The Future of Retail and Modern Risk Management

Tony D'Onofrio

What does the
Future of Retail
And
Self-Checkout
Look Like?

Agenda:

10

Quick Trends Changing Everything

Mumbai

Cartagena

TRAC

New York

Hong Kong

Frankfurt

Budapest

London

WE

THE DISRUPTIV

OF RETA

Rome

Dallas

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You are the *Leaders* to *Shape It*

World's Challenges
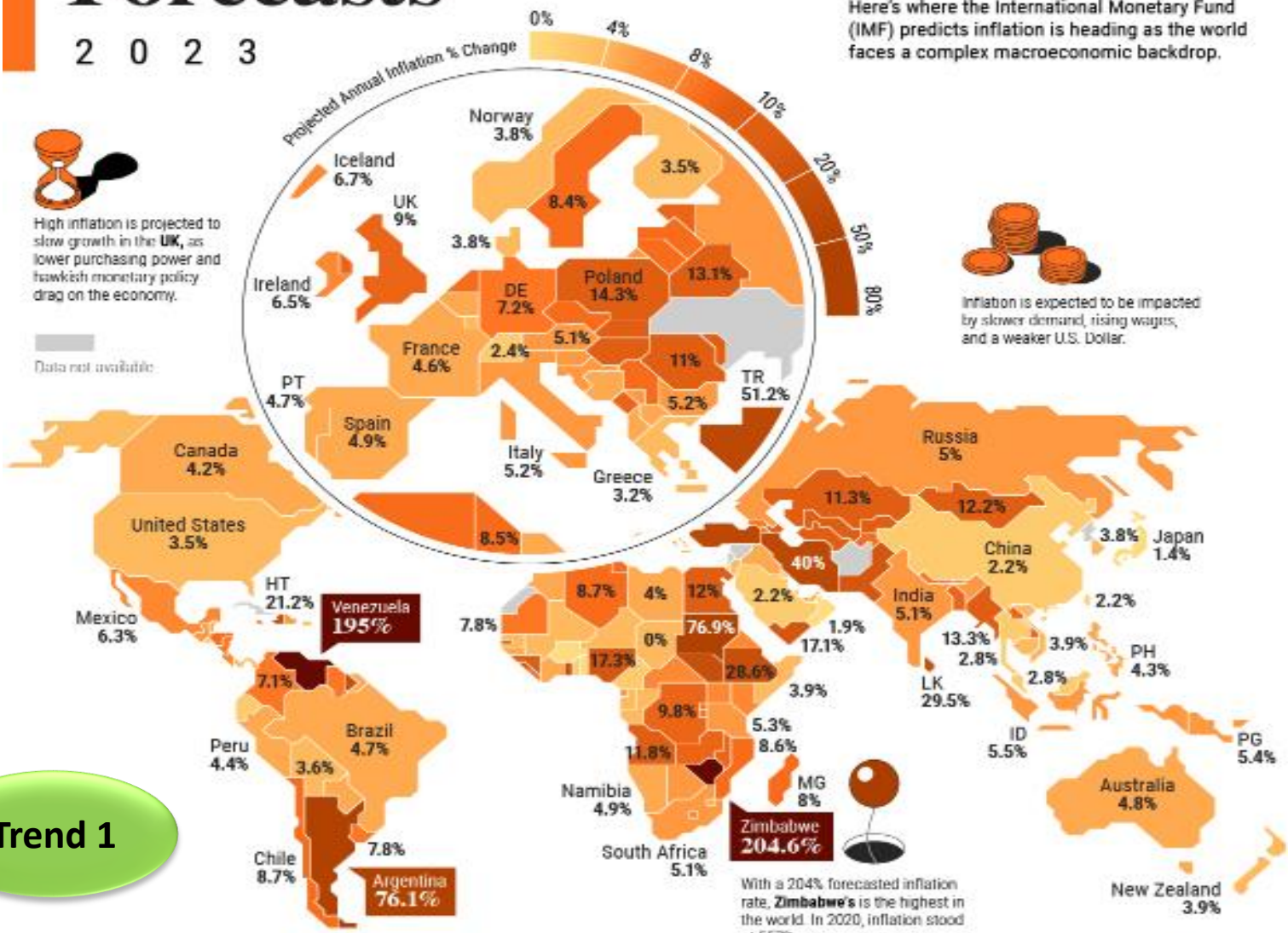
Global Retail Forecasts

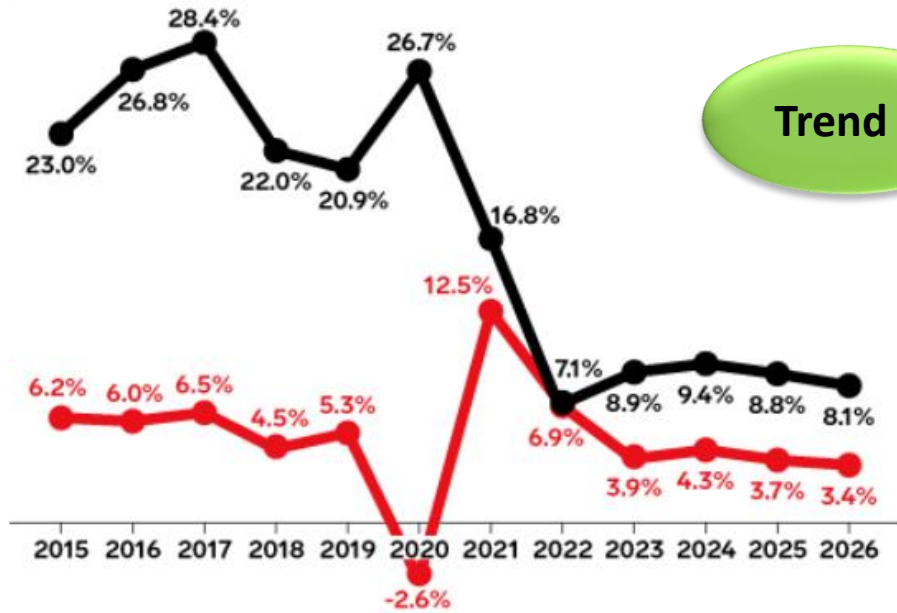Retail Sales Growth and Retail Ecommerce* Sales Growth Worldwide, 2015-2026
% change

Trend 2

Retail ecommerce* sales growth: 23.0%, 26.8%, 28.4%, 22.0%, 20.9%, 26.7%, 16.8%, 7.1%, 8.9%, 9.4%, 8.8%, 8.1%

Retail sales growth: 6.2%, 6.0%, 6.5%, 4.5%, 5.3%, -2.6%, 12.5%, 6.9%, 3.9%, 4.3%, 3.7%, 3.4%

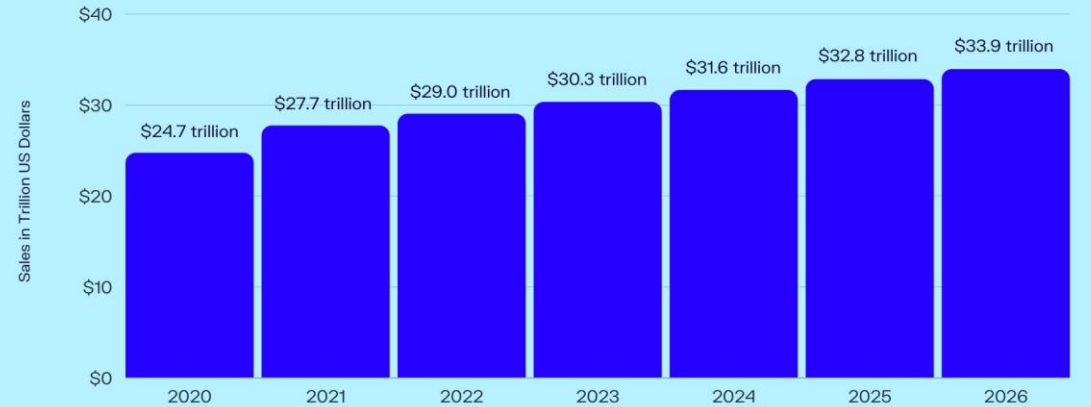Retail sales growth ■ Retail ecommerce* sales growth

Note: excludes travel and event tickets, payments such as bill pay, taxes, or money transfers, restaurant sales, food services and drinking place sales, gambling and other vice goods sales; *includes products or services ordered using the internet, regardless of the method of payment or fulfillment
Source: eMarketer, Dec 2022
279964

eMarketer | InsiderIntelligence.com

Total Retail Sales Worldwide (2020–2026)

Sales in Trillion US Dollars

2020: $24.7 trillion, 2021: $27.7 trillion, 2022: $29.0 trillion, 2023: $30.3 trillion, 2024: $31.6 trillion, 2025: $32.8 trillion, 2026: $33.9 trillion

Source: eMarketer

OBERLO

Global Ecommerce Sales (2021 to 2026)

Sales in trillion US dollars

2021: $5.2 trillion, 2022: $5.7 trillion, 2023: $6.3 trillion, 2024: $6.9 trillion, 2025: $7.5 trillion, 2026: $8.1 trillion
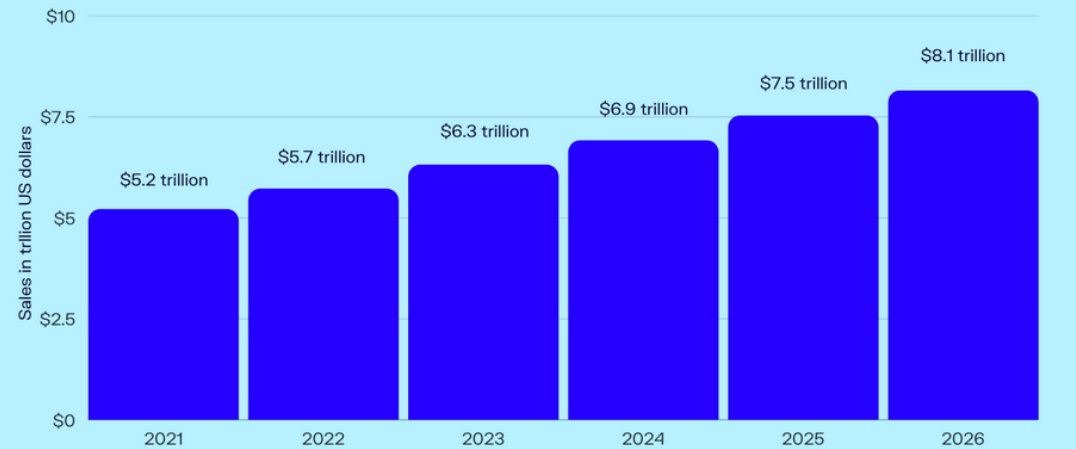
Source: eMarketer

shopify

5

Source: E-Marketer

2022 Technology Lessons

83% HIGHER SALES GROWTH

IN 2022 THOSE ALREADY USING RFID

80% HIGHER PROFITS GROWTH

Trend 3

THOSE ALREADY USING EDGE COMPUTING IN 2022 HAD

28% HIGHER SALES GROWTH

67% HIGHER PROFITS GROWTH

THOSE ALREADY EXTENDING COMMUNICATIONS TO THE PARKING LOT FOR BOPIS/CLICK & COLLECT

59% Sales Winners Already Use

37% HIGHER SALES GROWTH

6% HIGHER PROFITS GROWTH
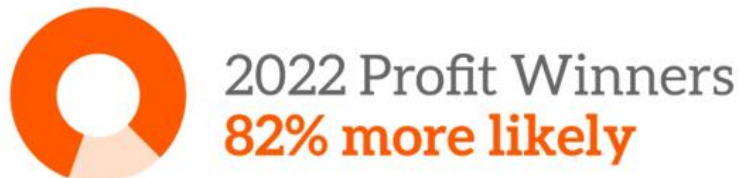
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Source: IHL Group, 2023

2023 Winning Retailers Top 5 Tech

Geo-Location

- 2022 Sales Winners investing in Geo-Location for 2023 at a rate **13x higher**.
- **64%** plan to use by 2025

Tools for Associates

Who is likely investing in better mobile tools for associates?

Sales Winners
77% more likely

2022 Profit Winners
82% more likely

Electronic Shelf Labels

Most profitable retailers investing ESLs at a rate **12x HIGHER** than their competitors.

55%

Mobile Check-Out

Who is likely letting customers check out with their phones at the store level in 2023?

Sales Winners
53% more likely

Profit Winners
60% more likely

LP Prescriptive Analytics

55% of Profit Winners plan to use Prescriptive Analytics for Loss Prevention by end of 2023.
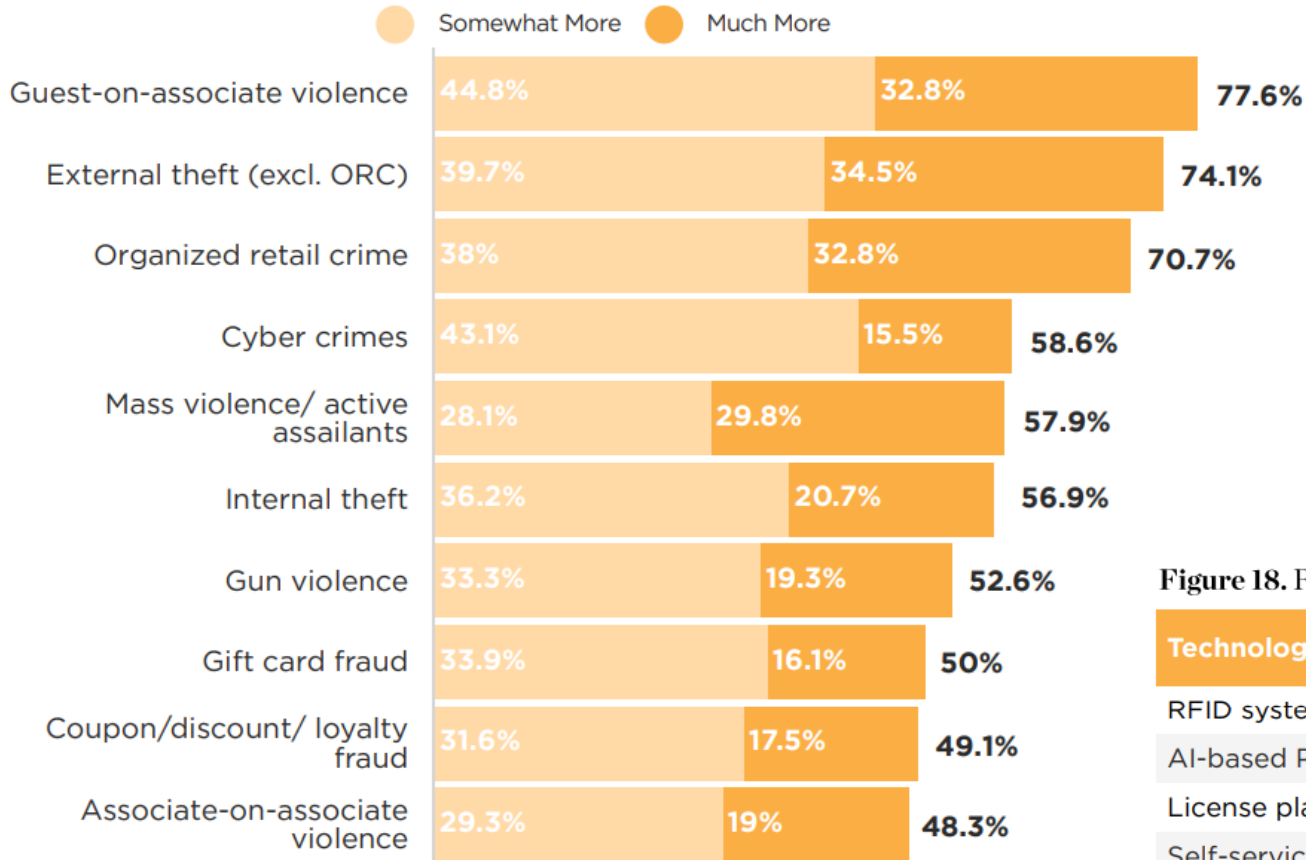
Trend 4

Source: IHL Group, 2023

Retail Security Concerns are Changing

Figure 12. Increase in Risk and Threat Priorities over the Past Five Years

Somewhat More · Much More

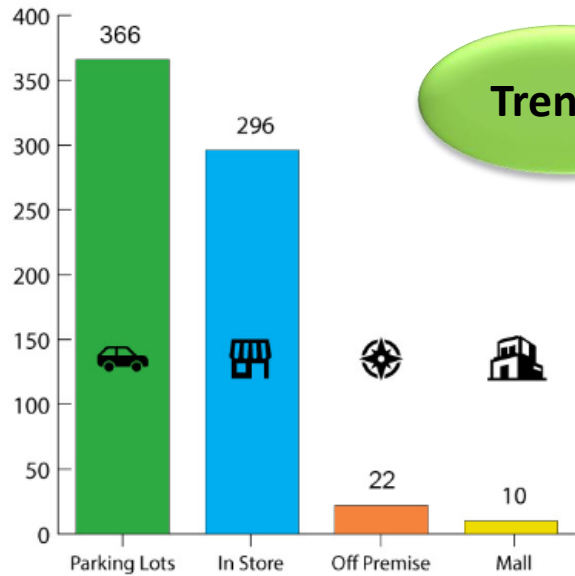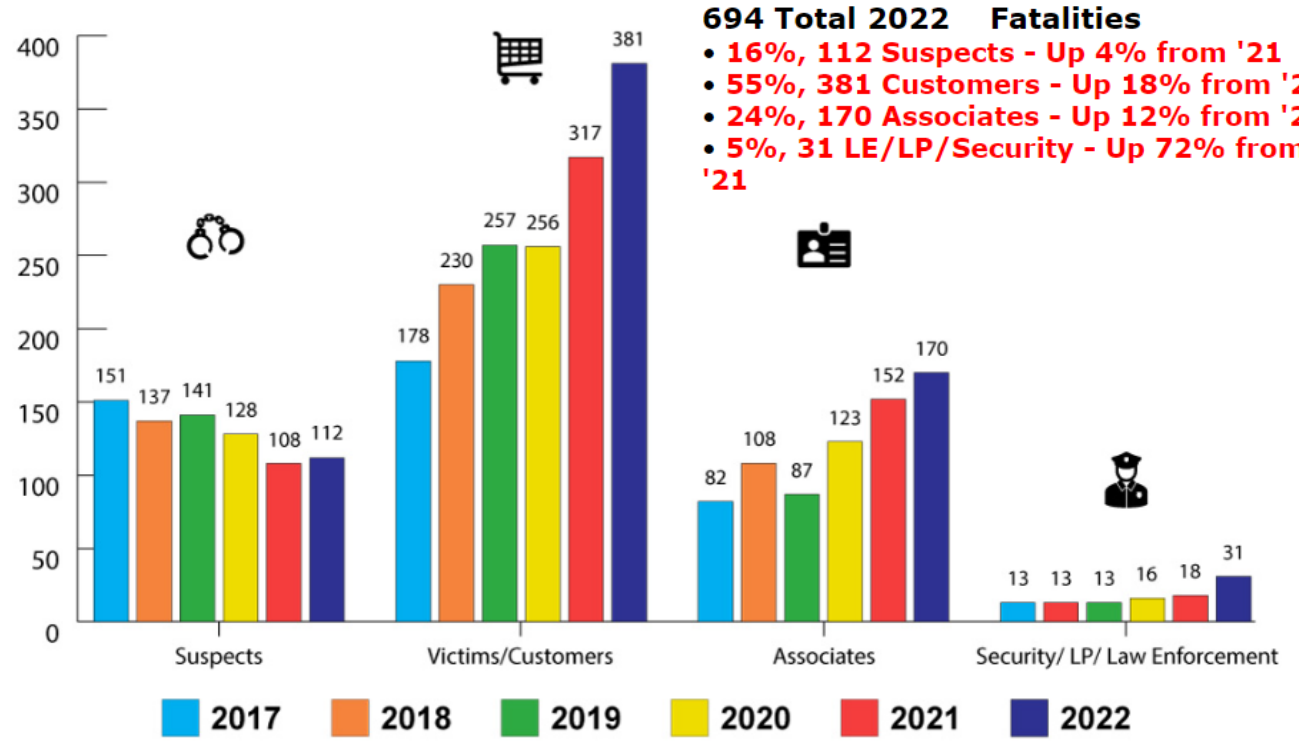| Category	Somewhat More	Much More	Total
Guest-on-associate violence	44.8%	32.8%	77.6%
External theft (excl. ORC)	39.7%	34.5%	74.1%
Organized retail crime	38%	32.8%	70.7%
Cyber crimes	43.1%	15.5%	58.6%
Mass violence/ active assailants	28.1%	29.8%	57.9%
Internal theft	36.2%	20.7%	56.9%
Gun violence	33.3%	19.3%	52.6%
Gift card fraud	33.9%	16.1%	50%
Coupon/discount/ loyalty fraud	31.6%	17.5%	49.1%
Associate-on-associate violence	29.3%	19%	48.3%

Trend 5

- ❖ 26.5% ORC Incidents increase
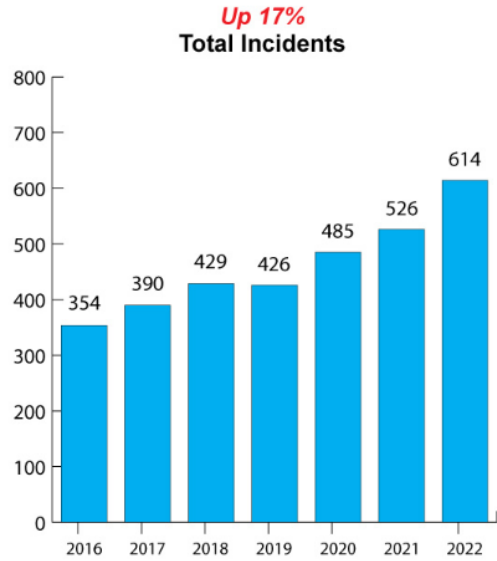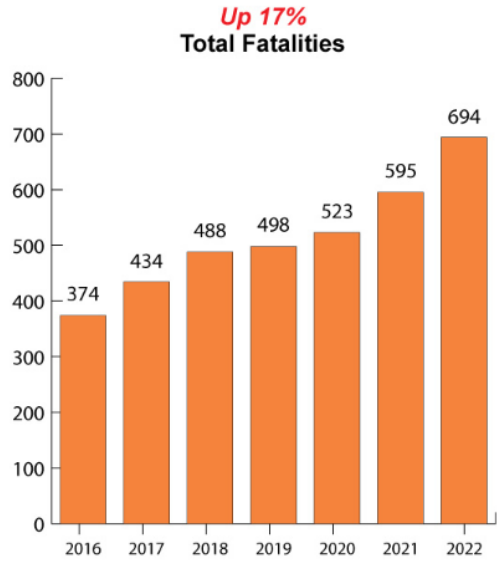- ❖ 8 in 10 retailers report increased ORC violence

Figure 18. Retail Loss Prevention Technologies

Technology	Percentage Implementing or Planning to Implement
RFID systems	38.6%
AI-based POS/SCO video analytics	29.8%
License plate recognition	19.3%
Self-service locking cases or lockers	17.5%
AI-based perimeter surveillance	14%

Source: NRF 2022

USA Stores Getting More Violent

Up 17%
Total Fatalities

Year	Value
2016	374
2017	434
2018	488
2019	498
2020	523
2021	595
2022	694

Up 17%
Total Incidents

Year	Value
2016	354
2017	390
2018	429
2019	426
2020	485
2021	526
2022	614

694 Total 2022   Fatalities
- **16%, 112 Suspects - Up 4% from '21**
- **55%, 381 Customers - Up 18% from '21**
- **24%, 170 Associates - Up 12% from '21**
- **5%, 31 LE/LP/Security - Up 72% from '21**

	Suspects	Victims/Customers	Associates	Security/ LP/ Law Enforcement
2017	151	178	82	13
2018	137	230	108	13
2019	141	257	87	13
2020	128	256	123	16
2021	108	317	152	18
2022	112	381	170	31

Trend 5

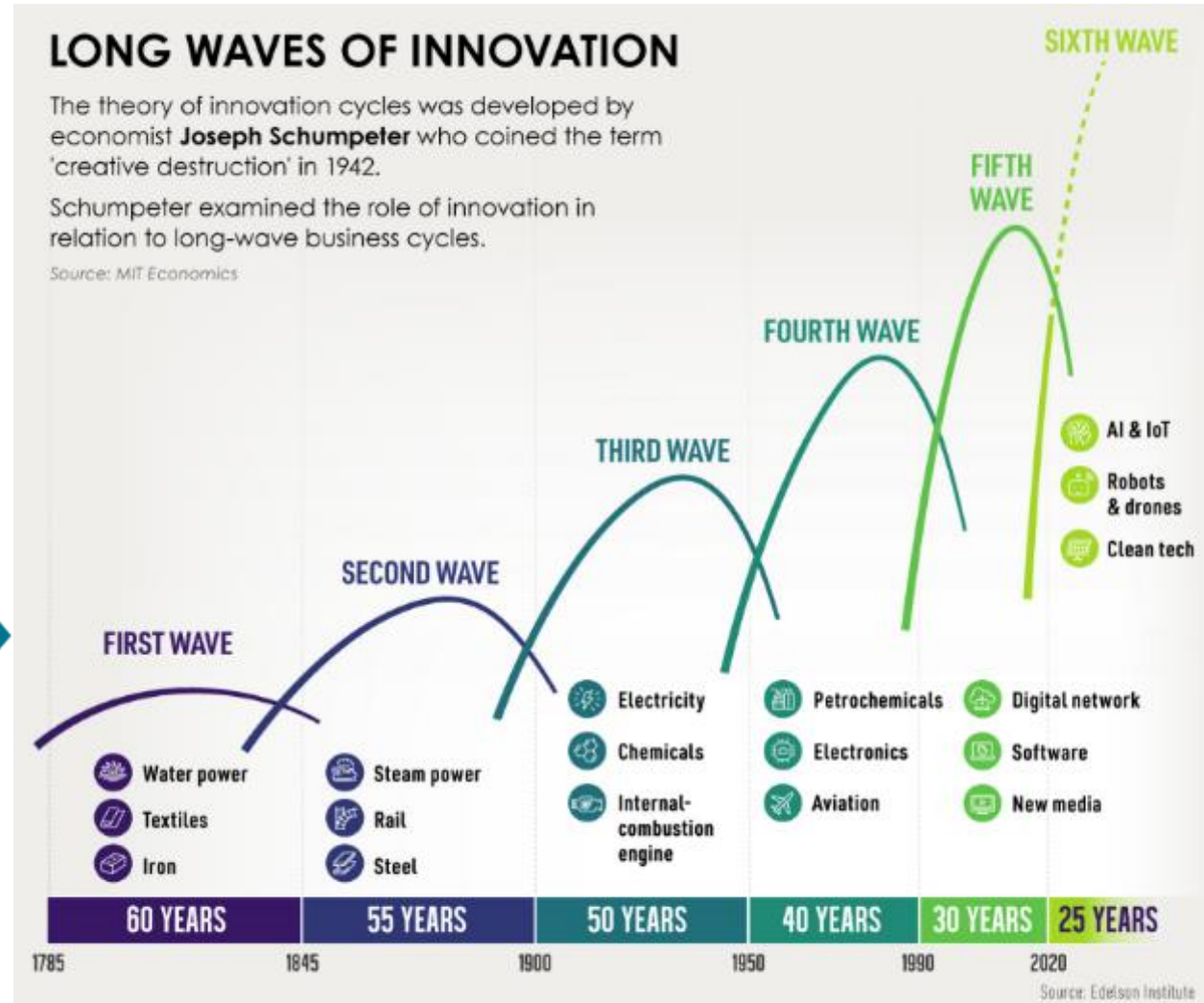| Location	Value
Parking Lots	366
In Store	296
Off Premise	22
Mall	10

2022:
1. **C-stores (32%)**
2. Restaurants (19%)
3. Gas Station (8%)
4. Grocery (6%)
5. Mall (5%)

Source: D&D Daily, 2023
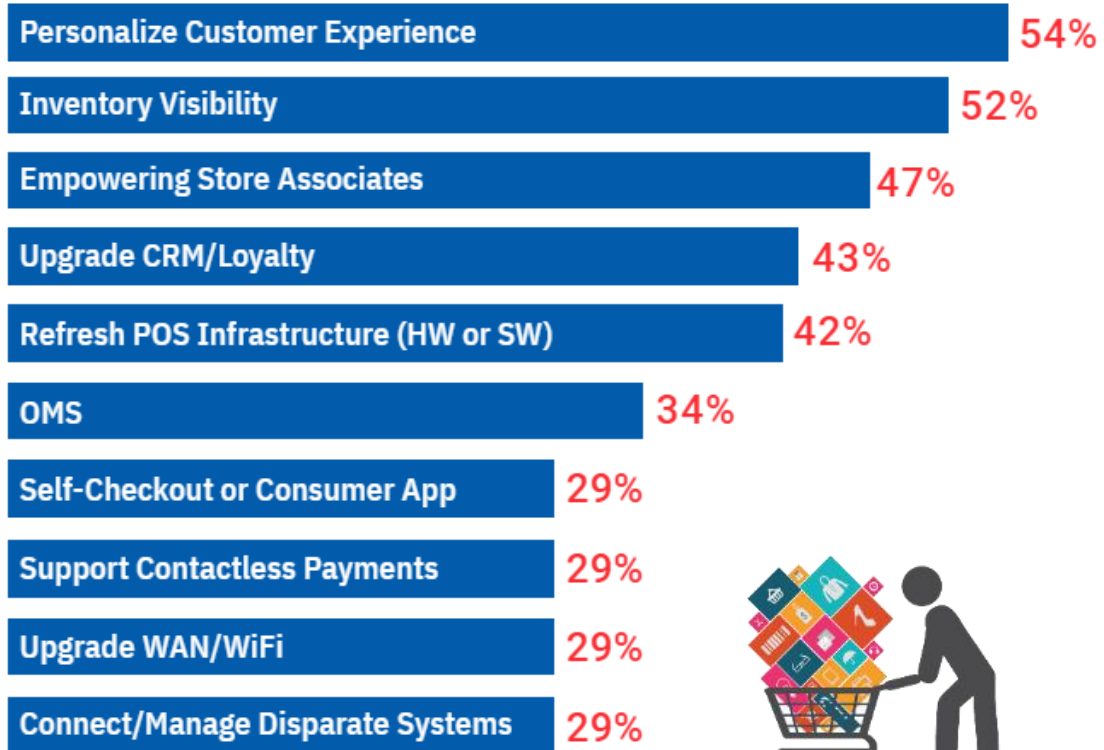
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Technology Trends are Accelerating

Trend 6

FUTURE OF RETAIL

MANUFACTURER — Pre-1970s

RETAILER — 1970s

CONSUMER — 2010s

LONG WAVES OF INNOVATION

The theory of innovation cycles was developed by economist **Joseph Schumpeter** who coined the term 'creative destruction' in 1942.

Schumpeter examined the role of innovation in relation to long-wave business cycles.

Source: MIT Economics

FIRST WAVE
- Water power
- Textiles
- Iron

SECOND WAVE
- Steam power
- Rail
- Steel

THIRD WAVE
- Electricity
- Chemicals
- Internal-combustion engine

FOURTH WAVE
- Petrochemicals
- Electronics
- Aviation

FIFTH WAVE
- Digital network
- Software
- New media

SIXTH WAVE
- AI & IoT
- Robots & drones
- Clean tech

60 YEARS	55 YEARS	50 YEARS	40 YEARS	30 YEARS	25 YEARS
1785	1845	1900	1950	1990	2020

Source: Edelson Institute

Source: Visual Capitalist 2021

Partnering with IT and Ops Priorities

Trend 6

Top Tech Priorities for 2023

Priority	%
Personalize Customer Experience	54%
Inventory Visibility	52%
Empowering Store Associates	47%
Upgrade CRM/Loyalty	43%
Refresh POS Infrastructure (HW or SW)	42%
OMS	34%
Self-Checkout or Consumer App	29%
Support Contactless Payments	29%
Upgrade WAN/WiFi	29%
Connect/Manage Disparate Systems	29%

Total Revenue Share by Customer Journey

- 70% Store Purchase
- 13% Buy Online, Deliver From Warehouse
- 4% BOPIS
- 5% Local Store Delivery
- 4% Ship from Store
- 4% Other

Emerging Tech Purchase Plans

	Up-to-Date/ Currently In Use	Major Upgrade Within 12 Months	Major Upgrade 12-24 Months
SD-WAN	16%	11%	15%
RFID	14%	12%	18%
...es/Parking Lots	13%	14%	8%
...g or Fulfillment	11%	17%	13%
...Microservices	9%	11%	16%
...dge Computing	9%	13%	16%
...tore Fulfillment	9%	18%	17%
...s for Inventory	8%	12%	8%
Second Location for Digital Orders	7%	10%	15%
5G Tech at Store Level	6%	17%	23%

Source: RIS News 2022

Frictionless Commerce is Here to Stay

Shopping Process

RESEARCH PRODUCTS ONLINE

INTERACTION WITH THE SPECIFIC RETAILER'S SITE OR PHYSICAL STORE

INVENTORY VISIBILITY

PRODUCT SELECTION

ADDING TO CART EITHER PHYSICALLY OR DIGITALLY

COMPLETING THE TRANSACTION

Computer Vision
AI/ML
Core Enabling Technologies for Frictionless Retail
RFID
Smart Shelves

Rates at Which Retailers Planning Frictionless Have Already Implemented Other Key Technologies

Edge Computing
273% Higher

SD-WAN
146% Higher

Video Analytics
140% Higher

Cost of Frictionless Per Sq. Ft.

$110

2018   2020   2022   2024
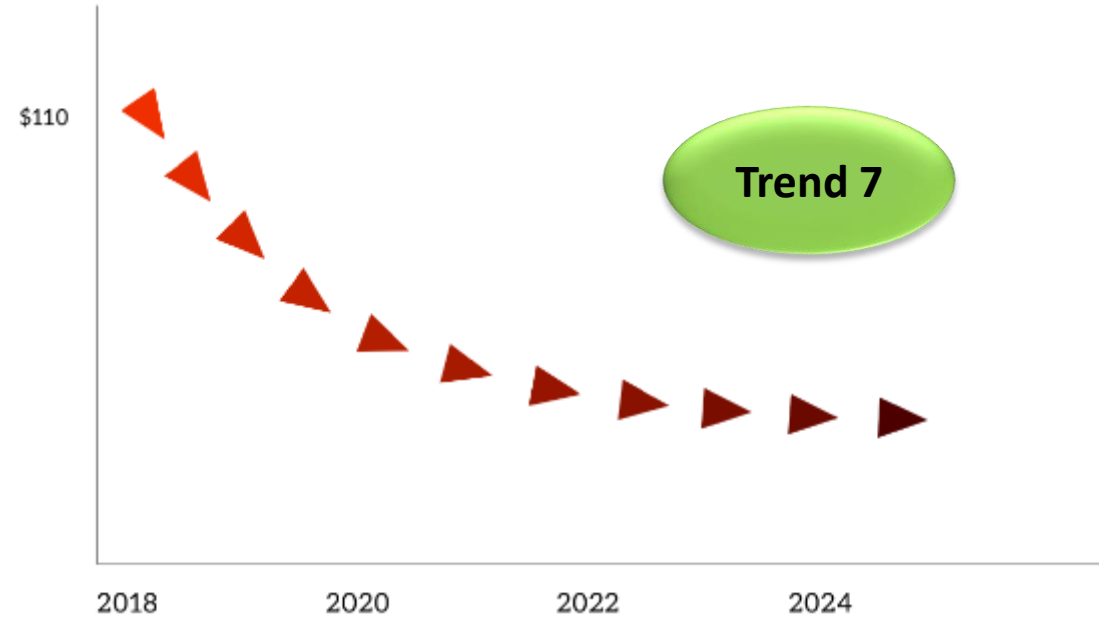
Trend 7

Removing loss prevention technologies can lead to losses of more than **3%** of annual sales.

Source: IHL Group 2020

More Sensors Are Coming
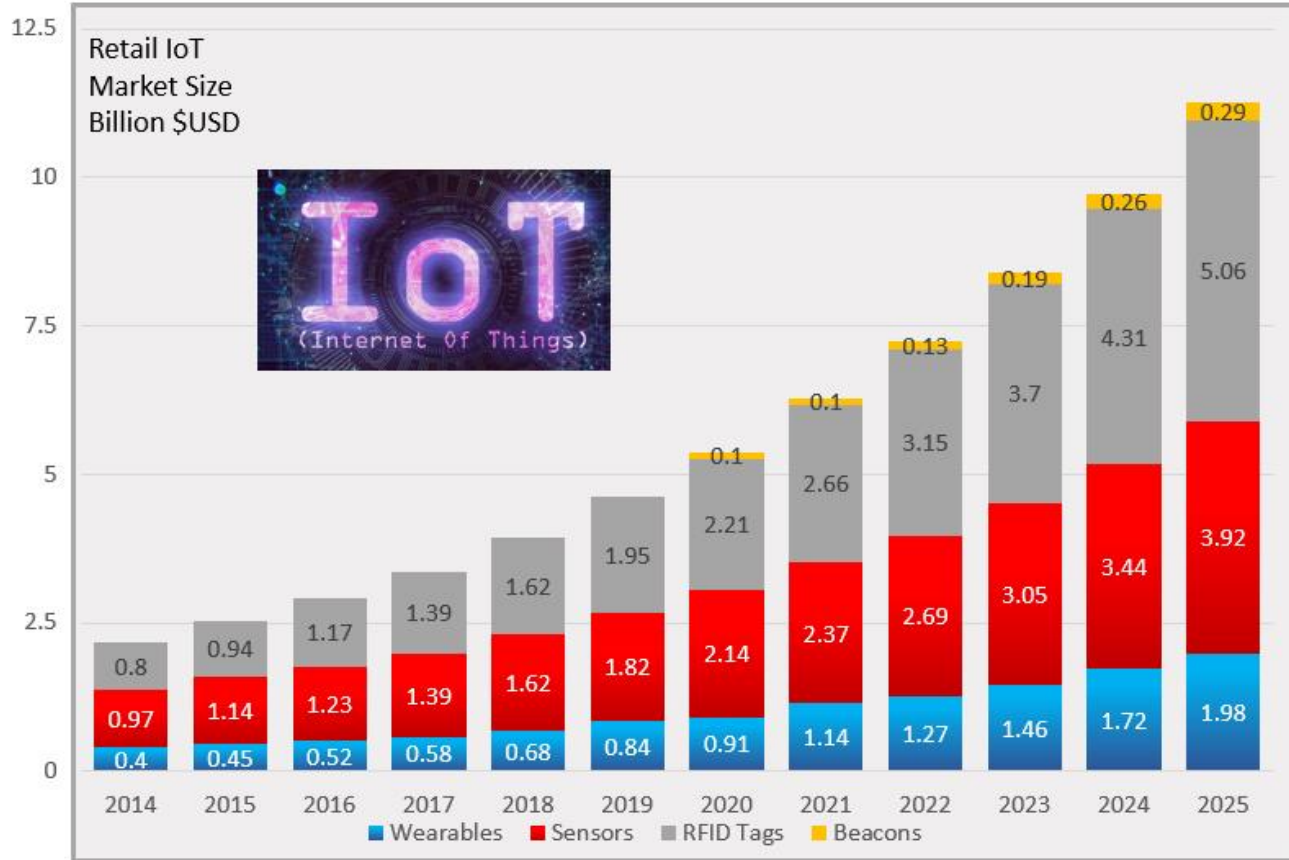
2022 Inventory Distortion

$1.993 TRILLION USD +12.7%

OUT-OF-STOCK $1.235 TRILLION +8.1%

OVERSTOCKS $758.3 BILLION +21.2%
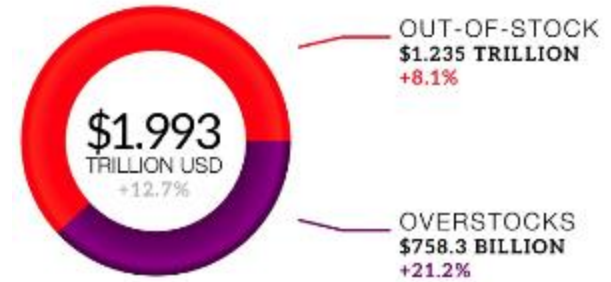
North American RFID adoption

2014 — 34%

2016 — 73%

2018 — 92%
- 46% Piloting
- 18% Implementing
- 28% Full adoption

2020 — 93%
- 8% Piloting
- 37% Implementing
- 47% Full adoption

European RFID adoption

2018 — 27%
- 7% Piloting
- 17% Implementing
- 3% Full adoption

2020 — 77%
- 8% Piloting
- 37% Implementing
- 32% Full adoption

Source: Statista, IHL Group, Accenture 2021
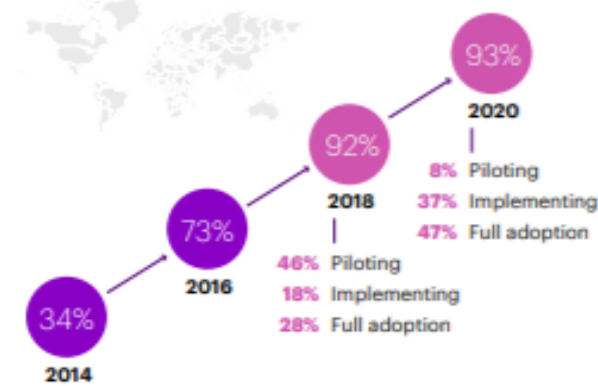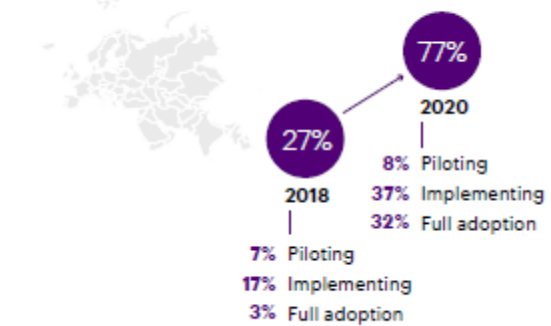
More Visual Stores Sensors

Image Source: Qualcomm

Labels shown: Drones, DSD Analytics, Interactive Kiosks, Produce Identification, Edge AI, Shopper Analytics, Smart Carts, Robotics Inventory, SCO, Shelf Analytics, POS / Lockers Biometrics, Augmented Reality, POS Analytics, Just Walkout, Parking Lot Security, Curbside Analytics, Computer Vision (AI)

VISION

Installed base of security cameras, in billions
■ 2018 ■ 2021*

China, U.S., World
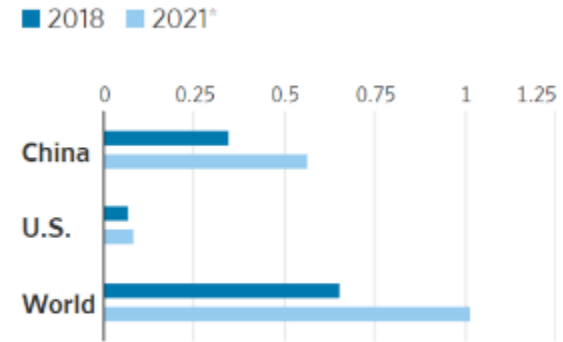
*Projection
Source: IHS Markit

Trend 8

Autonomous Vehicles, Inventory Visibility, Autonomous Stores, Sentiment / Demographics, AI ML Computer Vision, Contextual Product Information, Theft Prevention, Facial Recognition

Retail Loss Prevention is Being Disrupted

DIGITALLY EMPOWERED CONSUMER

Shrink

RETAIL THEFT OPPORTUNITIES

Cxx Focus

Brand Value Differentiation

Real-Time Consumer Loyalty

Immersive Unified Customer Experiences

Smart Supply Chains

Trend 9

LP Cxx Moment

Brand Integrated Security / Video Analytics / Machine Learning

Data / Visual Zone Deterrence

Prescriptive Data Analytics

Retail Crime Solutions

> A July 2022 Time Magazine headline – 'U.S. Crime Is Still Dramatically Higher than Before the Pandemic' – was a reminder that police departments are overwhelmed.

- Next generation loss prevention tech solutions need to step up their pace in challenging retail shrink

- Improved legal boundaries need to be established around controversial solutions such as face recognition

- The Internet is breaking down borders where stolen goods can be sold. Over six in 10 retailers believe that a federal ORC law is required to address the challenges with professional thieves.

- Supported by tech, strong partnerships are required between retailers, law enforcement, industry groups, solution providers, and the federal government to address the ever-changing threats.

- Increased loss prevention education is also part of success mix.

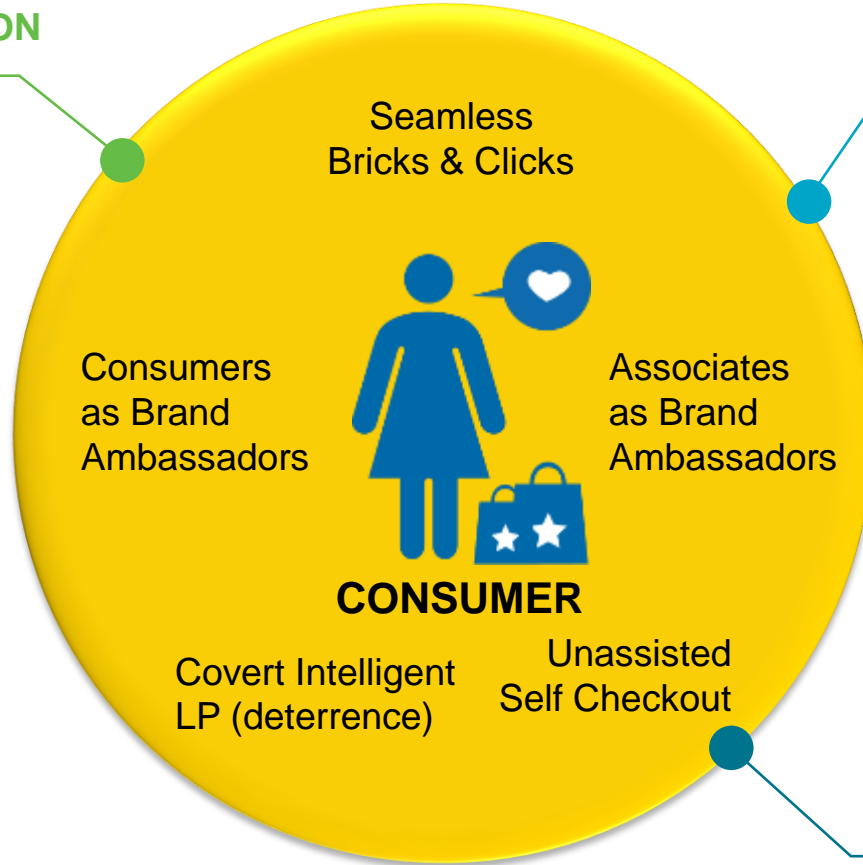Source: NRF2021, Tonydonofrio.com

The SMART More Profitable Store of the Future

STORE DATA EXPLOSION

- POS
- Labor Scheduling
- Planograms
- Store Traffic
- Loyalty Programs
- Video
- RFID
- HVAC
- Internet of Things
- Beacons
- Wearables
- Robots
- GPS Tracking

Trend 10

INTELLIGENT FILTERS

- Computer Vision
- Artificial Intelligence
- Machine Learning
- Big Data
- Facial Recognition

Seamless Bricks & Clicks

Consumers as Brand Ambassadors

Associates as Brand Ambassadors

CONSUMER

Covert Intelligent LP (deterrence)

Unassisted Self Checkout

IMMERSIVE EXPERIENCES

- Unified Commerce
- Smart Mirrors
- Smart Floors
- Smart Fitting Rooms
- Augmented Reality
- Virtual Reality
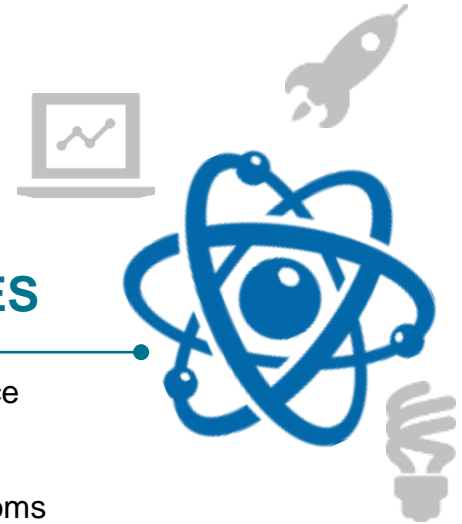
"COVID-19 was a brutal accelerator of digital transformation trends that were already underway." – Tony D'Onofrio

The Disruptive **Future** of Retail

Immersive Experiences
Brand Ambassadors

Trend 10

Edge Computing
IoT at Store's Center
Computer Vision

Harmonized Channels
Frictionless Commerce
Digitally Empowered Associates
Enterprise Inventory Visibility
Real Time Analytics / Engagement

INSIGHTS
TD

THANK YOU

> **"Vision** *without* **execution is hallucination."**
> ~ Thomas Edison

You are the Leaders
to **Shape It.**

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