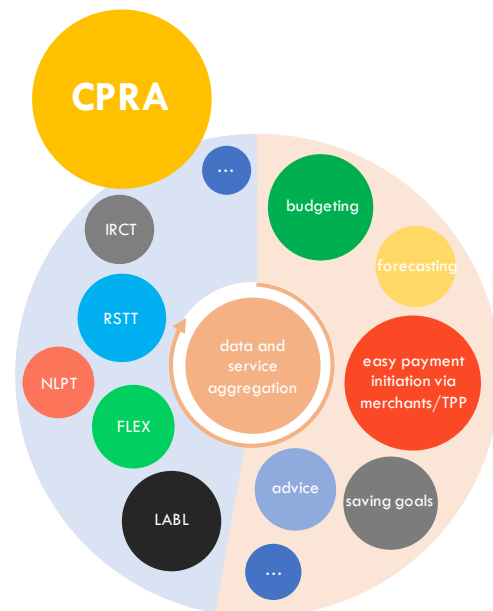# CAPILEVER

Counter-Party Risk Assessment

Counterparty Risk

At Capilever we believe banks should help their customers with managing their money and all associated financial risks. A risk which is often underestimated but that can have severe financial impacts, is counterparty risk. When investing in bonds this risk is quantified by a rating coming from rating agencies like S&P, Moody's or Fitch, but for direct peer-to-peer transactions there are no tools to get a quick and cheap quantification of the risk to transact with a given counterparty.

For SMEs, often not having lots of reserves, trusting the wrong customer can be a disaster. At the same time, customers also want to avoid making deals with fraudulent or malicious companies (SMEs) and persons.

Here are some examples of transactions benefiting from a good counterparty risk assessment:

- Hiring a building contractor for a renovation: avoid hiring a contractor that is close to bankruptcy or even worse who is fraudulent.
- Renting an apartment/house: already today, homeowners are asking a proof of salary to determine the financial health of a renter. This salary form gives a lot of personal details (which the homeowner shouldn't necessarily need to know), can be easily counterfeited and gives only a limited view (customer could have other assets or could have large liabilities). A quantitative risk scoring of the counterparty, potentially combined with a certificate confirming the customer's ability to pay the monthly rent, can be a perfect alternative for this.
- Buying real estate: often people buying a house only start applying for their mortgage when the home sales agreement has been signed. In Belgium for example this leads to 20% of home sales being cancelled, as the necessary mortgage cannot be obtained. This is a large cost for the seller, as it means the selling process needs to start all over again, increasing the time to sell the house with a considerable length. If the buyer can already present a certificate/proof - which can be easily obtained online and without any binding nature for the buyer with the bank - it can show already the credit worthiness of the buyer before signing the sales agreement and reduce this percentage of sales cancellations.
- Peer-to-peer lending platforms: the bank could monetize the counterparty risk scoring as an API for credit scoring of someone borrowing money on a peer-to-peer lending platform.
- IT contract: when a company signs a long-term IT contract with a smaller IT company, often a financial due diligence is required, to mitigate the risk of bankruptcy of the IT firm during the IT project. This due diligence process could be simplified by an easy counterparty risk scoring - with potential certification - offered by a financial institution.
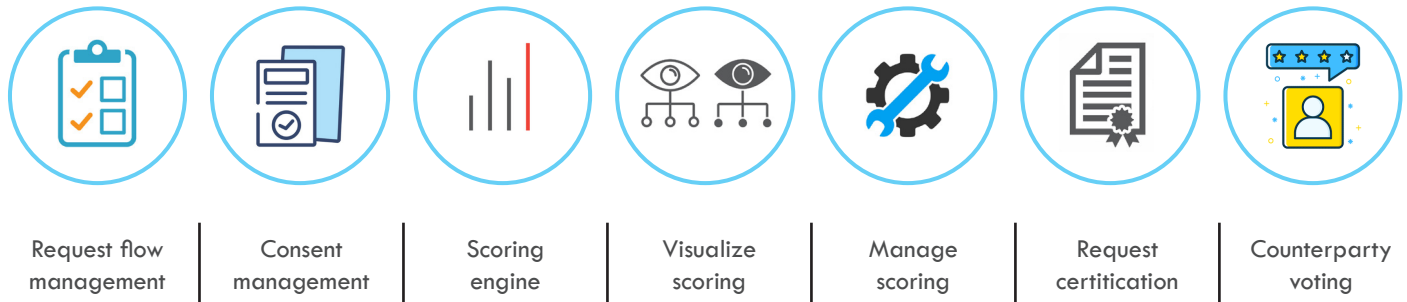
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SMARTLY ACTIVATE YOUR ASSETS

Capilever CPRA software solution

The CPRA tool (= **Counterparty Risk Assessment tool**) of Capilever provides a solution for better managing counterparty risk and supporting the use cases described above. The tool allows a customer (SME or Retail customer) to **ask a risk assessment of another customer,** while respecting all privacy concerns of GDPR, via an extensive consent management system.

Additionally, the tool offers possibilities to improve your scoring, give a vote to a counterparty or request a certificate that customer is financially sound for a specific amount.

The tool consists of following modules:

Request flow management	Consent management	Scoring engine	Visualize scoring	Manage scoring	Request certification	Counterparty voting

Request Flow Management

- After a customer is authenticated on the online banking platform, the customer can request the counterparty scoring information of another customer. This is done by first selecting the type of customer (physical or moral customer), followed by a unique identification of the customer, i.e.
    - For physical person: 1 of 3 options:
        - First name + last name + birth date
        - National Registry Number
        - ID card number
    - For moral customer: 1 of 3 options:
        - Name of company
        - Enterprise number
        - VAT number
- In this screen, the user also needs to input a reason/comment for requesting the scoring
- When counterparty's visibility preference is set to automatic approval (for this type of customer), the request is immediately approved, and the user can continue to the scoring visualization

Consent Management

In the consent management module, a user can manage who can view their risk score. There are 4 sub-modules here:
- Manage visibility preferences:
    - User can decide between 3 visibility modes:
        - Fully open: everyone can see their risk scoring information, i.e. a scoring request is automatically accepted for any user requesting the info
        - Open for all retail customers: when a retail customer requests scoring information, the request is automatically accepted, while for a company manual consent needs to be granted
        - Only open upon explicit request and consent: each request needs to be manually approved

- Manage all access requests:
    - Overview of all access requests (pending requests and requests which have already been answered)
    - See details of a request, i.e. details of person / company requesting access and reason/comment for request
    - Grant/Reject access request
        - When granting access, the user (company or retail customer) can
            o Add some explanation/comment for the risk scoring
            o Give an end date for the access to the scoring information

- o Improve their scoring for this specific request by:
  - Blocking a certain amount as guarantee. This means that an account is automatically opened at the bank, on which a specific amount is credited and on which the requesting counterparty has a mandate, in such a way that money can only be withdrawn from the account with explicit approval of both parties. This option improves both the solvability and liquidity scoring for this request
  - Provide access to information on social media. This option improves trustworthiness score for this request
  - Automatically send an invitation to connect on social media. This option improves trustworthiness score for this request
- When rejecting access, the user can provide a comment why they are rejecting

- Overview of all granted and active (i.e. end date not passed) consents:
  - View all details of requesting party & request
  - Link to all view requests associated with that specific consent (see below)
  - Ability to revoke an access, with possibility to provide reason for revoking

- Overview of all view requests for counterparty by other persons/companies, i.e. each access to user's scoring is registered and tracked. This screen has the option to report abuse of a counterparty, in case excessive access is identified by a user

Calculate scoring

- When a user requests a scoring, the scoring is calculated in real-time, based on the current available information. The scoring results are grouped in 3 risk labels, ranging each from A to E:

Risk label

- The 3 risk labels are:
  - **Solvability**: a score based on the overall wealth of a customer. The more wealth (i.e. assets minus liabilities) a customer has the higher the score. Scoring is based on:
    - First retrieve a valuation of the overall wealth of the customer (handled by calls to cash, securities and credit systems and to the NLPT tool of Capilever)
    - Retrieve from configuration the "median wealth" for the country in which the bank is operating
    - Categorize:
      - o More than "2 x Median" : A
      - o Between "1.35 x Median" and "2 x Median" : B
      - o Between "0.85 x Median and 1.35 x Median" : C
      - o Between "0.5 x Median and 0.85 Median : D
      - o Less than "0.5 x Median" : E
    - These boundaries can also be configured in the CPRA tool

  - **Liquidity**: how much of user's wealth can be easily liquidated:
    - Retrieve all available assets (handled by calls to the cash and securities systems, and to the NLPT tool of Capilever) and asset types
      - o Note: all assets blocked as collateral are excluded
    - For each asset type, take a haircut based on the liquidity of the asset type (cfr. Capilever LABL product)
    - Add to this the available overdraft and available LABL balance (cfr. Capilever LABL product)

- Compensate this with
  - o Estimation of user's saving capacity (income minus expenses on a monthly basis)
  - o Available slots on Capilever's FLEX product
- Categorize again in 5 categories, based on the calculated liquidity amount, compared (with boundaries) to a median liquidity amount set by the bank

- **Trustworthiness**: what is the risk that a user will not be paying/delivering a service/product, even though the user has the necessary solvability and liquidity. This risk scoring is a more complex algorithm based on 3 elements:
  - Social score: an indication how well the user is involved in social life. This is calculated by connecting to LinkedIn and/or Facebook and comparing customer data and scoring the customer's friend graph:
    - o Check if info in social media corresponds with the referential data stored in the bank's referential (the more it matches, the higher the score)
    - o The more connections the higher the social score
    - o The higher the risk score (solvability, liquidity and trustworthiness, with higher weight on trustworthiness) of the connections, the higher the social score
    - o Any recommendations or voting done within the CPRA tool
  - Financial score: an indication if user is managing well their financials (paying bills in time, necessary insurances in place, etc.)
  - KYC score: banks already have a risk scoring in their KYC process. This score is also considered

- The above scoring is the general scoring of the customer. The scoring can however be increased for a specific request based on actions taken by the user when granting request, i.e.
  - Blocking amount on account will increase solvability and liquidity score
  - Granting access to social media info and/or make a connection request will improve trustworthiness score

Visualize scoring

Once a user has received consent (automatically or manually) from counterparty to visualize scoring of counterparty, the user can visualize the scoring:
- User gets an overview of all counterparties that have given consent and for which scoring can be retrieved
- When visualizing the scoring, the user sees the 3 risk labels and any additional information like:
  - Additional actions taken by counterparty to improve scoring for this request
  - Comments added by counterparty when granting consent
  - End date of the consent
  - Any certifications which were created for the requesting party

	Solvability score	Liquidity score	Trustworthiness score
Low risk	A ◄ A	A	A
	B	B	B ◄ B
	C	C ◄ C	C
High risk	D	D	D
	E	E	E
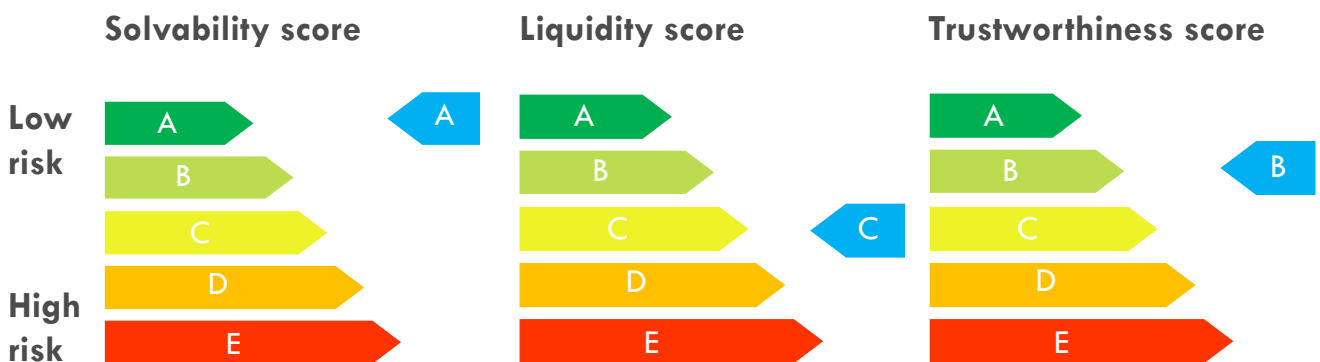
Manage scoring

This module allows a customer to influence their scoring, i.e.
- Manage access to external tools for assessing trustworthiness:
    - Grant access to Facebook
    - Grant access to LinkedIn

- Action buttons to improve components of the score:
    - Solvability:
        - Input / update NLPT tool, with any missing assets (and potentially do a revalorization)
    - Liquidity:
        - Input / update NLPT tool with any missing liquid assets at other banks
        - Foresee more liquid assets, by selling non-liquid assets deposited at the bank
        - Open an LABL framework agreement, with an LABL overdraft facility, using non-liquid positions as collateral. Normally liquid assets are used in LABL, but through the necessary defensive measures non-liquid assets can also be blocked (applying very defensive haircuts, digital contracts while blocking registered non-liquid assets, regular photos of certain types of non-liquid assets (e.g. art), etc.). See NLPT offering of Capilever for more details
        - Increase or free-up overdraft facilities
        - Open a FLEX contract agreement
    - Trustworthiness – Social score:
        - Grant access to social media
        - Align social media customer data with referential data stored at the bank
        - Increase level of openness of Counterparty Risk Information (transparency)
        - Request a recommendation/vote of friends/colleagues on Facebook/LinkedIn
    - Trustworthiness – Financial score:
        - Increase number of standing instructions / direct debits

Request Certification

Via this module a customer can request a proof that a counterparty is capable to pay a certain amount of money and/or borrow a certain amount of money
- Customer inputs:
    - Action type: "paying money" or "borrowing money"
    - Certification amount
    - When action type is "paying money", the customer inputs the payment frequency, whether it is a one-shot payment or regular (e.g. monthly) payment
    - When action type is "borrowing money", the customer inputs the type of loan (mortgage or consumer loan)
- After this input, the system determines if certification can be offered. If not, the reason is provided
- If certificate is delivered, it can be downloaded as PDF or shared with customer of the bank. User can search customer or select a customer who made a risk scoring request. If a customer who made a risk scoring request is selected, the certification is automatically linked to the last request
- User also gets an overview of all granted certifications, allowing to link them later to any ongoing scoring request

Counterparty voting

- User can provide a positive/negative feedback or vote (cfr. TripAdvisor) to counterparty, including comment and reason
- There are 3 types of reasons for voting:
    - "Recommend"
    - "Feedback on transaction"
    - "Report abuse" (when risk scoring information is misused – e.g. publicly shared or continuously requested/ followed-up)
- User can only make a feedback to a counterparty when one of following options are met:
    - Counterparty is a connection on LinkedIn or Facebook (only for reason equal to "Recommend")
    - User has recently made a counterparty scoring request to the counterparty, which was accepted
    - Counterparty has made a counterparty scoring request to the user, which the user accepted
    - User can provide proof of transaction with the counterparty:
        - Directly if payment was done via cash account of the bank
        - Via PSD2 if transaction was made on an account at another bank
- Overview of all votes you have made, with possibility to update / delete a vote made in the past
- Overview of all votes you have received, with possibility to give comments on a specific vote
Note: a customer can be blocked from the CPRA tool by a bank employee if feedback abuse is reported

Benefits

The CPRA tool of Capilever allows to manage, share and enhance counterparty financial risk.

Customer benefits

- SMEs can better assess if they want to accept or not a specific job, based on the financial steadiness of a customer. If needed, they can adjust their pricing, to compensate for extra counterparty risk
- Furthermore it can be interesting if SME wants to work with partners or wants to procure goods/services from vendor with delayed payment (vendor can check SME)
- Customers can do a check if a professional or company is to be trusted from both a social and financial perspective
- SME can generate more revenue as it can showcase to customers its financial stability and good feedback from customers
- Improved financial advice from the bank, based on information collected in the CPRA tool

Bank Benefits

The CPRA tool also provides several advantages to the bank:

- Extra service to customers. Potentially this service can even be monetized by asking commission to SMEs
- Strong customer retention. Leaving the bank would mean SMEs cannot share their financial counterparty score anymore with customers
- Allows generating extra revenues, via financial products improving financial risk profile
- Interesting info collected from customers (e.g. votes) for KYC purposes, improved financial advice and credit risk scoring

Solution overview

The CPRA tool is a packaged software solution, which can be easily configured via parameters and customized via software extensions.

The package is delivered by Capilever, deployed on-premise at the bank (or on a cloud account of the bank) and configured/ customized either by Capilever consultants or by the bank itself. Capilever delivers regular version upgrades, which can be deployed by the bank and for which backwards compatibility of the configurations/customizations is guaranteed.

The software solution consists of 4 parts:

Front-end layer

- A white-labelled responsive web front-end, developed in React, which allows to perform all aforementioned functionalities

- 3 flavors of this web front-end exist:
  - Customer user
  - Bank employee user
  - Administrator

- Basic style-sheet customizations are possible on these screens, but when bank wants to fully integrate and style following the house-style it is recommended to build their own front-end. As the front-end layer is decoupled from the application layer, via well-documented REST-based APIs, these can also be used by the new custom-built front-end
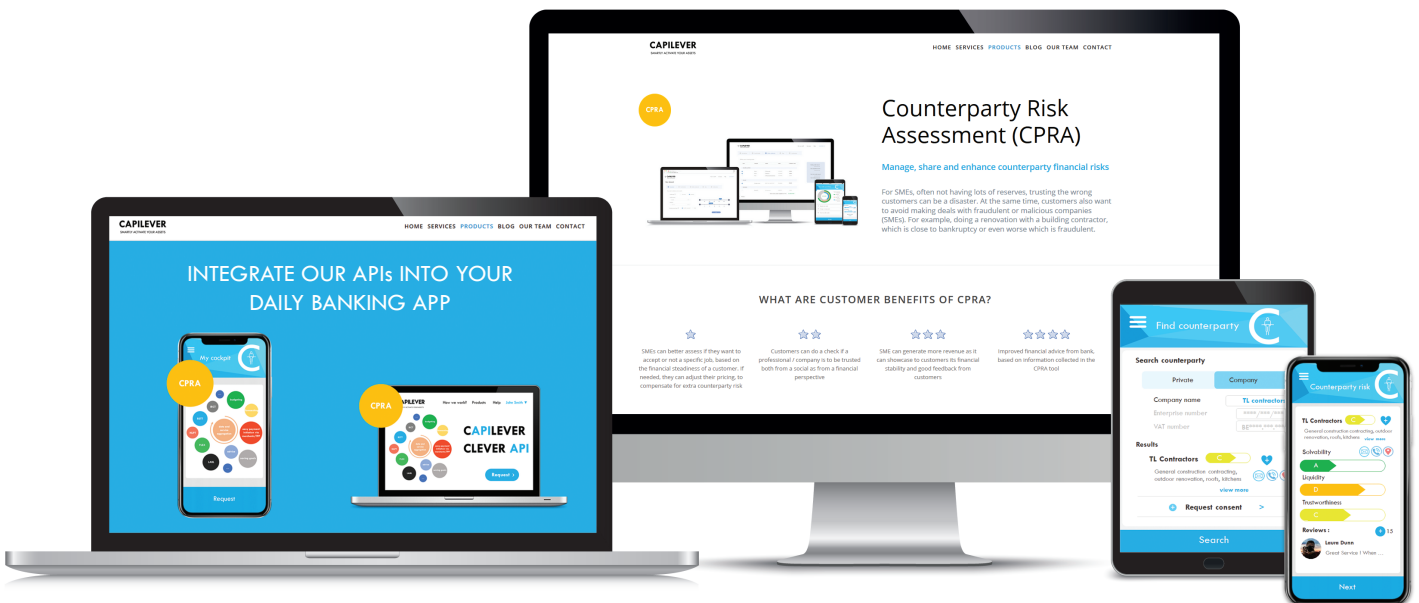
Application layer

- Contains all logic described in this document and provides necessary APIs to the front-end layer to provide necessary application logic
- The layer is built up of several modules:
    - Request flow management
    - Consent management
    - Calculate scoring
    - Visualize scoring
    - Manage scoring
    - Counterparty voting
    - Request certification

Database layer

- A standard SQL database, with a pre-defined, yet customizable data model
- A meta-dictionary allows easy configurability and automatic documentation of the CPRA data model

Integration layer

- The CPRA system comes with several standard integrations:
    - LABL tool from Capilever:
        - Check if a customer has an active LABL framework agreement and whether an available amount exists on the collateral portfolio
        - Open an LABL framework agreement as an action to improve counterparty risk scoring
    - NLPT tool from Capilever:
        - Retrieve full wealth overview of customer as input for counterparty risk assessment
    - FLEX tool from Capilever:
        - Check if a customer has an active FLEX contract and how many slots remain during which customer will receive money
        - Open a FLEX contract as an action to improve counterparty risk scoring
    - Social media like Facebook and LinkedIn
        - Authentication flow with Facebook and LinkedIn
        - Compare customer referential data in Facebook/LinkedIn with bank's customer referential data
        - Retrieve overview of all friends/connections

- 2 types of APIs:
    - APIs exposed by the CPRA tool:
        - Well-documented REST-based APIs to retrieve info (e.g. scoring of a customer) from the CPRA tool or make updates to it
    - APIs called by the CPRA tool:
        - The application layer is foreseen to call several pre-defined REST-based APIs (e.g. for (re)valuation of certain assets), which of course will not match with the bank's services
        - The integration layer transforms those standard CPRA APIs to the proprietary APIs of the bank
            o The integration layer also foresees several mocks (against the pre-defined internal REST-based APIs) in order to setup and test the application without integrating with bank systems

Example use case

Diane wants to renovate her house. Via a website to find building contractors, she has received 3 offers from contractors. Prices are quite similar, but Diane doubts about the trust worthiness of the 3 contractors. Luckily Diane's bank offers the CPRA tool of Capilever.

Diane logs on to bank online tool and looks up the 3 contractors. 2 out of the 3 contractors are indeed customer of the bank and use the CPRA tool. Both contractors have however restricted access to their financial risk profile (not public for everyone), so Diane sends a request for consent to see their financial profiles. A few hours later 1 of the 2 contractors has accepted the consent request. Diane sees that this contractor is financially very sound and furthermore has 3 very positive feedbacks of customers also using the CPRA tool. Diane is convinced that this contractor is a good choice and accepts the offer.

After 3 months, the renovation is successfully finished. Diane is very satisfied of the contractor's work. The contractor asks to give a positive feedback. Diane logs on to the online banking tool and goes to the CPRA tool. Diane selects the contractors and gives a very positive feedback. As proof of transaction, Diane uploads the bill and some pictures of the renovation. This information is only visible to the bank and to the contractor but can be used in case of debate of the trustworthiness of the feedback.

About us

Capilever is a software company that helps financial institutions prepare for the next wave of **Open Banking** with focus on **Credits** and **Investments.**

Our team of technology and banking finance experts has joined forces to deliver world-class **investment-and-lending white-labelled software solutions** for the financial services industry.

All products in Capilever's product offering are software solution sold to banks to assist their customers in **better managing their financial risks** (from liquidity risk management, market and interest rate risk, up to counterparty risk).

All products come with several **well-defined APIs,** which can be easily integrated within the bank, with strong focus on orchestration and **automation** of underlying **credit and securities processes.**

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CLEVER API