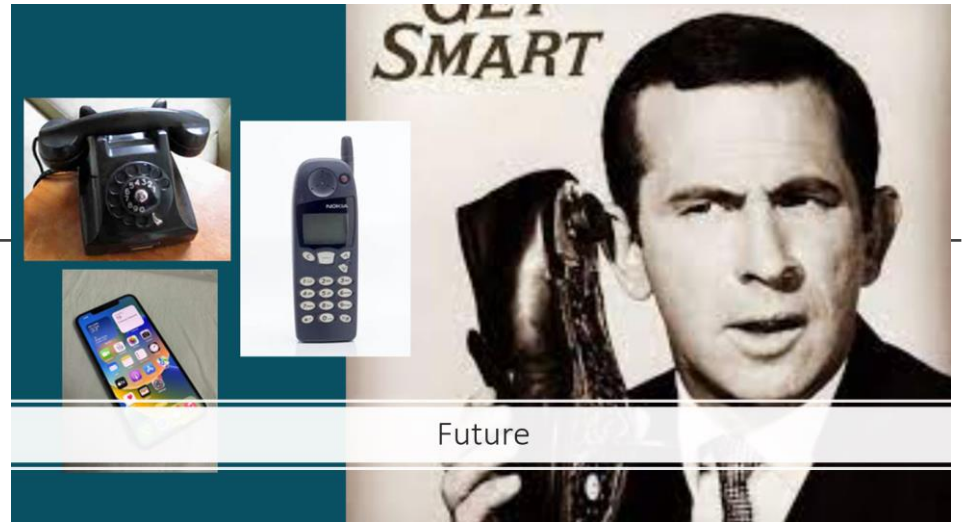
FinTech – Banking

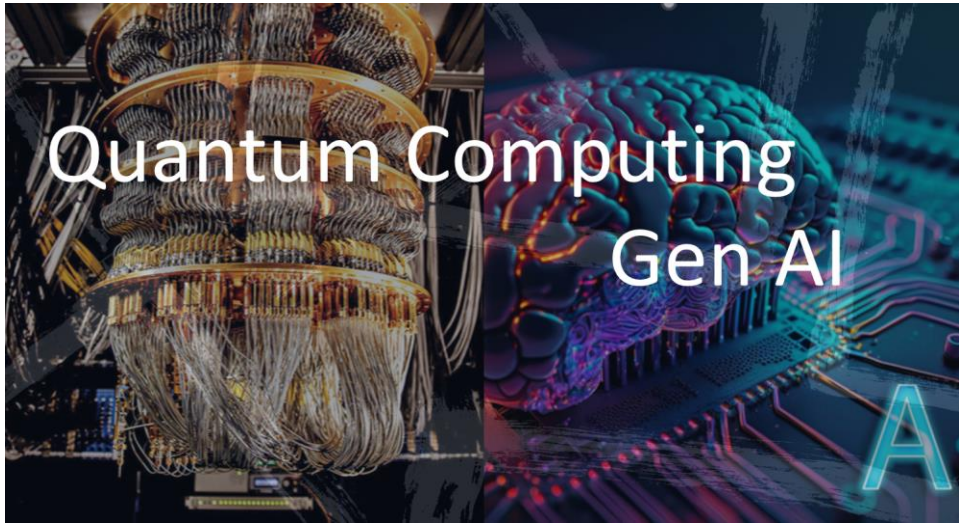
TIMO PENTTILÄ

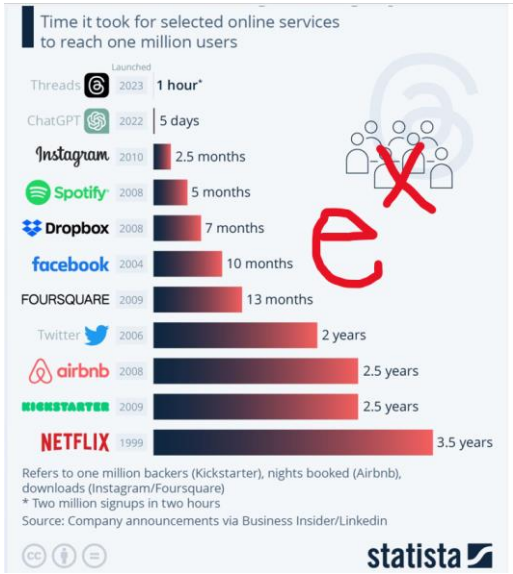
Klarna – Sebastian Siemiatkowsky

Grandfather 84 y. Banker 42 years
Father 57 y. Banker and FinTechy 30 years
Son 25 y. Future unknown


Grandfather 84 y. Banker 42 years
Father 57 y. Banker and FinTechy 30 years
Son 25 y. Future unknown


SMART
Future


Quantum Computing
Gen AI


Time it took for selected online services to reach one million users
Launched
Threads 2023 1 hour*
ChatGPT 2022 5 days
Instagram 2010 2.5 months
Spotify 2008 5 months
Dropbox 2008 7 months
facebook 2004 10 months
FOURSQUARE 2009 13 months
Twitter 2006 2 years
airbnb 2008 2.5 years
KICKSTARTER 2009 2.5 years
NETFLIX 1999 3.5 years
Refers to one million backers (Kickstarter), nights booked (Airbnb), downloads (Instagram/Foursquare)
* Two million signups in two hours
Source: Company announcements via Business Insider/Linkedin
statista

Banking Technology

Open Banking

BaaS

Cloud

Neo Banks

PSD2/FIDA

Open API

Data

Blockchain

Regulations

Payments

Apple etc.

P27 Payments

Fintech startups

Top 10 Banking Technology Trends in 2024

Artificial Intelligence

Open Banking

Hyper-Personalized Banking

Blockchain

Banking of Things

Peer-to-peer lending

Cybersecurity

Immersive Technologies

Banking Process Automation

Neobanking

Quantum Computing

Regulation

Open Banking – PSD2

Anti Money Laundering AML – PEP, KYC, Transaction monitoring and Sanction screening

Solvency

Interest rate risk - IRRBB

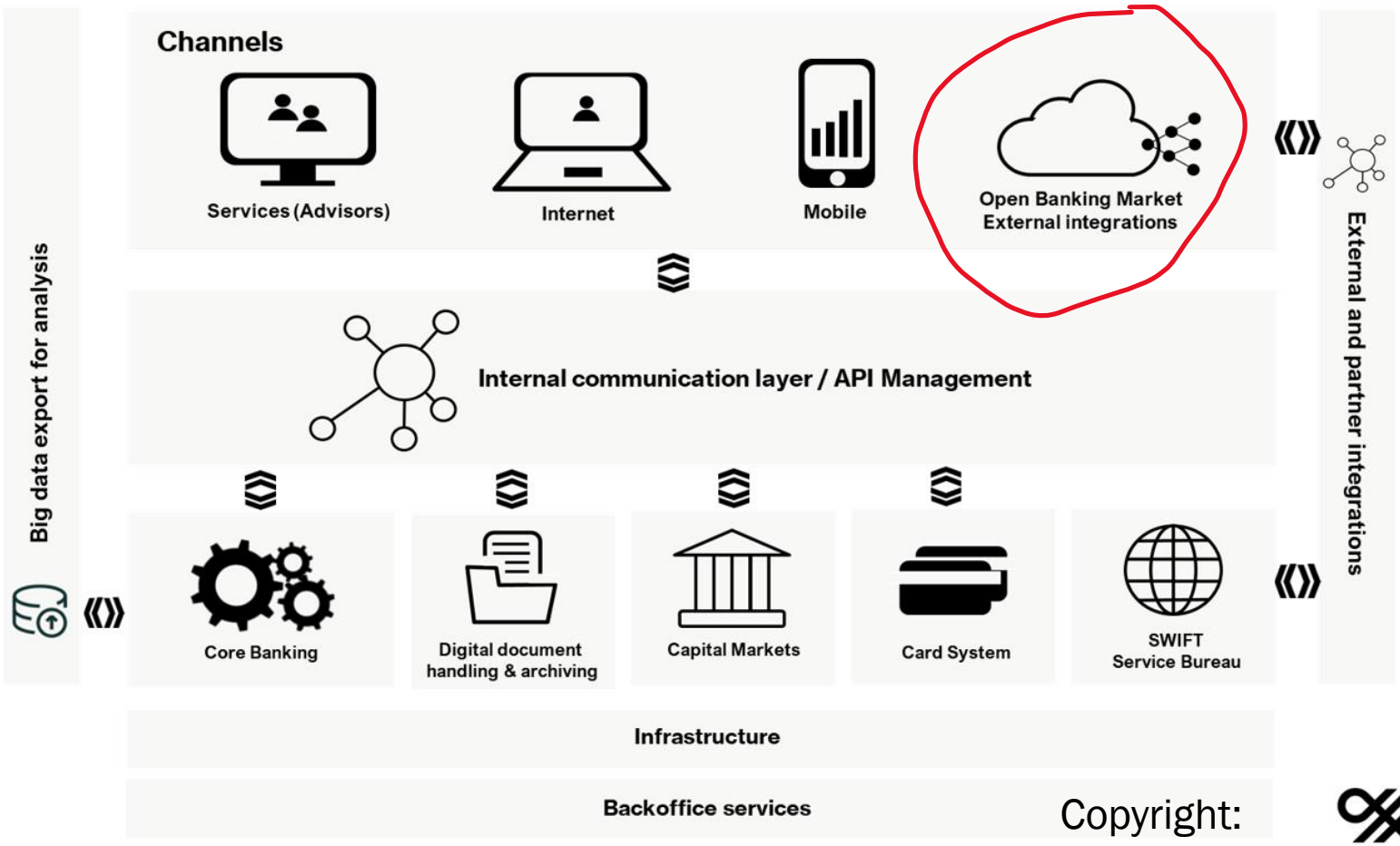
Credit risk - CRR/CRD

Sustainability

ESG – corporate and customer

Reporting – Financial Supervison, example Basel

Banking Systems



AML / Sanction Screening / PEP

Crosskey

Neo Banks – Digital First

The term ‘Neo-bank’ started gaining prominence globally in 2017 as they emerged as a new challenger to the traditional banks in terms of customer engagement, connectivity and reach, and most importantly, the user experience. That is why neo banks are also called ‘challenger banks’. The market potential for neo-banks is driven by the rising penetration of the internet and smartphones across the globe.

Neo vs Traditional Banks

Neo-banks are online-only financial technology (fintech) companies that operate solely digitally or via mobile apps. Simply put, neo-banks are digital banks without any physical branches.

- According to a report by KBV Research, the global neo-banking market size is expected to reach $333.4 billion by 2026, rising at a compounded annual growth rate (CAGR) of 47.1 per cent

Traditional banks follow an omni-channel approach i.e. having both physical (through branches and ATMs) and digital banking presence to offer a multitude of products and services

Neo-banks offer a wide range of offerings to customers across retail and small-to-medium enterprise (SME) categories

- money transfers, utility payments and personal finance

Neo-banks apply a design thinking approach to a particular banking area and tailor their products and services

Can Neo Banks replace traditional banks?

Likely not entirely

Neo-banks offer only a small range of products and services as compared to a whole gamut of services that traditional banks offer.

Neo-banks are highly digital focused, they may not be able to cater to the banking needs of non-tech savvy consumers or people from the rural parts of the country

Challenges to provide personalized service to large corporates

Neo Banks - Nordic

Lunar, the Nordic challenger bank has raised €40 million in Series C funding from existing investors

- Established in 2015 in Denmark, in 2018 Lunar Way received the two PSD2-licenses – AISP and PISP and in 2019 the Nordic FinTech received a European banking license from the Danish FSA

Klarna is a Swedish bank that provides online financial services such as payment solutions for online storefronts, direct payments, post-purchase payments

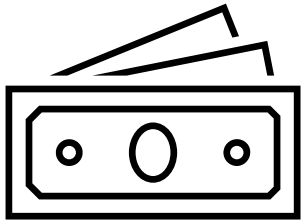
Holvi founded in 2011 and based in Helsinki, Finland

- Holvi is a digital banking service for freelancers and entrepreneurs. The company combines money management tools with user-friendly and intuitive business current accounts, for offering a banking experience that helps users run their businesses

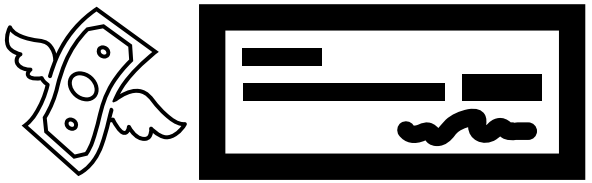
Northmill established 2006 is a Swedish techbank that aims to develop secure financial services for customers through new technology and innovation.

- carried out a capital round of SEK 250 million ($30 million approx) led by M2 Asset Management, a Swedish investment company controlled by Rutger Arnhult, and the institutional investor and asset management firm Coeli

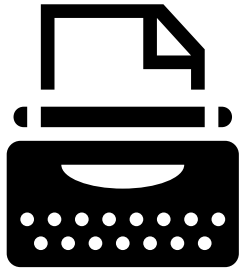
Payments - History



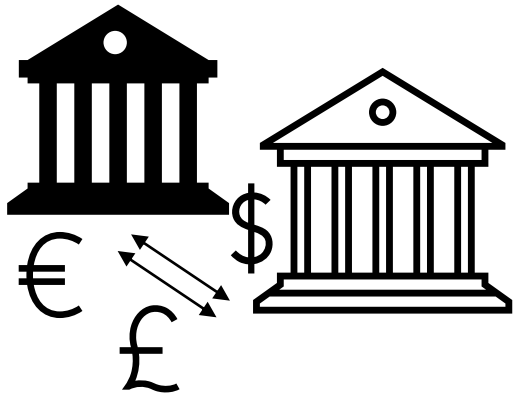
Personal Check
1809 Jefferson



Telegram 1873
Western Union



Telex 1950’s



SWIFT 1970’s

Payments

What are the challenges and opportunities in the current payment system architecture?

Digital Euro

What lessons can be drawn from Big Tech payment innovations such as Alipay, WeChat Pay, M-Pesa, Paytm, Kakao Pay, Amazon Pay, Apple Pay, & Google Wallet?

What lessons from fintech disrupters such as Plaid, Square, Stripe, Toast, TransferWise, Venmo, etc.?
About us - our mission | Plaid

What are incumbents such as the major banks as well as Visa, Mastercard and PayPal responding to the changing landscape?

Do stable value coins and tokenized assets fill real gaps in payments and the financial markets? If so, will stable coins or tokenization take off or just be a passing fad?

Society for Worldwide Interbank Financial Telecommunications (SWIFT)

SWIFT for Electronic Funds Transfers

Society for Worldwide Interbank Financial Telecommunications (SWIFT) is a member-owned cooperative that provides safe and secure financial transactions for its members.

This payment network allows individuals and businesses to take electronic or card payments even if the customer or vendor uses a different bank than the payee.

SWIFT works by assigning each member institution a unique ID code that identifies not only the bank name but the country, city, and branch.

SWIFT assigns each financial organization a unique code that has either eight characters or 11 characters. The code is interchangeably called the bank identifier code (BIC), SWIFT code, SWIFT ID, or ISO 9362 code

Payment systems

Banks collaborating

- SWIFT
- P27 – cancelledUK Regulated Liability Network (RLN)

Mobile payments

- Apple pay
- Google pay
- Mobile pay
- Siirto
- Alipay
- M-PESA
- UPI

Apple - Banking

- **Apple Card and Savings Account**
- **Provider**: **Goldman Sachs Bank USA**.
- **Features**:
  - **No fees**.
  - **No minimum deposits**.
  - **No minimum balance requirements**.
  - **Automatic deposit** of **Daily Cash rewards** into the Savings account.
  - **Changeable Daily Cash destination**.
  - **Additional deposits** from linked bank accounts or Apple Cash balance.
  - **Easy-to-use Savings dashboard** in Wallet for tracking account balance and interest earned.
  - **Withdrawal flexibility** with no fee

UPI – Unified Payment Interface

Started in India 2016

Inter-Bank peer-to-peer

Person-to-mercant

46% of global instant payments transactions 2022

Financial inclusion

Voice based transactions ToneTag 2021 low connectivity areas

UPI 123PAY has four options for payment.[51]

- App-based functionality where a mobile phone manufacturer can install a UPI app
- Missed calls based: where a customer can use a dedicated merchant payment number by giving a missed call. The incoming authentication call will ask for PIN verification to complete the transaction.
- Interactive Voice Response (IVR) based where the payment transaction will be completed using pre-defined phone numbers.
- Payment in offline mode through sound-based proximity data communication.

Payment Services Directive PSD2

Payment Services Directive (PSD2) went into effect on 13 January 2018 across the UK and Europe.

PSD2 introduces new rights for certain third-party providers (TPPs) to directly access payment service users' online payment accounts

Access require customers explicit consent and requires Account Servicing Payment Service Providers (ASPSPs), such as a bank, to permit access through a dedicated interface built on APIs.

PSD2 regulation is designed to **open up the banking industry to new players and promote the development and use of innovative online services, while ensuring consumer protection.**

PSD2 provides the legislative and regulatory foundation for Open Banking and other broader initiatives at a UK and European level relating to open access to payment accounts.

Open API

API, application programming interface

APIs let your product or service communicate with other products and services without having to know how they're implemented. This can simplify app development, saving time and money. When you're designing new tools and products—or managing existing ones—APIs give you flexibility; simplify design, administration, and use; and provide opportunities for innovation.

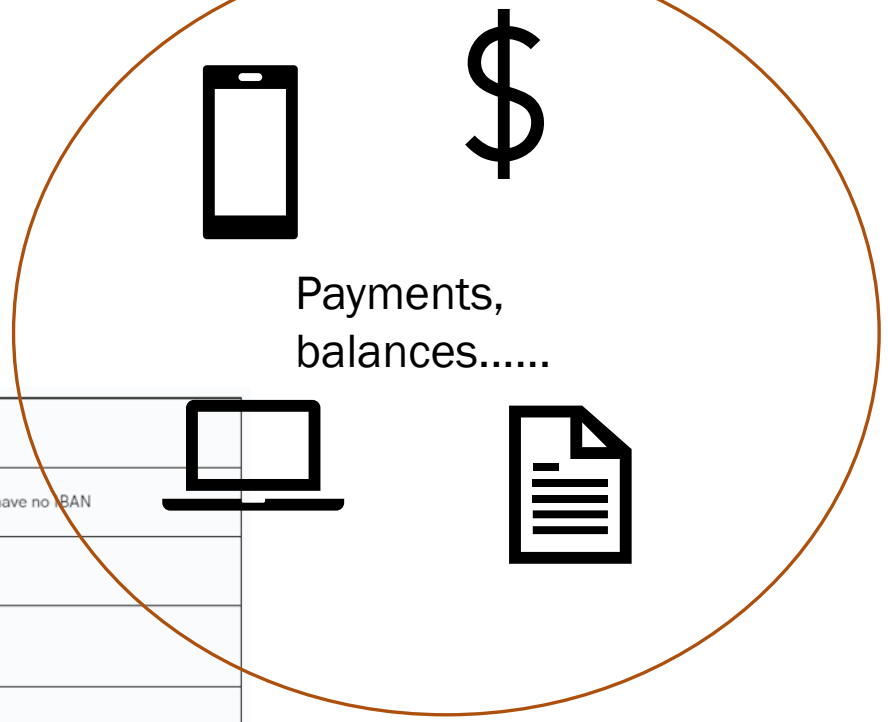
Open API is open source transparent standardized API which can be used by external parties freely

Open Banking API allows third-party service providers access to financial data.

Open API

Core Banking Systems and Database

API



KEY	TYPE	OPTIONAL	DESCRIPTION
bban	BBAN	Optional	This data element is used for payment accounts which have no IBAN
bic	BICFI	Optional	The BIC associated to the account.
cashAccountType	Cash Account Type	Optional	ExternalCashAccountType1Code from ISO 20022
currency	Currency Code	Mandatory	Account currency
details	Max500Text	Optional	Specifications that might be provided by the financial institution - characteristics of the account

Why Open API

Transparency – anybody can connect and use

Standardized way of connecting

When something is changed in the counterparty core system no changes needed

You can separate technology layers

- System layer – Core systems
- Process layer – Business logic
- Exerience layer – Front end via API

Open Banking

“Open banking” refers to the practice of providing open access to financial data from financial institutions through the use of application programming interfaces (APIs).

Open banking supports mission to empower innovators by delivering access to the financial system.

Banks grant third parties access to customer payment account data in a secure, standardised form, provided that the third party accessing the account has the customer's explicit consent to do so.

Account Information Service AIS

Account Information Service (AIS) is an online service that provides consolidated information to a user on one or more payment accounts held by that user with other payment service providers.

Firms that are registered or authorised to provide account information services can, with the explicit consent of the end consumer, access their bank account to provide the end consumer with new products and services.

If you're providing AIS, you will need to be registered or authorised by National Competent Authority (NCA) in Europe, to provide AIS in order to benefit from PSD2 open access measures.

This is because PSD2 only mandates ASPSPs to enable access to firms that are registered or authorised to provide AIS by the FCA in the UK, or an equivalent NCA in Europe

Payment Initiation Service (PIS)

Under PSD2, a Payment Initiation Service (PIS) is an online service which accesses a user's payment account to initiate the transfer of funds on their behalf with the user's explicit consent and authentication.

When using a Payment Initiation Service, consumers give consent for a third party Payment Initiation Service Provider (PISP) to make a connection to their bank account and subsequently initiate a payment on their behalf.

PISPs use the bank in question's tools to make transfers in or out of the user's account, with payments authorised by the user within the app or site they are already using, rather than through an additional or separate interface.

Benefits of Payment Initiation

PISPs offer benefits to both businesses and consumers.

For the consumers, Payment Initiation represents a convenient payment option as they no longer have to, for example, make a manual transfer from their bank account, or even root around for card details. Instead, they get a journey that may be as simple as just selecting an account from which to pay.

For businesses, Payment Initiation means better conversion rates. Simpler, more convenient payment journeys for consumers mean lower cart abandonment rates and better customer satisfaction. Businesses using Payment Initiation can keep their customers within their own ecosystem from the very beginning of a transaction to the very end.

In addition, Payment Initiation can represent a major cost saving. It can be significantly cheaper to integrate with a PISP than to establish relationships with card acquirers and other relevant parties individually.

AIS / PIS

How are Payment Initiation Services related to Banking-as-a-Service

Open Banking is enabling important new innovations in Banking-as-a-Service (BaaS).

If BaaS provides the tools for the delivery of financial services, Open Banking is opening up the range of applications for those tools.

Payment Initiation Services are most readily available to businesses through a reputable BaaS provider

BaaS technology allows businesses of every size and in virtually every industry or sector niche to integrate financial products and tools within their existing offerings

Banking as a Service - BaaS

White labeling products

- Hypo Mastercard (Ålandsbanken, Crosskey and Compass Card)
- Finnair Visa – Aktia Bank

BaaS

- Example SEBx, Paypal
- White labeling products
- Embedded finance

- Banking-as-a-Service (BaaS) Market Is Booming Worldwide | PayPal, Moven, Intuit, Gemalto (digitaljournal.com)

SEB signs new fintech startup as first BaaS customer

27 April 2022 1 2 0

Sweden's SEB has signed Humla, a fintech startup from retail congolomerate Axel Johnson, as the first customer for its banking-as-a-service platform.

Source: Finextra

Use cases PIS

Financial management apps, a whole plethora of which have been made possible by Open Banking.

Using Payment Initiation Services, financial management apps can, for example, automatically transfer funds between a user's accounts in order to ensure they stay within credit limits or avoid an overdraft.

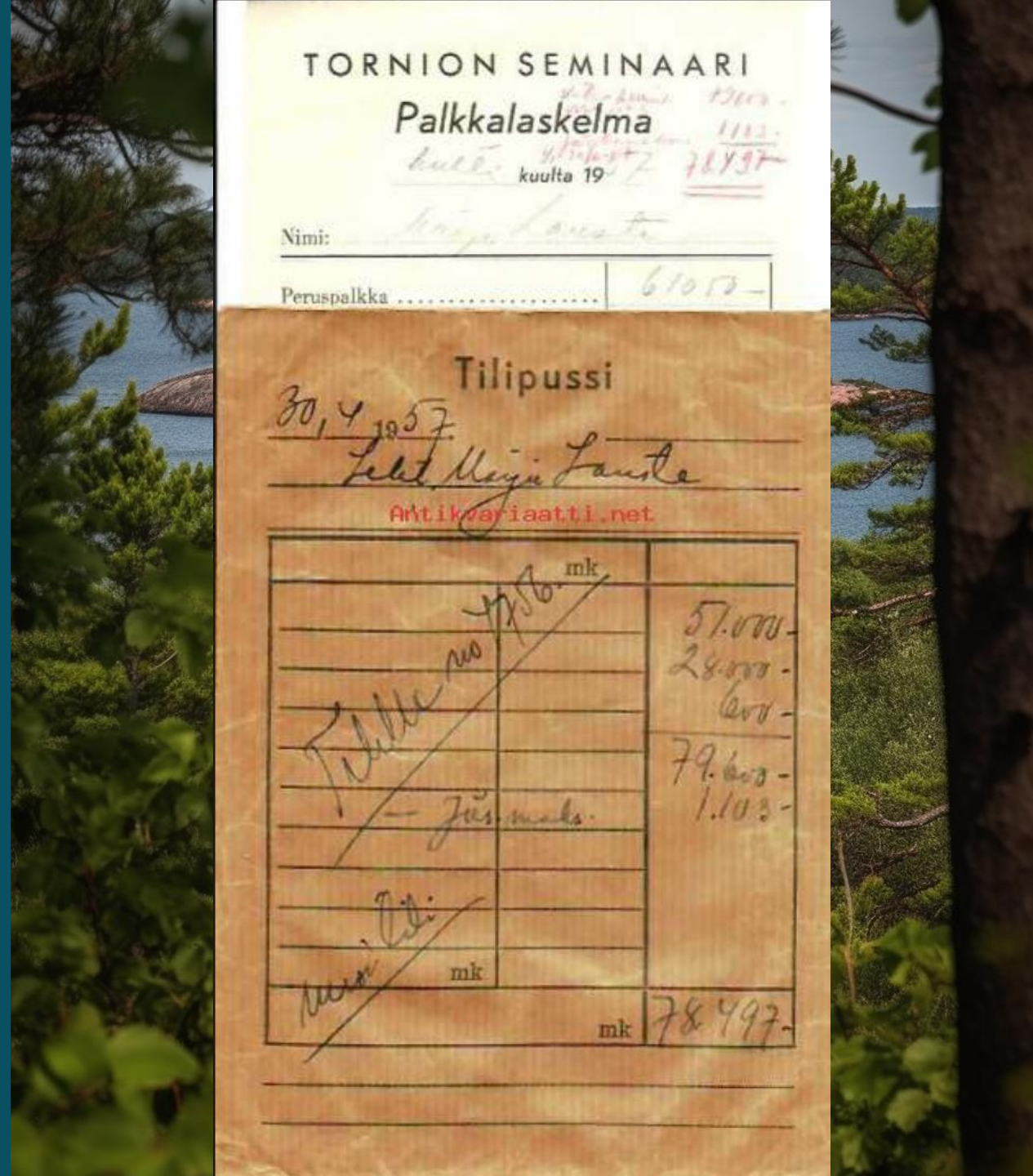
Consumer payments.

Replacing Chip and PIN or Contactless payments.

On-Demand Pay

On-Demand Pay is a payroll service that allows employees to access some or all of their wages as they are earned, rather than waiting for the next regular payday

Kotti
Förskott



Open Banking use case

Account aggregation

This is probably the most popular one. Account aggregation is already offered by a number of financial services companies. It involves using an API to allow customers to get an overview of their various accounts.

Account aggregation means customers can see multiple accounts from different providers on one interface. It’s not just straightforward payment accounts either, which the PSD2 framework gives access to. There are examples of where you can view credit cards, investment accounts and loan accounts in one place, as well as combining consumer and business banking in the same interface.

Examples: Plaid, Tink, Nordic API Gateway

Open Banking use case

Personal finance management

For example, this can be placing payments in different categories or showing how much money the customer has left to spend this month. Dedicated software allows PFMs to pull in information from various accounts into one informative interface.

It creates financial insights.

Examples: Spiir, Yolt, Mint

Open Banking use case

Instant credit risk

Open banking can rapidly speed-up credit applications by allowing lenders to gain an almost instantaneous overview of an applicant's credit history.

Prior to that, assessing applicants for credit often involved pulling together different documents from different banks and institutions.

This process not only slowed down the delivery of credit services but led to a negative customer experience.

Examples: Klarna, Afterpay, Zip Pay

Open Banking use case

Subscription management

Subscription management basically detects all the recurring payments from the customer and shows them in one interface.

This can be anything from a streaming service or a fitness membership to a utility bill or a monthly mortgage.

From here the customer can manage the recurring payments by for instance cancelling unwanted subscriptions or getting notified about upcoming payments.

Examples: Subaio, ApTap

Open Banking use case

Opening new accounts

Opening a new account with a bank is now much easier and faster.

This is highly linked to the Know Your Customer (KYC) process.

This onboarding process also can help in profiling the new customer.

Examples: IDnow, Onfido

PSD2 implemantation example

https://op-developer.fi/

APIs https://op-developer.fi/docs#Banking

Sandbox https://op-developer.fi/docs

Crosskey Open Banking Market (crosskey.io)

Notes:

- REST API: A REST API is an API that conforms to the design principles of the REST, or representational state transfer architectural style. For this reason, REST APIs are sometimes referred to RESTful APIs
- Swagger.json: Swagger is an open specification for defining REST APIs
- Browser flow API:

Future of Open Banking

PSD2 is putting pressure on banks to change their business model

Challenges

- Culture shift and future-proofing of technology investments
- Contributing value to and from the API economy / ecosystem
- Coping with increased, new, and future demand

Banking-as-a-service:

API-led connectivity

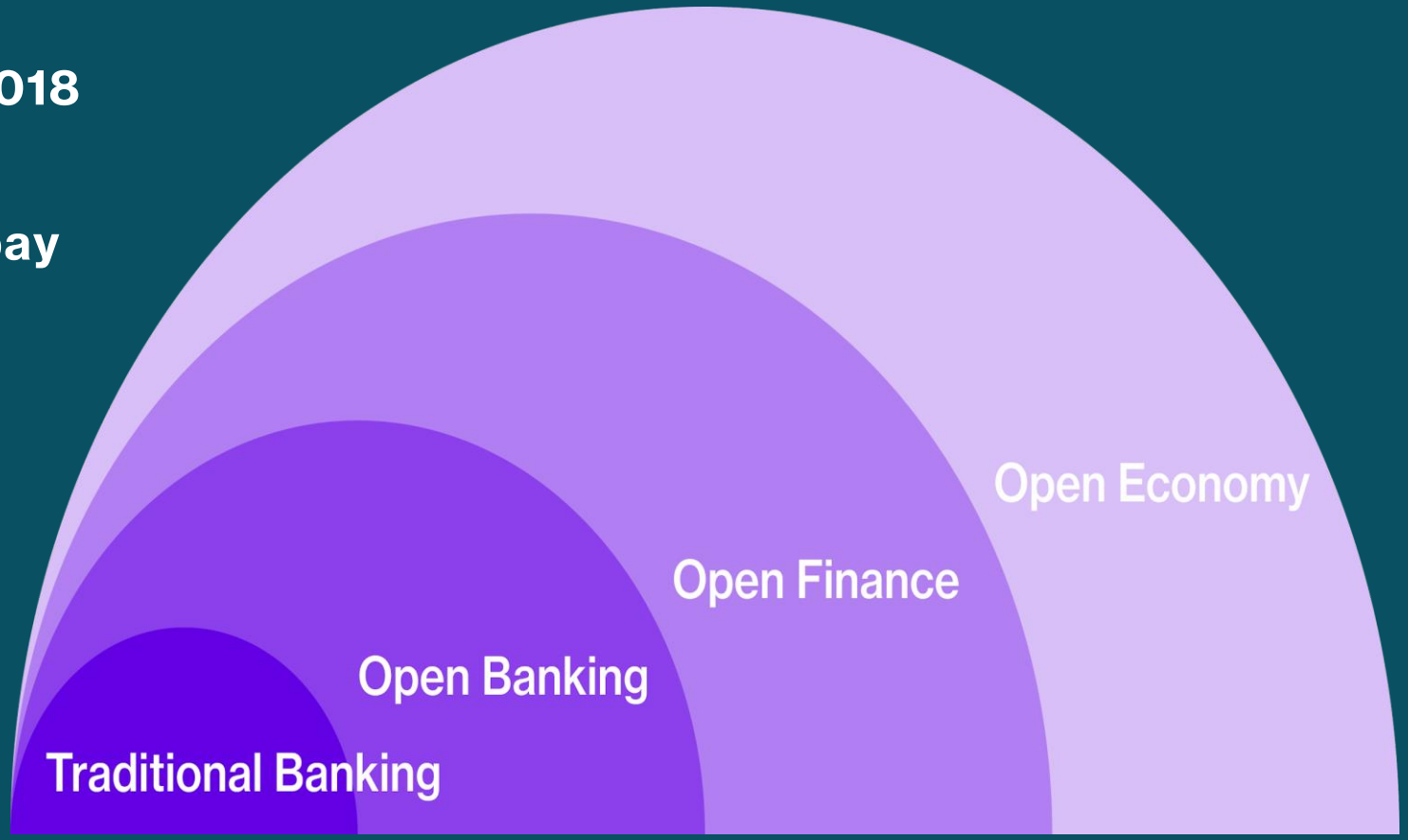
PSD3 (PSD2 2.0)

- Crypto payments
- Buy-Now-Pay-Later (BNPL)
- Operating payment systems or payment schemes
- Digital wallet services (including mobile apps used for payments)

Triangular passporting

Open Finance

- PSD2 – Open Banking (2015) 2018
- FinTechs – payments
- Enbedded Finance – buy now pay later (insurance etc.)
- PSD3 / FIDA (PSD2 2.0) 2022 (2023)=> ?
- Open Finance
- From UI to UX



Crosskey

Open Finance

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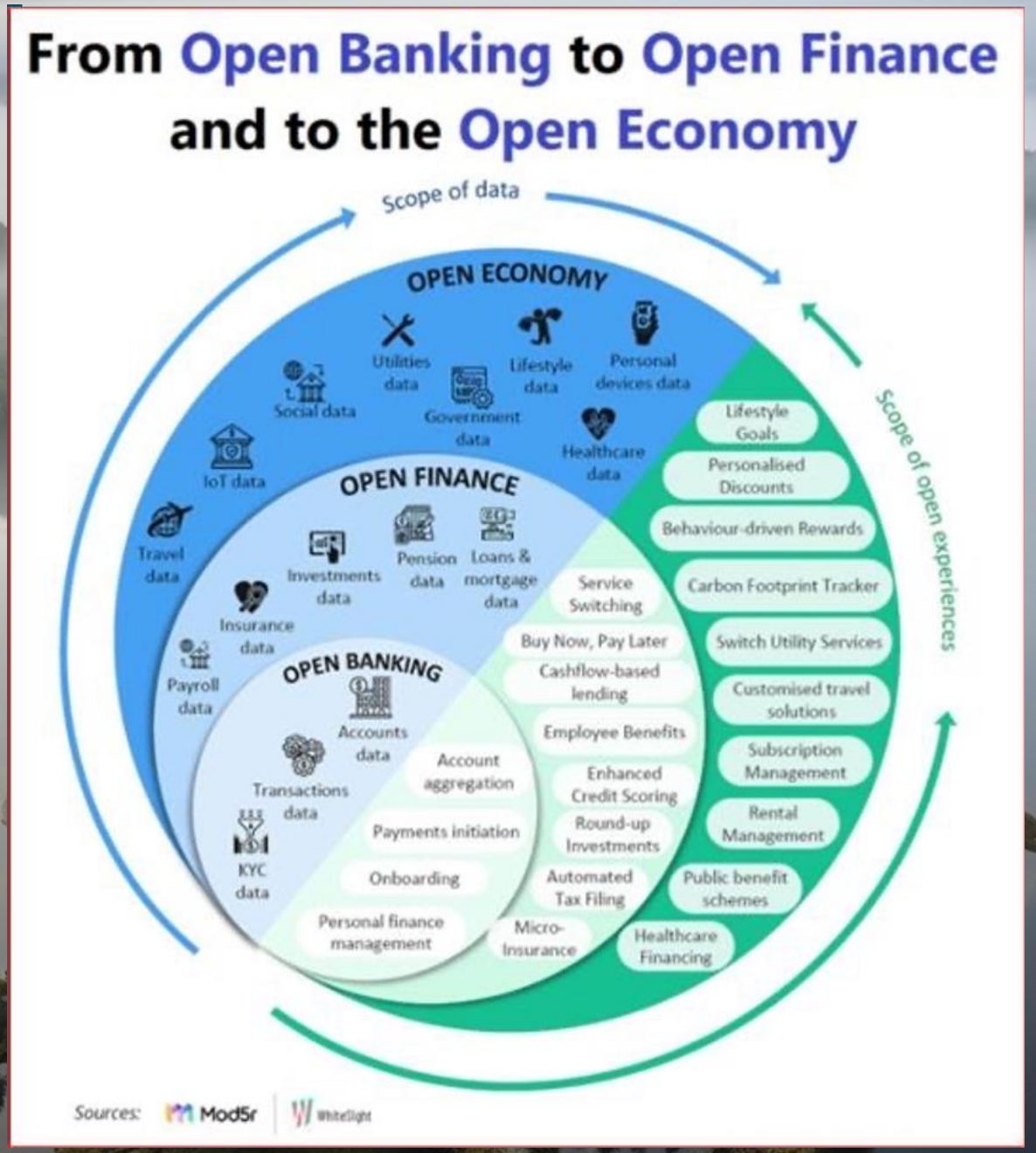


Alternative payments

Digital euro

We have decided to launch the investigation phase of a digital euro project

EUROPEAN CENTRAL BANK
EUROSYSTEM

Alternative payments

Crosskey

Alternative payments

Major banks test tokenised deposits in “Regulated Liability Network” pilot

NIENKE EUSTERBROCK 2024-04-22

UK Finance is taking its pilot of the UK Regulated Liability Network (RLN) to a new experimentation phase. The industry body announced that major banks like Barclays, Lloyds Banking Group, and Citigroup, alongside card networks Mastercard and Visa, are participating in this stage.

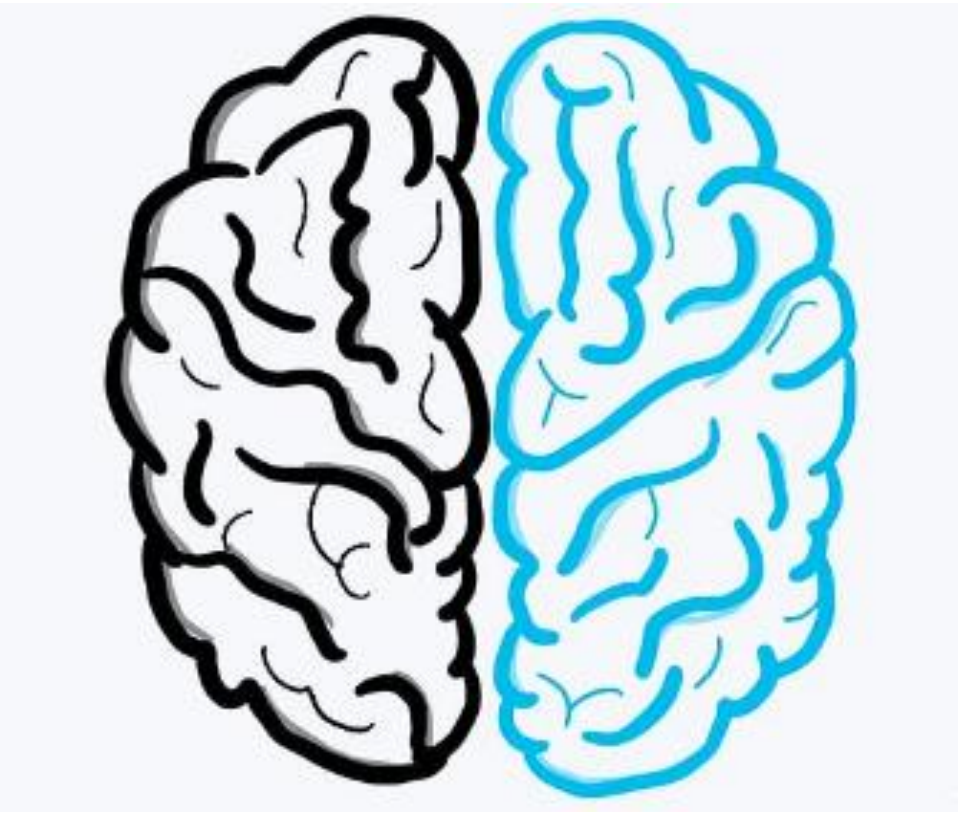
The RLN is designed to be a “practical commercial platform”, accessible to all banks, capable of handling different types of money such as conventional bank deposits and tokenised bank deposits and securities. By expanding the range of assets recorded as tokens on a unified blockchain, UK Finance aims to streamline cross-border transactions, improve efficiency, and reduce the

skey

User Interface vs. User Experiment

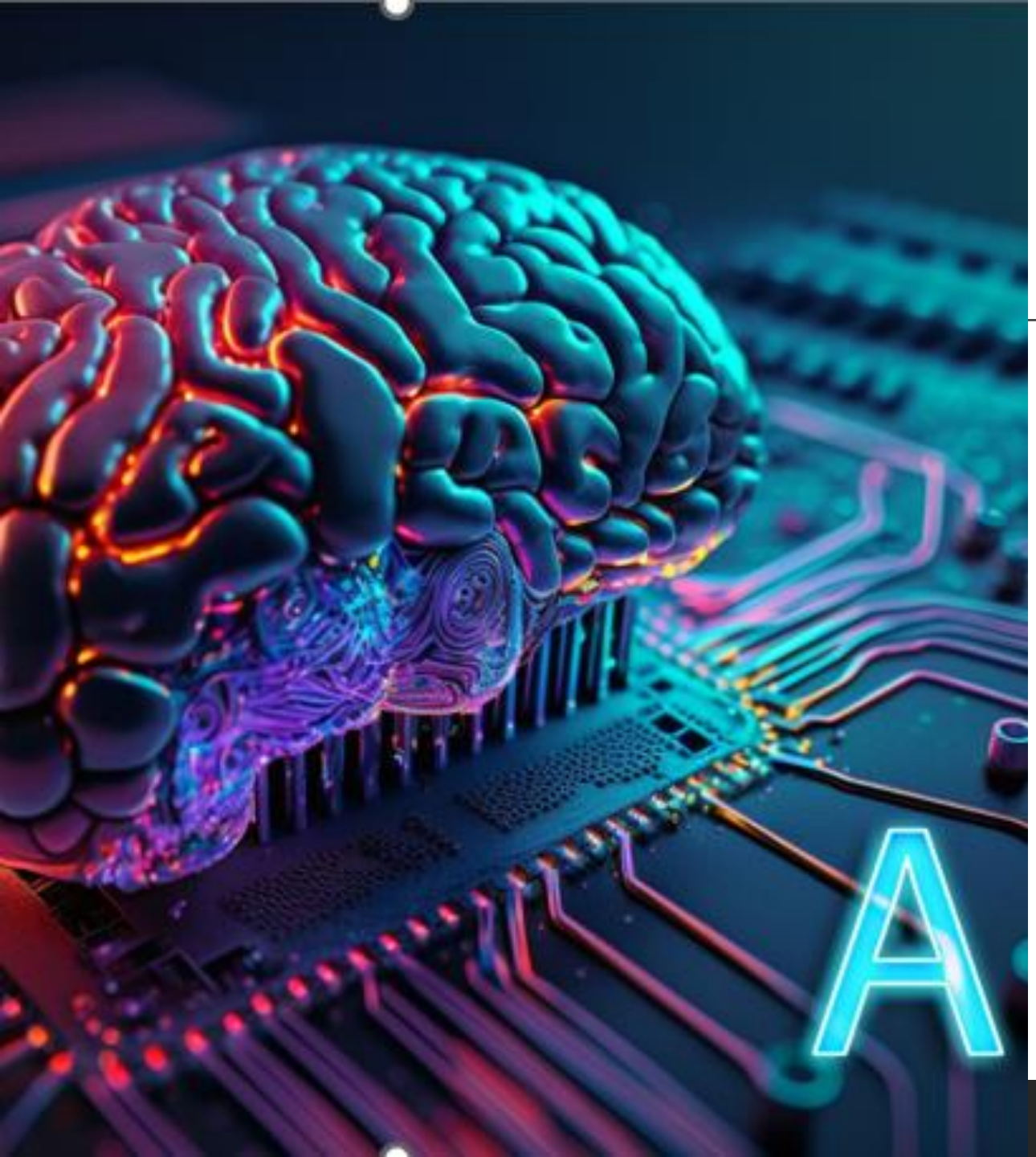
UI

GenAI
What can do for me?



UX

GenAI
What can be for me?



Artificial Intelligence

Customer Experience

ChatBot

Routine task

Anti Money Laundering

Credit ratings

Data analytics

Human Brain and User EXPERIENCE