



EXPERIENCE DESIGN: WHEN THE BEST IS NOT ENOUGH

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LOGO BANED Intelligent and meaningful user experiences have been a top priority for organizations and are even more pertinent amidst the new normal. As businesses grapple with ways to deal with the new normal, they must evolve their offerings to deliver more effectual experiences. Reimagining experience, in combination with new technologies such as artificial intelligence (AI), edge computing and extended reality (XR), will drive the workplace of the future. This report presents key trends across seven subdomains that can assist those organizations that are prepared to evolve digitally to meet new needs and remain relevant.



In a world where consumers yearn for a great experience in every interaction, enterprises have no choice but to expand to provide memorable experiences for every user. They must anticipate a user's unique needs and preferences and make them as organic and human as possible.

Design experience has its origin in the ancient feng shui practice of harnessing "chi" to create a harmonious environment. While it has evolved over the years, its principles continue to keep the human central to the design process. Thanks to rapid advancements in usercentric technologies, design has progressed to deliver personalized, meaningful, and intelligent experiences.

Experience design assumes greater significance in the new normal. The pandemic has brought the global business world, accustomed to face-to-face collaboration, to a halt and forced a significant portion of the workforce to work remotely. To effectively manage this business disruption, enterprises must shift to digitization.

With the emphasis now on remote-work tools, employees and customers must make significant adjustments. In the short term, enterprises need to ensure that communication and collaboration among stakeholders are not compromised in any way. This entails revisiting every workflow at the workplace to maintain an "in person" feel to any interactions to help reduce the burden of remote work and ensure normal levels of productivity. Over the long term, enterprises must rethink their workspaces, phygital experiences and plan meticulously to manage a smaller on-premise workforce.

The new normal will expect cooperation among business stakeholders and digital transformation experts to design a digitization path that can be implemented swiftly. This path must take advantage of the latest trends in the experience domain and judiciously utilize user experience (UX) technologies, AI, analytics and XR. Companies must assess their talent pool to see if their employees have the proper skills in place, and make sure their organizational policies and processes encourage innovative thinking, creativity and the willingness to take on design risk. On-the-job training will require expert guidance and understanding to create better results.

The consequences of failing to adopt this approach can be aptly summed up by this quote:

"If you think good design is expensive, you should look at the cost of bad design."

– Ralf Speth, CEO of Jaguar

## The road to natural, progressive and adaptive interfaces

Since the 1970s, companies such as Xerox, Apple and Microsoft have opted for a human-centric approach where function rules over form, and design experience focuses on ease of use and user preferences. As technology evolved, design experience also ventured into more modern paradigms such as Design Thinking to keep pace.

It has always been a priority at Infosys to provide great user experiences for the customer, employees and any related parties. We rely on a diverse set of resources

Figure 1. Adapting to market dynamics: the three horizons

#### **KEY PATTERNS**

#### **CHARACTERISTICS**

Natural user interface

Gesture-based controls

- System thinking
- Adaptive
- Natural experiences
- Progressive
- Lean UX
- In-place

collaboration

- Agile UX
- Responsive
- Rich UI
- Personalized
- User generated
- Server side framework
- Hybrid apps
- Community and social
- Recommendation
- Experience platforms-driven
- Waterfall UX
- GUI
- Native mobile
- Source: Infosys

- Analytics • User experience
- Responsive
- Multi-model
- Touch user interface Templatized
- platform-driven
- Digital twins

Data entry

Information gathering

Windows, icons,

menus, pointer

User-driven, Responsive, Natural

#### such as our center of excellence, design and partner community, and R&D to anticipate the changes in experience design trends. The continuous study of this space allows us to respond to environmental changes in a proactive and meaningful manner.

Our analysis of experience design across three horizons shows that it has evolved from a chiefly data entry-based experience (H1), to a persona-based experience that is intuitive, responsive and rich (H2), to finally today's hyperpersonalized, immersive and ambient experience that is progressive and adaptive (H3). At present, H1 characteristics have almost faded away, while H2 characteristics remain dominant, and H3 characteristics slowly gain traction.

The present-day consumer is tech-savvy and relies on a variety of devices for both business and personal use. In fact, a 2019 Zenith study<sup>1</sup> revealed that a third

#### **H3 PROGRESSIVE, NATURAL INTERFACE,** ADAPTIVE

#### Hyperpersonalized, Immersive and Ambient

As boundaries between the offline and online world gradually fade, organizations must deliver a hyperpersonalized, immersive and ambient user experience

#### H2

#### **INTUITIVE, RESPONSIVE, RICH**

Persona-based Human Experience-centric

A primary focus of organizations is to provide a fulfilling user experience. By taking advantage of rapid advances in technology, organizations can deliver responsive, intuitive and rich experiences catering to their preferences.

#### **H1** DATA ENTRY, USER-DRIVEN

**Basis User Experience** 

- Spatial user interface Smart speaker
- 3D models Animation

Immersive

of Americans are online almost all the time. So, it is reasonable for users to expect the experience on one device to carry through the others, which sets the stage for hyperpersonalized, ambient and adaptive UX design. The virtual world is fast becoming an extension of the real world, so computers will have to be accessed in a manner that is comfortable and effortless, which means a greater need for natural user interfaces and immersive experiences. The focus will shift to the interaction aspect and not on how to use the device, as they did in H1 and to a lesser extent in H2.

UX design has undergone a pivotal change, and enterprises must gear themselves for the next wave by gaining a deeper understanding of the human psyche and customer experience journey. Design teams must partner with businesses to create

#### Figure 2. Key trends across experience subdomains



### Transition from a bottom-up approach to a top-down approach

Trend 1. Design research in systems

Trend 2. Ethics in design



A shift from clicks to gestures Trend 3. Gesture commands

Digital

channels

N=many becomes N=1 Trend 5. Conversational channels

Trend 4. Natural interaction

Trend 6. Immersive experiences



#### Move from static to learnable interfaces

Trend 7. Micro frontends

Trend 8. Spatial user interfaces

Source: Infosys

smarter, interconnected and more efficient touch points to deliver a more significant value-added user experience. In turn, businesses must understand how to utilize technologies to improve users' lives, become a companion and support user needs in scale.

To transition to H3, enterprises will have to navigate through these seven subdomains:

- 1. UX design
- 2. User interface
- 3. Digital channels
- 4. UX technology
- 5. Engagement platforms
- 6. Al in design
- 7. Security and compliance



Engagement platforms

#### The move from a monolithic functional model to platforms powered by context intelligence

Trend 9. Experience- and intelligencedriven commerce to hypercharge connections

Trend 10. Real-time customer engagement

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Ξ	AI	⊨

#### The shift from rules-based personalization to hyperpersonalization

Trend 11. Hyperpersonalization

Al in design



Security and

compliance

## Nonfunctional factors play a crucial part in a complete experience

Trend 12. Accessibility advancements Trend 13. Privacy protection

# UX DESIGN



## Transition from a bottom-up to a top-down approach

System Thinking moves beyond the bottom-up approach of Design Thinking to embrace a top-down view of user journeys and data flows of an entire organization across the value chain. It looks to enhance efficiency holistically and help create a comprehensive awareness of the whole by harnessing various technologies to manage change successfully. It seeks to create the conditions necessary for a culture of innovation and a frictionless environment of experiences.

#### Trend 1: Design research in systems

System Thinking requires a deep understanding of next-generation needs. Current foundations are not incrementally improved; rather, new ideas that need different strategy directions are uncovered. The circle has widened. Systems today are large, complex and heavily integrated with a broader ecosystem. Experience with a product now includes the user's social circle experience with both the product and its competitors, which extends to numerous touch points beyond just the UI.

Design researchers are now more collaborative than ever, often sharing the process of continuous education with the entire team. They are no longer siloed experts; instead, they function as mentors embedded within an agile team. The use of data is imperative and, as such, a data science skillset or data scientist collaboration is increasingly essential.

Design research must also support the vision and strategy formulation to help clarify and align all stakeholders involved. It is impractical to design for every user need, so companies must learn to prioritize what to deliver based on their strategic direction, understand who their users should be, and work out what they can best provide for them. A researcher must be an excellent storyteller with the ability to influence executives by addressing what is important to them. A multinational educational startup looked to reinvent education from the ground up to gain a deeper understanding of how multicultural students, parents, faculty and staff wanted to be supported by technology. They teamed with Infosys, which led to the development of a flexible data platform. This platform underpins the student, staff, and parent-focused applications, allowing them to provide personalized attention based on unique needs. Without system-focused design research, the team would have been limited in the number of use-cases considered, and a much more restrictive application would have been conceived.

#### Trend 2: Ethics in design

From "Dark UX" (design elements that subtly push the user in a direction they didn't intend to take) to "Surveillance Capitalism" (unilaterally claiming private human experiences for profit), the decisions made by designers have an impact across societies. Even decisions made to help people can backfire if not thoroughly vetted. Consider how "creepy artificial intelligence" has exploited personal information.

> Companies can improve customer trust and transparency by adopting an approach to 'human-centered design,' which recognizes and respects people's needs and privacy.

Human-centered design helps recognize and respect what people will and will not accept from an organization. Companies must be able to convey transparency and trust to customers and users. This trust has become a new currency that companies can earn to gain loyalty. Regulations like CCPA/GDPR lay out the bare minimum required to comply with the law, but the truly successful companies will harness a deep understanding of their target audience to go above and beyond.

For example, as countries return to the office amid the COVID-19 pandemic, building wellness solutions will need to balance safety and health tracking with patient and employee privacy. A 'smart space' that employees trust and view as being 'on their side' will increase both satisfaction and compliance.

As companies harness new artificial intelligence and machine learning solutions, designers must take care to ensure algorithms and datasets used do not perpetuate inequalities and biases found in the world today – whether racial, gender-based, or economic. One way to do this is by turning the standard approach to design on its head: starting the design process by focusing on under-represented or repressed user groups, working to create solutions that first work for them, and then adapting the solution to also fit the wider audience.

# **USER INTERFACE**



## A shift from clicks to gestures

Today, a user interface can determine the success or failure of a product, as tedious user experiences drive away customers. A typical day for a person involves multiple device use, ranging from remote controls and smartphones, to laptops, smart speakers and wearables. The emphasis, therefore, is to provide as much of a natural interface as possible.

User interface technologies such as touch screens and voice commands have advanced exponentially. Today's device-centric technology compels businesses to adapt faster to the newer forms of interfaces. For instance, banks recognize the popularity of smart speakers, so many now provide account balance and other basic services through Alexa, Siri and Google Assistant, which are triggered by voice commands.

Technology is clearly enmeshed in every aspect of our lives, while the boundaries between the real and virtual slowly blur as businesses build bridges to connect them.

#### Trend 3: Gesture commands

As we move past touch-based interactions, the next generation of UI is all about touch-free control, which enables communication with a device through speech, gestures and even facial expressions. Touch-free controls are especially relevant in today's virus-conscious world and promise a whole new level of engagement. Gesture recognition is a complex area that involves sensors and cameras to capture hand movements that serve as an input for the computer. Current advances make this recognition more context-sensitive so that devices can accurately anticipate what a user wants. While gestures are hugely popular in the gaming industry with the use of virtual reality (VR), augmented reality (AR) and mixed reality (MR) experiences, they are set to grow in the business world, too. Enterprise

INFOS S Knowledge Institute

user interface experts must study the different types of gestures employed, including generational differences in the way devices are used, to provide an easy-to-use and intuitive design.

Through the use of multiple applications, Infosys ' Tennis Platform offers an MR HoloLens experience that provides a view of a futuristic tennis retail store and a VR-based tennis experience so fans have the feel of a live environment. Users are also able to interact with the application by using gesture commands such as air tap, gaze, head rotation and also through voice commands.

#### **Trend 4: Natural interaction**

Natural user interfaces represent simplified humanmachine interactions. These smarter interfaces arose with the advent of social channels and progressed as social media became the primary source of engagement for both business and leisure. As users moved from simple phones to smartphones and from desktops to mobiles or tablets, these interfaces also kept pace to make it as seamless as possible to use these devices. Touch user interfaces were early breakthroughs leading up to conversational AI, which has created a significant shift in the way we communicate with machines. In conversational AI, the device enables the user to give it voice or text commands in natural language and eliminates the need for special commands or buttons. Chatbots and smart speakers are commonly used today to facilitate frictionless experiences with a device.

For an American bank, Infosys developed an app to enable on-the-go expense reporting with a conversational interface, replete with real-time updates and insights. The app fully supported natural languagebased interactions.

Infosys developed a wearable-based stock trade app that used a combination of haptic feedback and force touch to enable interactions with the app. The app supported natural language-based conversations to interact with the app without having to depend on visual cues.



# **DIGITAL CHANNELS**



## N=many becomes N=1

Digital channels began as purposeful interactions on a desktop or web browser between businesses (B2B) and businesses and their consumers (B2C). Following awkward interfaces that were far from intuitive, the next generation of digital channels offered a smarter interface primarily driven by the rise of smartphones and social media channels. When the focus shifted to peer-to-peer interactions (P2P), personalization, usability and natural communication became a priority. The day is not far off when home appliances will connect to Wi-Fi and exchange data with a monitoring system that produces insights. Flexible displays, robots, smart products and XR devices will support this trend.

As technology advances at a rapid pace, enterprises are pivoting their businesses to become more tech-enabled and deliver more relevant offerings to the customer.

#### **Trend 5: Conversational channels**

By now, many people have likely had online customer service interactions handled by a chatbot, or implemented a zero-user interface device such as Amazon's Alexa. These communication platforms, both voice- and text-based, blend natural language processing and Al to create humanlike interactions. However, though highly intelligent, these conversational channels are generic and respond in the same way to every user. Going forward, they are expected to become more immersive and personalized — expect tailor-made conversations that will be nearly indistinguishable from what happens with a human.

Biases make their way into these systems because of the way the systems are trained and where their knowledge springs from geographically. For instance, Siri – an American technology – is more likely to understand an American accent over other accents. So, organizations with a global audience have started to invest in solutions to eliminate these biases and treat all interactions the same. Some governments have also stepped in to mandate neutrality. These significant trends will aid in large-scale adoption of the conversational channel technology and facilitate better customer service and experiences.

A U.S.-based financial services giant uses Infosys' Nia chatbot platform to automate its global procurement helpdesk, while a telecom giant in the U.S. employs Nia to enhance customer experience and engagement.

#### **Trend 6: Immersive experiences**

Immersive experiences are a step closer to nearhumanlike interactions, as they help bridge the gap between the physical and digital worlds and present a multidimensional, multimodal experience. Although they offer consumer-centric experiences, this technology is expensive and only now gaining a foothold in the business place.

There are several areas where immersive experiences can help. It becomes easier to repair a complex machine because the maintenance person can receive real-time instructions from experts anywhere in the world. In the COVID-19 era, immersive experiences can facilitate interaction-rich experiences like hosting clients on a virtual 360-degree tour of offices or running high-tech design meetings.

Design teams, along with business stakeholders and the innovation team, must examine how to make this paradigm shift more acceptable to users and anticipate the barriers they must overcome.

Infosys set up a VR store experience for a German telecom leader to allow its customers to shop virtually. More scenarios will emerge as this technology takes off.

Infosys' flagship sales leadership event 'Connect 2020' was conducted virtually on Infosys' EPOC Platform. EPOC is a state-ofthe-art collaboration platform that helps conduct online events and supports immersive experiences. 'Connect 2020' was powered by 3D booths, a 360-degree immersive tour of Living Labs with 20+ showcases and an immersive navigation console. EPOC is powered by WebVR and XR technologies.



# UX TECHNOLOGY



## Move from static to learnable interfaces

Functional user interfaces have developed into more responsive, intuitive interfaces that attempt to mimic human actions. In the past, such interactions were triggered by a console-based command line, static data-driven web or a thick client interface. Today's powerful technologies allow gesture-enabled and AI-powered user experiences with learnable interfaces that can be deployed on different device types. Applications can be built to directly utilize technology to drive the user experience irrespective of where the user's location.

#### **Trend 7: Micro frontends**

Proper frontend development requires concerted efforts and becomes a complex affair to manage in the case of large products. Earlier, frontend applications were packaged as a monolith, bundled with all capabilities and functional elements required to cater to various end-user requirements. Naturally, it was difficult to apply new enhancements to such applications and, in doing so, often ended with an overhaul of the entire application.

Micro frontends can help in such situations because they slice frontend monoliths into smaller and easier-to-handle pieces. This architecture can increase the effectiveness of teams that work on the frontend. Micro frontends promise a future where developers can refactor existing web application packages with proven JavaScript frameworks such as Angular and React through the use of progressive strangulation techniques.

The frontend application architecture must be reimagined to identify functional components and capabilities that can exist independently to implement an effective micro frontend strategy.

A European supermarket is a good example in which Infosys implemented a developer platform user interface with React-based micro frontend apps using web components and integrating with the supermarket's DevOps platform UI. Infosys collaborated with the client's architects for their DevOps implementation, which enabled their multivendor, multifunctional engineering teams to add visualization components with ease onto a unified dashboard.

An American regional utility player has deployed an app built by Infosys to pay bills and manage services. The app uses micro UI with components loaded on demand.

#### **Trend 8: Spatial user interfaces**

Augmented, virtual and mixed reality user experiences rely on real-time inputs from the physical world to deliver outputs that are a blend of real-world data and programmed elements that operate on real-world data and digital objects.

The launch of XR-enabled user experiences has been delayed due to the high costs and lack of device support. Today, XR-enabled technology is available even in mobile handsets, with market leaders Google's ARCore and Apple's ARKit becoming mainstream. Once Apple launched its ARKit as part of iOS 11, it was able to add thousands of AR apps to the App Store. Microsoft also released its MR toolkit with Unity as open source, which helps developers learn techniques and best practices to develop applications on Microsoft HoloLens and Open VT platforms. Industry analyst Gartner expects 100 million users will utilize AR-enabled shopping by 2020.<sup>2</sup> Infosys experts also anticipate gaming, retail and navigational use cases will adopt AR and VR technologies faster.

Another key reason for the slow XR adoption is the ambiguity of how technology can help enterprises solve specific problems. Companies will need to conduct focused research on specific use cases relevant to their business and analyze the ROI of each scenario to accelerate the successful adoption of XR.

For one of the largest energy companies in Netherlands, Infosys developed an MR-based application to train technicians on boiler repair with the help of Microsoft HoloLens.

Infosys partnered with a global technology company to create an augmented assistance printer repair solution with the remote assistance of Apple ARKit. The solution helps technicians recognize the equipment and provide contextual information using AR.



# **ENGAGEMENT PLATFORMS**



# The move from a monolithic functional model to platforms powered by context intelligence

Digital engagement platforms, content and commerce management systems, comprising portals and digital marketing, all began as monoliths that provided a tightly coupled experience with well-integrated core capability models and limited scope for extension. These platforms restructured to become microservices and integration-friendly stacks, and adopted standardized as well as open and headless approaches to create an omnichannel experience. Later, they integrated customer intelligence from customer journeys in hyperconnected ecosystems to provide a holistic, personalized and engaging real-time experience.

#### Trend 9: Experience- and intelligencedriven commerce to hypercharge connections

E-commerce activity has surged in recent years to become a critical driver of platform modernization. As consumers become more selective about their purchases, brands are investing in sophisticated commerce platforms that focus on the entire customer journey to provide better experiences and derive meaningful insights.

Traditional on-premise platforms (e.g., SAP Hybris First Gen, Oracle ATG and IBM WebSphere) evolved through a cloud-first, microservices-based, headless approach. The latest versions of SAP Commerce Cloud, Magento 2+, Salesforce Commerce Cloud and HCL Commerce 9+ provide build and deploy capabilities on the cloud with decoupled storefronts, cloud connectors, advanced search capabilities and cloud-based platform extensions.

We expect new cloud-born, API-first platforms such as commerce tools and Infosys Skava Commerce to bring in a broader range of microservices. They will enable an experience orchestration engine that combines the necessary omnichannel experience and capabilities. These platforms will provide enhanced capabilities for customer understanding with more accurate predictions, faster integration of digital assets to product information management systems (PIMs) powered by AI and high-power Solr, and better product visibility through elastic search. The power of headless interfaces introduces advanced possibilities with conversational commerce touch points in which chat and voice assistants can elevate self-service to newer levels. Connected experiences will emerge to integrate online commerce apps into an in-store or in-venue ecosystem and bring a seamless, contextaware phygital (physical plus digital) dimension to customer journeys.

Ready-to-use reference stores, vendor marketplace

components, frontend app-building studios and AI-powered functionalities speed up implementation and rollout.

For a leading American retail chain that offers agricultural and home improvement products, Infosys created an advanced commerce frontend. The frontend integrates with commerce core services and call centers. This provides digital capabilities including a nimble and agile UI with enhanced search, promotions. It also offers, single-click checkout and innovative features such as "buy online, pick up at a nearby store (BOPIS)" realized over WCS, Apache SOLR, Sterling OMS & Call Center, CoreMedia CMS and BI Talend. Enhanced ML capabilities of Learning to Rank (LTR) integrated with WCS Search enabled more relevancy in search results, pushed most moving products, higher revenue, and other business features to a higher rank to create better business outcomes. Conversational interface powered by ChatBot (Azure Bot Framework) elevates customer engagement to the next level addressing the self-service and general queries.

# Trend 10: Real-time customer engagement

The playground for personalization has expanded to become more meaningful and authoritative. Personalized app and web experiences, tailored business content, real-time interactions, contextual contact centers, personalized communications, social involvement to support advocacy, and customized loyalty schemes provide multiple avenues to build an emotional connect. Digital engagement platforms emerge to discover customer activity patterns and create recipes in real-time to develop satisfying microinteractions.

Digital marketing was previously a siloed effort to connect and engage customers. But now, marketing and campaign platforms such as Adobe Campaign Classic and IBM Unica are available to create specialized engagement recipes. These platforms have developed into more extensive content and marketing suites to offer experience flexibility with template-driven approaches, better asset visibility and reusability, customer segmentation based on customer activities, and experience personalization. Marketing automation, along with campaign orchestration provides better flexibility to realize customer engagements. Some of the key platforms are AEM on Cloud, ACS, Drupal Acquia DXP and Sitecore PAAS.

Most of these platforms have shifted from a usecase focus to a journey-focused approach powered by broader capabilities. Personalization at scale is now enabled by a data platform layer that stitches customer identity, collects customer activities and contexts within a journey, analyzes and powers reaction time. Adobe Experience Platform, Infosys Genome and customer data platform technologies are some of the new age platforms that provide real-time capabilities at scale. For today's customer, problemsolving has shifted from assembling capabilities using platforms to modeling business holistically from the journey. Through the use of touch points, data, process and measurements, these platforms establish a 360-degree model for customer engagements.

Infosys provided one of the largest sportswear manufacturers with a hyperpersonalized multichannel experience through precision marketing, e-commerce, campaigns, social touch points and app footprints powered by Adobe Experience Manager and Infosys Genome. This resulted in more than 35% repeat buyer rate, a 67% improvement in net promoter score, and a customer reach of over 95 million.

# **AI IN DESIGN**

## The shift from rules-based personalization to hyperpersonalization

Enterprises have moved from inflexible rules-based systems and reports based on historical data to real-time insights and personalization powered by big data and AI technologies. AI now plays a complementary role in digital experiences with conversational AI-based chatbots or digital assistants, computer vision-based image recognition, and personalization based on analytics. The AI inbuilt experience is expected to drive the next era of digital experience with hyperpersonalization of solutions in the consumer and enterprise segments.

#### Trend 11: Hyperpersonalization

Personalization of content in websites and mobile applications was mostly driven by rules defined in content management systems, experience management solutions and analytics engines. These rules relied on frontend user interactions or a history of user patterns captured at the backend. Stream analytics, big data analytics and edge analytics now offer significant insights that evolve into hyperpersonalization.

Al-driven hyperpersonalization entails a digital brain that offers tailored content, dynamic screens, interactive contextual interfaces switching to a conversational bot or other digital assistants based on the device or context, and optimized user interactions. The digital brain creates a digital experience that is unique to each user. The result is hyperpersonalized apps for the consumer segment and live enterprise apps for the enterprise segment. The Infosys Live Enterprise Suite offers hyperpersonalization, which is used in:

- Infosys Launchpad to onboard new employees
- InfyMe for employee personal productivity, work productivity and insights
- Lex for educational and career development

With the Live Enterprise Suite, Infosys has pioneered a phygital ecosystem, with sentient hyperpersonalization services powered by a digital brain, which is a mesh of connected data. Live Enterprise is continuously evolving, with an average of over 200,000 users and over 25 million transactions every six months. The Live Enterprise suite has an experience configuration kit, which is used to implement a computational design paradigm across the various frontend platforms.

For a leading provider of cable broadband services, Infosys created a single, hyperpersonalized app that consolidated all the features of their multiple apps. The consolidated product is a scalable, future-proof platform that is not only function-driven but also visually attractive and personalized for fun.

# **SECURITY AND COMPLIANCE**



## Nonfunctional factors play a crucial part in a complete experience

With the increased use of devices and reliance on digital channels, companies must also consider crucial nonfunctional factors such as security, compliance, usability, accessibility and performance to deliver a complete experience. Security checks that use Captcha or login credentials started a few years ago but, today, there are intensified security checks available that offer multifactor authentication techniques and biometrics. This trend strives to provide foolproof security and compliance and, at the same time, maintain a simple and meaningful experience.

#### Trend 12: Accessibility advancements

Accessibility tools, which allow people with disabilities to use devices and the web smoothly in UX, have gained importance and, in some parts of the word, are a governmental requirement. According to the World Health Organization, about 15% of the world's population has some form of disability,<sup>3</sup> which indicates they form a significant segment whose needs must be addressed.

While still a relatively untapped market, technology leaders such as Microsoft and Apple now pay more attention to accessibility, and it could soon become a competitive advantage. UX teams must consider inclusive design principles and adhere to web content accessibility guidelines (WCAG 2.2 — AChecker) to deliver the best experience to this underrepresented segment. With the help of the Infosys Accessibility Testing Tool, a U.S.-based global investment bank realized 50% savings on validation efforts. The tool was also used by an American publishing major to make 80% of its client-facing pages ADA compliant through automated ADA validation. The user experience was also significantly improved.

A U.S. semiconductor manufacturing client of Infosys achieved 70% site coverage and 10% cost savings by automating ADA validation.

#### **Trend 13: Privacy protection**

Enterprises handle massive volumes of data in a highly interconnected world. The flipside of having abundant data is potential breaches. Reports of data theft or data used for fraudulent purposes are on the rise as cyberattacks become more sophisticated. Financial services sectors, hospitals, retailers and government agencies gather a vast amount of personal information. An unscrupulous person with access to this data can cause privacy invasion and significant damage to a person or business. These incidents have led some governments to enact strict rules for enterprises to ensure data privacy. Some of the regulations in place today include the General Data Protection Regulation (GDPR), the California Consumer Privacy Act (CCPA) and the Indian Personal Data Protection Bill.

"Privacy by Design," a concept enforced by GDPR, requires data protection and privacy aspects be embedded at every level across the system and processes.

Enterprises should take privacy seriously, or they will attract steep fines and penalties in an increasingly vigilant regulatory environment.

Infosys Data Privacy Suite (iEDPS) was leveraged to build a Secure Data Exchange data protection service across one of the largest U.S. banks. This created a boundary-less organization for its partners, employees and customers on a global level and improved its data sanitization productivity efforts by 40% across multiple data sources and more than 1500 applications.

iEDPS was used to comply with HIPAA and mask multiple data sources, as well as EDI files, for a major healthcare provider in the U.S. Total cost of ownership reduced by 40% and improved time to market.

iEDPS was adopted by an auto major in the U.S. and, through intelligent discovery reporting of sensitive data across 130+ databases and 98 applications, they became CCPA compliant and saved up to \$7500 per data breach.



#### References

The road to natural, progressive and adaptive interfaces

<sup>1</sup> Tech companies tried to help us spend less time on our phones. It didn't work.

#### Trend 8

<sup>2</sup> Gartner says 100 million consumers will shop in augmented reality online and in-store by 2020

#### Trend 12

<sup>3</sup> World report on disability

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