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Facial Recognition in Retail

An Overview of its Applications in New Zealand

Why Retailers Choose FRT

Facial recognition technology (FRT) is rapidly transforming the retail landscape, offering business owners an innovative solution to rising concerns around **safety, security, and efficiency**.

Foodstuffs North Island's six-month trial across 25 stores—New World and PAK'nSAVE— **successfully reduced serious incidents by 42%** and retail crime by 8%. Most importantly, it prevented an estimated 100 assaults and verbal abuse cases, proving FRT's power in protecting staff and customers.

Over 100 assaults prevented

For retail businesses, the benefits are clear**: safer staff, and a better customer experience**. But there's a balancing act to consider—privacy. Customers and employees expect their data to be handled carefully, and retailers must comply with privacy laws while protecting their bottom line.

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As you look at adopting FRT, it's essential to weigh the pros and cons:

- **Safety First**: FRT can prevent aggressive behaviour and safeguard your team.
- **Customer Trust**: Address privacy concerns proactively, ensuring transparent data usage.
- **Compliance**: Stay on top of privacy regulations and staff training.

With the right approach, FRT can protect your business, increase efficiency, and create **a safer environment** for both staff and customers.

Let's take a closer look at the what, why, and how of facial recognition in retail, so you can make an informed, strategic decision.

Facial recognition isn't just a trend—it's becoming essential in today's retail environment. It allows businesses to deter repeat offenders, prevent theft, and address safety concerns, all while improving operational efficiency. Yet, with the power of FRT comes the need to manage privacy concerns, comply with regulations, and train staff on its use.

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Staff assaults increased **131%**

92% of retailers impacted by crime

148,599 crimes reported in 2023 (NZ)

FRT gives you the **peace of mind** to focus on running your business while safeguarding your people and assets.

Retail Crime is on the Rise

Retail businesses are facing a growing threat: rising crime and increasing violence against staff.

In **New Zealand**, **92% of retailers** experienced crime last year, resulting in losses exceeding **$2.6 billion annually**. Reports of **verbal and physical abuse** against employees are also rising. Woolworths New Zealand recorded a **131% increase in physical assaults** against staff, prompting a **$45 million investment** in safety measures.

This isn't just a **local issue**—it's a **global trend**. Retail crime is surging worldwide, driven by economic instability, **organised crime**, and **a post-pandemic rise in aggression**.

In the **U.S.**, retail crime increased by **26.5% in 2023**, with thefts alone costing over **$100 billion annually**. In **Europe**, **losses from theft have topped €49 billion each year.**

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Facial Recognition as a Solution

As a retailer, this growing trend puts your staff and customers at risk. Facial recognition technology (FRT) is emerging as a key solution, helping retailers protect their teams, deter criminal activity, and manage safety concerns more effectively.

92% of NZ retailers experienced crime last year

$2.6B lost annually in NZ retail crime

131% increase in staff assaults at Woolworths NZ*

Source: *Woolworths to Spend $45 Million on Safety Initiatives After 131% Rise in Physical Assaults*, RNZ, 2023.
https://www.rnz.co.nz/news/business/502872/woolworths-to-spend-45-million-on-safety-initiatives-after-131-percent-rise-in-physical-assaults

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How Facial Recognition works

- Facial recognition searches for faces on a watchlist, such as trespassed individuals.
- NEC's system does not store faces of regular customers.
- Best-in-class vendors rely on advanced algorithms evaluated by NIST benchmarking tests.

Face Capture

High-resolution cameras capture images of customers as they enter the store.

Face Matching

Images are compared against a watchlist of trespassed or banned individuals.

Watchlist Identification

Alerts store personnel when a match is found, including the reason for being on the watchlist.

Immediate Response

Staff can verify the individual's identity and take appropriate action (e.g., asking them to leave).

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What is an Algorithm?

And why does it matter?

- A biometric algorithm uses a person's physical or behavioral characteristics to identify them
- Algorithms are trained with diverse biometric data to deliver speed and accuracy. Here is the capture and match process:

- Algorithms create a unique "faceprint" by analysing facial features (e.g., eyes, mouth).
- "Faceprints" are compared against stored databases to identify matches (e.g., trespassed individuals).
- The quality of the algorithm directly affects how accurately the system can identify faces, especially with different lighting or angles.

Algorithm quality ensures accuracy across diverse conditions.

Challenges with Facial Recognition

Some Common Challenges:

- Communicating how it is being used
- What information is captured
- Managing privacy risks

Adopting facial recognition technology can create challenges like negative customer reactions and publicity.

Transparency about its use and processes is essential, especially in addressing staff assaults, which have risen significantly, such as a 50% jump in physical assaults at Woolworths in the past year.

Lack of Understanding: Many are unaware of how biometrics works, raising privacy and security concerns.

Misconceptions: Customers may see biometrics as invasive or solely for surveillance.

Reducing Staff Assaults: Creating clear messaging on **why** facial recognition is being introduced

Privacy Impact and Compliance in New Zealand

The Importance of Compliance

Facial recognition deployments must align with relevant laws and regulations, such as New Zealand's Privacy Act 2020. Compliance ensures both legal adherence and the building of customer trust.

Key Considerations for Compliance

(According to privacy.org.nz)

Lawful Purpose: Clearly define the legitimate business purpose for facial recognition (e.g., security, staff safety). Principle 1 of the Privacy Act.

Notification: Notify customers about FRT usage through visible signage or policy documentation. Transparency aligns with Principle 3 of the Privacy Act.

Minimising Intrusion: Ensure FRT is not used in an overly intrusive or unfair way. Consider using real-time processing to avoid unnecessary data retention (Principle 4).

Data Security: Implement robust encryption and secure storage for biometric data to protect against breaches. Compliance with Principle 5 is critical.

Access and Correction: Allow individuals to access their data and correct inaccuracies. This upholds their rights under Principles 6 and 7.

Accuracy and Retention: Keep data accurate and up-to-date and delete it when no longer required (Principles 8 and 9).

Disclosure: Clearly communicate the purpose of sharing data, adhering to Principle 11.

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Start with a Privacy Impact Assessment (PIA)

1. Define the Purpose

- Clearly outline the goals of the initiative requiring a PIA.
- Identify the types of personal data involved.

2. Identify Risks and Impacts

- Analyse potential privacy risks and their impact on individuals through a PIA.
- Consider factors like data collection, storage, and use.

3. Evaluate Compliance

- Assess the initiative's compliance with New Zealand's Privacy Act as part of the PIA.
- Identify any gaps or areas needing improvement.

4. Develop Mitigation Strategies

- Use PIA findings to create safeguards addressing identified risks.
- Adjust project design to strengthen data protection.

5. Document and Communicate

- Record the PIA process, findings, and mitigation strategies.
- Share results with stakeholders for transparency.

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Recommended Staff Procedure for Facial Recognition Alerts

Facial Recognition Alert Triggered

The facial recognition system detects a potential match and sends an alert.

Review Alert Details

Staff check the alert's location, timestamp, and confidence level.

Compare Captured Image

Compare the captured image with the individual in-store for confirmation.

Decision Making

Based on verification, staff decide on the next steps, such as notifying security.

System Alert Review: Confirm the alert by checking details and comparing images.

Secondary Verification: Escalate to a manager if needed for further confirmation.

Non-Confrontational Approach: Approach individuals calmly and professionally, following protocols.

Documentation: Record all steps, decisions, and outcomes for accountability.

Periodic Training: Ensure regular staff training on procedures, customer sensitivity, and risk mitigation.

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Staff Training and Procedures

Your facial recognition process should be well-defined and publicly available to mitigate negative perceptions or reputational risks. This should include things like human intervention and secondary verification.

Critical Role of Training:

Facial recognition is a supportive tool, not a sole decision-maker. Processes should include human oversight and verification.

Transparency:

Clearly define and publicise your facial recognition process to mitigate reputational risks.

Key Training Elements:

- Adding individuals to watchlists: Define criteria and notification processes.
- Staff actions for identified individuals.
- Detailed incident documentation.
- Regular refresher training.
- Deployment reviews to ensure optimal camera positioning.

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Racial Bias

While past facial recognition systems faced significant challenges with racial bias, advancements in recent years have led to more inclusive and equitable biometric solutions.

NEC's algorithm has demonstrated no statistical significance in performance differences across individuals of varying ethnic backgrounds, ages, or genders.

Historical Racial Bias: Early facial recognition systems had higher error rates for darker skin tones.

Lack of Diverse Datasets: Non-diverse training data led to poor accuracy for underrepresented groups.

Advancements in Algorithms: NIST (National Institute of Science and Technology)-tested algorithms now ensure high accuracy across all ethnicities, reducing bias.

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Myths vs Facts

Myth #1: Biometric solutions are inherently racially biased.

Fact #1: : Biometric solutions are be designed for fairness. Leading algorithms show no bias per NIST testing.

Myth #2: Biometrics are a tool of discrimination and surveillance.

Fact #2: Biometrics enhance security and accessibility while respecting privacy. NEC's system does not store faces of regular shoppers.

Myth #3: Facial Recognition is one step closer to a Police State.

Fact #3: : Facial recognition is regulated by New Zealand's privacy laws and only used for trespassed individuals. CCTV is already widely adopted in retail stores.

Myth #4: Biometric data is inherently insecure and vulnerable to misuse.

Fact #4: : Secure storage with encryption, access controls, and data-handling protocols ensures data protection.

Myth #5: Biometric solutions are a replacement for human judgment.

Fact #5: Biometrics assist decision-making but rely on human oversight to ensure responsible and ethical use.

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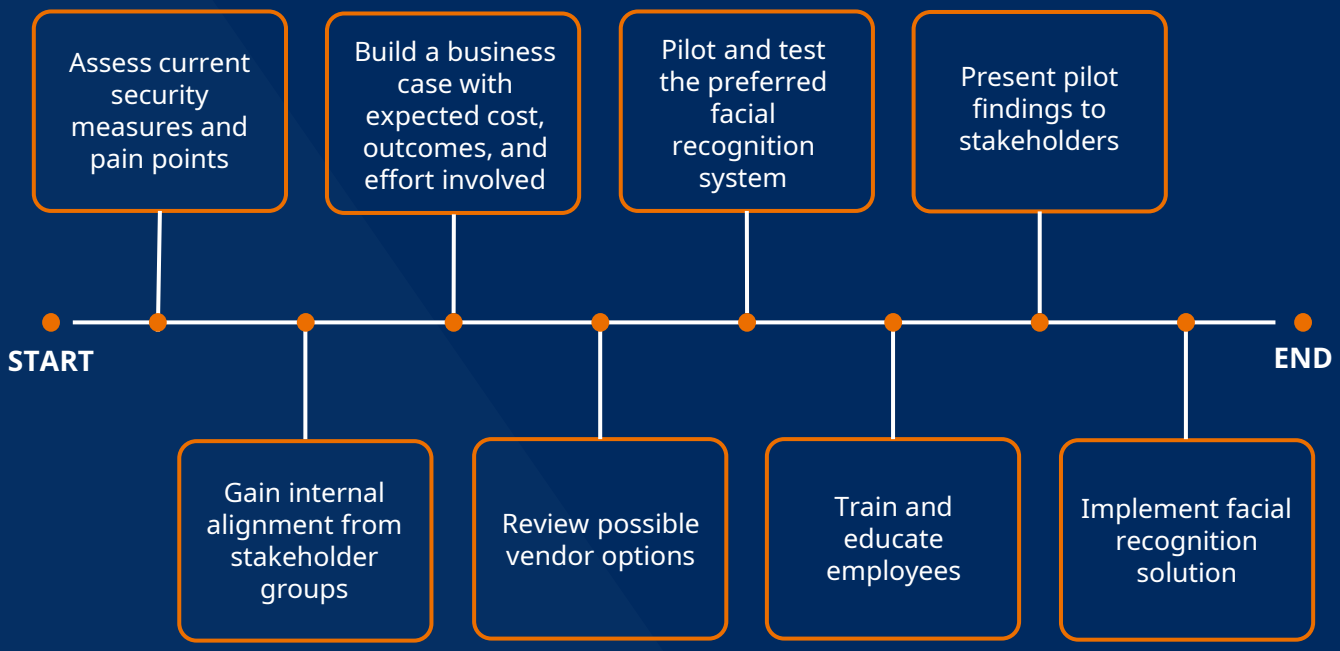
Facial Recognition Buyer Journey



Implementing facial recognition technology in a retail environment has the potential to be transformative. However, it requires careful consideration of operational, technical, and ethical factors.

Given the sensitive nature of facial recognition, understanding the key steps is essential to ensure a successful deployment.

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Key Considerations for Implementing Facial Recognition

Business Objectives

Identify the problem facial recognition is solving. How does it align with goals like staff safety, security, or theft prevention?

Stakeholder Alignment

Have internal teams aligned on goals and risks? What steps are required for collaboration and documentation?

Technical Readiness

Does your IT infrastructure support integration? Are your camera systems and network bandwidth adequate?

Training & Change Management

Is there a plan to train staff on using facial recognition? How will you handle potential pushback from employees or customers?

Data, Privacy & Compliance

Are privacy concerns being addressed effectively? Have you conducted a Privacy Impact Assessment (PIA)?

Documenting Success Criteria

Define what success looks like post-implementation. What metrics will you track to measure outcomes?

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Facial Recognition Risks and Mitigations

Risk	Description	Mitigation
Privacy Violations	Unlawful or unethical capture or misuse of personal data.	Conduct a Privacy Impact Assessment (PIA) to evaluate data collection, storage, and access controls. Ensure transparent practices.
Data Security Risks	Unauthorised access to stored data of trespassed individuals may lead to data theft or misuse.	Implement robust encryption, secure storage, and strict access controls. Follow information security best practices.
Racial Bias	Facial recognition algorithms may exhibit higher error rates for certain demographic groups in poor lighting conditions.	Use NIST-approved algorithms trained with diverse datasets. Ensure proper camera placement and lighting for improved accuracy.
Transparency Issues	Lack of clear communication about how and why facial recognition is used may lead to customer distrust.	Provide visible signage, press releases, and public policies explaining the system's purpose and processes.
Over-Reliance on System	Dependence on technology may replace human judgment, increasing the risk of misidentification and reputational harm.	Incorporate secondary verification with human oversight. Train staff to use facial recognition responsibly.
Reputation Damage	Public concerns over privacy can lead to reputational harm and resistance.	Engage in community consultations, share ethical commitments, and emphasise safety benefits. Be transparent with customers.
Legal Compliance	Risk of non-compliance with privacy and data protection laws.	Regularly review and update system usage according to privacy laws, such as the New Zealand Privacy Act.

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Conclusion

Facial recognition is a powerful tool for addressing significant challenges faced by retailers, including escalating retail crime and staff assaults.

- Implementing this technology must comply with **New Zealand law** and align with your **security objectives**.
- This white paper provides **practical steps** to get started, focusing on:
  - **Clarifying the problems** you're solving.
  - Aligning **stakeholders**.
  - Educating on the **benefits and risks** of facial recognition.

For more information:

- Email us to request our comprehensive guide or a friendly, no-obligation discussion about your specific business needs at **hello@nec.co.nz.**
- Visit our website **www.nec.co.nz**.

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