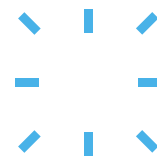


MICROBLINK

See beyond.

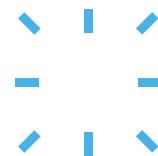
Optimizing digital user onboarding with ID document scanning





Executive summary

As the digital landscape evolves, the competition to onboard new users in a simpler, more engaging way intensifies. Organizations that get their onboarding experience right from the very start have the upper hand in repeatedly turning new sign-ups into invested, loyal customers. This whitepaper aims to outline the prevailing reasons why user onboarding strategies fail and proposes identity document scanning as a viable solution for its optimization.



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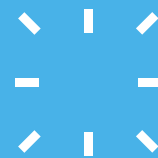
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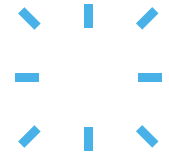
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Part I

The state of digital user onboarding

User onboarding is unique in that it marks the first touchpoint between a user and a product. Those organizations that fail to prove their value and set the right tone for the relationship at the get-go have likely lost the same user forever.



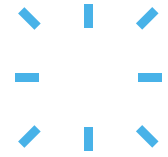
The shift toward digital

User onboarding has undergone drastic changes in the past few years. Until recently, opening a bank account, signing up for a new SIM card or purchasing a flight ticket was a straightforward affair. To access these services, one simply had to present an ID card, passport or any other form of physical identity to the business representative before carrying on with a traditional one-to-one onboarding process.



As the world grew increasingly digital and physical interactions declined, businesses that once relied on analog onboarding methods migrated to new, more sustainable ways of engaging with their users. Their drive toward digital onboarding, however, appears to be a slow one, with less than a quarter of global organizations claiming they have managed to build a seamless, frictionless experience for new users. (1)

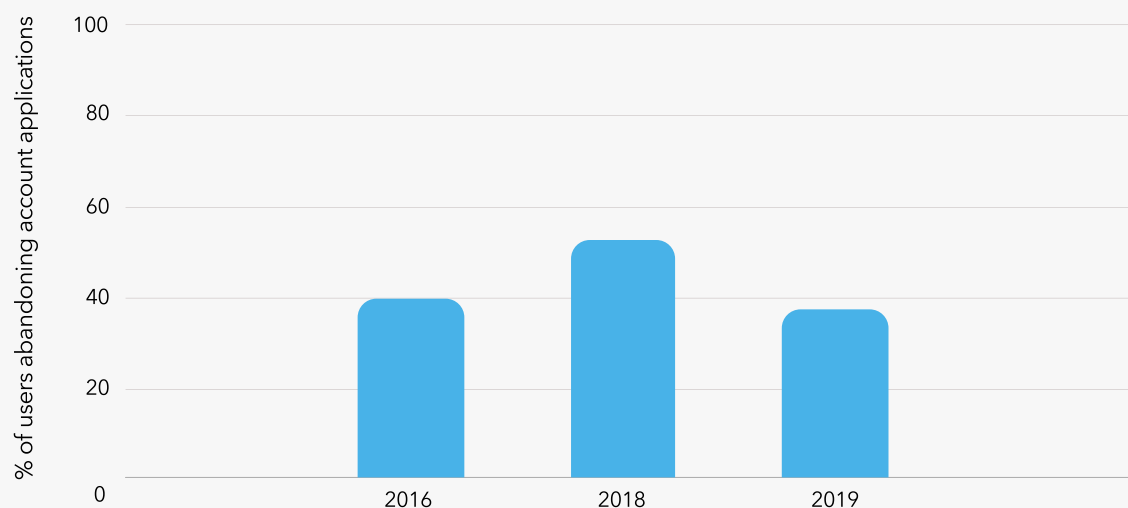
¹ Experian. 2016. Customer Digital Onboarding. [Online]. [05 May 2020]. Available from: <https://engage.experian.co.uk/customer-digital-onboarding>



Substandard experiences translate into high drop-out rates

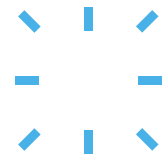
Despite significant investments, particularly in industries with more demanding onboarding processes, the number of users dropping out before interacting with a product or service is consistently high. For example, financial service providers keep losing users year after year because of an ineffective onboarding experience. In 2019, 38% of them gave up on their account application, signaling a narrow drop of only two percentage points from 2016. Clearly, there is still plenty of room for improvement. (2)

Failing to break the deadlock. Drop-out rates in user onboarding fail to move year after year.



Account application drop-out rates for Europe from 2016 to 2019

² Douglas Blakey, 2019. The battle to onboard: 38% abandonment rate highlights onboarding pain. [Online]. [02 May 2020]. Available from: <https://www.verdict.co.uk/cards-international/news/the-battle-to-onboard/>



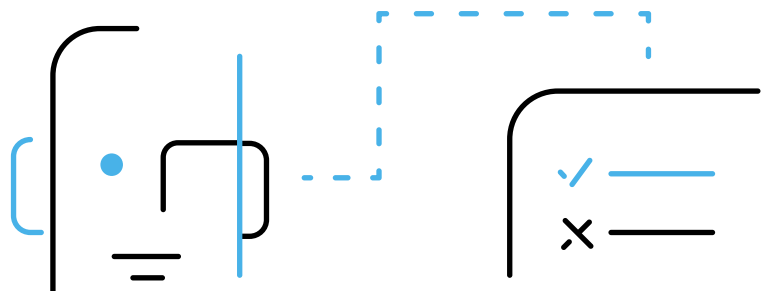
Why aren't the numbers moving?

To better understand why a majority of organizations fall short in an aim to digitize their user onboarding journey, we need to take on the end user's perspective. Only by understanding what is causing a large portion of them to quit midway through an application can we design a more airtight onboarding workflow with a lower drop-out rate.

• On-bored: the need for quicker, simpler experiences

More than half (51%) of users frustrated with their onboarding experience said they were upset with how slow the process was, with 40% citing lengthy forms as their reason for dropping out. (3) These figures paint a bleak picture of organizations failing to make a positive first impression, with an early stage touchpoint in the onboarding process – asking users for their personal information – often also being the last.

Considering the extensive marketing effort required to convince a user to embark on an onboarding journey, it is only rational organizations make the most of this interaction. For the first time, the user is engaging with the product, not the brand, and will quickly decide whether to lean toward adoption or abandonment. In psychology, this is a concept known as 'thin-slicing.' (4)

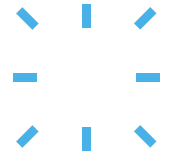


³ Derek Garriock. 2017. How to create a happy path. [Online]. [08 May 2020].

Available from: <https://www.experian.co.uk/blogs/latest-thinking/decisions-and-credit-risk/create-happy-path/>

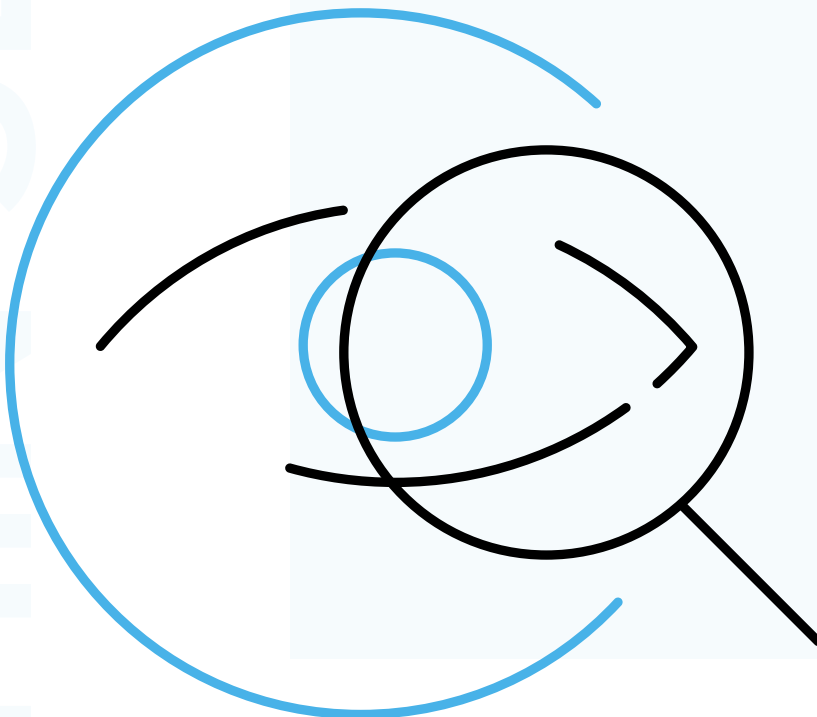
⁴ Jeff Thompson, Ph.D. 2012. Thin Slices & First Impressions. [Online]. [09 May 2020].

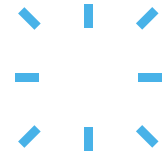
Available from: <https://www.psychologytoday.com/intl/blog/beyond-words/201203/thin-slices-first-impressions>



THIN-SLICING

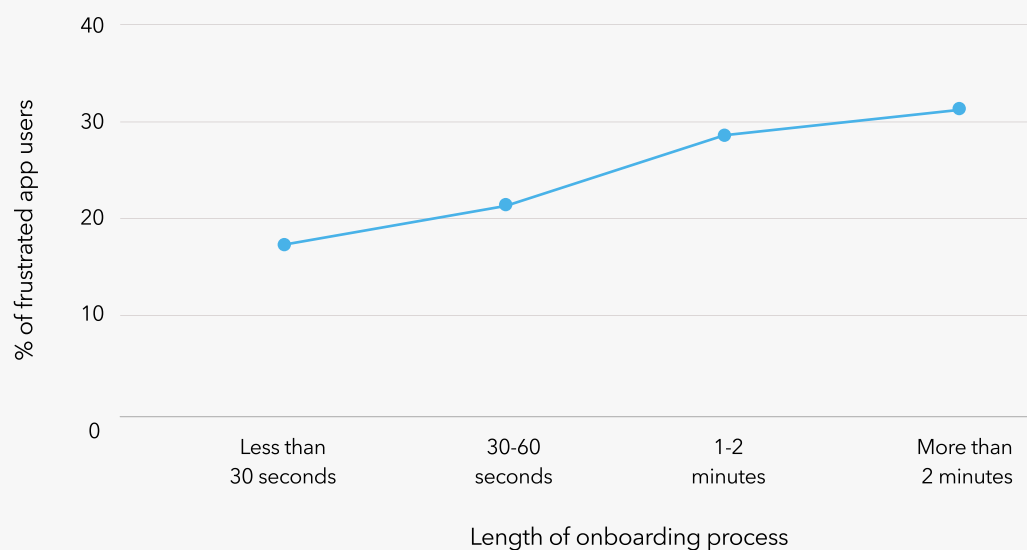
Often used in interpersonal relationships, thin slicing describes the human ability to make quick assumptions based on a narrow window of experiences. Within less than five minutes, users will be able to detect minor patterns, or 'thin slices,' in onboarding steps and use them to construct a general picture of what the entire journey will look like.





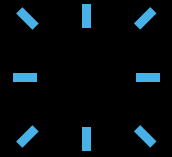
Besides being demanding in their initial judgment, users are also impatient. They are willing to tolerate a little over 14 minutes in onboarding for financial services, a threshold far from the industry average. In reality, less than one in three such applications are completed under 20 minutes. (5)

What is even more concerning is the time users are prepared to set aside in onboarding for less important products and services. Out of 501 US individuals who have installed an app for entertainment and enjoyment, nearly three-quarters (72%) said the onboarding process should have taken 60 seconds or less.



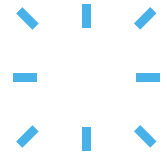
Source: Clutch 2017 Consumer App Onboarding UX Survey

⁵ Signicat. 2019. The Battle to On-Board III. [Online]. [13 May 2020]. Available from: <https://resources.signicat.com/b2ob3>

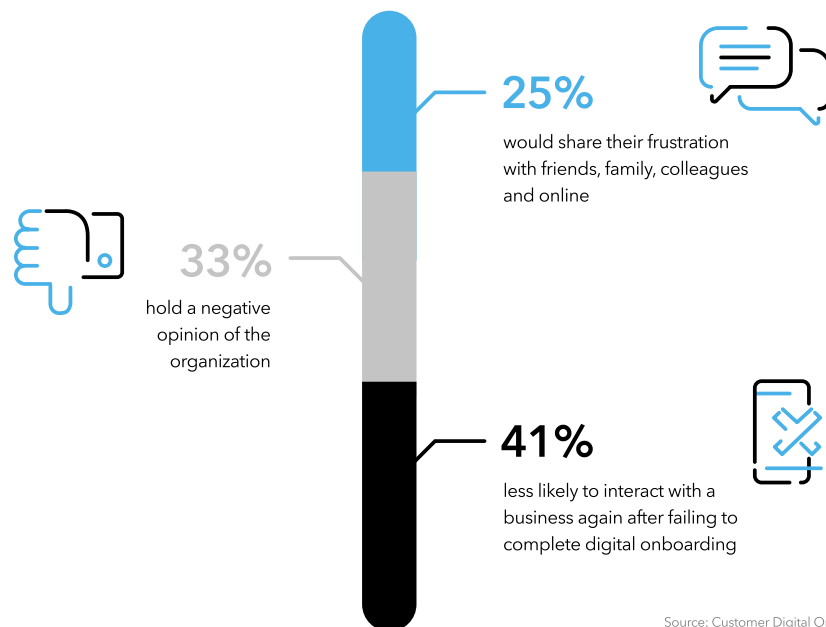


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These figures paint a bleak picture of organizations failing to make a positive first impression, with an early stage touchpoint in the onboarding process – asking users for their personal information – often also being the last.



Slow onboarding times pose a real threat to businesses who simply cannot catch up with the rapidly-evolving user expectations. The resulting poor experiences stemming from slow onboarding processes have the potential to corrupt a user's brand perception and can even lead to a damaged brand reputation.

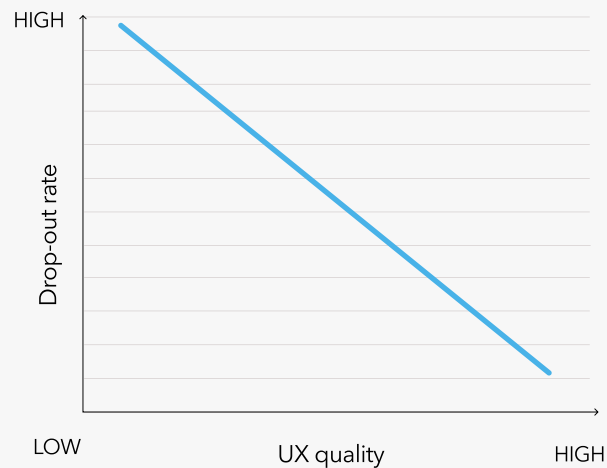
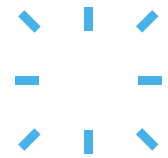


Source: Customer Digital Onboarding | Experian

• Not a tutorial: rethinking UI

Next to being quicker, onboarding needs to be slicker. As it stands, too few organizations are creating inviting, memorable and above all simple onboarding interfaces.

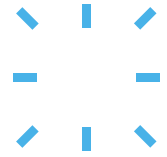
All too often, designers and writers get too close to their product, making it difficult for newcomers to interact with it for the first time. They have been stuffing the flows with instructions, oblivious to the fact a user freshly introduced to a new tool, app or website has signed up for a service, not a tutorial.



If there is no 'aha' moment early on, if organizations deprive their users of that crucial feeling of using their product to accomplish a task for the first time, they have failed to grasp the goal of onboarding, which serves to empower, not set up.

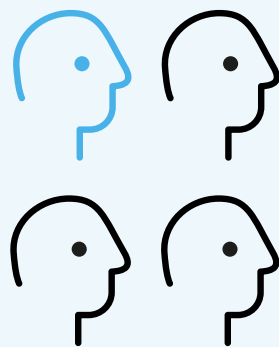
Of course, getting to that tangible value that helps users see the fruits of their labors is highly context-specific, as well as device-dependent. Due to screen space constraints, the route to the 'aha' moment when applying for a new debit card on mobile will be very different to renting a car on a desktop computer.





Moving users from a nascent stage to an 'empowered' stage, therefore, is a major challenge, especially in onboarding for complex products and services on mobile platforms. It is little wonder, then, that one in four users abandon an app after using it for the first time. (6)

An effective way around the problem is to provide value before the registration phase. This way, organizations can nudge their users to complete the onboarding process by showing them the immediate benefit before it even starts.



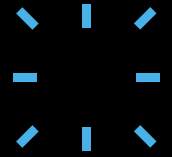
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users **abandon** apps after using it for the first time

In cases where such an approach is not feasible due to the need to verify users more thoroughly, organizations at the very least need to eliminate re-routing to physical channels and provide fast access to the product or service as soon as the user is registered and verified.

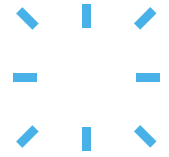
Unfortunately, the latter is a process that is often too complex and involved, calling for specialized solutions that strike the balance between a seamless user experience and regulatory compliance.

⁶ Thomas Rodde. 2019. 25% of Users Abandon Apps After One Use. [Online]. [14 May 2020]. Available from: <http://info.localytics.com/blog/25-of-users-abandon-apps-after-one-use>




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If there is no 'aha' moment early on, if organizations deprive their users of that crucial feeling of using their product to accomplish a task for the first time, they have failed to grasp the goal of onboarding, which serves to empower, not set up.



User onboarding dictates the bottom line

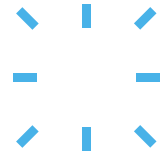


An organization experiencing significant drop-out rates is not only jeopardizing its reputation, it is also losing money. Firstly, they have set apart a considerable budget to turn uncaring visitors into users willing to sign up. Then, at the final stage, they have lost those same users who could have become loyal customers.

Suppose that a company with a CLV (Customer lifetime value) of \$800 managed to successfully onboard 90 out of 300 users. That's a 30% user activation rate. With half of those users ending up being paying customers, the company has made \$36,000.

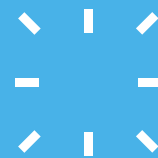
By increasing the user activation rate to 70%, that same organization will have made \$84,000. What we are seeing here is a direct spike in revenue caused by an uptick in user activations.

A simple case in point, but one worth pondering upon nonetheless. While precisely defining user activation metrics can be challenging, the immediate gains ensuing a strong user onboarding journey are obvious.



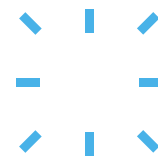
Key takeaways from Part I

- The sudden switch to digital user onboarding gave rise to substandard experiences riddled with unnecessary friction.
- Drop-out rates have barely budged at all in the recent years, with 38% of users abandoning their applications for financial services in 2019, compared to 40% in 2016.
- For more than half (51%) of frustrated users, the sheer length of the onboarding process was a turning point.
- The user interface serves to empower, not instruct. To secure retention, organizations need to help their users reach the 'aha' moment early on in the journey.
- The race to verify users in a faster, more secure manner has brought about a plethora of early adopters that are skyrocketing user expectations with innovative solutions.
- Poor onboarding experiences are expensive. Organizations with high drop-out rates are losing money by losing users at the cusp of becoming customers.



Part II

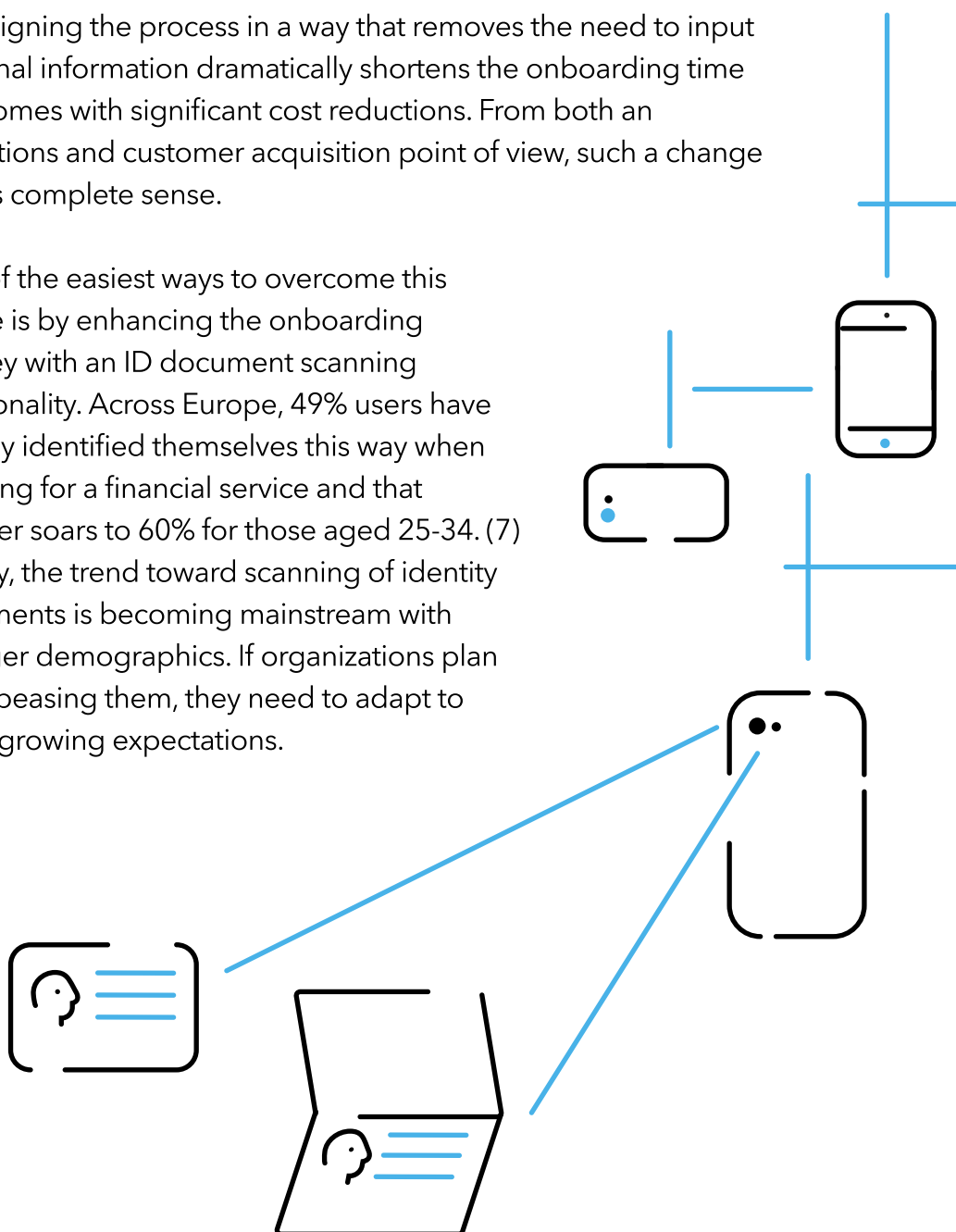
Simplifying user onboarding with ID document scanning



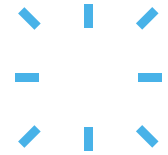
Adapting to the rising expectations

Redesigning the process in a way that removes the need to input personal information dramatically shortens the onboarding time and comes with significant cost reductions. From both an operations and customer acquisition point of view, such a change makes complete sense.

One of the easiest ways to overcome this hurdle is by enhancing the onboarding journey with an ID document scanning functionality. Across Europe, 49% users have already identified themselves this way when applying for a financial service and that number soars to 60% for those aged 25-34. (7) Clearly, the trend toward scanning of identity documents is becoming mainstream with younger demographics. If organizations plan on appeasing them, they need to adapt to these growing expectations.



⁷ Signicat. 2019. The Battle to On-Board III. [Online]. [13 May 2020]. Available from: <https://resources.signicat.com/b2ob3>



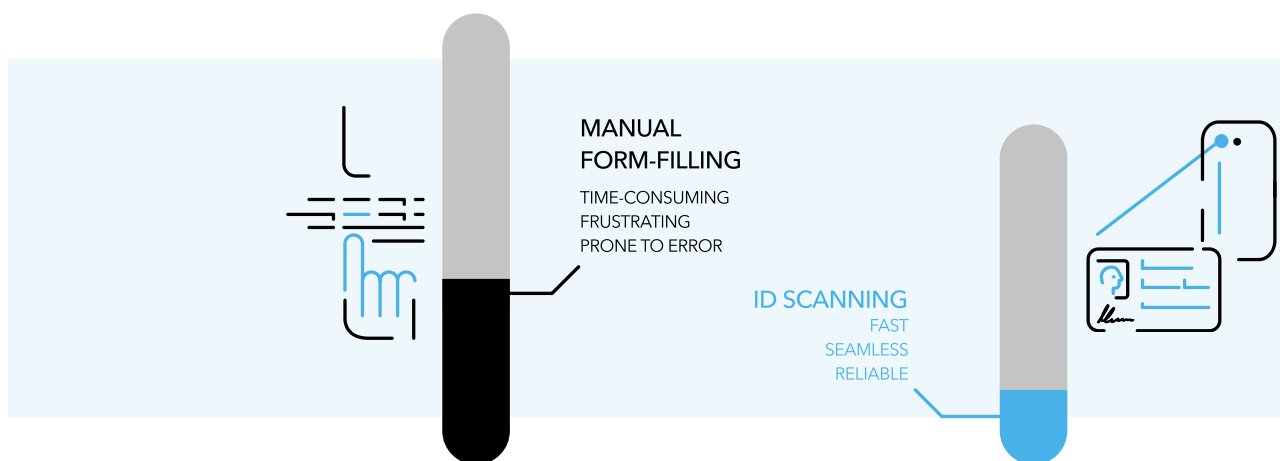
Don't mind me, just scanning through

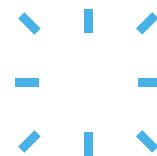
ID-scanning-driven onboarding facilitates better outcomes on four levels. Firstly, it reduces the total completion time, helping users onboard more quickly and conveniently. Secondly, it dampens the primary source of their frustration – manual form filling. Thirdly, it acts as a bedrock for subsequent identity verification procedures. And finally, it gives users a stronger incentive to complete the onboarding journey as they have already provided official identification.

This means users can move past that initial friction that is causing so many of them to leave and never look back. They no longer have to enter or update their personal information by hand only to find out they have made a slight error that now requires a resubmission of the entire online form.

Likewise, they no longer need to interrupt the flow of their digital onboarding by physically taking their ID to the local branch or office. All they need to do is scan their document and they are good to go.

ONBOARDING PROCESS





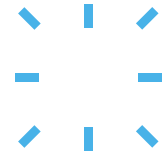
Introducing BlinkID:

Closing the digital onboarding gap in a truly user-centric way

A byproduct of extensive research in computer vision and AI-powered data extraction, BlinkID is a trusted solution for eliminating friction in user onboarding. It leverages the power of device camera to automatically detect, recognize and autofill personal information from a broad spectrum of identity documents, including ID cards, passports, driving licenses and work permits, among others.

BlinkID can read the front and back side of identity documents from over 150 countries. On top of that, it supports international passports and other travel documents containing MRZ as well as IDs with barcodes.





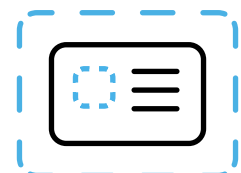
The process is straightforward in nature as it does not involve any preselection of the document type or uploading of pictures. The technology behind BlinkID knows exactly what is in front of the lens and captures all of the required information in a fraction of a second. The user is tasked only with glancing over the extracted information to double-check everything is in order.

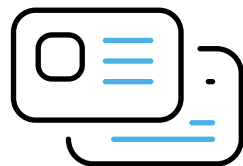
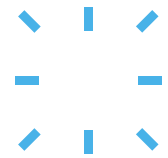


Apart from data extraction, BlinkID does several other things behind the scenes to help businesses better verify their users and comply with regulatory requirements.

DOCUMENT AND FACE IMAGE CROP

While the user is scanning a document, BlinkID snaps a clear, high-resolution image of both the document and its owner's face. These images can later be used to verify the person applying for a product or service is who they claim to be.



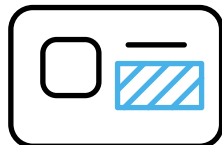
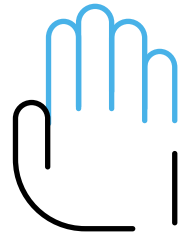


DOCUMENT AUTHENTICATION

BlinkID detects if a document appears to be falsified by validating the MRZ check digit and performing data matching (comparing data on the front with data on the back).

AGE VERIFICATION

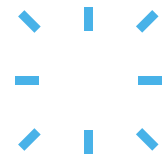
BlinkID displays a warning message if a person scanning their identity document is below the age limit set by the service provider.



FIELD ANONYMIZATION

BlinkID masks certain parts of the identity document to comply with data privacy laws in, for example, Germany or Hong Kong.

BlinkID powers impactful first impressions. Instead of offering a limp handshake and burdening the users with manual labor, organizations can do the heavy lifting for them and set a strong precedent for the remainder of the relationship.



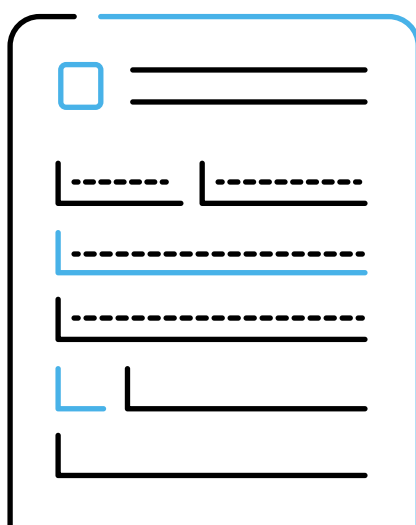
Could '**quickly moving on**' be a formal metric?

We cannot talk about the way BlinkID affects user onboarding without tapping into the accompanying metrics.

But what do these 'accompanying metrics' stand for – outcomes important to the business or outcomes important to the user? Because users care very little about their Net Promoter Score (NPS). In reality, they want to get on board as quickly as possible in order to start using the product or service in question.

• Adopting new measures of success

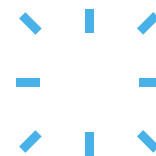
Many organizations are far too focused on their Key Performance Indicators (KPIs) to understand it is Customer Performance Indicators (CPIs) that often hold the power to predict business outcomes. (8)



Of course, that is not to say that tracking and optimizing one's churn rate is futile work. It simply means that organizations are able to reduce that churn rate by tracking what their users care about and delivering upon it.

Which raises the question: What is it that users want from their onboarding journey? Specifically, what is it they want from the beginning of their onboarding journey, when they need to provide their personal information?

⁸ Gene Cornfield. 2020. The Most Important Metrics You're Not Tracking (Yet). [Online]. [16 May 2020]. Available from: <https://hbr.org/2020/04/the-most-important-metrics-youre-not-tracking-yet>



In all likelihood, they just want to move on to the next onboarding step without spending unnecessary time and effort. This intended outcome can be reframed as a measurable CPI, delineating, for example, the number of failed submissions. How often are users resubmitting their personal information because of a lapse in manual data entry or a poor-quality upload? In other words, how often are they faced with roadblocks or delays before advancing with their onboarding?

Because of its intelligent, real-time data extraction, BlinkID has proven to reduce this number and positively impact various other CPIs and KPIs, including:



CONVERSION RATE

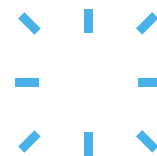
Replacing manual input with automated identity document scanning can reduce the onboarding drop-out rate by 35%.⁽⁹⁾ BlinkID facilitates user engagement in early stages of an onboarding process, resulting in more conversions down the track.

PASS RATE

As opposed to manual data entry, BlinkID's scanning functionality encourages more users to pass through the first step in their onboarding journey.



⁹ Experian. 2016. Customer Digital Onboarding. [Online]. [05 May 2020]. Available from: <https://engage.experian.co.uk/customer-digital-onboarding>

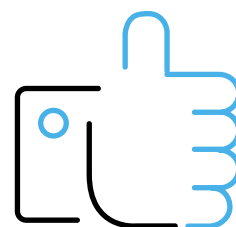


SPEED OF THE REGISTRATION PROCESS

Scanning one's personal information with BlinkID usually takes less than half a second, whereas typing it by hand can take minutes.

CUSTOMER SATISFACTION

Allowing users to scan in their personal information can have a positive impact on their overall satisfaction. This KPI can be measured through qualitative feedback and serves as a strong predictor of business growth.



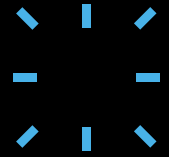
COST REDUCTION

An identity document scanning solution in lieu of manual form filling warrants a more streamlined onboarding process that requires less human involvement and associated costs.

Identifying, tracking, and delivering on user needs can be highly challenging, especially for organizations that have tailored their service delivery solely based on company-centric KPIs.

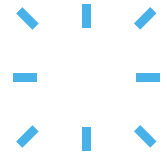
But across industries, transcending this challenge typically results in a 5-10% revenue growth as well as a 15-25% cost reduction within only two or three years, according to McKinsey & Company. (10)

¹⁰ McKinsey & Company. 2016. Customer experience: Creating value through transforming customer journeys. [Online]. [17 May 2020].
Available from: <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/customer-experience-creating-value-through-transforming-customer-journeys>



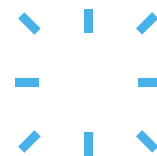
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Users care very little about their Net Promoter Score (NPS). In reality, they want to get on board as quickly as possible in order to start using the product or service in question.



When prompted to register with their credentials, users seek a fast, convenient and secure passage. This is not supposed to be a memorable experience – there will be plenty of room for those later on in the process.

Right now, the focus is on capturing users' personal information with as little friction as possible. With BlinkID, organizations can do precisely that – remove the first hurdle and usher an entirely new set of engaged users into their digital onboarding journey.



An AI for an eye:

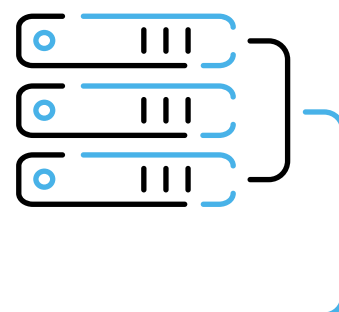
The technology behind BlinkID

Program a system to perform a task and it works for a day; teach it to learn by itself and it works for a lifetime.

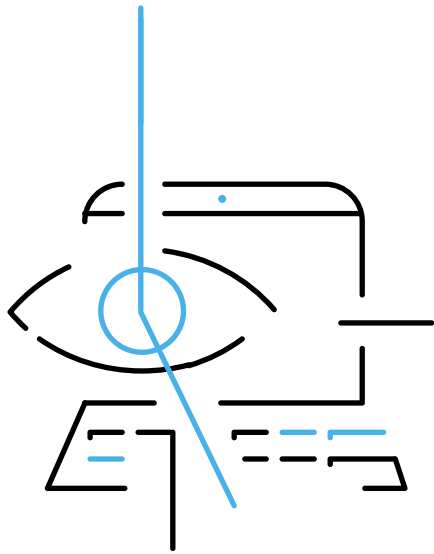
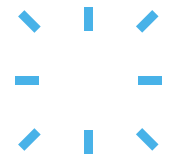
In many ways, developing AI is similar to raising a child. Both learn to differentiate between right and wrong, make independent decisions based on prior experiences and with time, improve.

AI tends to stir up plenty of hype, but we have been very pragmatic in our approach to its development. There is a logical flow to every process, all of which tie together to form a tangible pipeline.

With BlinkID, it all starts with veracious, comprehensive data. Just like a real human, an AI needs data to better understand the surrounding world. Without this lifeblood fueling its growth, a machine would not be able to learn, understand or act right.



We have strict evaluation criteria that define the way we collect, treat, and experiment with data. Placing its quality at the forefront of BlinkID translates into higher accuracy and broader coverage down the line. Each new release brings support for more identity documents, and we're nearing our goal of supporting all government-issued documents in the world. See the full list [here](#).

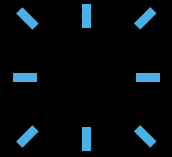


Next, to complement efficient data management, we need robust, self-sufficient technology. Our purpose-built machine learning (ML) models challenge the human ability to recognize and extract information from identity documents, both in terms of speed, accuracy and efficiency.

Training BlinkID to accurately recognize a new identity document, for example, usually requires no more than a few dozen sample images, compared to thousands needed in common ML systems.

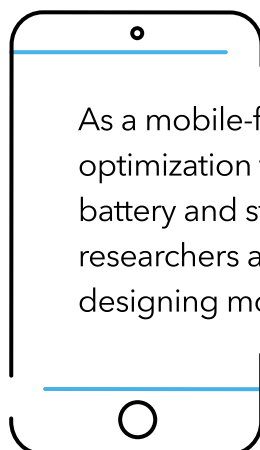
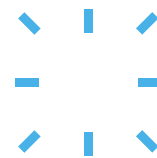


Deep machine learning models, however, come with their own unique set of challenges, the most prominent of which is their size. This may not be an issue for computers that house powerful processing units and large hard drives, but on mobile devices, designing them efficiently can be problematic.



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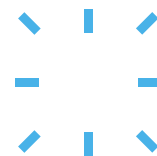
Just like a real human, an AI needs data to better understand the surrounding world. Without this lifeblood fueling its growth, a machine would not be able to learn, understand or act right.



As a mobile-first solution, BlinkID requires continuous model optimization to compensate for the lack of computational power, battery and storage for which smartphones are notorious. Our researchers and developers are constantly figuring out new ways of designing models that are less taxing on the mobile hardware.

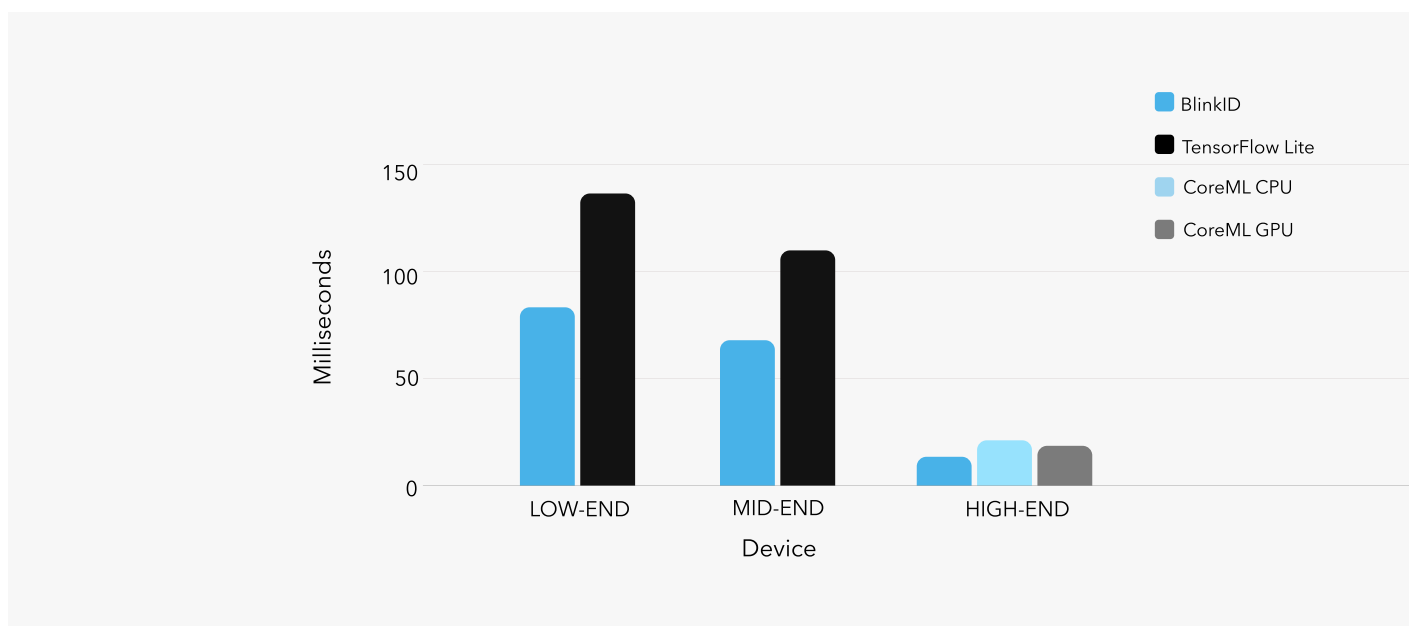
Speaking of mobile hardware, the machine learning models behind BlinkID run directly on the user's device, without the need for a network connection of any sort. This is a development approach that closely aligns with our commitment to data protection. The personal information extracted from identity documents never gets shared, and the end-user's privacy is preserved at all times.

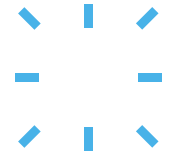




In addition to being more compact and secure, our proprietary ML models are also markedly faster than competing off-the-shelf products. Instead of satisfying mass-market needs, BlinkID solves highly-specific problems, often by running as many as eight ML models in parallel.

Performance testing has shown BlinkID regularly outpaces popular server-side solutions across a range of low, mid and high-end devices.





Guided by intelligence: The UI in front of BlinkID

At BlinkID, AI drives intuitive, engaging user interactions. It is guiding people toward optimal scanning with automatic document detection, real-time instructions and intelligent document recognition.

By default, the UI has been stripped down to its bare bones so that it is the experience, not design, that stands out. The out-of-the-box interface easily blends into new and existing solutions but remains fully customizable for those clients who wish to tailor it to their app.



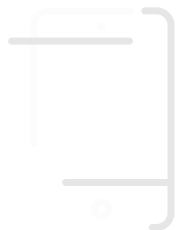
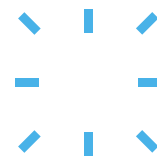
Scanning begins without the need to pre-select the document type.



A user follows on-screen messages and knows when to flip the document or move it farther away from the camera.



A quick flash, together with a checkmark at the end means the information has been extracted successfully.



Integrating BlinkID:

Advanced computer vision on any device and platform



Different users will use different channels to onboard for digital products and services. Providing a seamless experience on one channel and a conflicting (or non-existent) experience on another has the potential to fragment user experience and drive customers away.



At Microblink, we believe seamless identity document scanning should be accessible to anyone, anywhere. Our extensive documentation and test environments make integrating BlinkID easy both on mobile and web.

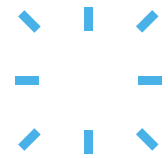
At the moment, BlinkID is available as a native or cross-platform mobile SDK, Cloud or Self-hosted API, In-browser SDK and C SDK.



This means it will work with any iOS or Android app, website, desktop app and even custom hardware. Self-hosted, cloud and hardware integrations are offered as backend services without an image acquisition component.



We have, however, developed a frontend solution for this exact purpose. BlinkID ImageCapture In-browser SDK uses AI to analyze the video stream from a user's camera feed in search of the clearest image of an ID. Once it finds it, it guarantees a successful scan on the backend.



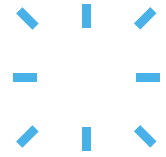
Here's an overview of the different ways in which BlinkID can be integrated.

MOBILE APP INTEGRATIONS

Type	Programming language	Suitable for
Native Android and iOS SDKs	Java, Kotlin, Objective-C, Swift	Natively-built mobile apps
Cross-platform SDKs: Xamarin, React Native, Cordova, Flutter, Capacitor	C#, JavaScript, Dart, Objective-C, Java	Mobile apps built with a cross-platform development framework

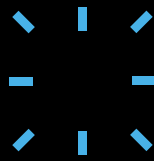
WEB INTEGRATIONS

Type	UI included	Suitable for
Self-hosted API	No (ImageCapture In-browser SDK available)	Web apps that run on self-hosted servers
Cloud API	No (ImageCapture In-browser SDK available)	Web apps that run on Microblink servers
In-browser SDK	Yes	Web apps, websites, progressive web apps
C SDK	No	Desktop apps, Linux hardware with Intel CPU



Key takeaways from Part II

- Replacing manual input with automated identity document scanning can reduce the onboarding drop-out rate by 35%.
- Identity document scanning reduces onboarding completion times, mitigates users' frustration, aids in subsequent verification procedures and gives the user a strong incentive to proceed.
- BlinkID positively impacts conversion, customer satisfaction and resubmission rates, among other KPIs and CPIs.
- The AI-driven models powering BlinkID are lighter and faster due to the fact they're programmed as mobile-first, problem-specific solutions.
- BlinkID's user interface is widely accepted in its default form, proving the out-of-the box design can be seamlessly blended into any mobile or web app.
- Organizations with a strong omnichannel strategy can seamlessly onboard customers regardless of the communication method – driving BlinkID's accessibility and ease of integration on both mobile and web.



Ready to onboard users in a faster,
drastically simpler way?

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