



The Ultimate Retail Experience **Starts With Facial Recognition**



Introduction:

Facial Biometrics Are the Future of Retail

As digital transformation sweeps across our society, bringing together the physical and virtual worlds, the retail space is changing in a big way. Consumers today demand more. They expect consistent, seamless and safe retail experiences — whether it's online, in-store or via mobile apps. The core of this new retail experience is customer identity, and biometric technologies are a proven way to ensure businesses know their customers while keeping them safe, secure and satisfied.

This eBook will outline how **facial recognition technology can address the challenges of modern retailers and transform the customer experience, while helping retailers stay compliant, secure and privacy-first.**

Part 1:

Showing Customers a Friendly Face

Successful retail starts and ends with the customer experience. This concept has never been more relevant to retailers than it is today.

With a seemingly endless variety of options in terms of where and how to shop, providing a premium, memorable experience can mean the difference between a customer coming back for more or leaving you for your competition. What makes an exemplary customer experience? The ideal shopper's journey is quick and convenient, personalized to their preferences, safe, secure and clean. All of these can be achieved easily with facial recognition technology, ensuring every touchpoint builds a positive customer relationship.





1.1 SPEED AND CONVENIENCE

One of the most important benefits of facial recognition in the retail space is the technology's ability to enhance the customer experience. With facial recognition, even a daily experience such as grocery shopping can be revolutionized. Customers who choose to sign up for a biometric shopping experience simply need to register their face through a kiosk or a mobile app. After that, they can grab what they need, ring it in at a self-checkout terminal, and complete the transaction just by showing their face. There is no need to present a payment card, mobile app, or cash, and also no need for proof of age — the entire transaction is fast and completely contactless and frictionless.

5 to 10 minutes
is the maximum acceptable amount
of time that retail consumers are
willing to wait in line.

Source: Fashion United



1.2 PERSONALIZED SERVICES

With facial recognition technology, customers can be identified immediately, and can even make purchases via face scan by linking their loyalty accounts to their facial biometric templates. This means customers who are enrolled in loyalty programs can automatically have their benefits applied to any given transaction and can collect rewards points as appropriate, with no additional friction required to prove their membership. Retailers can even use the technology to automatically alert known customers to special offers and new products they might be interested in, based on their purchase history.

91%

of customers are more likely to shop for brands that provide relevant offers and recommendations.

80%

of customers are more likely to purchase a product or service from a brand that provides personalized experiences.

Source: Accenture

Privacy Enhanced Age Verification

Have you ever felt self-conscious when showing your ID to purchase age-restricted products? Your driver's license contains a lot more information than just your date of birth – showing your full name and address to a store associate doesn't have to be part of your shopping experience. With biometric age verification, a scan of your face simply confirms you meet the age requirement without sharing your private details, making your trip to the store convenient and anonymous.



1.3 SECURE SHOPPING EXPERIENCE

Customers can enjoy the peace of mind that comes from knowing that the retailer has the highest level of security in place. With facial recognition, shoppers can easily pay by presenting their face at checkouts. It is easier, faster, and most importantly secure. Ensuring that customers are accurately identified for every transaction means that the possibilities of credit card fraud and identity fraud are virtually eliminated.

87%

of customers prefer to shop in stores with touchless or robust self-checkout options.

Source: Forbes

1.4 TOUCHLESS FOR A SAFER, MORE HYGIENIC ENVIRONMENT

In a pandemic environment, customers will appreciate contactless transactions. Facial recognition technology is touchless and frictionless, ensuring that there is no need to touch shared surfaces and allowing social distancing to be easily maintained.

These benefits will help retailers better serve customers, and that, in turn, will help to retain customer loyalty and deliver a competitive edge in the market. Convenience, personalized service, and security are important to everyone, and ensuring that customers feel that their health is being prioritized is likely to remain an important differentiator for some time.



Part 2: Building a Better Retail Business with Facial Recognition

Customers will undoubtedly appreciate the benefits outlined in the previous section, and that's good for retailers, too – happy customers are very often returning customers. But facial recognition also offers particular benefits to retailers by allowing them to address various operational obstacles in new and more effective ways.

While COVID-19 has delivered new challenges, retailers must still contend with longstanding issues that were plaguing the industry prior to the pandemic, including the need to maximize operational efficiency, comply with regulatory restrictions, guard against internal fraud, and retain customer loyalty.





2.1 LEVEL-UP RETAIL EFFICIENCY

Facial recognition technology offers transformative help in improving operational efficiency. At the till, for example, face-scanning cameras can be used to automatically identify employees, reducing the time that is normally needed to log in or transfer cashiers. This approach not only maximizes employee efficiency, but also serves to improve the customer experience by helping to keep lines short and fast-moving.

Keeping customers waiting in line
can cost U.S. retailers up to

**\$100 billion
per year.**

Source: Fashion United



2.2 FIGHTING INTERNAL FRAUD

Using facial recognition for employee identification also offers another important benefit: combatting the internal threat of fraud. Many retailers face perennial threats in the form of time theft and ‘buddy punching’ practices in which an employee will clock in on behalf of another; meanwhile, unscrupulous cashiers can process fraudulent discounts with unauthorized manager overrides. Tying employee identity to facial biometrics effectively eliminates the possibility of internal fraud, ensuring that employees at a till or punch clock really are who they claim to be and holding them responsible for their actions.

Face biometric technology makes it easier than ever to log into tills, serve customers, and clock in and out, all while ensuring that compensation is paid out correctly. These benefits can all help to promote morale and reduce turnover.

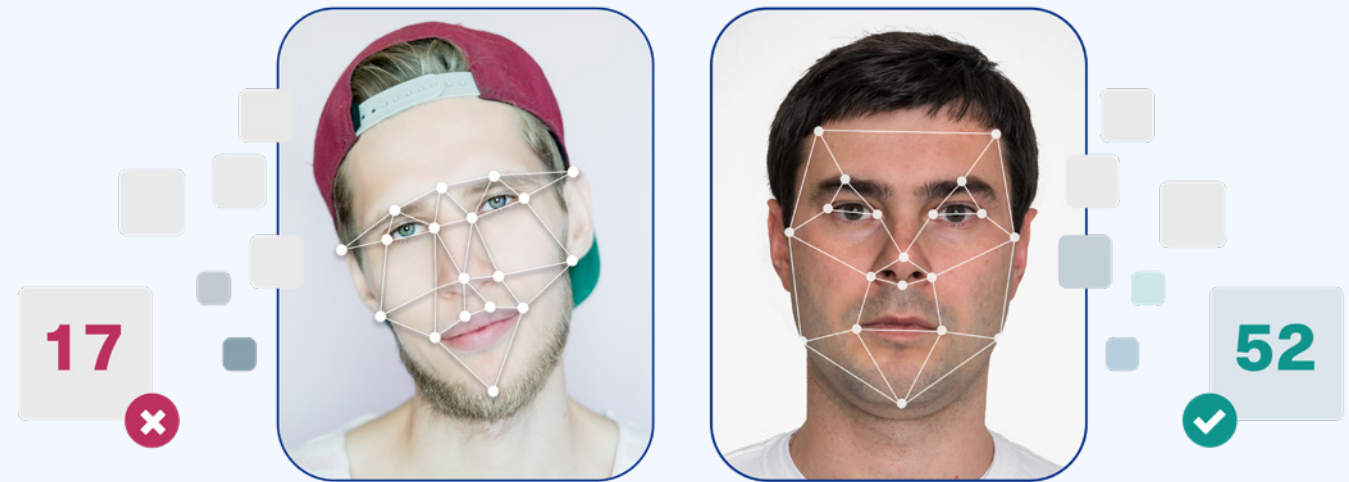
\$373 million
is lost yearly due to buddy punching
in the United States.

Source: 7Shifts

76% of Americans

would support an age-verification program by major retailers that sell age-restricted products.

Source: Bloomberg



2.3 ENABLING EASY AGE-VERIFICATION COMPLIANCE

Vast numbers of consumers purchase alcohol, cigarettes, and other age-restricted products on a regular basis, but for many it's a more onerous shopping experience due to the need to present a valid ID as proof of age. With facial recognition, manual age verification at the checkout can be eliminated entirely.

Customers need only to opt-in and register their faces along with a government-issued ID showing their date of birth, both of which can be matched, thereby verifying a shopper's age. That means the customer can check out beer or a bottle of wine with just their face, without employee intervention. While this offers great convenience for the customer, it also benefits the retailer by enabling a more efficient checkout process and ensuring compliance with age-restriction laws.



2.4 BUILDING LOYALTY WITHOUT THE ADDED FRICTION

Rewards programs are a great way of keeping customers coming back and building brand loyalty, but they inherently add friction to the shopping process by requiring customers to identify themselves as members, usually with a dedicated card or app. When customers use their faces to check out, the identification process is automatic and entirely transparent, requiring no special action on the shopper's part. All they need to do is make a purchase as they normally would, and they are automatically identified as members, with points or other rewards applied instantly. Even more, it's as easy to become a member as it is to sign up for biometric payments, further incentivizing shoppers to opt-in. This translates into more sales for retailers, and less hassle for staff thanks to automated customer identification.



Part 3: Facing Tough Concerns

The broad advantages of face biometric solutions are clear, but it's worth taking a moment to consider some of the concerns that need to be addressed when deploying this kind of cutting-edge technology. For many, protecting customer privacy and ensuring a high level of accuracy will be top priorities, while the retail environment presents its own particular ethical challenges. It's important to find the right technology, and to deploy it in the right way, to address all of these issues.





3.1 MAKING PRIVACY COMPLIANCE AND SECURITY AS EASY AS SHOPPING

When you're dealing with customers you're dealing with privacy. Every transaction requires some form of personally identifiable information (PII), whether it's the customer's name, date of birth, payment information, email address, or even their biometrics. To help protect customer data privacy, an increasingly complex set of regulations is emerging around the world.

Whether it's Europe's GDPR, Illinois's BIPA, or California's CCPA, privacy regulations exist to ensure consumer PII is protected. And while each of these regulations — not to mention others currently being developed in other markets — have their own unique characteristics and requirements, a properly implemented identity management system following best privacy practices can naturally adhere to even the most stringent legislation.

Rather than individually addressing each regional privacy regulation's specific requirements, a privacy-first facial recognition system can be naturally compliant with all of them. Generally speaking, each regulation serves to ensure that organizations are not collecting PII without the consent of a given user, that they are protecting the data that they do collect, and — in the case of GDPR's right to be forgotten — that said data can easily be removed from a database if the user so demands.



Here is what makes a privacy-first biometric system work:

- **Self-sovereign Identity**

In order to comply with consent-based requirements of privacy regulations, a customer must be given the option to opt in and enroll in your biometric system. By offering an easy-to-use digital onboarding solution, which allows customers to enroll in your biometric systems by taking a selfie and a picture of a government-issued ID, there can be no doubt that the customer has chosen to be enrolled. At the same time, it is crucial today that any database of customer information — biometric or otherwise — has the ability to allow customers to opt-out.

- **Anonymous Templates**

The best way to protect PII is to not store it in the first place. The leading facial recognition systems store templates, not facial images. The data in the template cannot be reverse engineered, and is not associated with any biographical or contextual information, so in the unfortunate case of it becoming compromised, it is a useless piece of code.

- **Network-wide Security**

In addition to storing facial templates rather than images, the ideal facial recognition systems also use encryption for all sensitive data in order to safeguard it against potential breaches. And it will use secure end-to-end transmission between data points to guard against “man-in-the-middle” attacks, adding another layer of security to protect the PII.



3.2 PEAK PERFORMANCE FOR THE SAFEST RETAIL CONVENIENCE

Not all facial recognition technologies are created equal. When it comes to implementing one for retail, you need to account for the key performance differentiators.

- **Presentation Attack Detection**

A recent report from [PYMNTS](#) indicated that consumers prefer unattended retail channels because they like shopping at their own pace. But when the checkout terminal is unattended, how can you prevent thieves from tricking their way past facial recognition with common spoofing tactics like holding up a picture to fool your system into authorizing a sale?

The answer is Presentation Attack Detection (PAD): a support technology aimed at thwarting crafty fraudsters who would try to fool biometric sensors. Combining Multispectral Imaging (MSI) technology with advanced PAD, HID's facial recognition cameras can scan the surface and subsurface of a subject's face, allowing the facial recognition system to detect and reject any fakes immediately.

- **Bright Light and Complete Darkness**

Harsh angles and diverse subjects aren't the only challenges that face recognition technology must tackle in the retail environment. Lighting can also create difficult matching conditions. To address this issue, MSI technology uses a wider spectrum of light to capture faces, allowing it to function in direct sunlight or complete darkness. Your ability to serve customers shouldn't depend on your store's layout, the weather outside or the time of day. HID's MSI camera ensures you can provide the ultimate experience to your customers when and wherever you conduct business.



3.3 FUSION OF AI AND MACHINE LEARNING BOOSTS FACIAL RECOGNITION ACCURACY

Facial recognition has improved dramatically in only a few years. As of April 2020, the best face identification algorithm has an error rate of just 0.08% compared to 4.1% for the leading algorithm in 2014, according to tests by the National Institute of Standards and Technology (NIST), the gold standard in evaluating biometric technology.

- **Top NIST Ranking**

HID's facial recognition technology is powered through our partnership with Paravision, a leader in AI and machine learning. In the latest round of the NIST Face Recognition Vendor Test (FRVT), Paravision's facial recognition algorithm was *ranked the most accurate in the world.*

- **The Ethical Edge**

AI and machine learning are the key to Paravision's success, and that's why HID Global has collaborated with Paravision for our facial recognition solution. The AI-based matching algorithm has been trained using a very large, ethically-sourced dataset with tens of thousands of images across a wide number of facial characteristics that includes "in the wild" images (face photograph dataset designed for studying the problem of unconstrained facial recognition). This includes an approximate 50/50 split for male/female displayed gender and a broad adult age distribution to ensure sufficient diversity of data against matching bias.

Conclusion: **Face the Future of Retail**

The retail space is changing rapidly. Retailers can bring privacy-first, contactless convenience to customers today with HID Global's face biometric technology. Our facial recognition technology is ready to help retailers achieve compliance today and well into the future — while giving consumers the best possible levels of convenience and security.

Learn more about HID Global's facial recognition technologies:

- **Website**
- **HID Global Retail Blogs**
- **Learn more about HID Global and Paravision partnership**
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