

Inter-industry linkages: A pilot study on digital engagement

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Abstract

The study of digital engagement, consumer experience (CX) and social media sentiment has focused on individuals and firms. To date, no studies have explored digital engagement across industries. This pilot study analyses a large sample of social media posts categorised according to four industries (banking, telecommunications, retail, insurance). By measuring net sentiment across the four industries, the pilot study was able to compare digital engagement on a volume and topic level. The results showed a vast difference in the share of digital voice between industries, with Banking having the largest share by a significant margin. In addition, the study showed various industry-specific themes related to both positive and negative engagement.

Keywords: *Digital engagement, Inter-industry linkages, social media sentiment*

1. Introduction

Identifying inter-industry linkages is critical for development planning (Khanal et al., 2014). The comparison of industries provides an opportunity to identify critical industries that are at the forefront of economic development (San Cristóbal & Biezma, 2006). This comparison is independent of the industries' production structures (Khanal et al., 2014). Overlooking the linkage between industries will likely result in an imbalance of the economic system and eventually impact the whole economic development (Hu et al., 2021). Inter-industry is understood from a front linkage, backward linkage, and total linkage perspective. Forward inter-industry linkage is the economic relationship of an industry with other industries that it supplies to, while backward inter-industry linkage is the economic relationship of an industry with other industries that buys from (Wang, 2010). Total linkage is the combination of both the front and backward linkages. If local inter-industry linkages are strengthened, it will have a significant and continuing impact on economic development (Wuttke, 2023).

Inter-industry has been examined in various settings, such as Canadian manufacturing industries, from a foreign direct investment, which is believed to spill over into the local economy, which drives high productivity growth (Wang, 2010). Other studies have looked at the tourism effect of inter-industry, from visitor spending on Lao's economy (Khanal et al., 2014), the information and communications technology (ICT) industry in India (Mehta, 2020), China's carbon emissions transfer (Hu et al., 2021) to South Korea's telecommunication industry throughout industrial revolutions. The literature review above shows the significant importance of inter-industry linkages in developed and developing markets. However, to date, no studies have explored digital engagement across industries. The motivation and significance of this paper lie in understanding inter-industries of digital engagements across industries to identify key focus areas of policy.

Various econometrics models are used to understand the significance of critical industries on other industries. One such model is the input-output analysis that has been used across industries. The input-output analysis measures the inter-industry relationships by showing how products of one industry are employed in other industries and the degree to which an industry employs inputs from another industry to manufacture its goods (Choe et al., 2023). If inter-industry linkages are created, their impact on expansion and growth in industry productivity trickle through the rest of the economy and help other companies and industries to grow (Wuttke, 2023). This pilot research explored a comparison between industries as part of a more extensive social media sentiment analysis study. As a first-of-its-kind study, the comparison allowed for selected industries to be measured with the same digital measurement instrument over four years at a macro level and 12 months at a more granular level. Social media is a powerful tool for marketing; half of the population, companies, and influential people use it to communicate their ideas, images and products (Abell & Biswas, 2023). Digital engagement measures show whether someone likes, shares, or clicks to know more about something (Abell & Biswas, 2023)

2. Method

Four industries (totalling 30 major companies) were selected, and social-media data related to conversations about those companies were then collected and analysed for three years (superficially from 2019 to 2023 and in more depth from June 2022 to May 2023). The industries include banking, telecommunications, retail and insurance. Social media sentiment for 5,519 186 public social media mentions (Twitter/X) was obtained using a net sentiment score (Lappeman *et al.*, 2020; Lappeman *et al.*, 2021). Positive sentiment is positive posts about a company, while negative sentiment is negative posts around a company. A random sample of mentions underwent a human validation process to verify sentiment and assign topics related to consumer experience (Lappeman *et al.*, 2022a,b; Bloom, 2018; Chandni & Rahman, 2020). To avoid skewing the results, posts from companies themselves were excluded. This pilot study provides some early findings from the analysis.

3. Findings

3.1 Volume of conversation

Digital adoption of goods and services across industries is increasing in South Africa. The rapid uptake of digital goods and services redefines businesses and how South Africans connect, transact, and communicate in the banking, insurance, retail, and telecommunications industries. Between 2019 and 2023, conversations on social media relating to digital offerings saw a 29% rise in volume among South African consumers.

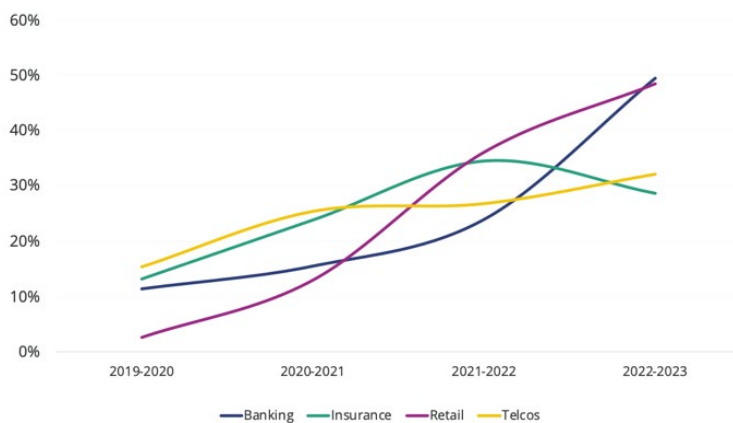


Figure 1: Distribution of Digital Experience Conversation 2019-2023

During the growth of digital adoption, digital communication channels¹ are being viewed more favourably, while traditional communication channels² is declining.

3.2 Share of engagement

Table 1: Share of engagement

Industry	Number of companies	Share of voice (n=5519186 mentions)
Banking	8	54.1%
Telecommunications	5	23.4%
Retail	4	13.7%
Insurance	13	8.7%

¹ Digital channels include third-party apps, live chat, websites, apps, SMS/WhatsApp, direct messaging (DMs), cellphone banking, delivery, and Unstructured Supplementary Service Data (USSD).

² Traditional channels include physical branches, call centres, email, third-party retailers, insurance brokers, and kiosks.

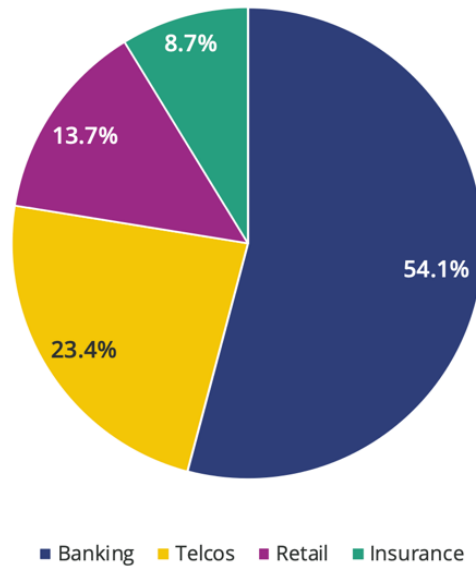


Figure 2: Overall share of digital engagement

3.3 Net sentiment

The banking sector has notably gained significant attention and favourable sentiment in the digital engagement conversation. South African consumers have increasingly leaned towards digital banking platforms due to the convenience afforded by user-friendly applications and websites.

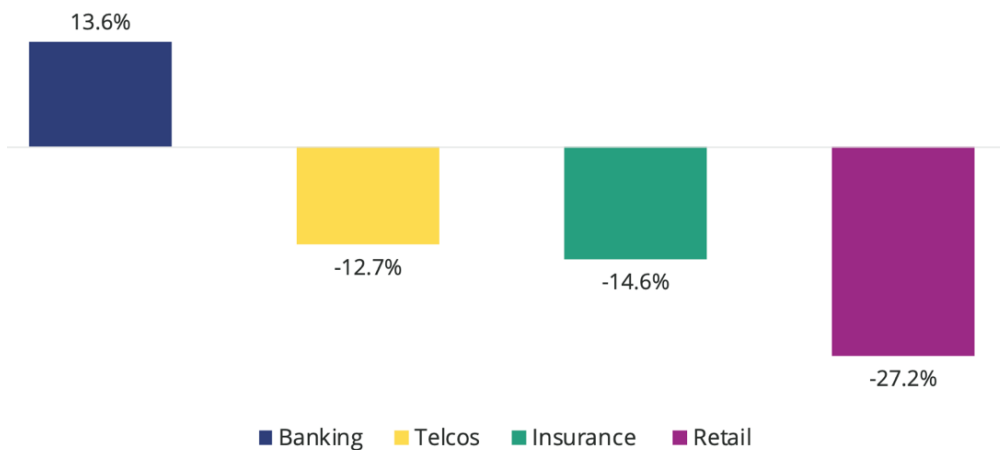


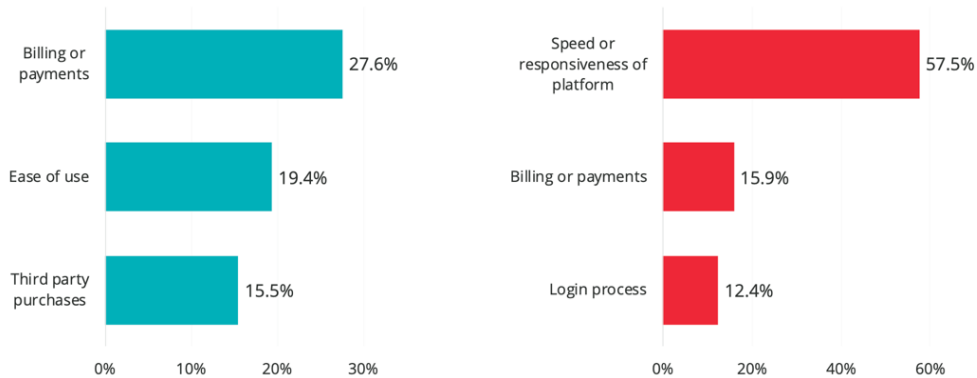
Figure 3: Digital Net Sentiment per industry

3.4 Individual industry topics

3.4.1 Banking

The industry's remarkable performance is demonstrated by providing varied, secure, and simplified digital services. This multilayered offering allows banks to address consumers' diverse needs and preferences, thus developing and sustaining their consumer base. Billing and payment functionalities

appeared as the leading driver for the industry, with consumers highlighting the convenience inherent in varied services such as fund transfers, virtual card usage, secure online shopping, cashless transactions, and value-added features within specific mobile banking applications. The seamlessness of user experience is linked to this convenience while highlighting the inclusion of tailored reward programs and the seamless integration of third-party services.



Banking: Top drivers of service praise

Banking: Top drivers of service complaints

Figure 4: Banking top conversation topics

One of the key features that contributed to the growth in the adoption of banking apps was their integration with various services beyond the core banking functions. This has proven to be a valuable attraction for users seeking convenience and efficiency. By consolidating services such as Lotto integration, rewards programmes, eWallets, virtual cards, travel, and budgeting tools within a single app, consumers are invested in streamlining their financial banking needs.

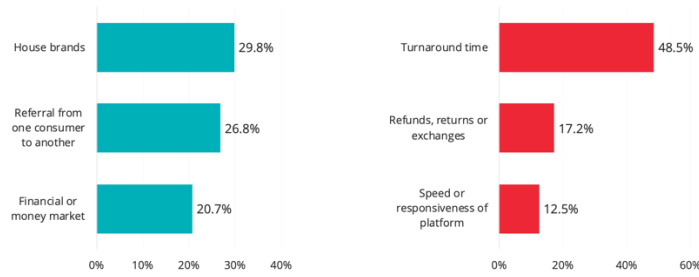
First National Bank's (FNB) app was a significant player in this landscape, gaining significant praise and awards for its comprehensive offerings. Consumers praised its role in conveniently facilitating various banking activities. The app effectively addresses pain points inherent in traditional channels by mitigating the need to endure long queues at physical bank branches or extended wait times at call centres or via email.

The ability to manage banking activities, make transactions with third-party organisations, and access information within one app resonated with consumers, saving them valuable time. However, this need to work seamlessly is essential, particularly regarding refunds, rewards and vouchers that are delayed or unable to be processed.

3.4.2 Retail

The retail industry recorded the lowest Net Sentiment at -27.2%. Within the industry, the conversation revolved around food deliveries and mobile apps. At the same time, some consumers commended the speed. Furthermore, the convenience of retail apps and others raised problems such as missing or expired items, poor consumer service, and technical glitches.

Turnaround time generated the most complaints, mainly focused on delivery delays, poor consumer service and delays in receiving refunds. More responsive communication and accurate estimation of delivery times are crucial to driving positive sentiment in this industry.



Retail: Top drivers of service praise

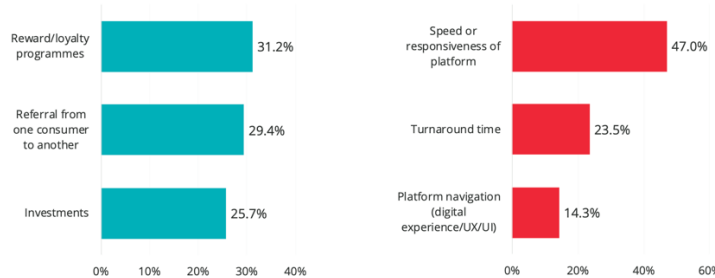
Retail: Top drivers of service complaints

Figure 5: Retail top conversation topics

On the positive side, consumers expressed a keen interest in affordability, as evidenced by their enthusiasm for promotions, discounts, and competitions. Additionally, they frequently shared their appreciation for the convenience of retail delivery services.

3.4.3 Insurance

The insurance industry saw a negative Net Sentiment of -14.6%, ranking second-last. Consumers faced various digital issues with insurance apps, like login errors, technical glitches, and interruptions. Further dissatisfactions occurred due to websites being faulty when trying to complete simple actions such as uploading car pictures as a part of the claims process. Insurance websites were also criticised as outdated, with consumers expressing disappointment with false or outdated advertising related to insurance policies.



Insurance: Top drivers of service praise

Insurance: Top drivers of service complaints

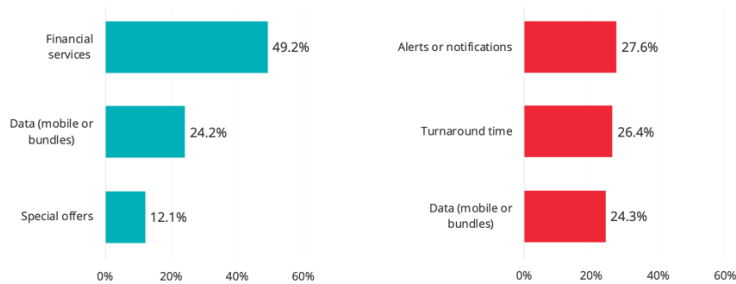
Figure 6: Insurance top conversation topics

Consumers have been frustrated with digital functionality and complained about platforms' general speed or responsiveness. Poor consumer service and unresponsive staff also came into play, causing consumer frustration when sorting out queries.

Loyalty programmes are becoming increasingly important to consumers and add to positive sentiment on an insurer-specific level. These loyalty programmes were referrals, and consumers could boost their insurance loyalty points by referring a friend or family member.

3.4.4 Telecommunications

While consumers mentioned a variety of deals offered across telcos, with cost-effective data offerings showing great importance, issues with unwanted services, spam messages without opt-out options, and incorrect billing practices raised concerns about transparency and ethical communication. Consumers also complained about receiving spam calls despite the POPIA Act being in effect and found it challenging to opt out of telemarketing calls.



Telcos: Top drivers of service praise

Telcos: Top drivers of service complaints

Figure 7: Telecommunications' top conversation topics

Alerts and notification complaints revolved around a lack of response to queries such as late delivery, unreliable network connections and coverage, and unauthorised subscriptions and charges. Turnaround time complaints also tie into this, highlighting a lack of response from providers, the inability to contact consumer care staff, and the inability to receive satisfactory resolutions. Financial service apps received the most positive sentiments. Deals, data affordability and rewards available on these apps drove positive sentiment.

4. Discussion

In South Africa's digital adoption context, some industries lead the charge while others lag. Nevertheless, one clear consumer trend across all industries is the growing preference for digital channels in communication and transactions. This shift towards digital does not diminish the value of traditional methods or human interaction, particularly in critical situations. Instead, it underscores the importance of finding a balanced approach, recognising that specific interactions still demand a personal touch. The growing role of generative artificial intelligence (AI) and machine learning presents exciting opportunities for more sophisticated digital experiences. As these technologies advance, digital offerings will likely become even more anthropomorphic and refined, potentially replacing human interactions entirely. However, until that possibility becomes a reality, maintaining the right balance between AI and human interaction is essential for delivering seamless consumer experiences. This is where social data offers a valuable resource. Social data empowers businesses to tailor their digital strategies effectively by providing real-time insights into consumer sentiment and trends. As South Africa continues its digital journey, businesses that leverage the power of social data to inform their digital strategies will be better positioned to meet their consumers' changing needs and expectations. Digital experience remains paramount, and integrating social insights can be a pivotal factor in achieving success in this evolving landscape.

Banks dominate the digital realm. The banking industry leads in technological innovation, offering services on bank-specific apps and websites. Retailers lag in digital experience. Frustrated consumers are dissatisfied with various shopping apps and their online delivery options. Insurers face a digital

dilemma. Consumers found insurance websites outdated and expressed disappointment with false online advertising. Spam sees telcos in trouble. Issues with unwanted services, spam messages without opt-out options, and incorrect billing practices raised concerns about telcos.

Rewards reign supreme. Rewards, loyalty programmes, cash-back offers and vouchers emerged as key drivers of positive conversation. Loyalty programmes were popular among insurance clientele, and the theme of rewards, cashback incentives, vouchers, and discounts was prevalent across all four industries. The offerings, however, varied across industries and appealed to consumers in many ways. These included fuel cashback, healthy eating and living rewards, flight discounts, airtime and data vouchers. Digital rewards and vouchers are also commonly used as critical incentives to persuade consumers to try new app features.

The digital divide. Face-to-face interactions remain important for some consumers, highlighting the need for better digital education and shaping South Africa's digital future. Digital success hinges on embracing technology, meeting evolving consumer expectations, and navigating the changing landscape. While digital adoption is rising nationwide, some consumers still prefer visiting physical stores and interacting with real people. This demand for human touch became evident when resolving issues or making service requests. Consumers insisted on actual human interaction, especially in cases where bots or digital channels might fall short of adequate assistance.

5. Future research

Future research should conduct extensive research to understand better the motivations, influences, and decision-making processes involved in adopting digital services. This will help any section to develop strategies that enable the attraction and retention of consumers. The next step of this study will also examine the role of new and emerging technologies in driving adoption in these four industries, particularly given the artificial intelligence (such as chatbot), blockchain technology, biometric identification from a service and security offering. Given the digital divide in South Africa, it is crucial to segment consumers based on their digital literacy and the products required for each segment. From these segments, a longitudinal study will be employed to understand further how consumer preferences change over time in a digital context. The company perspective is essential for the next step of the study, which is to look at how the companies use negative sentiments to develop strategies to close the consumer gap while identifying better services and products to satisfy customer needs.

Given the success of banking in the digital realm, it is a critical industry in technology innovation. Which then allows the industry to benefit and learn from them. A front inter-industry investigation could examine how digital banking technology innovations spill over into insurance, retail and telecommunications, steering digital adoption and service improvements across industries. Backward inter-industry could examine how developments in the other sectors might impact digital banking strategies and shape consumer preferences while the industry remains competitive. By investigating these linkages comprehensively, researchers can figure out the connection between digital systems and discover opportunities for partnership and innovation.

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