BIS Innovation Hub

# Striving for a Better Future of Payments

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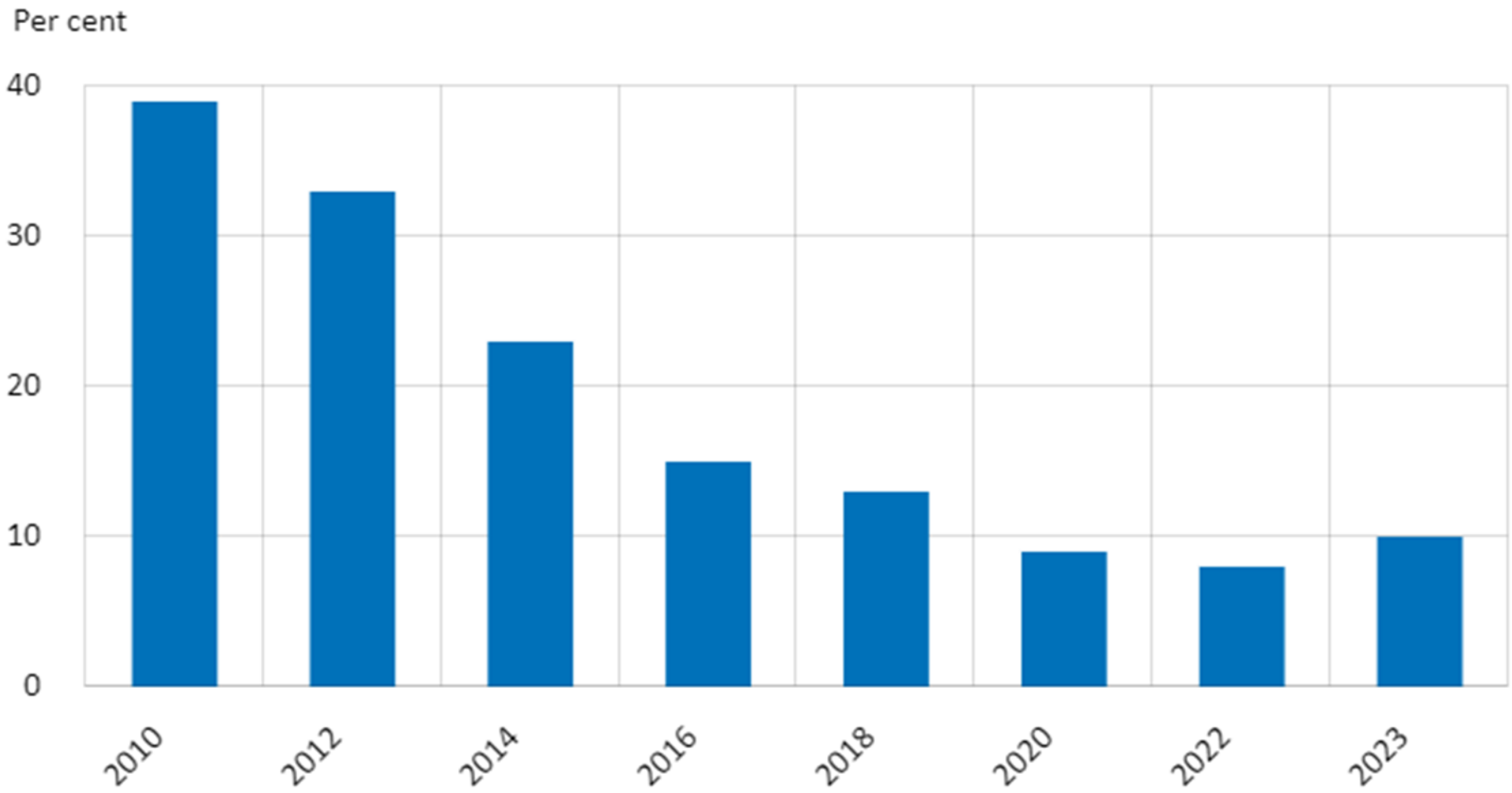
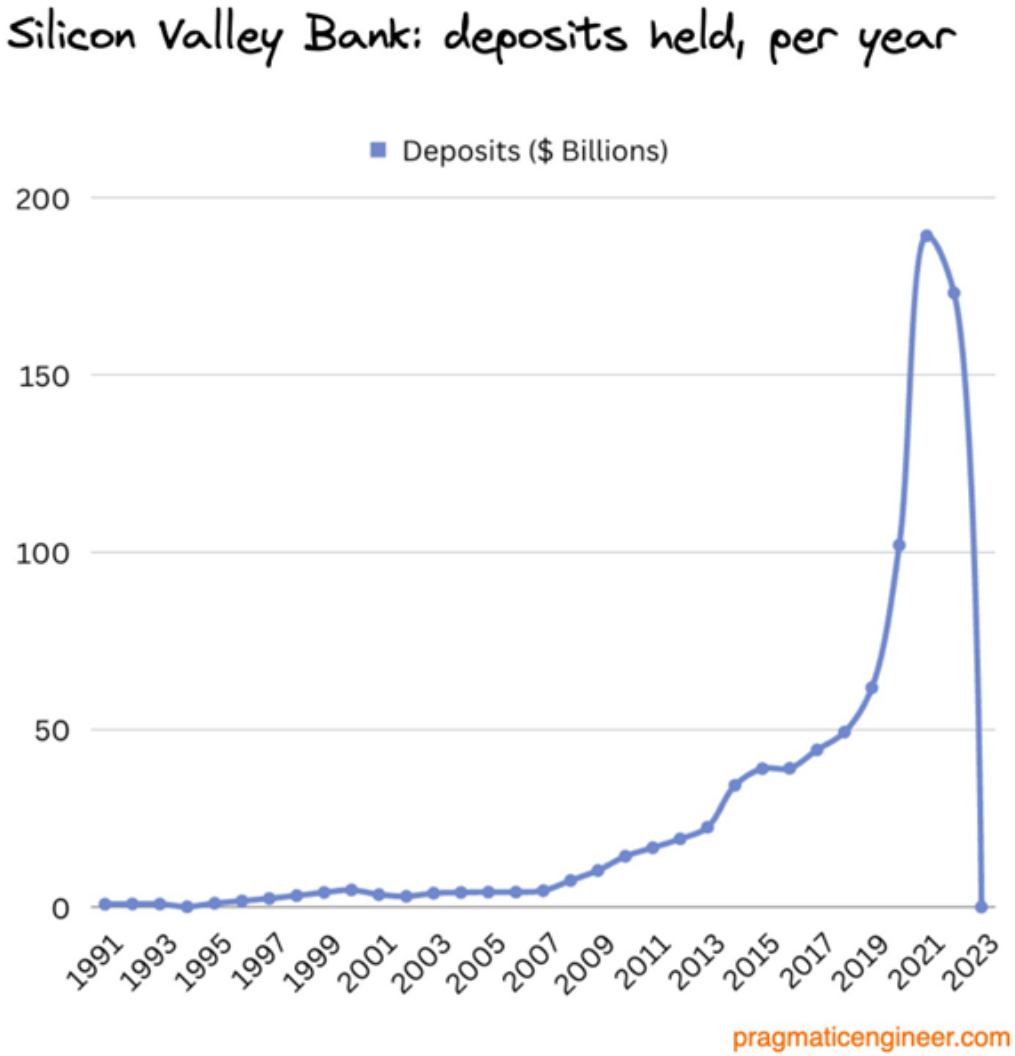
# Today's Payment Services Are Going Digital ...



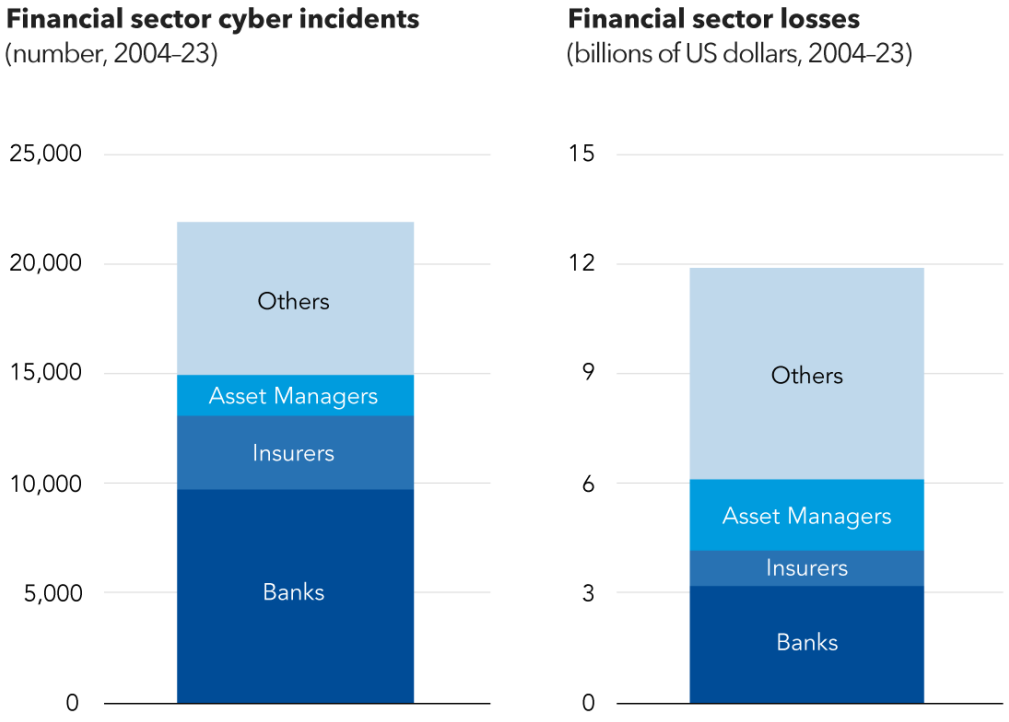

The use of cash in Sweden

# And Going Digital Has Its Consequences




## Attractive target

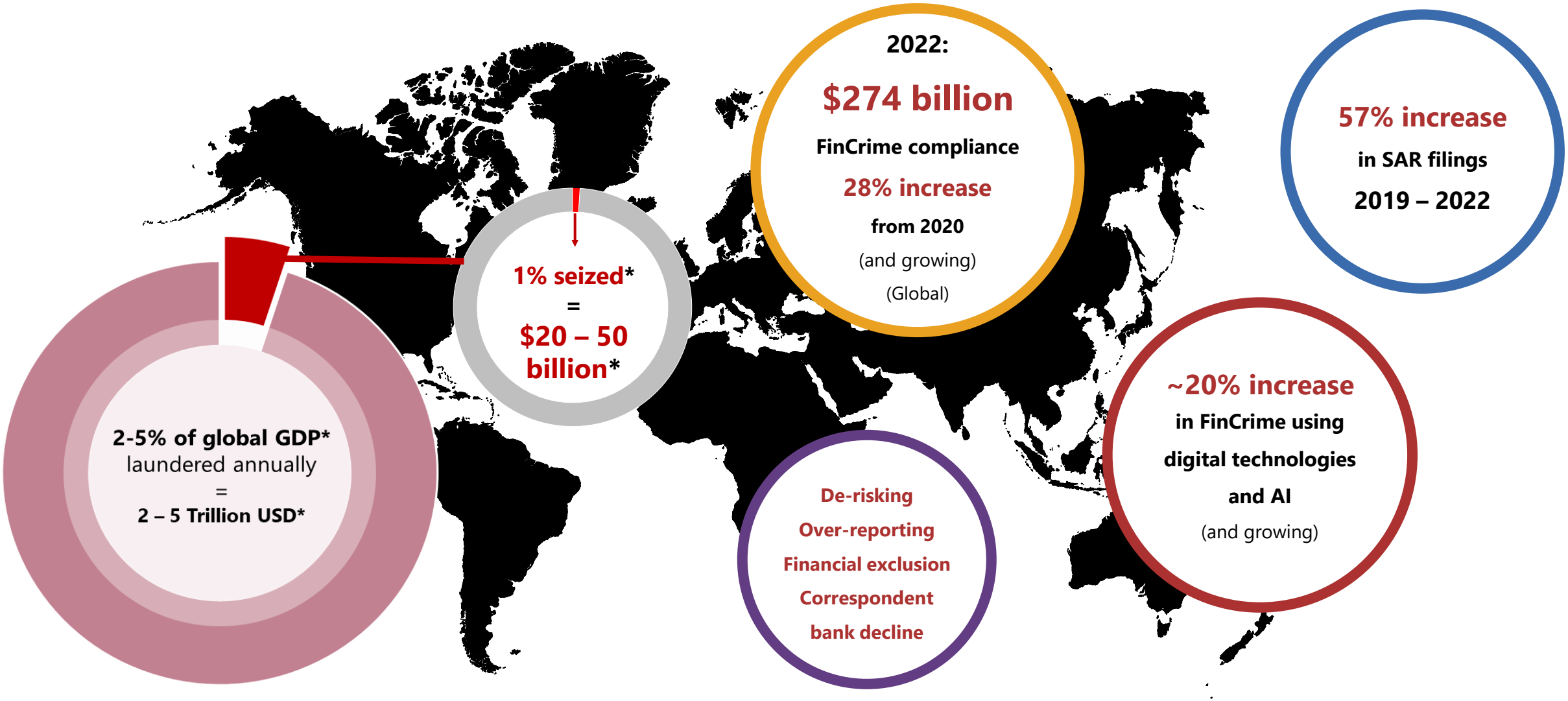
The financial sector has suffered more than 20,000 cyberattacks, causing $12 billion in losses, over the past 20 years.




Source: Advisen cyber loss data and IMF staff calculations.

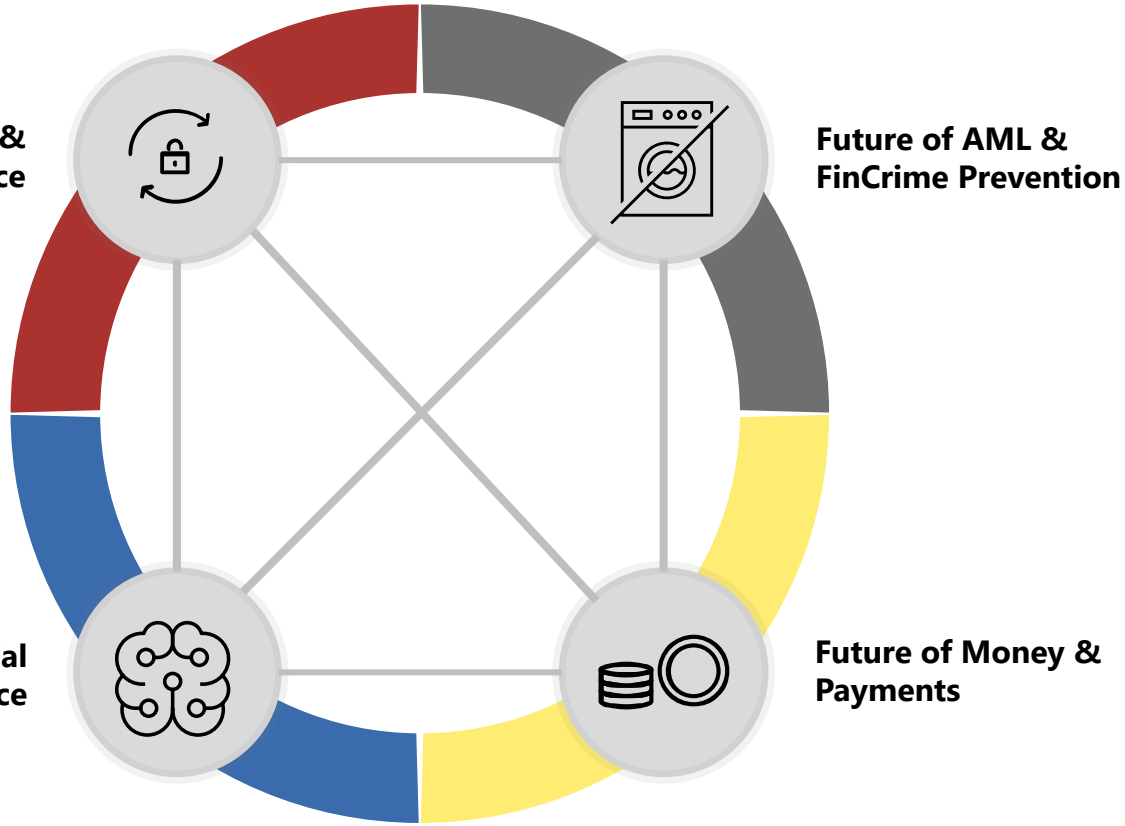
IMF

# Financial Crimes is a Global and Increasing Problem




Sources: UN Office of Drugs & Crime – (* Estimates are calculated relative to recent GDP) True Cost Financial Crime Compliance 2022 | LexisNexis Risk Solutions.

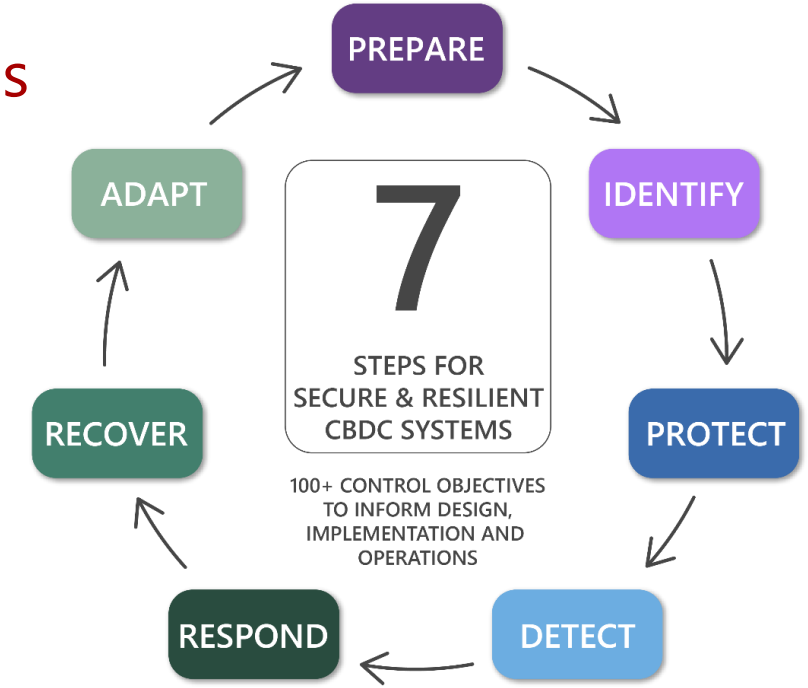
# Nordic Centre – Holistic strategy and focus going forward

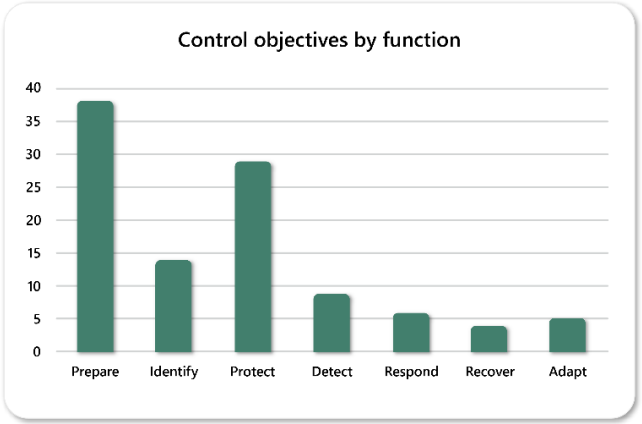


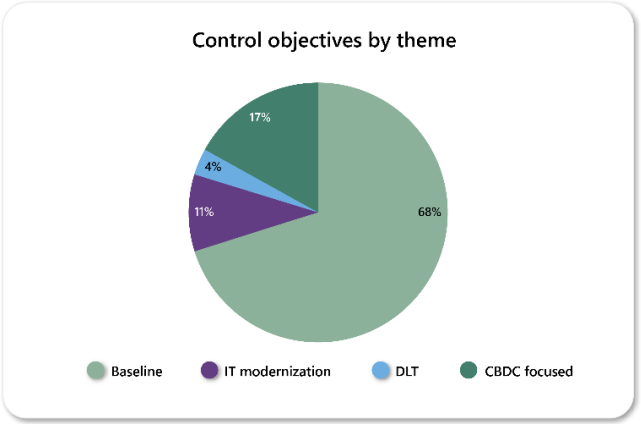

- Critical subjects for central banks and supervisory authorities
- High impact to the overall fiancial system
- Apply to today and the future
- All are inter-related / have inherent synergy

# Polaris Framework for Secure and Resilient CBDCs

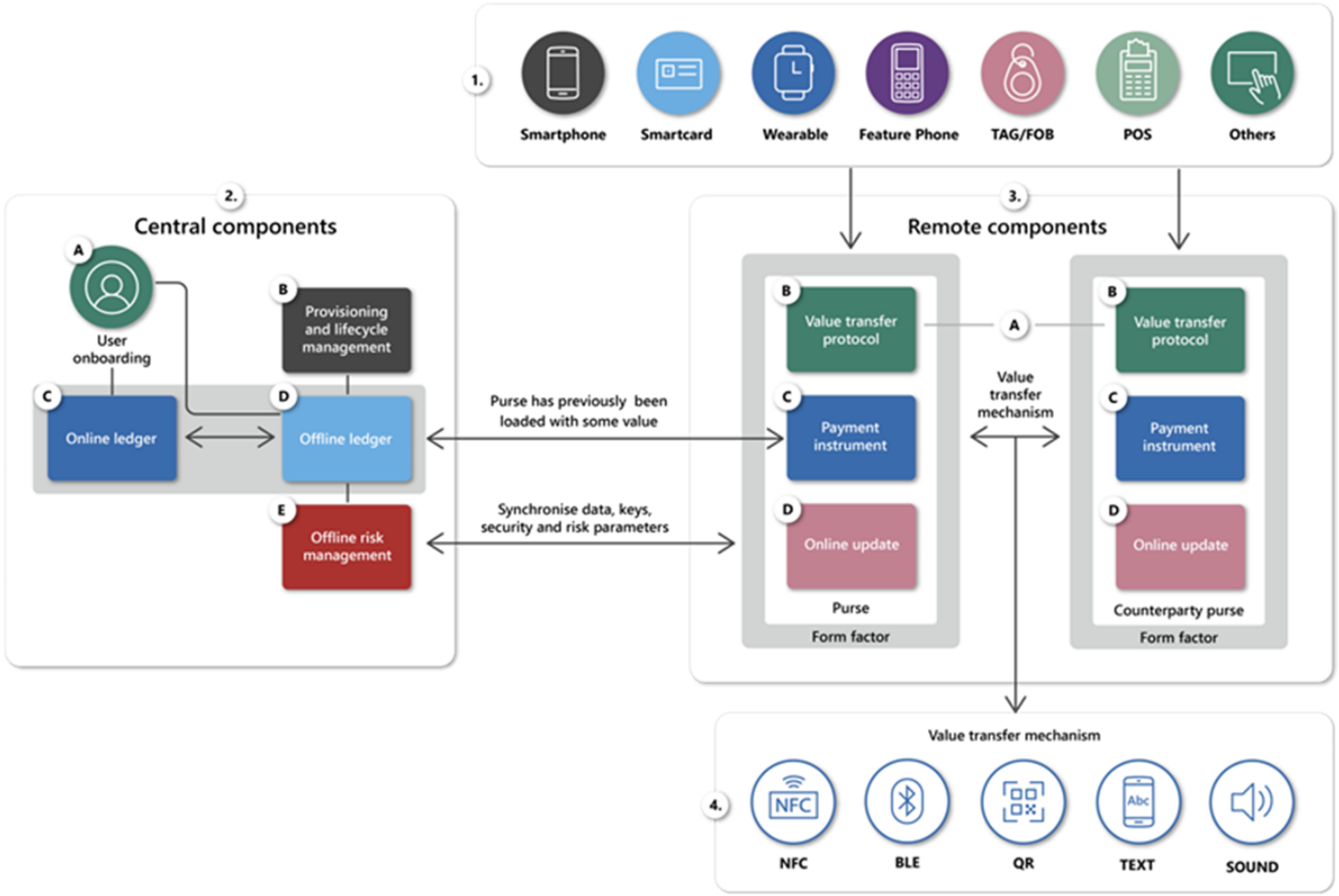
- **New threats for awareness & preparedness**
- **Best practices from IT modernization**
- **One-Stop Shop for security and resilience for future payment solutions**
  - > 100+ control objectives
  - > 35% focused on preparedness
- **Aligned to industry standards**
  - > Map current capabilities
  - > Identify and develop new capabilities



# Make Digital Money Operable Even While Offline – Project Polaris




- Make CBDC work similar to cash
- Provides a digital form of resilient payment solution during outage
- Requires significant amount of:
  - *design thinking*
  - *security engineering*
  - *risk analysis, and*
  - *ecosystem collaboration*

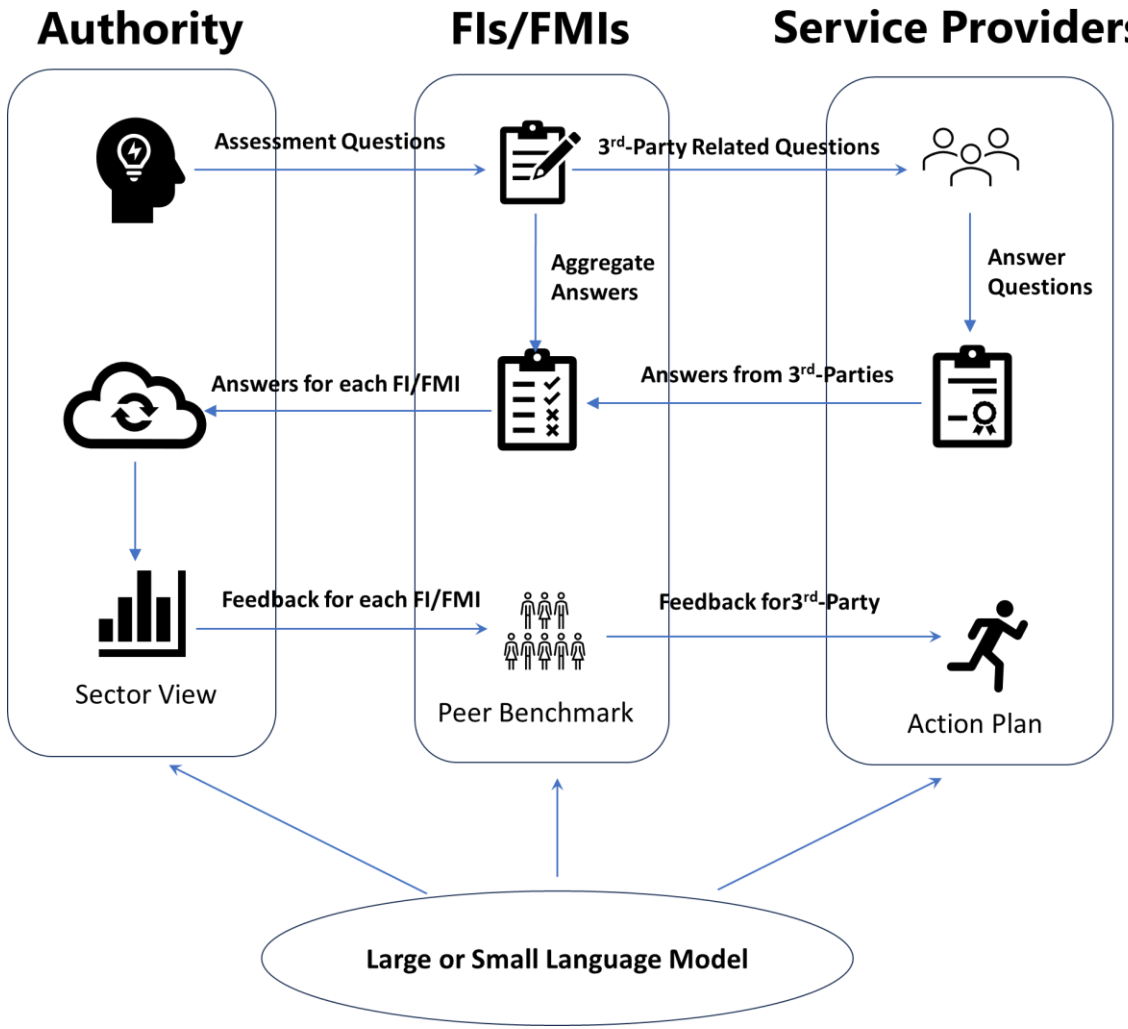
# Gaps in Existing Cybersecurity Toolbox in Protecting Against Novel Attacks

| Details of some notable DeFi hacks in recent years | | | | |
|---|---|---|---|---|
| **DeFi Project** | **Loss (USD)** | **Time** | **DeFi category** | **Main cause** |
| **Poly Network** | 610m | Q3 2021 | Protocol | Logic vulnerability |
| **BadgerDAO** | 120m | Q4 2021 | Yield Aggregator | API key leakage |
| **Axie/Ronin** | 625m | Q1 2022 | Bridge/Gaming | Private key leakage/phishing |
| **Wormhole/Solana** | 325m | Q1 2022 | Bridge | Logic vulnerability |
| **Beanstalk** | 182m | Q2 2022 | Stablecoin/Protocol | Logic vulnerability |
| **Fei Protocol** | 80m | Q2 2022 | Stablecoin | Logic vulnerability |

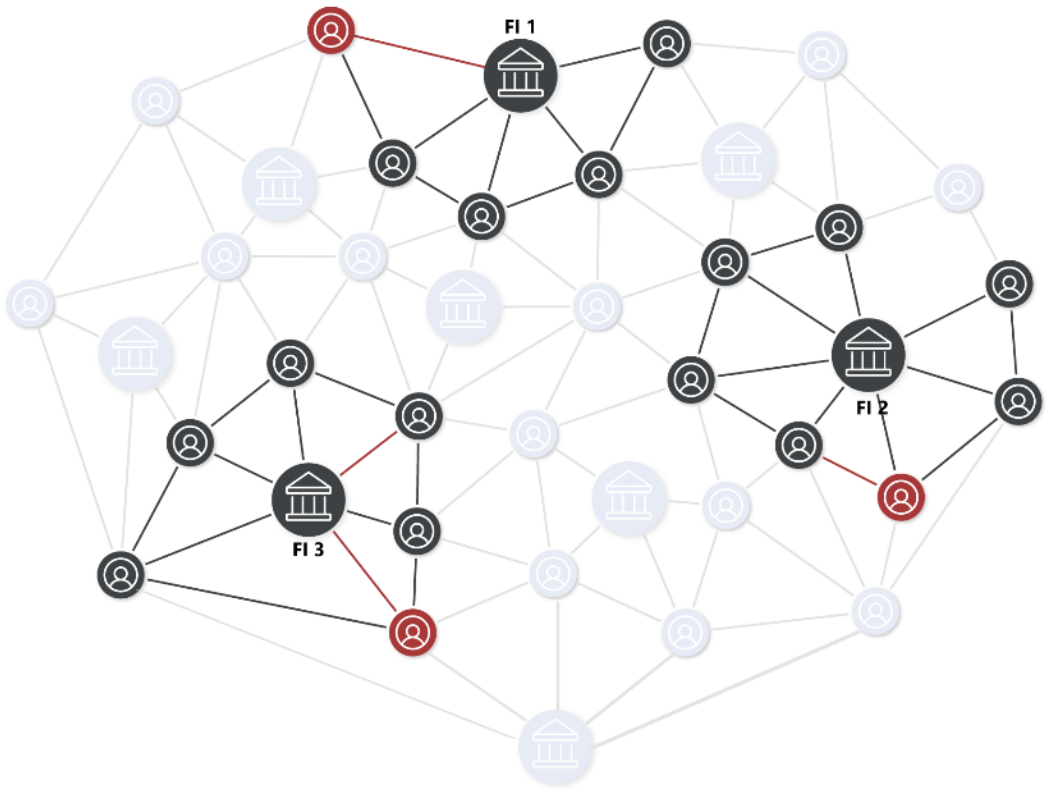
(Project Polaris Part 3: Closing the CBDC cyber threat modelling gaps)

# Project Raven: The Use of AI for Financial Sector Cyber Assessment

- Regular cyber posture assessment is important but often cumbersome
- Inspired by the FSOR practice in Denmark
- Explore the effectiveness of language models in extracting cyber-related information
- Provide a public good for public-private partnership in improving cyber posture

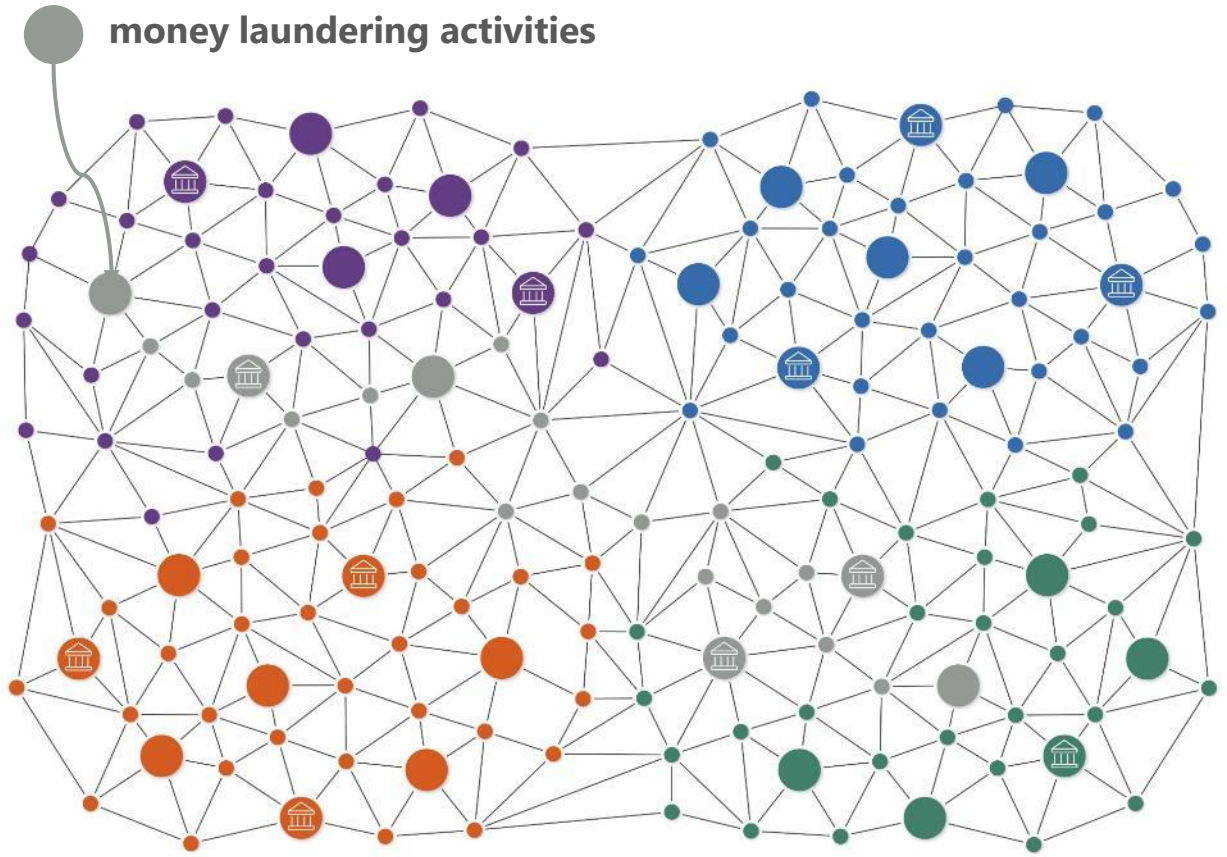


# Project Aurora: tacking information asymmetry with collaborative data analytics



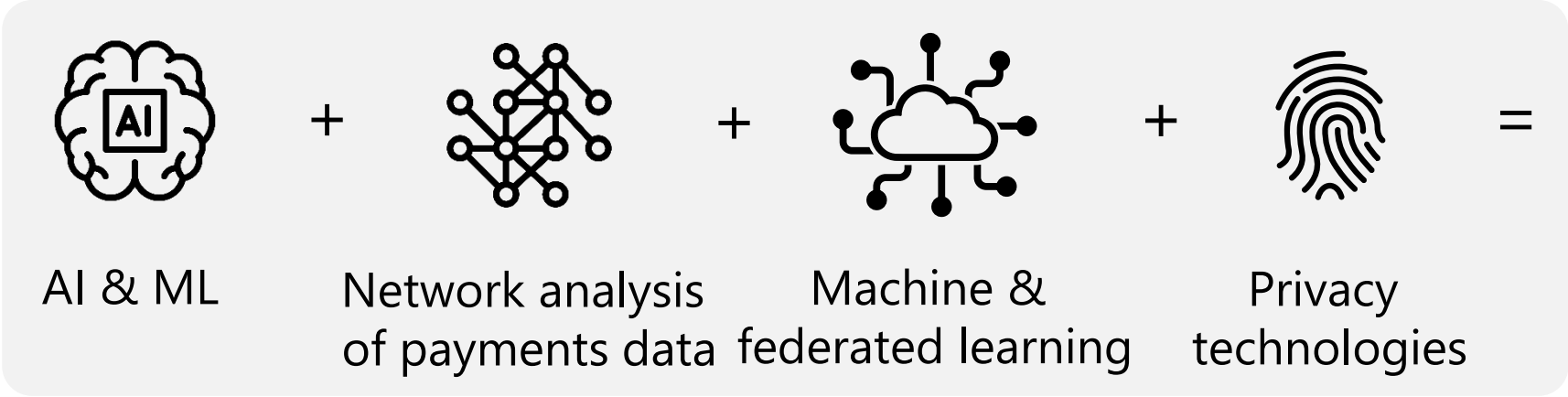

Firms work in siloes

vs




Collaboration is required on transaction monitoring and network analysis

# Project Aurora – Phase 1 results overview

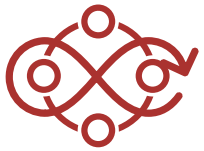



**>3x** increase in the detection of money laundering

A **reduction in false positives** by up to **80%**

**Protection of sensitive information** in collaborative AML analysis

# Project Aurora – Key findings



**Broadest view** from national and cross-border payments data is optimal

Key challenges need to be surfaced and discussed
(data, privacy, legal, security, ops, technical, ethical)

Deeper technical research and work on key issues needed

**Real-world** technical proving and collaboration is essential

# Project Aurora Phase 2

Convene global community of experts / interested parties

Research, discussion and practical work

Deliver a series of technical work with public / private stakeholders

Identify key challenges

Technical blueprints & tests

Assess results and discuss

Feasibility & value

Next steps

# Outstanding Areas That Require Further Work

- Balance between privacy protection and financial crime prevention
- Verification and trust of digital identity, in a world of deep fakes
- New threats and risks brought by new digital finance arrangements
- Data standardization and compatibility
- Cross-border interoperability of data and trust frameworks
- Legal and regulatory frameworks vs. the need to support innovation

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# Thank you!