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INNOVATING ECOMMERCE FRAUD PREVENTION WITH AI

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- E-commerce current situation in emerging countries
- Some of e-Commerce technologies
- Challenges faced by eCommerce and E-commerce security threats

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- What is E-commerce fraud?
- Types of E-commerce fraud
- Fraud Statistics
- Prevent E-commerce fraud

SOLUTION

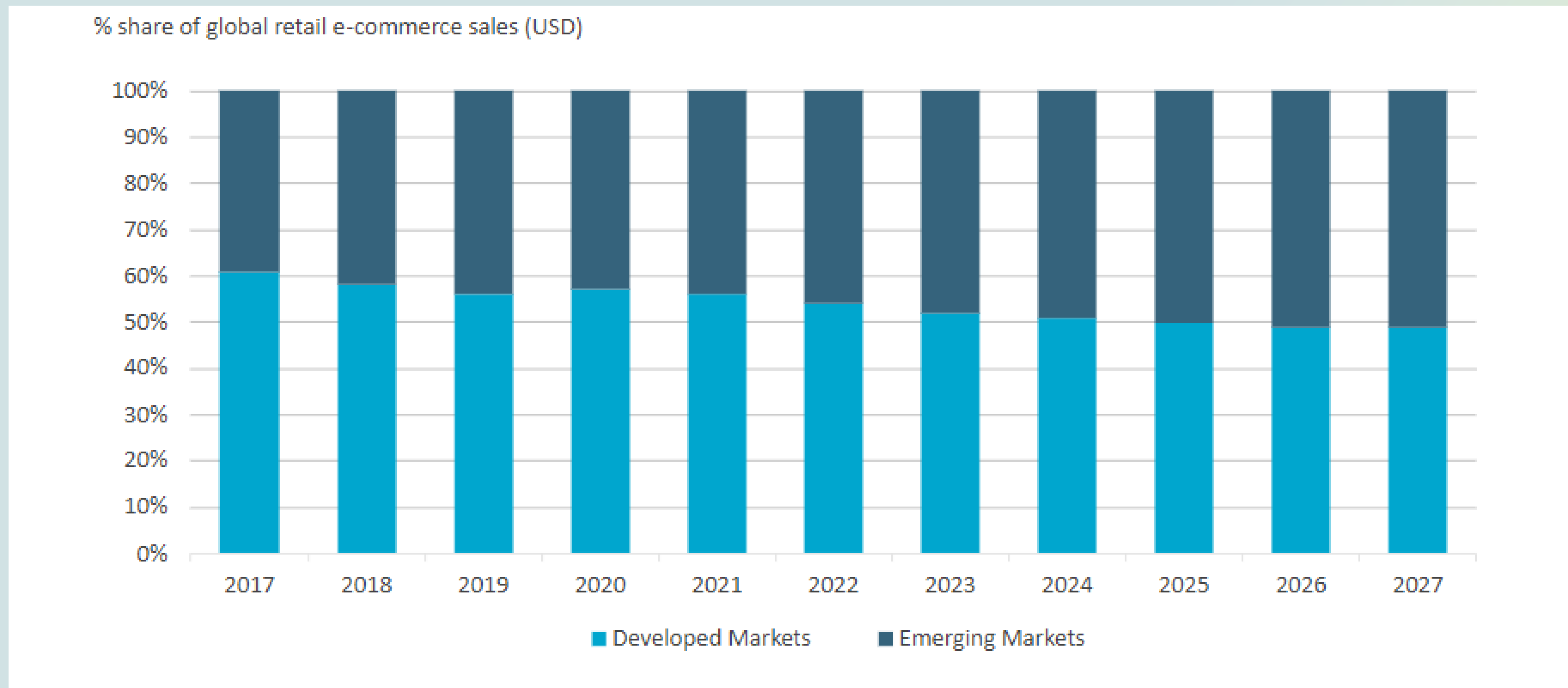
03

- Machine learning (ML) & Conventional rule-based fraud prevention
- Benefits of ML in fraud prevention
- Some commonly used ML algorithms

1. SITUATION

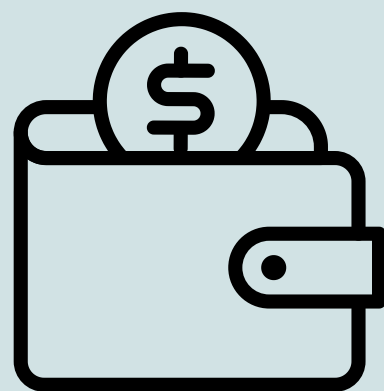
- E-commerce current situation in emerging countries
- Some of e-Commerce technologies
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RETAIL ECOMMERCE IN DEVELOPED VS EMERGING COUNTRIES (2017-2027)



Source: Euromonitor report, 2023

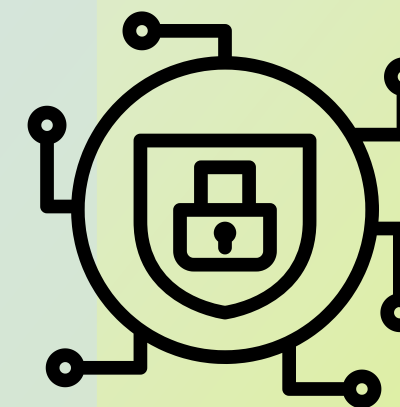
SOME ECOMMERCE TECHNOLOGIES



Payment technology



Logistics technology



Security technology

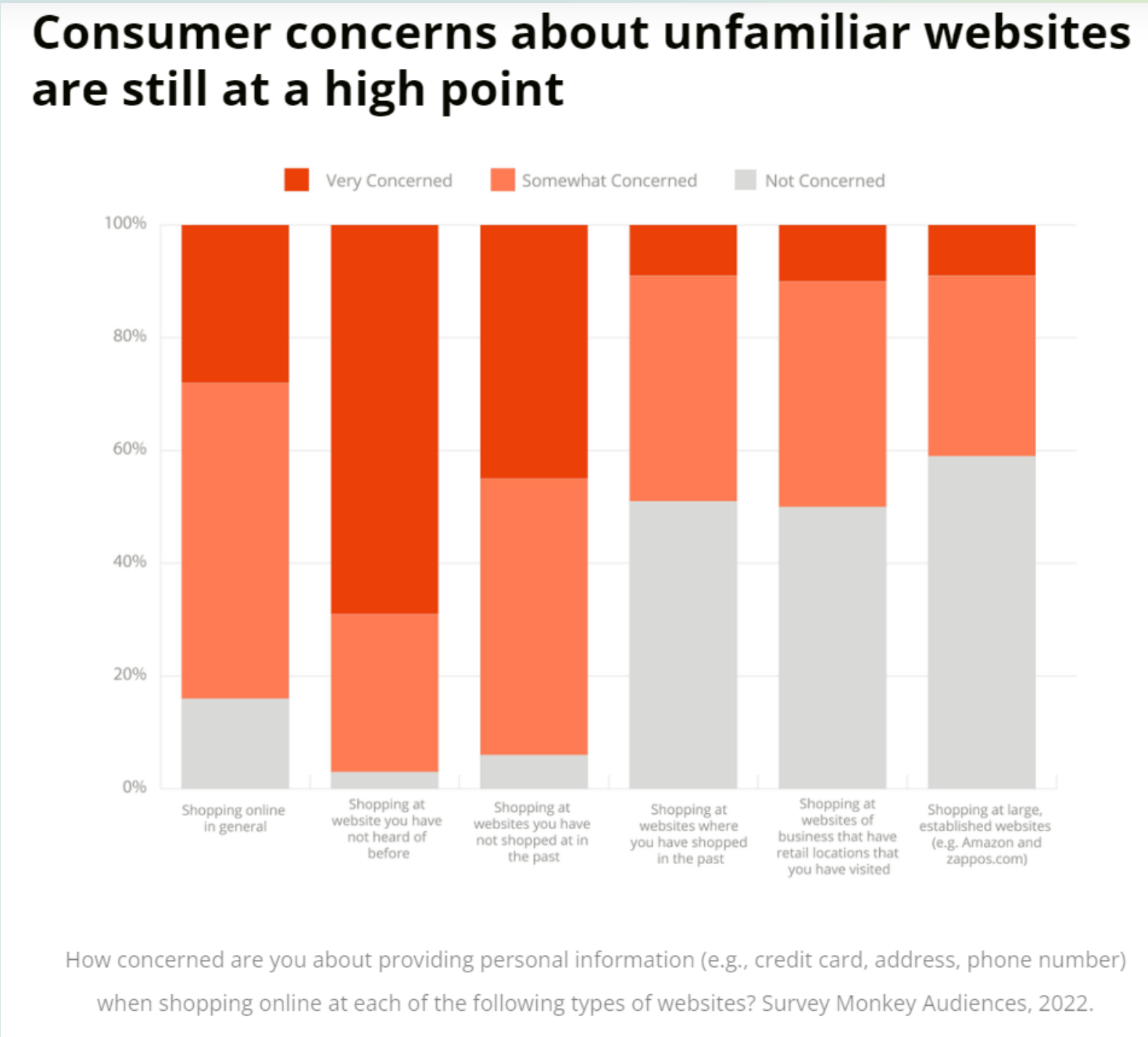
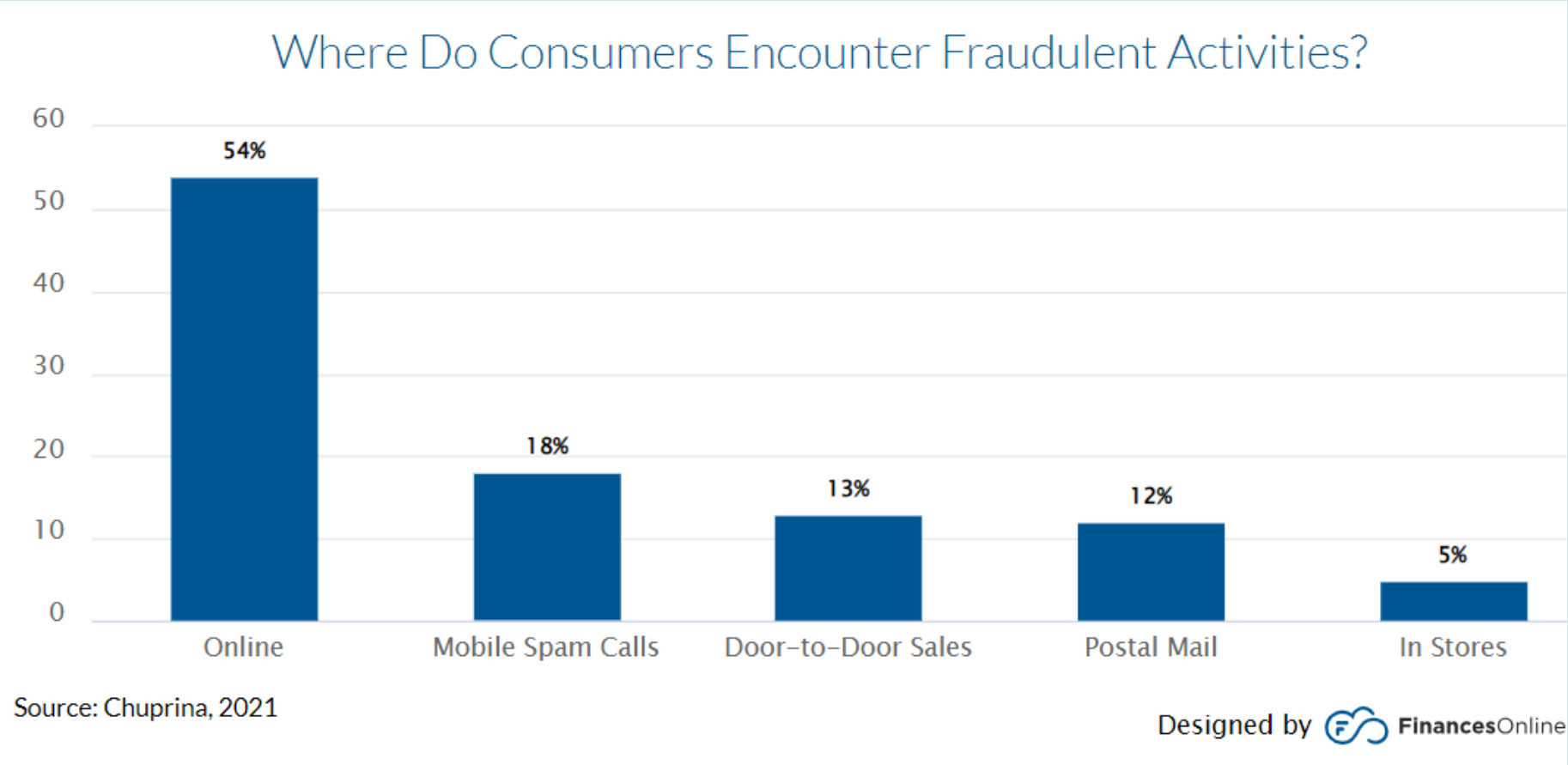


Database systems



Web server

Ecommerce is still facing different challenges, especially in terms of safety & security concerns...



\$5.127 TRILLION

The annual **cost of fraud** in the global economy

Source: Crowe, 2019

2. ANALYSIS

- What is E-commerce fraud?
- Types of E-commerce fraud
- Fraud Statistics
- Prevent E-commerce fraud

WHAT IS ECOMMERCE FRAUD



E-commerce fraud, where criminals use stolen or fake cards to purchase online, is on the rise. Unlike physical theft, online fraud thrives on new technologies. E-commerce fraud detection uses algorithms to analyze transactions and flag suspicious activity, reducing manual reviews over time.

TYPES OF ECOMMERCE FRAUD

E-commerce fraudsters use various tricks to steal money. Here are some common ones:

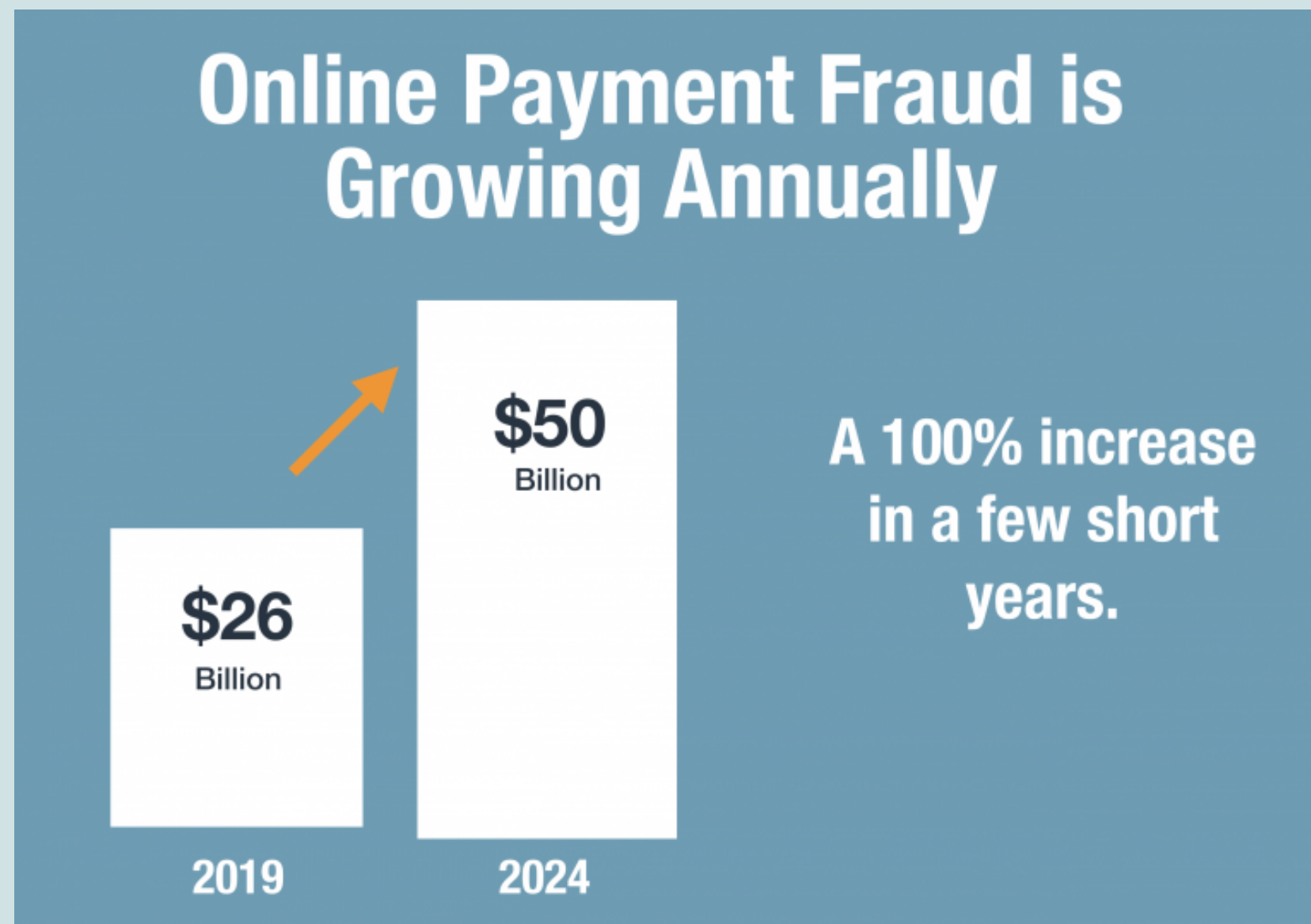
- **Classic Fraud:** Stealing credit card details to make unauthorized purchases.
- **Card Testing Fraud:** Trying stolen card details on a website to see if they're valid before using them elsewhere.
- **Chargeback Fraud:** Customers claiming stolen cards after receiving products.

- **Triangulation Fraud:** Setting up a fake store to steal customer card details and then buying from a legitimate shop with those details.



TYPES OF ECOMMERCE FRAUD (cont.)

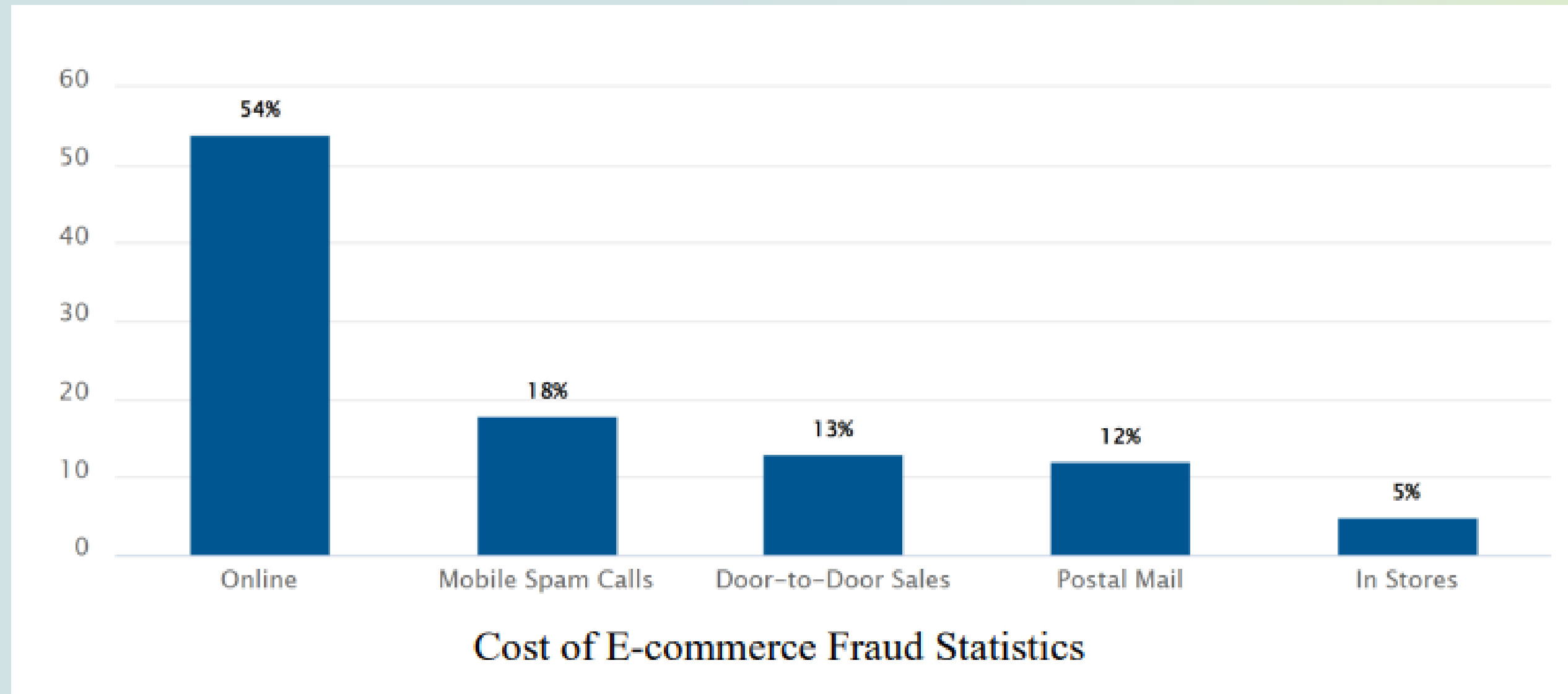
- **Digital Payment Fraud:** Criminals using stolen card details for online transactions.



Source: Online Fraud Will Cause \$200 Billion in Losses in 4 Years, Frank on Fraud

- **Merchant App Fraud:** Criminals hacking merchant apps or using stolen cards to make purchases.
- **Sign-up Fraud:** Creating fake accounts with stolen data to exploit promotions
- **Interception fraud:** Creating an order with the correct billing and shipping address, then stealing the package after delivery.

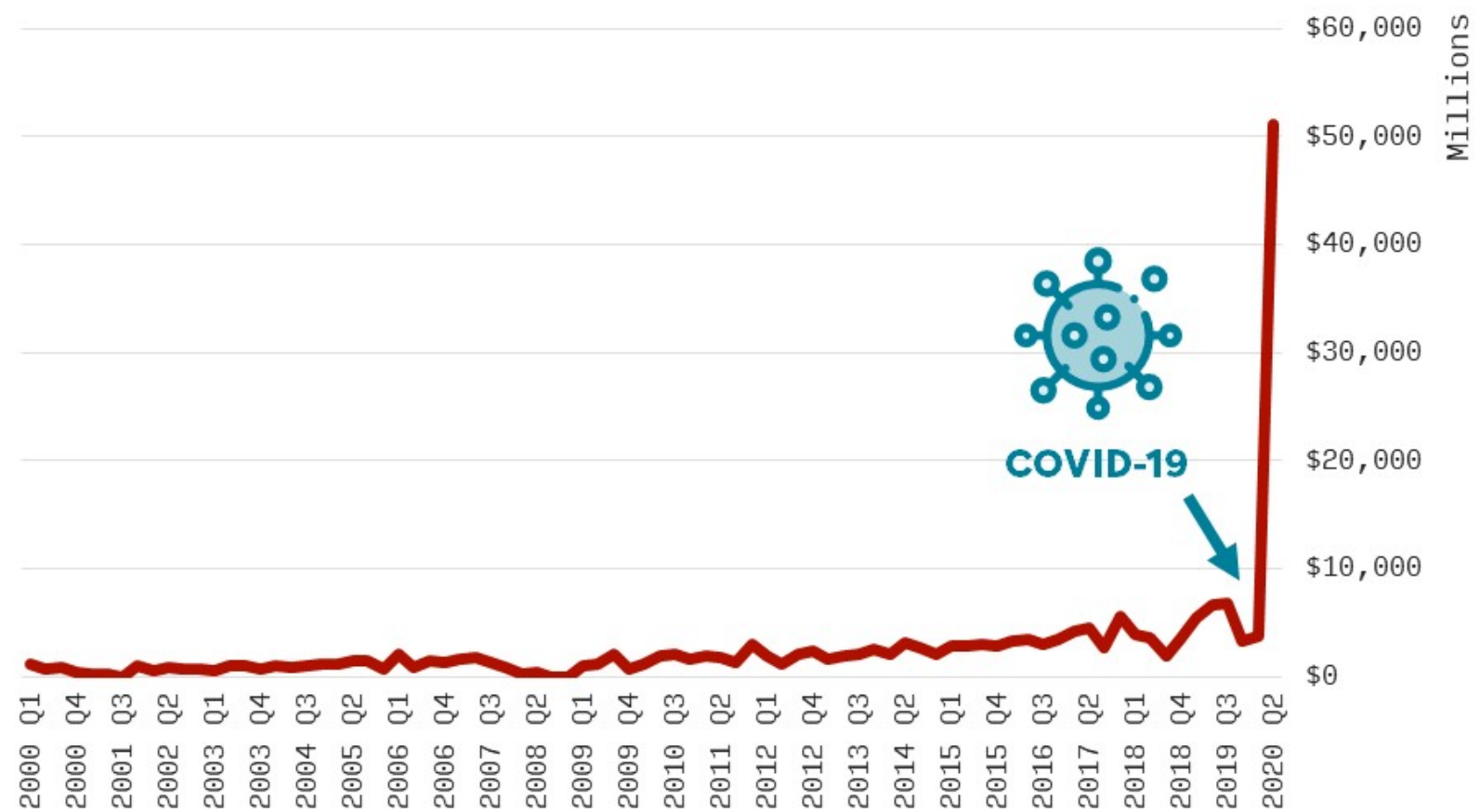
FRAUD STATISTICS



Artificial Intelligence (AI) for Energizing the E-commerce

E-commerce is booming, with sales projected to reach \$4.9 trillion by 2021. However, this growth is accompanied by a surge in payment fraud, with costs expected to hit \$40.62 billion by 2027. Fraud attempts are increasing, with successful rates rising by 43% for some retailers. The financial impact is significant, costing businesses billions globally.

Quarterly US retail ecommerce growth in millions



The **COVID-19** pandemic sparked the greatest ecommerce growth in history

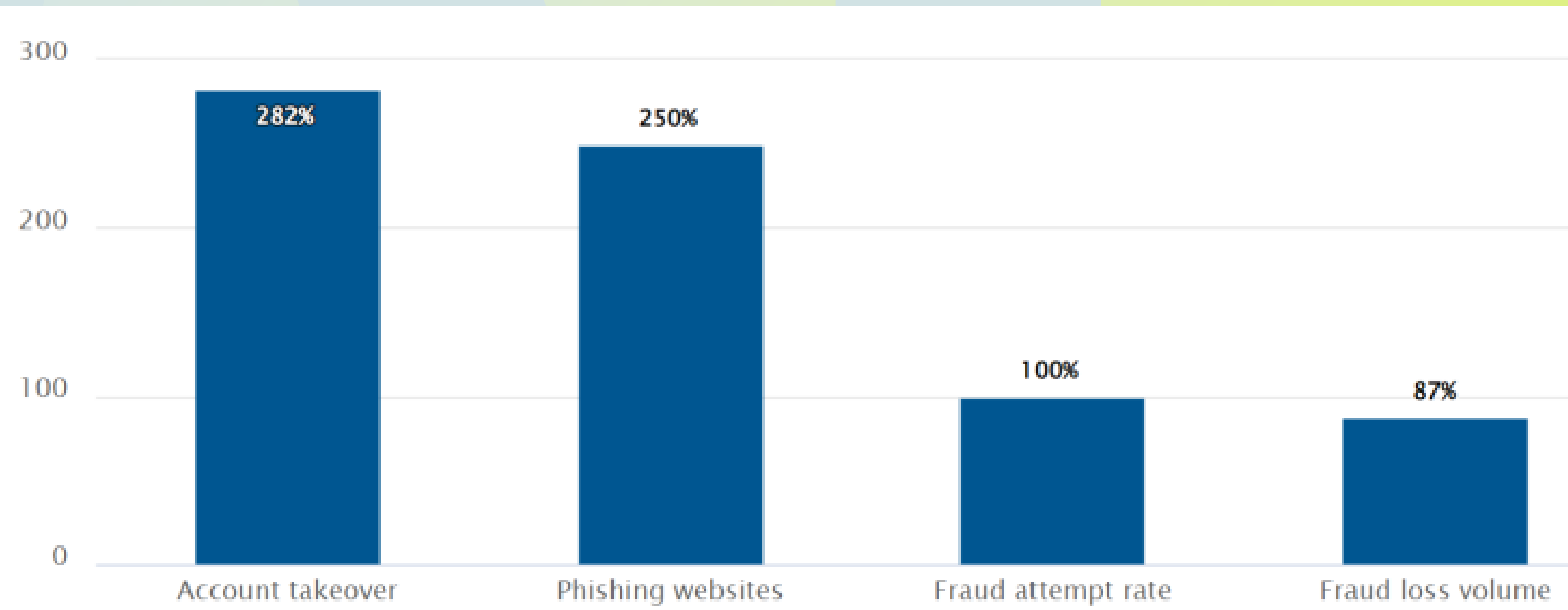
2020 Q2 YOY GROWTH

↑ 44%

COVID-19 sparked the greatest e-commerce growth in history

COVID-19 fueled a surge in e-commerce, but also fraud. Account takeovers and phishing scams skyrocketed, while contactless payments led to more CNP fraud.

Overall, fraud attempts and losses rose significantly, with businesses experiencing a higher volume of attacks and fraudsters targeting expensive items.



Artificial Intelligence (AI) for Energizing the E-commerce

PREVENT ECOMMERCE FRAUD

The problem: E-commerce fraud is a growing concern, with costs rising significantly.

The solution: Implement a multi-layered approach to fraud prevention.



- Use AI and machine learning
- Integrate data from multiple sources
- Apply different levels of authentication
- Maintain PCI compliance
- Train staff
- Keep software and systems up-to-date
- Conduct regular audits

3. SOLUTION

- AI & Machine learning

CONVENTIONAL RULE-BASED FRAUD DETECTION FLOW



VS



MACHINE LEARNING FRAUD DETECTION FLOW

BENEFITS OF ML IN FRAUD PREVENTION

Real-Time fraudulent detection

Algorithms can consider changes in real-time and act on a fraudulent attempt, in some cases, even before the attack.

Improvement in accuracy of ML models over time

A constantly learning ML system is good at finding hidden correlations beyond human capabilities.

It is keen on finding new scenarios from discovered threat and preventing them

Fast, affordable setup and easy ongoing management of ML models

It can leverage Big Data, saving the money required to have a large team of analysts

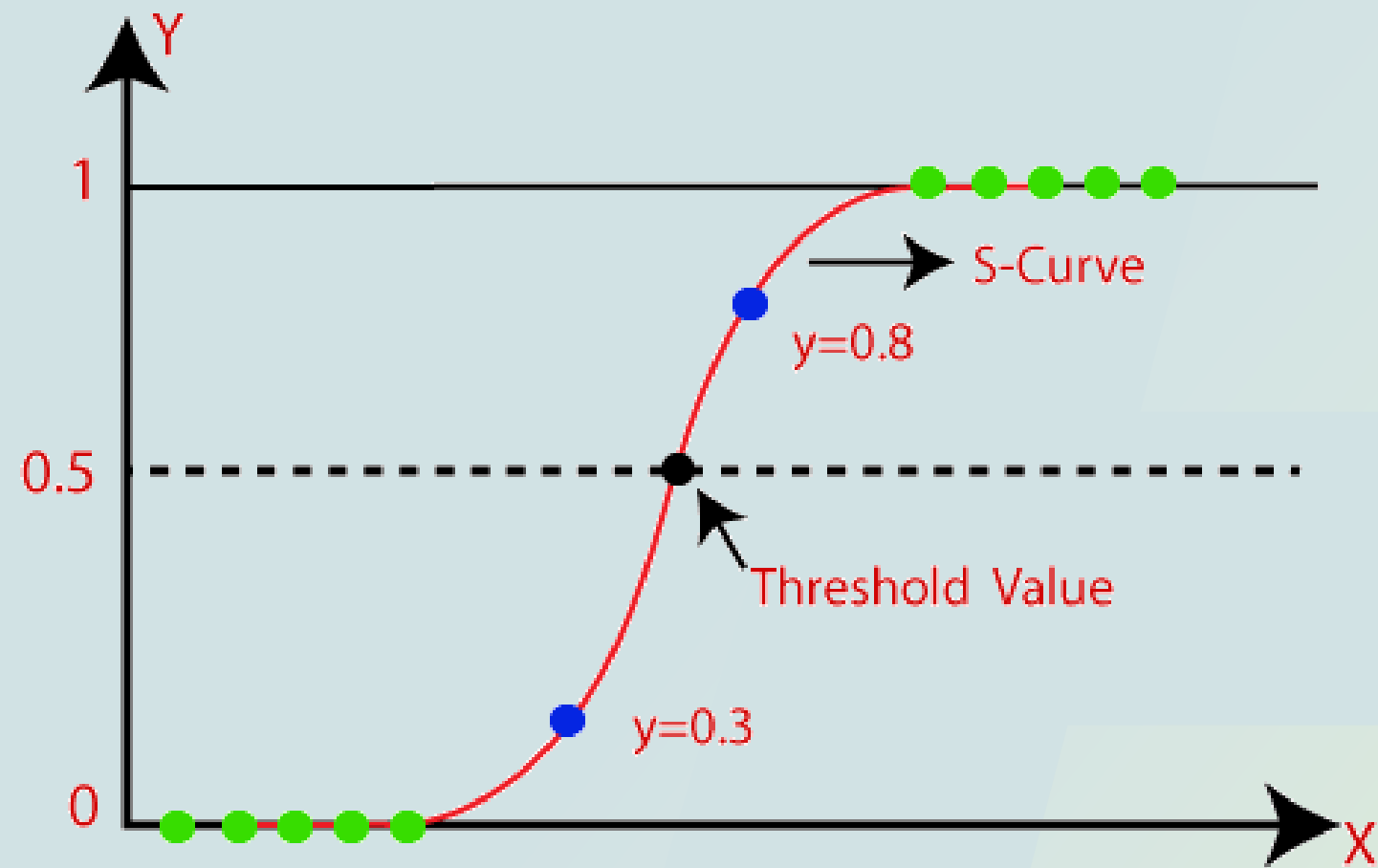
Greater speed in risk assessment by efficient pattern identification in data.



A FEW FRAUD DETECTION MACHINE LEARNING ALGORITHMS

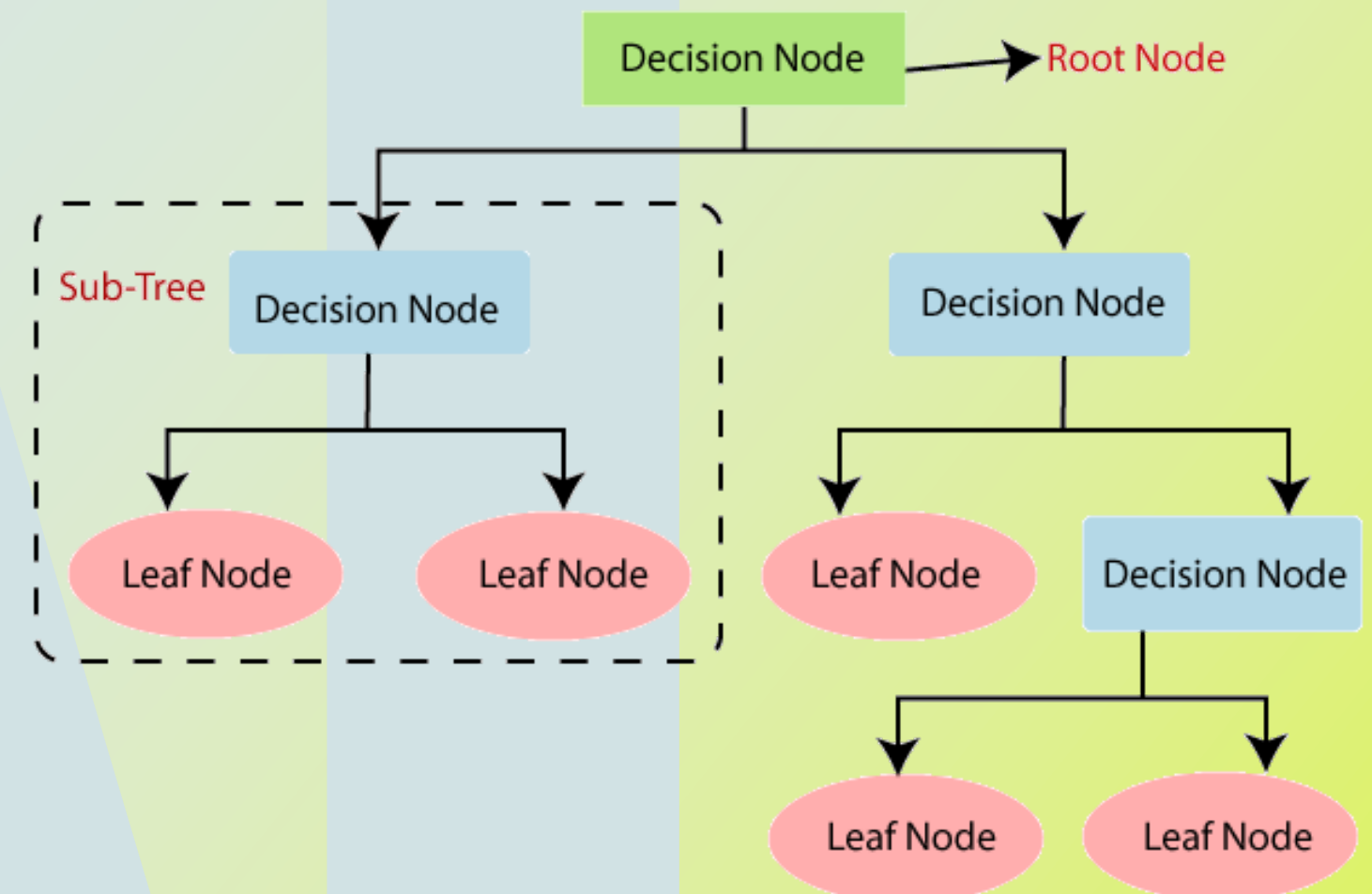
Logistic Regression

Logistic regression, a basic yet robust ML algorithm, predicts binary outcomes by fitting data to a logistic function.



Decision trees

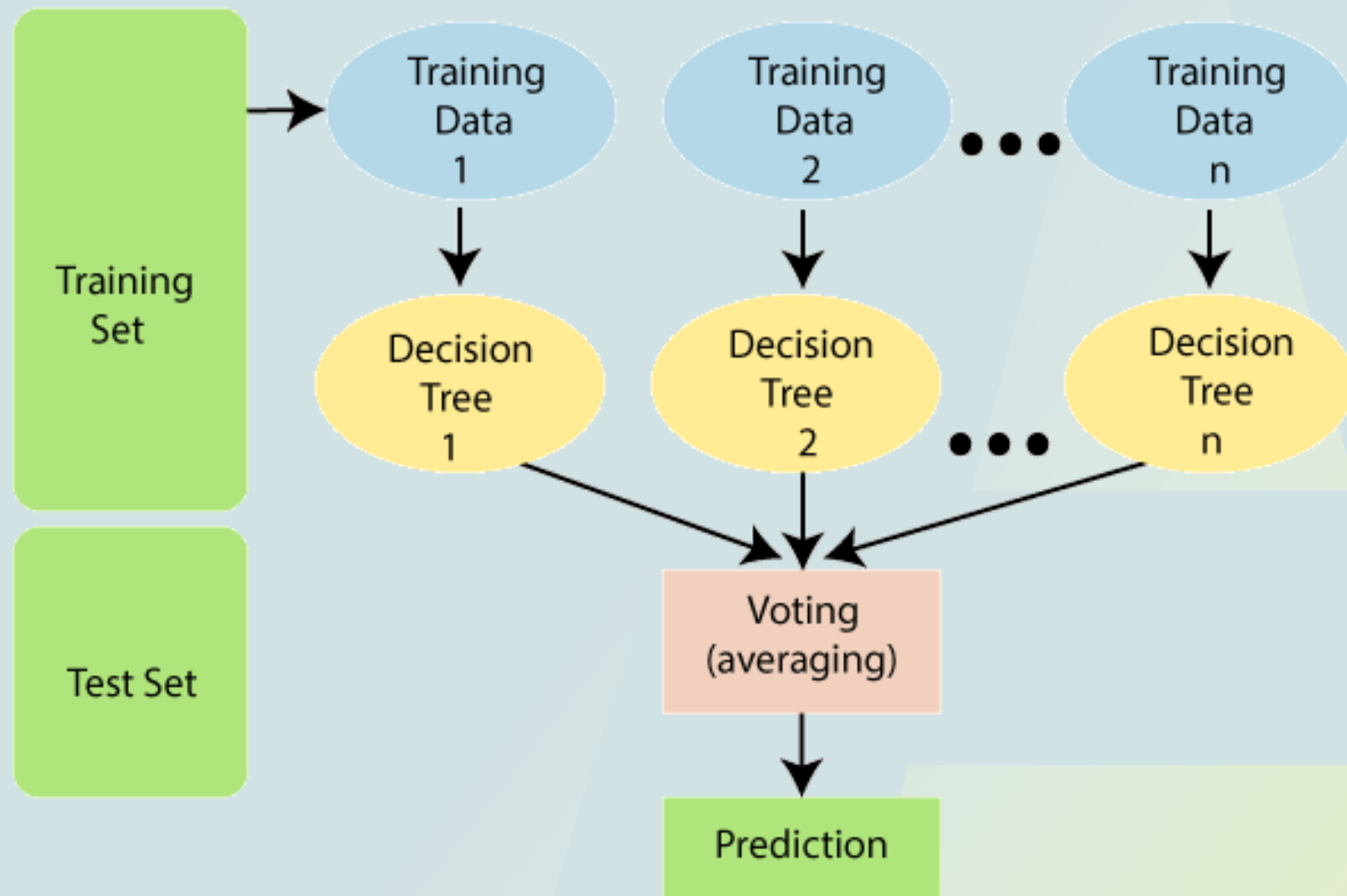
Decision trees categorize data using learned rules, offering simplicity in explanation. While their rules can form a rules-based system, slight data changes can lead to entirely different rules.



A FEW FRAUD PREVENTION MACHINE LEARNING ALGORITHMS (CONT.)

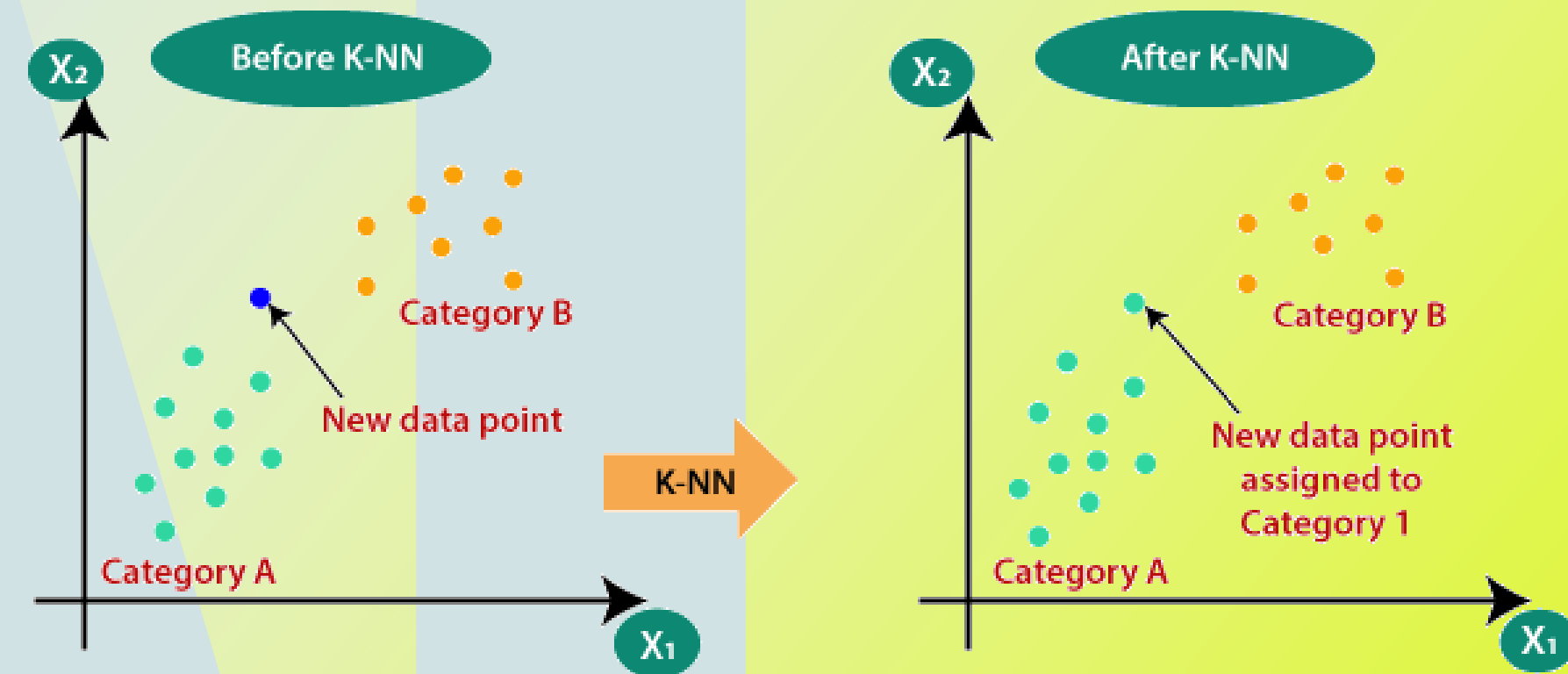
Random Forests

Random forests, a machine learning algorithm, boost classification accuracy by amalgamating multiple decision trees and averaging their outputs. They excel with large datasets but are less interpretable than decision trees due to multiple rule sets.



K-Nearest Neighbors

KNN stores all cases and classifies new ones based on a majority vote from its k best neighbors, using a distance function. Unlike other ML algorithms, it doesn't create a model but classifies on the fly, making it computationally more intensive for fraud detection..



**THANK
YOU !**