Deep Science Publishing
https://doi.org/10.70593/978-93-49910-67-6_11

DeepScience
Open Access Books

Chapter 11: Building unified, omnichannel digital experiences across telecom and media platforms

11.1. Introduction

The telecommunications and media industries have been transformed by the digital revolution in the last couple of decades. The combination of easy access to high bandwidth and the massive proliferation of low-cost smartphones has made the world a smaller place. Consumers today have access to information, services, and experiences at their fingertips, anytime and anywhere, whether they are interacting with fellow consumers or brands. Traditional product and service business models in these industries have been disrupted by new-age social, mobile, analytics, and cloud technologies and business models. Consumers no longer interact with brands via just one channel. The digital experiences that brands provide – engaging, seamless, empathetic, and relationship-accretive – need to be omnichannel in nature and differentiated based on the consumer segment or persona (Iroju et al., 2013; Raghupathi & Raghupathi, 2014; Dash et al., 2019).

Telcos and media companies cannot build these omnichannel digital experiences in a piecemeal manner. They need to architect the customer journey that consumers take across the plethora of touchpoints – voice and SMS, mobile apps, websites, video platforms, social media, email, retail stores, contact centers, and customer service agents. This journey needs to be architected not just from a technology standpoint but also from a business and organizational structure standpoint. The customer journey should transform the way telecoms and media companies engage with their consumers, driving more personalized, contextual, and relevant interactions that foster long-term relationships.

Moving toward next-generation tests and operations to reduce costs and transform service delivery, telecommunications service providers act as the connective platform

across which all media digital experiences flow. The most logical model entails a strategic, purpose-led collaboration in which service providers also invest in their partners' content value chain, looking to extract multiple layers of synergistic value over time. Beyond just traditional media capabilities, offering higher-value, enterprise-oriented services and solutions to business customers also opens up new opportunities, such as security, revenue assurance, and application development. By providing the base access services that allow other companies to launch and manage such non-entertainment digital experiences, they also shift the risk and burden of vertical innovation onto third parties rather than their shareholders (Sun et al., 2016; Topol, 2019).

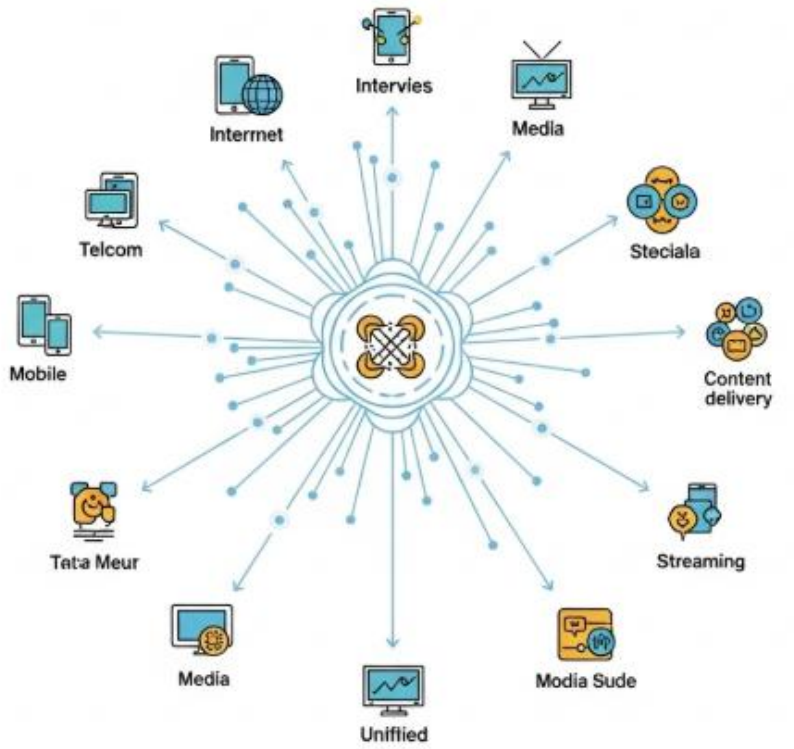

Fig 11.1: Building Unified, Omnichannel Digital Experiences Across Telecom and Media Platforms

11.2. Understanding Omnichannel Experiences

Telecom and media service providers are uniquely positioned to create omnichannel experiences as a result of their fully converged BSS and OSS stacks. A flexible and future-proof channel strategy enables providers to succeed in the experience economy. In today's increasingly complex, volatile, and competitive world – where customer

loyalty is fragile and fickle – providers need to focus on customer experience more than ever before. At a time when utility providers are increasingly recognized as offering low levels of differentiated customer experience, the challenges of stakeholders are exacerbated by the growth of empowered subscribers, who navigate channels, buying journeys, and experiences with a few clicks. Research shows that significantly more customers subscribe to fewer brands; and yet it is revealed that loyal customers can be as much with twice as profitable services providers as average customers.

In the experience economy that customers increasingly prioritize their personalization, providers can engage customers at a deeper level by establishing long-term relationships and shifting the conversation to service or subscribe modes, instead of transaction, one-off sale, or campaign modes. Multi-channel or cross-channel customer experience strategies are being replaced with omnichannel strategies that enable seamless experiences across channels and devices, allowing customers to start, continue, or finish brand-defined journeys at their discretion performing a purchase transaction or receiving customer service regardless of the moment of customer truth or touchpoint. Providers are transitioning from phone-centered, synchronous interactions to allow solutions that combine human and machine contacts across any or all touchpoints; fixing frictions and pains in channels and journeys; translating the war for telecom and media share of budget into a three-dimensional chess match for customer experience.

11.3. The Role of Telecom in Digital Experiences

In addition to the major platforms, other channels provide the opportunity for content discovery and digital experiences. Change is driven by a variety of forces in the media technology and service provider ecosystem. Fraying under the weight of exploding demand, consolidation has arrived in the network services layer. Consumers expect an uninterrupted stream of mobility-enabled entertainment wherever and whenever they are. Within this highly competitive, high-stakes environment, content service providers are looking for ways to drive new revenues. These high stakes have also not gone unnoticed by other players in the ecosystem. M&A activity continues to increase among the major platforms as well as across the wider ecosystem as companies look to cement their positions, innovate to drive new services, and build the foundations for the next wave of growth. Tech companies are looking for strategic acquisitions to bolster their current offerings while supporting the migration to next-generation technology. Telecoms also continue collaborative development with cable and satellite operators and technology vendor partners.

So, what then is the future role of telecom with respect to next-generation media entertainment? At the most basic level, the legacy model of transporting bandwidth-intensive content in exchange for a monthly fee while locking consumers into long-term

contracts is all but done. The question going forward is how much telecom can be integrated with next-generation media experiences to provide the meta-service framework for new product development. At a minimum, we expect telecom to take on a more prominent role in the access layer of next-generation entertainment experiences, supporting the migration to cloud-based, streamed solutions using open protocols and standardized digital interface solutions.

11.4. Media Platforms and User Engagement

While the importance of media in driving big telco customer engagement will be covered later, it's worth noting up front how new media platforms are positioning themselves as leaders in the contest for consumer attention, data, and loyalty. Whether responding to the challenge of next-gen competitors or simply expanding from their core capabilities of user engagement, recommendation, and targeted advertising, traditional media players are investing heavily to optimize the user experience. Enhancements in both experiences and operations leverage their proprietary libraries of digital content, using tools like personalization algorithms, cloud-based information-driven dynamic ad insertion, as well as advances in machine learning, real-time analytics, and more advanced user prediction models. Expanding from their traditional foundation of popular shows and movies with proprietary rights, leading media players are developing strategies to maximize viewer loyalty and engagement. These platforms invest heavily in next-gen, user engagement-enhancing digital capabilities to drive continual growth in subscriber revenues and advertiser relevance. Leading pay-TV operators are increasingly emphasizing their own proprietary digital streaming services for distribution and monetization of in-house and partner-owned content libraries, rather than simply relegating content distribution to competitors. They are upgrading on-demand content libraries with help from consumer-favorite long-form properties to enhance the demand generation, consumer choice, and ad revenue potential of dynamic ad insertion.

11.5. Challenges in Creating Unified Experiences

To achieve the vision of a truly unified experience is to some extent the holy grail of large technology firms, from those involved in creating content, such as media, entertainment, and gaming companies to those offering underlying technology architectures and capabilities. This is particularly significant in Telecom and Media convergence, where challenges abound. Therefore, those involved in converged models have a lot to gain from efficiently implementing a strategy to create seamless experiences efficiently, however, this is easier than it sounds. The following section addresses some of the known challenges associated with such a strategy.

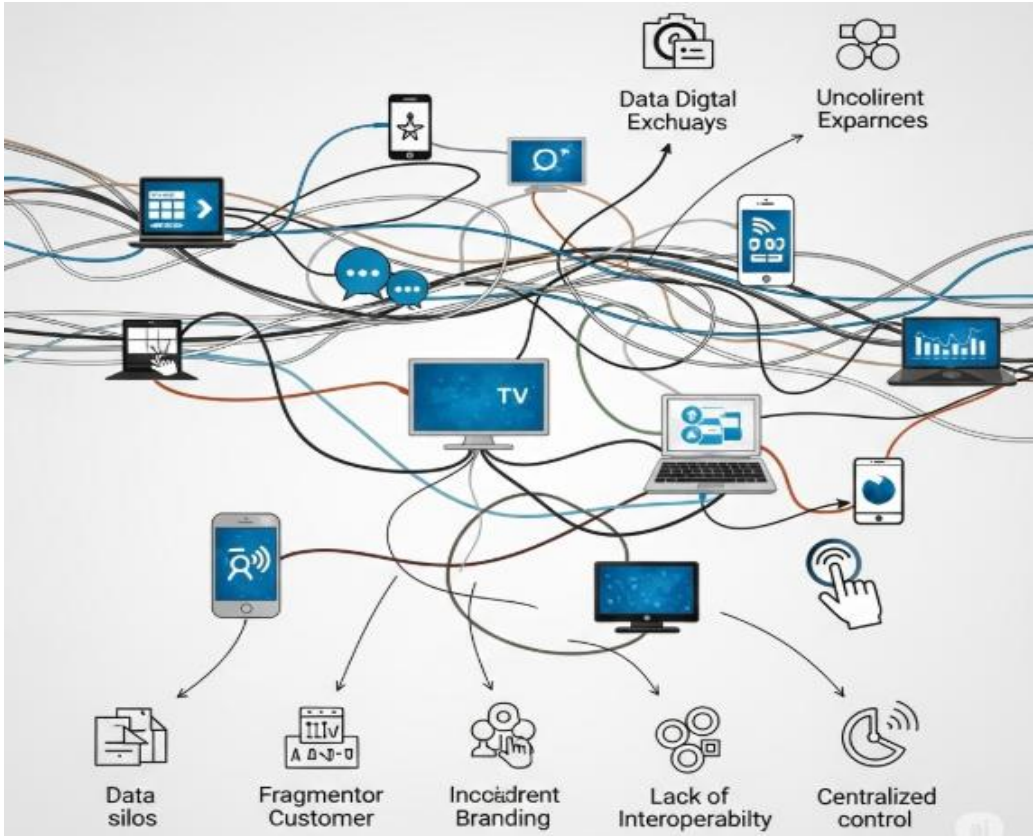

Fig 11.2: Creating Unified Experiences

As customers interact with Telecom brands more and more outside traditional company channels, the need to create and deliver a unified omnichannel experience spanning media and entertainment offerings has gained urgency. However, the nature of the digital business makes it especially difficult for organizations to develop a totally synchronized experience across all interactions and touchpoints. Take on-demand video streaming, for instance. In principle, subscribers should expect the same video recommendation and playback experience whether on a smartphone and tablet Video app, a connected TV Video app, or a TV and Streaming settop box - there's a fine line between sameness and monotony, after all. In practice, significant differences are relatively common owing to technology, data management, and other factors. These not only make them feel disconnected but also create operational difficulties for the organization. Thus, the struggle is not just about customer experience from an external perspective. It involves a substantial internal operational burden and cost as well.

A lack of cross-channel technology, integrated data and asset management processes, technology interfacing with partners and aggregators, channel differences, and inherent differences amid operational or product functions are all potential barriers. Given the

ambiguities of the Telecom-business-service experience, one can always try to reinterpret difficulties in achieving a unified experience as a product-of-demand-fluctuations problem. The lack of an established way to resolve such design misunderstandings is a major source of difficulty in attempting several features in Telecom service design.

11.5.1. Technological Barriers

The most fundamental requirement for the creation of a unified, consistent experience for each individual customer is access to common systems and data layers across business verticals. This may appear to be a trivial requirement, but has proven very difficult to accomplish in practice. Telecom carriage systems and media applications have evolved as distinct ecosystems, with little overlap at the transactional level. Historically, telecom systems were designed around customer billing, while media systems were concentrated on content creation and distribution. Even though there is some overlap in initial customer data, and increasingly common activities such as service order or payment, these have been achieved through isolated integration links, rather than a unified architecture and data layer.

The many differences in areas such as application processing flows, activity definitions, and response times, particularly for telecom, with data and system flow and dependencies involving customer attributes such as device usage, geographic location, temporary connectivity episodes, and others, have prevented the two stacks from merging into a single, coherent, real-time design. Besides the obvious customer front-end experience for each population, this lack of a common architecture also affects the back-end operations, such as marketing analytics, knowledge base, fulfillment, and order repayment. As a result, it is still very common to find that telecom services, such as broadband integration, or video services, like streamed or linear channel products, may be delivered to customers on different frequencies or formats.

11.5.2. Data Integration Issues

The lack of shared information across platforms is a significant hurdle to creating a truly unified experience. Because platforms were built at different times and with different technologies, much of the user information that should be shared is either very difficult to pull from one platform to another, or else falls within the category of dark data: hidden, outdated, and seldom accessed. This inability to share important information reduces the power of AI, making it more difficult to recommend relevant content, such as movies to watch or games to play, to a user. It also means that different functions on different platforms, such as recommendation engines, catalogs, personalization engines, or

authentication services, must individually run AI models instead of leveraging shared user insight.

Recent industry initiatives are working to reduce some of the friction inherent in modern experience-enabled architectures, particularly in the area of data sharing. This is especially true when it comes to user profiles. One trend is toward a single user profile across all experiences. This allows for storage of profile attributes that are parameters to the various algorithms employed in different domains, such as streaming or cloud gaming. Although every client has to consume the profiles differently, it greatly simplifies storage and sharing of user attributes.

11.5.3. Customer Expectation Management

As telecoms and media companies invest in digital experiences, customers evolve their expectations and refract these upon every other company they use. How does a family plan with a telecom operator compare with an online banking relationship or managing a smart speaker? How does a new movie launch feel compared with the auto insurance premium? Requirements spread outside the services being sold to the general interface and ease of use. As friction becomes a normal experience in the real world and half of all people encounter an electronic interface every day, consistency and ease become paramount. Any bad experiences across any domain will make it easier for customers to complain or leave.

Every operator has built digital services to improve both stickiness and margin. These offerings include content service bundles, loyalty programs accompanied by gamifications, rich and innovative financial services ecosystems, innovative customer service functionalities, or other transactional, service, and assistance functions. These initiatives are greatly appreciated and can generate a lot of incremental value. However, more often than expected, they are criticized, either for their limited offer, for the fact that certain functionalities are not available, or for the fact that they are too complicated and not intuitive. To be honest, outside the telecom and media areas, such digital services can often associate friction with difficulties of finding a dedicated person to solve complex or urgent questions.

Today, at the relationship level, only a few telecoms and media operators offer a seamless digital customer experience, where all products are grouped in a single channel with as few functionalities omitted as possible. The reason for this omission is for sure the difficulty of onboarding the different business silos into the unified service. There is a capacity risk by having the unified service absorb all operations on the different products. But there is also a customer relationship risk if some services remain absent.

11.6. Strategies for Integration

To deliver on the promise of unified, omnichannel experiences, service and content providers must execute on their integration strategy while also rapidly clearing any technical debt impeding progress. Strategies for integration can include mainstream solutions from established enterprise platform providers, internal development using technology best practices available from a multitude of libraries, and help from consulting services specializing in accelerated transformation in partnership with cloud providers and specialized providers. The execution of integration is rarely a linear process — new experiences are often creatively built on top of existing but suboptimal capabilities which are subsequently refactored into a stronger backbone for future experiences.

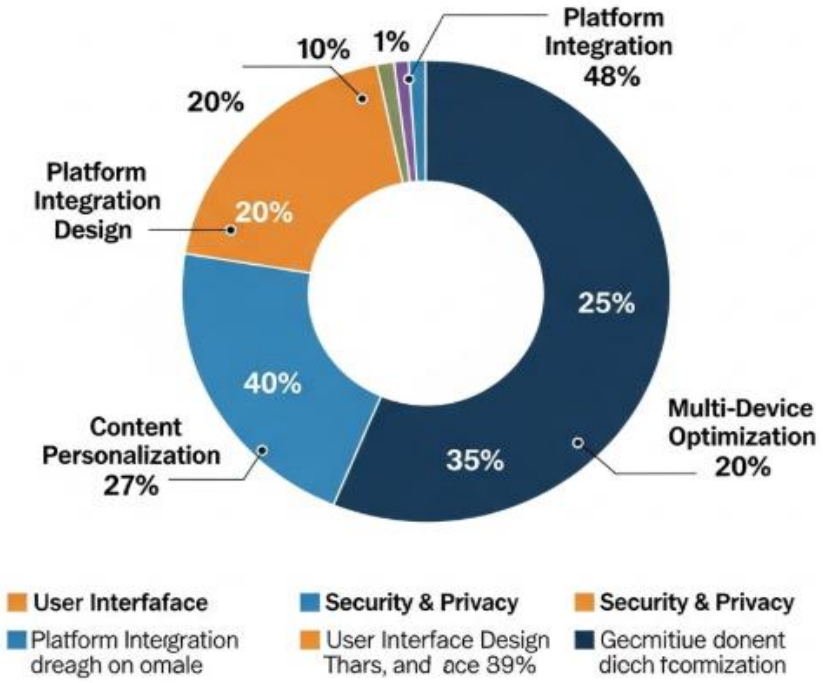

Fig 11.3: Building Unified, Omnichannel Digital Experiences

Some of the common capabilities being delivered across telecom and media platforms include cross-platform solutions such as identity and engagement data management, which unify multiple accounts and profiles across different domains; management and orchestration simplifying interconnection bottlenecks and latency; intelligent recommendations curated across converging product catalogs; and design principles that create user-centric multi-experience navigation models able to monetize multiple channels. These solutions are commonly built out from existing cross-channel solutions optimized for either telecom worlds or media worlds.

Cross-Platform Solutions: As experience channels and customer journeys evolve, it is expected that telecom and media service providers must prioritize common product and account models, cross-domain customer journey mapping, and sufficient targeting capabilities to monetize each experience channel. Telecom and media service and content providers must prioritize and commit to a set of consolidated omnichannel technical capabilities that are unified or operated by the same partners to achieve a seamless experience true to customers and sponsors alike.

11.6.1. Cross-Platform Solutions

One approach to creating omnichannel experiences is to deploy cross-platform solutions, which can share code and logic among more than one end point, such as web and mobile apps. There are widely used models to create such cross-platform solutions, which include: (a) Responsive web sites that leverage standards for visual templating and pay attention to fit and scale on different devices; (b) Progressive Web Apps that deliver a more app-like experience by using a manifest and service workers in combination with a stricter design and capability model; and (c) Cross-Platform Native Apps that use platforms to create native components and ship them via application packages to device code for critical performance.

Cross-platform native apps can break the rules of the programming model and embed web views or progressive web apps when corporate needs prescribe a more cost-efficient solution. For example, a travel company may realize that the full app visitor should see forms for a login or a flight search that are not on capabilities with sufficient frequency to justify the cost of development in native code. More sophisticated rules may sort visitors based on past behavior or segments such as location and onboarding status, with those considered less likely to convert invited to such tasks in a web view or PWA native. Technology vendors are investing heavily in these cross-platform technologies, and they enable a simpler budget structure in favor of design, testing, and management functions instead of creative development. Native performance is still leveraged for capabilities that require it, such as photo sharing and payments.

11.6.2. API Management

API management is another approach to deployment verticalization by assembling sets of IT resources, tools, and code to satisfy the typical subproject needs. Rather than going out and finding code for every subproject or allowing subprojects to randomly code what they need, API management creates a layer of tools and resources that API developers can use instead. It also provides rules and processes that promote use and reuse of shared capabilities of these tools and services and define the criteria for adding services when

they do not exist. These guidelines greatly improve efficiency, reduce redundancy of tools, and help enforce governance compliance.

For instance, an Enterprise API Management platform can further reduce duplication of function and special-case treatment through features like design-first services that enable API developers to rapidly imitate existing services, design-first components that API developers can enhance and augment into unique compound services, kit services that encode helper tools for fuzzy logic or machine learning for use by API solution developers, security envelope services that API developers can use to wrap their services for authentication and access control, and an integrated developer portal that supports discovery and collaboration among API developers. In this case, the question is not whether to create API Management services or tools, but rather which additional tools will help facilitate API developers augmenting rather than reinventing. While every existing tool does not need to perform full design collaboration functions, it should provide enough input and output functionality to allow API collaboration – plus approval processes to help enforce usage and reuse of generic components when they are being created or modified.

11.6.3. User-Centric Design Principles

Designing digital experiences across the enlarged set of devices and touch-points that users interact with requires special attention. The attempt to reach consistency is complicated because touch-point features vary and special capabilities may also be unavailable for certain end-users. Thus, it is important to follow User-Centric Design principles that allow for reducing inconsistencies and supporting end-users when there are limitations.

An experience is a response to a set of stimuli received in a given context. The concept of stimuli is critical since it explains the experience. In the case of digital customer journeys, stimuli may affect a plethora of users' senses: both visual and audible impacts are taken into account. Context plays a role by increasing or decreasing impact intensity. Experiences can be explicitly designed by controlling stimuli. A holistic methodology would be able to define all the stimuli in order to maximize a successful experience. Unfortunately, for digital journeys, it is not possible to control stimuli at any given time.

Our suggestion is therefore to control those stimuli that are within the designer's reach, meaning those controlled by the more intuitive aspects of the UI. Influencing these might affect users' experience in a key moment of their journey via natural sensory channels. Ex-ante design action should taper off after a while as the user interacts and the response depends more on personal characteristics like competence or knowledge and on

subconsciously-related aspects. Reduced intervention asks for leaving as little heuristic blocks as possible to avoid missing actions.

11.7. Conclusion

This paper describes how to improve customer engagement and loyalty by leveraging investments in omnichannel digital experiences across disparate telecom and media platforms. Establishing a unified, cross-platform omnichannel digital experience infrastructure is a complex undertaking that requires incremental execution to achieve immediate value and a staging ground for future change. Key findings include:

1. Omnichannel and cross-industry digital experiences are critical components of a successful service provider strategy to attract and retain customers for telecom services as well as media, advertising, and gaming services.

2. The service provider industry consists of multiple service offerings with the need for back-end functions like ordering, service initiation, and customer management, which are all common across these services. This creates a compelling argument for having cross-industry capabilities and customer engagement profiles that form the basis for a common platform vision.

3. Cross-industry service capabilities also face challenges stemming from the need for data integration, data access governance, access control considerations, diverse service life cycles, and differing requirements for touchpoints. Given these constraints, service providers should focus on the experience first and the underlying integration later.

4. Emerging hyperscale cloud providers and SaaS platform players are able to deliver an extensive ecosystem of personal device-based service delivery touchpoints that can be used to ingest new digital service experiences in a manner unmatchable by the legacy solution vendors.

5. Unified tooling for the back-end functions of ordering, openings, and customer management for both telecom and media services are missing from the legacy solution vendor portfolio. The pipe and pipe springing clouds do not integrate with existing systems and databases for access control considerations nor do these include gateways to the new ecosystems of digital service openings.

11.7.1. Future Trends

Telecom and media companies continue embracing content and service convergence, riding the wave of end-user demand for new, rich, and interactive media consumption experiences across multiple screens. New and revised partnerships are emerging between telecom- and media companies in response to these new and competitive

interactive services. Telecom companies are not only focusing on how to deliver content down to the screen faster, they are also enhancing the quality of experience in delivering HD video over wired, wireless, and hybrid networks.

But in the emerging world of telecom and media service convergence, service providers are being asked to do more. Providing best-in-class compress and delivery quality for a limited number of premium channels is not enough. Consumers want broad channel offerings, on-demand access to a vast library of content and interactive services, have-it-your-way ad models, richer viewing experiences, and memorable interactive events and experiences. Content providers want flexible gateways to reach consumers and new forms of targeted marketing and advertising. Service providers want to monetize subscriber access to new applications and services, compete as distributors of third-party content and media services, and provide quality broadband pipes for the entire user experience. While seamless services enablement and delivery is a complex process involving many companies and industries, we've looked at some of the key questions that service providers need to understand in inventing and creating a user experience that pays off.

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