oyinlola et al., 2024). Existing accounts of this shortfall tend to focus on financing constraints, weak intellectual-property regimes, and infrastructural deficits. By comparison, little attention has been paid to the communication dimension of the problem, and even less to specifying, in a single testable model, how communication is supposed to convert technology transfer output into a defined entrepreneurial outcome. This paper addresses that gap by treating digital-media-mediated strategic communication as a specified antecedent variable acting on a specified dependent variable—student entrepreneurial intention—within a single model, rather than as one theme among several unconnected theoretical discussions.

**Objectives of the Study**

1. To define student entrepreneurial intention as the study's dependent variable and to specify its relationship to research, innovation, and technology transfer.
2. To identify the digital media channels most relevant to Nigerian university students' engagement with technology-transfer content.
3. To develop a single, integrated conceptual model, anchored in the Theory of Planned Behaviour, that specifies how strategic communication and digital media exposure affect students' entrepreneurial intention.
4. To derive research propositions and policy-relevant recommendations from that model to strengthen digitally mediated technology-transfer communication in Nigerian universities.

**Research Questions**

a. What is the dependent variable of interest, and how does it relate to university research, innovation, and technology transfer?

b. Which digital media channels and content formats are most likely to reach and influence Nigerian university students on technology-transfer content?

c. Through which single, coherent theoretical mechanism does digitally mediated strategic communication influence student entrepreneurial intention?

d. What institutional strategies and policies would strengthen the communication link between technology transfer offices and the student population, consistent with that mechanism?

This paper contributes to three overlapping bodies of scholarship. First, it extends strategic communication theory into the relatively underexplored domain of university technology transfer, a context traditionally dominated by innovation-management and intellectual-property perspectives. Second, it contributes to the entrepreneurial-intention literature by specifying, within a single model rather than three parallel ones, how communication and media exposure function as antecedents of entrepreneurial intention, alongside the more commonly studied variables of training, financing, and role models. Third, by making the technology-transfer–to–entrepreneurship relationship explicit and defining its dependent variable precisely, the paper offers university management, entrepreneurship development centres, and technology transfer offices a model that can be operationalized directly into measurable indicators, rather than a general orientation toward 'more communication'.

## Literature Review

### Conceptual Review

#### Strategic Communication

Strategic communication is the purposeful use of communication by an organization to fulfill its overall mission, distinct from ad hoc, reactive, or purely informational messaging (Hallahan et al., 2007). It is 'strategic' in that it is planned in advance, tied to organizational objectives, targeted at specific audiences, and evaluated against intended outcomes. Grunig's excellence theory of public relations similarly emphasizes that communication functions are most effective when managed strategically and built on two-way, audience-responsive dialogue rather than one-way dissemination (Grunig, 1992). In this paper, strategic communication is treated specifically as the mechanism that packages technology-transfer output for digital distribution—it is the design layer between research output and student exposure, not an outcome variable in its own right.

#### Research, Innovation, and Technology Transfer

Technology transfer is the process by which knowledge, inventions, and innovations generated in one setting—typically a university or research institute—are transferred to another where they can be applied, commercialized, or further developed (Bozeman, 2000). In universities, this process is often institutionalized through technology transfer offices, innovation hubs, or entrepreneurship

development centres. A substantial body of technology-transfer literature focuses on formal mechanisms—licensing agreements, spin-off formation, and industry partnerships—while paying less attention to an earlier, foundational stage: whether students are even aware that a given piece of research or innovation exists and could form the basis of a venture. In the African context specifically, Triple Helix models emphasizing collaboration among universities, industry, and government have been advanced as a mechanism for converting endogenous research output into economic value (Afolabi & Adeyinka, 2024), reinforcing the university's role as an active commercialization agent rather than a passive knowledge repository. In this paper, technology transfer output is treated as the raw input to the model: it is the substantive content (a prototype, a finding, a patentable process) that strategic communication subsequently packages for digital distribution.

**Digital Media**

Digital media, in the context of this paper, encompasses internet-based platforms and applications used to create, share, and consume content, including social networking platforms, video-sharing platforms, messaging applications, webinars and virtual events, and institutional web portals maintained by university innovation hubs or entrepreneurship centres. Digital media is distinguished from traditional institutional communication channels (noticeboards, memos, print bulletins) by its interactivity, reach, comparatively low cost of production and distribution, and capacity for two-way engagement between the university and its student audience. Students' willingness to engage with any given platform is conditioned by perceived usefulness and ease of use (Davis, 1989), a technology-acceptance factor that operates alongside, rather than in place of, the channel and content-framing effects discussed below. In the model developed below, digital media is the channel variable: strategic communication determines what is said, and digital media determines how and how widely it reaches students.

**Student Entrepreneurship: Defining the Dependent Variable**

This paper explicitly defines its dependent variable as student entrepreneurial intention: the self-acknowledged conviction, held by a currently enrolled student, that they intend to establish a new venture based on research, innovation, or technology-transfer content encountered during their studies (adapted from Krueger, Reilly, & Carsrud, 2000). Entrepreneurial intention is treated as the proximate dependent variable of the model because it is widely established in the literature as the most reliable proximate predictor of subsequent entrepreneurial behaviour. Actual venture creation—registering a business, securing incubation support, or commercializing a research-derived idea—is treated as a distal outcome variable, one step removed from intention and subject to additional constraints

(financing, regulatory environment, intellectual-property arrangements) that lie outside the scope of the communication-focused model developed here. Fixing entrepreneurial intention as the single dependent variable, rather than shifting loosely between 'entrepreneurship', 'entrepreneurial orientation', and 'venture creation' as near-synonyms, allows the model below to specify a determinate set of predictors and mediators.

### The Technology Transfer–Student Entrepreneurship Relationship

The relationship between technology transfer and student entrepreneurial intention is specified in this paper as indirect and communication-mediated rather than direct. Technology transfer output, by itself, does not produce entrepreneurial intention: research findings sitting in a laboratory or a repository have no behavioural effect on students who are unaware of them. The paper's central claim is that this relationship is carried by two intervening mechanisms, arranged in sequence: first, strategic communication, which determines whether and how technology-transfer output is packaged for a student audience; and second, digital-media exposure, which determines whether that packaged content actually reaches students and with what intensity. Technology transfer is therefore modeled as the upstream input variable, strategic communication and digital media as the mediating mechanisms, and student entrepreneurial intention as the downstream dependent variable. This specification is developed formally in the theoretical framework and integrated model below.

## Theoretical Framework

### The Theory of Planned Behaviour

Ajzen's Theory of Planned Behaviour (TPB) holds that behaviour is best predicted by behavioural intention, which is shaped by three factors: attitude toward the behaviour, subjective norms, and perceived behavioural control (Ajzen, 1991). In the entrepreneurship literature, TPB has been widely applied to explain entrepreneurial intention, with attitude reflecting a favourable or unfavourable evaluation of entrepreneurship, subjective norms reflecting perceived social approval for entrepreneurial activity, and perceived behavioural control reflecting the individual's belief in their capacity to successfully start a venture. TPB's applicability to student entrepreneurial-intention formation has been demonstrated empirically in recent national settings, including studies of creative entrepreneurial intention in Indonesia (Korpysa & Waluyohadi, 2022), of digital entrepreneurial intention among engineering students (Vu et al., 2024), of entrepreneurial intention among Peruvian university students (Bayona-Oré, 2023), and in an integrative review confirming the model's continued relevance across student populations

more broadly (de Andrade & Carvalho, 2023), lending cross-context support to its use as the anchor theory here. TPB is nominated as the anchor theory of this paper because it directly names the paper's dependent variable—entrepreneurial intention—and specifies the three mediating constructs through which any upstream variable, including digital-media exposure, must operate to affect it. In this model, digital-media exposure to strategically communicated technology-transfer content is treated as an antecedent of all three TPB constructs: exposure to well-crafted content can shape favourable attitudes toward research-based entrepreneurship, exposure to visible peer and role-model content can shift subjective norms, and exposure to instructional or how-to content (webinars, incubation-programme walkthroughs) can strengthen perceived behavioural control.

**Methodology**

This paper adopts a conceptual, desk-based research design, appropriate for theory-building contributions that aim to integrate existing literature into a single novel model rather than to test hypotheses empirically. The paper draws on secondary literature from strategic communication, technology transfer and innovation management, and entrepreneurial-intention theory, selected for its relevance to the variables named in the integrated model above: technology transfer output, strategic communication, digital-media exposure, the three TPB mediators, entrepreneurial intention, and entrepreneurial behaviour. Sources that addressed communication, technology transfer, or entrepreneurship in isolation, without clarifying how these constructs connect to one another, were excluded from the synthesis so that the resulting literature review, propositions, and discussion remain aligned with the single model rather than reverting to three parallel discussions.

The conceptual method follows established practice in management and communication scholarship, in which existing theories developed in separate literatures are synthesized into an integrated model and a set of propositions suitable for subsequent empirical testing (Whetten, 1989). This paper does not report primary survey or interview data collected from Nigerian university students or technology transfer offices. Rather, it develops the theoretical and policy-oriented model above and presents a suggested empirical research design, including a sample survey instrument that operationalizes each construct in the model, in the Appendix for researchers wishing to test the propositions developed below.

## Discussion

The discussion below is organized around the stages of the integrated model rather than around the three theories individually, so that each subsection maps to a specific link in the technology-transfer-to-entrepreneurial-intention chain.

### From Technology Transfer Input to Strategic Communication

Much of the policy conversation about university entrepreneurship in Nigeria centres on infrastructure: the establishment of incubation centres, maker-spaces, and compulsory entrepreneurship-development courses. Within the model developed here, infrastructure and technology-transfer output constitute the input side of the chain, but the model predicts that input alone is insufficient: research findings or a prototype that is not strategically communicated will fail to generate digital-media exposure and, consequently, will have no measurable effect on the paper's dependent variable. This pattern is consistent with Nigeria-focused evidence showing that innovation infrastructure has expanded without a commensurate rise in student-led venture creation (Oyinlola et al., 2024), and with the broader technology-transfer literature's observation that formal commercialization mechanisms alone rarely explain how potential adopters first become aware that a transferable innovation exists (Bozeman, 2000). The model therefore implies that the return on infrastructural investment in university innovation ecosystems is conditional on the strategic-communication link in the chain, not a direct function of infrastructure alone.

### From Digital Media Exposure to the TPB Mediators

The model specifies that digital-media exposure does not affect entrepreneurial intention directly but rather through attitude, subjective norms, and perceived behavioural control (Ajzen, 1991). This has practical implications for technology transfer offices: content intended to build favourable attitudes (showcasing the commercial potential of research), content intended to shift subjective norms (peer and role-model testimonials), and content intended to strengthen perceived behavioural control (webinars and incubation walkthroughs that demystify venture creation) are not interchangeable. A communication strategy that produces only one type of content will leave the other two TPB mediators, and therefore part of the model's explanatory chain, unaddressed. Empirical studies elsewhere lend support to this part of the chain: exposure to entrepreneurship-oriented social media content has been found to strengthen digital entrepreneurial intention directly (Wibowo et al., 2023), while entrepreneurship education combined with digital literacy has been shown to shape digital entrepreneurial intention among university students more broadly (Liang et al., 2025).

**Channel and Framing as Determinants of Exposure Strength**

The Theory of Planned Behaviour is presented in this paper as a framework for explaining variation in the strength of digital-media exposure. Together, they imply that Nigerian university technology transfer offices should sequence broad-reach awareness content (matching the 'knowledge' stage) before interactive, persuasion-stage content, and frame that content around tangible student needs rather than institutional achievement. The theory's applications support this reading: diffusion-based analyses of social media marketing show that behavioural intention toward a communicated innovation strengthens once relative advantage and compatibility are established through appropriate channel sequencing (Farajnezhad et al., 2021). Strategic communication planning within technology transfer offices should begin with an audit of where students already spend their attention and what needs they bring to that attention, rather than defaulting to whichever channel or framing is administratively convenient for the institution.

**Institutional Capacity as a Constraint on the Communication Link**

A further implication of the model is that many Nigerian university technology transfer offices and innovation hubs may lack in-house strategic-communication capacity, staffed primarily by researchers, administrators, or engineers rather than communication professionals. Yet the literature indicates that effective strategic communication requires a dedicated, professionally managed function built on planned, audience-responsive dialogue rather than incidental or one-way messaging (Grunig, 1992; Hallahan et al., 2007). Recent large-scale evidence suggests this requirement is increasingly tied to dedicated digital-communication technology and infrastructure rather than personnel alone (Brockhaus et al., 2023). When this is the case, the strategic-communication link in the chain—between technology-transfer input and digital-media exposure—is likely to be the weakest link in the model, regardless of how strong the underlying research or innovation infrastructure may be. This suggests a concrete institutional intervention: embedding trained strategic-communication or digital-media personnel within technology transfer offices and innovation hubs, rather than treating communication as an afterthought handled by a general university public-relations unit disconnected from the specifics of ongoing research and innovation activity.

**Implications for Policy and Practice for University Management**

1. Establish a dedicated digital strategic-communications function within, or closely linked to, the technology transfer office or entrepreneurship development centre, rather than routing all communication through a generic institutional public-relations unit.

2. Develop a documented digital content calendar for technology-transfer dissemination that deliberately sequences awareness- and persuasion-stage content, consistent with proposition.
3. Invest in training for innovation-hub and technology-transfer staff in digital content creation, platform-specific formats, and audience analytics so that content can be produced for all three TPB mediators rather than for one alone.

**For Technology Transfer Offices and Innovation Hubs**

1. Reframe technology-transfer announcements around student-relevant entrepreneurial hooks (skills, income, career pathways) rather than purely academic-achievement framing, consistent with proposition.

2. Prioritize the specific digital platforms and content formats that Nigerian students already use daily, informed by periodic audience audits rather than assumptions.

3. Use webinars, short-form video series, and peer-testimonial content, deliberately targeted at attitude, subjective norms, and perceived behavioural control, respectively, rather than a single undifferentiated content stream.

**For Policymakers**

1. Incorporate digital strategic-communication capacity as an explicit criterion in national and institutional evaluations of university innovation-ecosystem performance, alongside existing infrastructure and funding metrics.
2. Support inter-university knowledge-sharing on effective digital-communication practices for technology transfer, given the resource constraints facing many Nigerian institutions.

## Conclusion and Recommendations for Further Research

This paper has argued that the relationship between university technology transfer and student entrepreneurship is not direct but is mediated by strategic communication and digital-media exposure. It has modeled that relationship within a single conceptual chain anchored in the Theory of Planned Behaviour, with student entrepreneurial intention specified as the dependent variable. The resulting model implies that strategic, digitally mediated communication of research and innovation can increase students' awareness of commercially viable ideas, shape favourable attitudes and supportive norms, and strengthen perceived behavioural control, provided universities adopt structured technology-transfer communication policies, train innovation-office staff in digital strategic communication, and integrate entrepreneurship messaging into everyday student-facing platforms.

The model is intended as a starting point for empirical investigation rather than a final claim. Researchers are encouraged to test the propositions using the sample

instrument provided in the Appendix, which operationalizes each construct in the model—technology-transfer exposure, the TPB mediators, and entrepreneurial intention—as a distinct measured variable, adapted to their specific institutional context. Future research should prioritize comparative empirical studies across Nigerian universities with differing levels of digital-communication maturity within their technology transfer offices; longitudinal designs capable of tracking students from initial digital-media exposure through the TPB mediators to entrepreneurial intention and eventually to actual venture formation; and qualitative studies of technology transfer office staff to better understand existing communication practices and institutional constraints. Such research would allow the model advanced in this paper to be empirically validated, refined, or revised, and would provide a stronger evidentiary basis for the policy recommendations outlined above.

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