Research Statement

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Background, Motivations, and Research Summary

Information technology (IT) has transformed personal communication, market structures, and managerial practice. Social media have amplified individuals' ability to create and diffuse user-generated content (UGC) through networks, and technology-driven shifts in consumer behavior continue to reshape digital and physical markets. In parallel, online platforms are reconfiguring service delivery in domains such as healthcare and innovation by changing how information is produced, shared, and acted upon.

Against this backdrop, my research sits at the intersection of IT, user behavior, and business management, organized around four streams: social media, digital markets, telehealth, and innovation. Across these streams, I use empirical and experimental designs to establish causal insights, leveraging methods such as econometric modeling, field and lab experiments, surveys, text mining, and network analysis. Collectively, my work explains how IT reshapes individual and organizational behavior and provides actionable implications for platform design, operational strategy, and policy. Figure 1 summarizes my research areas, questions, theories, and methods.

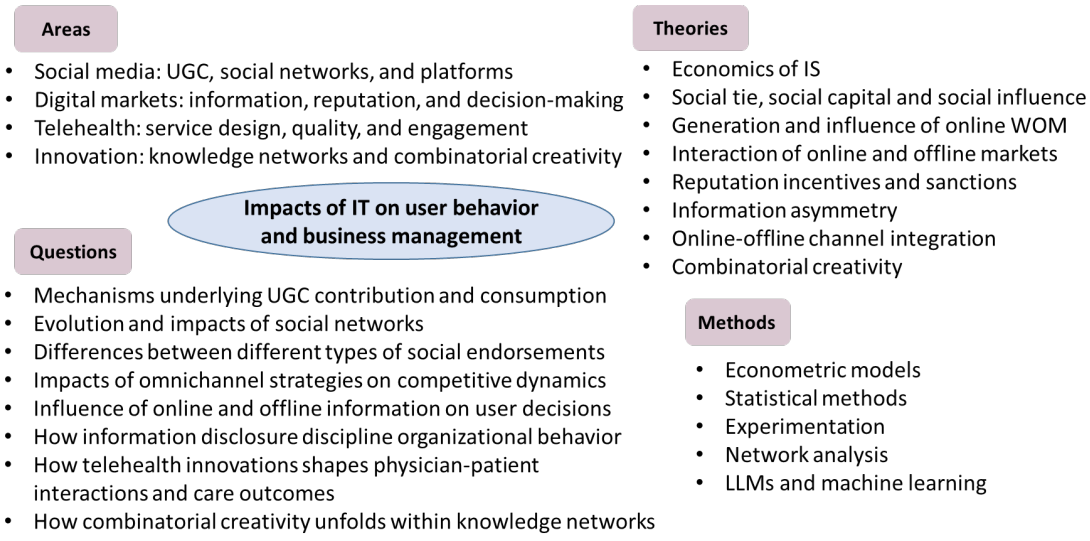

Figure 1. Summary of My Research

Research Areas

1. Social Media: UGC, Social Networks, and Platforms

UGC contribution and consumption

As content platforms, social media websites connect UGC contributors with consumers.

To understand contributor behavior, a foundational question is why individuals contribute content. In the early stages of many platforms, selective advertising revenue-sharing programs were introduced to encourage contribution. Motivated by this phenomenon, my research studies the incentives underlying content contribution and the effectiveness of revenue-sharing programs [JMIS'12], using a novel dynamic structural model that allows contributors to be forward-looking in their contribution decisions. The findings identify the roles of both intangible online reputation and tangible monetary rewards, demonstrating that revenue sharing can be effective but not strictly necessary to sustain contribution. The results further indicate that the relative importance of these incentives evolves over time, and that accounting for contributor heterogeneity can inform more targeted and effective platform interventions.

For consumer behavior, the central question is how users choose which content to consume. To address this question, my research examines two key mechanisms shaping content consumption: social learning and network effects [JMIS'15]. Under social learning, information externalities arise because expressed WOM provides signals about underlying content quality. Uder network effects, payoff externalities arise because consumers' utility from the content increases with the number of prior consumers. Using a Bayesian learning model in the context of YouTube, my research provides evidence for the presence of both mechanisms. By distinguishing between high-quality content (characterized by consistently positive WOM) and controversial, attention-grabbing content (characterized by mixed WOM), the analysis shows that social learning is more pronounced for high-quality content, whereas network effects more strongly drive the consumption of attention-grabbing content. These findings advance theory on social influence and contribute to the literature on content diffusion. The practical implications concerning the drivers of online content virality were featured by *Bloomberg Businessweek*.[1]

Impacts of social networks on UGC

In social media, diffusion of UGC is largely driven by social networks. There have long existed networks among consumers (e.g., friends) and networks between contributors and consumers (e.g., followers/subscribers). More recently, many content platforms have also enabled networking among contributors (e.g., collaborators) to facilitate collaboration and cross-promotion. The tie between two contributors is directional and benefits only the one with the incoming tie, as it directs a contributor's viewers to others following the outgoing ties. Only bilateral ties are mutually beneficial. Yet contributors can only initiate outgoing ties unilaterally and must rely on reciprocation for ties to become bilateral. Such networking activities have become an important strategy for content providers to increase the visibility of their content. To study the impact of contributor networks on their content, my research investigates both the likelihood and value of tie reciprocations between content contributors on YouTube [ISR'19]. From the content- and structural- perspectives, this work finds that content similarity and common ties between two contributors increase reciprocation probability but decrease reciprocation benefit for the tie initiator, highlighting the tradeoff between reciprocation probability and reciprocation benefit as a central challenge faced by many contributors. Using simulation, we identify the optimal content similarity and common ties between the two providers for

[1] https://www.bloomberg.com/news/articles/2012-09-21/the-economics-of-pussy-riot-on-youtube

the tie to yield the highest expected reciprocation benefit. The results provide practical managerial implications for contributors' networking strategies and shed light on predicting the co-evolution of social networks and content consumption.

Besides the social networks within a platform, social networks on other platforms may also contribute to content diffusion. As consumers increasingly use multiple social media platforms, their cross-platform activities give rise to social endorsements (SE), the positive sharing via one's social ties. For instance, YouTube viewers may share watched videos with their followers on Twitter or friends on Facebook. To clarify how different types of endorsements shape consumption, my research distinguishes between original endorsements (original tweets) and reposted endorsements (retweets) and compares their effects on subsequent content consumption [I&M'25]. Using Twitter endorsements linked to YouTube video-level consumption outcomes, we find that original endorsements significantly increase content consumption, and this effect is positively moderated by endorsers' network size but not by tie strength. In contrast, reposted endorsements increase consumption only when endorsers have sufficiently large networks or a high share of weak ties. We further show that the effects of endorsements depend on both the endorsement type and context: original endorsements are more effective when messages show higher cognitive effort and when content has higher user engagement, whereas reposted endorsements are largely insensitive to the original message and are more effective for lower-engagement content.

Another ongoing work [WP1] distinguishes between within- and cross-platform endorsements and compares their effects on subsequent content liking using a multi-method design that combines a content-level observational study with individual-level randomized experiments. Drawing on primacy-effect theories, we argue that the two sharing contexts differ in cue sequencing: within-platform sharing typically presents social and content cues simultaneously, whereas cross-platform sharing often exposes users to social cues before content information. In a YouTube-on-Twitter setting, we find that cross-platform sharing increases content liking, especially when sharers have strong-tie networks or when content has low prior ratings. Experiments establish causality and show that social-first exposure produces faster, more fluent, and more socially anchored evaluations, clarifying when and why cross-platform endorsements are particularly effective. Together, these findings extend social influence research by highlighting how the sequencing of social versus informational cues systematically conditions engagement, and they offer practical guidance for designing and targeting sharing strategies in multi-platform ecosystems.

2. Digital Markets: Information, Reputation, and Decision-Making

Since its inception, ecommerce has competed with offline retail as consumers search across channels for lower prices and better product fit. Across this stream, my research emphasizes how information disclosure and digital signals—from offline presence and official website content to user reviews and public rankings—shape decision-making and incentives in digital markets.

First, to understand how omnichannel strategies reshape competitive dynamics, my research examines the impact of offline store openings on a competing online retailer [POM'21]. We assembled a unique U.S. panel by integrating (1) offline store openings of 22 major retail chains, (2) online purchases at a major online retailer, and (3) zip-code-

level location characteristics. We find that the entry of regular-price, narrow-assortment stores generates a complementary effect that increases online purchases, whereas the entry of discount, wide-assortment stores produces a substitution effect that reduces online purchases; other store types show no significant effect. Mechanism analyses suggest that the complementary effect is primarily driven by unsatisfied product exploration due to narrow in-store assortments, which not only increases online purchases of store-brand products but also generates spillovers to other brands [POM'21]. Relatedly, my earlier work [I&M'09] examined how traditional brick-and-mortar firms transition to e-business. We developed a performance evaluation model to assess e-commerce initiative success across marketing and sales, customer service, supply chain efficiency, and financial performance, and validated the model using survey data from China's retail sector.

Second, my research investigates how consumers process product information and online WOM when making purchase decisions. Consumers' online and offline purchases are influenced by official website information [JBR'23], while customer reviews provide additional, often richer, signals. My WOM research examines sentiment effects inferred from both numerical ratings and textual content. Using numerical ratings, my research [DSS'13] studies how positive and negative WOM differentially influence popular versus niche products, shedding light on how reviews interact with information cascades. Although reviews should theoretically mitigate cascades by revealing prior consumers' private information in addition to their choices, we find evidence of heuristic bias: consumers tend to discount WOM that conflicts with prior beliefs and overreact when WOM confirms them. As a result, online WOM does not sufficiently correct cascades and can instead amplify winner-take-all dynamics, making popular products even more popular. Complementing rating-based analyses, my research examines dimension-specific sentiment in review text [JAIS'21]. Compared to numerical ratings, text reveals why consumers evaluate products positively or negatively. We extract dimension-level sentiments and estimate their distinct impacts on sales. Methodologically, we identify key review dimensions using a dynamic topic-modeling approach without predefining the number of dimensions, enhancing generalizability across product categories. Recognizing the prevalence of consumers' price-comparison shopping behavior, my research studies how such information environments also shape firms' operational decisions such as optimal pricing and inventory strategies [ASMBI'23].

Finally, extending the same information-and-reputation lens beyond consumer markets, my research examines how public rankings and reputational sanctions can discipline organizational behavior in digital ecosystems. In [POM'20], we propose a reputational sanction mechanism under which firms' security practices are publicly ranked and persistent vulnerabilities trigger reputational penalties. Leveraging a large-scale field quasi-experiment across organizations in 215 countries and areas—where Belgium, Canada, Turkey, and the United States were treated with a monthly top-10 list of organizations with the most outgoing-spam issues—we find that treated-country organizations, especially those appearing on the list, reduce outgoing spam relative to organizations in control countries. We further attribute the mechanism's effectiveness to both reputational pressure on sanctioned organizations and heightened awareness among organizations more broadly. Collectively, these studies show how information disclosure—whether through omnichannel presence, official content, user-generated

reviews, or public rankings—systematically shapes behavior and performance in digital markets, offering actionable implications for platform operators, firms, and policymakers.

3. Telehealth: Service Design, Care Quality, and Engagement

The COVID-19 pandemic greatly accelerated the adoption of telehealth and the integration of telehealth into the healthcare landscape. Building on this shift, my research examines how telehealth platform interventions shape care delivery and engagement across the full service journey—pre-consultation, consultation, and post-consultation.

Preconsultation is a well-established offline practice for improving consultation efficiency, yet it is rarely deployed in online healthcare, where its meaning, patient expectations, and behavioral implications can differ substantially. Leveraging detailed service data from a leading online healthcare platform (OHP), my preconsultation study [WP2] adopts a physician-centered perspective to evaluate outcomes that jointly shape physicians' incentives to adopt and sustain online preconsultation—service delivery and patient satisfaction. The findings show that preconsultation improves the professionalism and comprehensiveness of patient case information, which in turn increases consultation physicians' response speed and informational support in text consultations. However, these service improvements do not translate into higher patient satisfaction; instead, satisfaction declines due to patients' perceived delay in accessing the consultation physician. These results highlight a key online-specific asymmetry: process-enhancing interventions can improve observable service performance while simultaneously undermining perceived timeliness, with implications for platform design and expectation management.

OHPs also increasingly enable patients to review online services, distinct from offline service reviews, both to inform prospective patients and to provide performance feedback to physicians. My research [WP3] examines how such online service reviews reshape physician behavior and subsequent care delivery. Our physician-level analyses show that reviews incentivize physicians to improve response speed and informational support, but not emotional support, and that these improvements are driven primarily by positive rather than negative reviews. Patient-level analyses further reveal a potential unintended consequence: when a patient provides an online service review, the physician's performance in that patient's subsequent follow-up consultations declines. We also examine interactions among feedback channels and find that online service reviews substitute for online gifts while complementing offline service reviews in motivating physicians to improve online performance. These findings contribute to research on performance feedback in digital health and offer actionable implications for designing feedback systems that improve care quality while mitigating adverse downstream effects.

Online follow-ups allow patients to seamlessly extend offline care into an online setting. Leveraging detailed service data from the OHP, my online follow-up study [WP4] examines how physicians' adoption of follow-ups affects subsequent physician demand and patient satisfaction. The findings show that adopting online follow-ups increases both offline and online physician demand, while having no significant effect on patient satisfaction. Importantly, physicians' service performance in online follow-ups amplifies the increase in online demand—but not offline demand— suggesting stronger informational relevance for online services. Patient satisfaction improves only when

physicians provide high emotional support during online follow-ups, highlighting the distinct role of affective communication in post-visit care. Additional analyses show that increased offline demand comes exclusively from new patients, whereas increased online demand arises from both new and repeat patients. These findings advance research on channel integration in digital health and offer actionable implications for physicians, platforms, and policymakers seeking to scale follow-up care effectively.

4. Innovation: Knowledge Networks and Combinatorial Creativity

Knowledge recombination—the creation of new ideas by combining knowledge components from existing ideas—is a cornerstone of innovation across domains, from scientific discovery and patents to new products and creative industries. Building on this premise, my research stream on innovation examines how combinatorial creativity unfolds within knowledge networks. Adopting a hypergraph perspective, my research [WP5] investigates how the success of new ideas depends jointly on the structural properties of idea networks (embeddedness and bridging) and their content attributes (knowledge diversity), and how these attributes are shaped by collaborative participation, on online platforms that host large-scale idea repositories. Using panel data from an ideation platform, we find that both embeddedness and bridging enhance idea success; knowledge diversity does not directly increase success, but it amplifies the benefits of bridging while attenuating the advantages of embeddedness. Moreover, while both crowd contributions and ideator experience strengthen structural positions, only crowd contributions increase diversity, whereas ideator experience reduces it—highlighting coordination challenges associated with diversity and helping explain its limited direct effect.

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[WP2] TANG, Qian; ZHAO, Anqi. How do online healthcare platforms shape physician-patient interactions? Effects of online preconsultation on service delivery and patient satisfaction.

[WP3] ZHAO, Anqi; TANG, Qian. Do physicians respond to patient voice? Impact of online service reviews on physician performance.

[WP4] ZHAO, Anqi; TANG, Qian; GAO, Yang. Bridging online and offline care: The impacts of online follow-ups on physician demand and patient satisfaction.

[WP5] ZHOU, Yimei; TANG, Qian; MACK, Vincent; LIAW, Shaoyi. Combinatorial creativity in online platforms: A knowledge network perspective.