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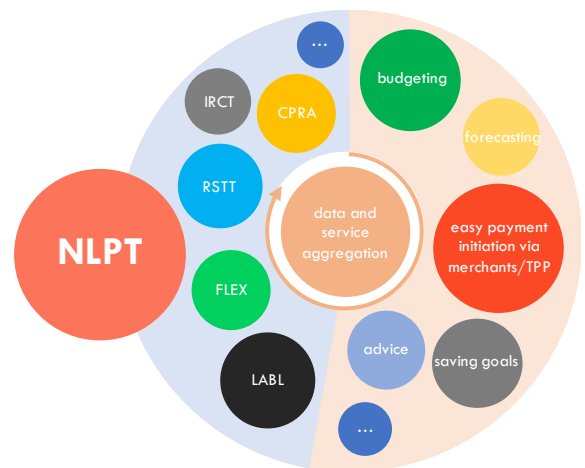
**Non-
Liquid
Position
Tool**



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 software for the financial services industry.

Non-Liquid Positions

A bank's primary goal is to help its customers manage their money. This includes simple depositing of money, easy transferring of money to other persons or legal entities, providing short-term and long-term liquidity and allowing to invest excess money. In order to help a customer in the best possible way with this "task" of money management, **the bank should know its customer as well as possible**. This means knowing all personal and professional details of the customer, but also his personal preferences (e.g. risk aversity, ethical sensitivity...) and his short, medium and long-term financial objectives. But even more important is to get a full, **holistic view of all client's assets and liabilities**. Most banks have a dashboard showing an overview of the client's assets and liabilities deposited at the bank and with the rise of PSD2 most banks will also include an aggregated (current) account overview (including accounts at other banks). But for most customers, this view only gives a small portion of their full wealth, leading to incorrect advice.



Typical assets and liabilities **missing from this overview** are:

- **Financial products:**
 - Financial products at other banks (not included in PSD2):
 - Accounts (saving and term accounts)
 - Securities
 - Credits (mortgages, consumer credits, overdrafts, leasing...)
 - Insurances:
 - Life insurances
 - Pension saving plans
 - Employee benefits:
 - Group insurance plans
 - Option or equity plans
 - Vouchers (meal, eco and gift-vouchers)
 - Unstructured investment products:
 - Private Equity (own company or company in which customer has invested)
 - Direct real estate participation (e.g. participation in acquisition of large real estate like for example an office building)
 - Investments in hotel rooms (e.g. www.the-hotel-investor.co.uk or www.investinrooms.com), holiday parks (e.g. www.centerparcs-investment.com) ...
 - Crowd funding (e.g. Kickstarter, Indiegogo, Patreon, Crowdrise...) & P2P lending investments (e.g. LendingClub, Upstart, Fundrise, Funding Circle...)



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SMARTLY ACTIVATE YOUR ASSETS

- **Non-Financial products:**
 - Real estate (own usage or for renting)
 - Note that these real estate assets could act already as collateral for a mortgage loan
 - Valuable objects:
 - Art (Antiques, Paintings, Sculptures...)
 - Wine
 - Car/Boat/Plane
 - Collections (stamps, coins...)
 - Intangible valuables:
 - Intellectual Property (Patents, Trademark, Know How, Copyrights...)

Note: a few of the financial products listed above are actual liquid positions. However, as those are deposited at other banks, we consider them as non-liquid positions, as the bank in question does not have any control over them.

Apart from above assets and liabilities, it is also interesting to get an overview of all off-balance positions/services the customer has at its disposal, in order to get a full overview of the customer's wealth. These positions do not increase or decrease the customer's absolute wealth, however they do have an important impact on the customer's wealth and are important for the bank to identify the most appropriate cross- and upselling opportunities.

Examples of such **off-balance products/services** are:

- Off-balance positions offered by other banks/insurers:
 - Credit cards
 - (Unused) overdraft facilities and other revolving credit facilities
 - Non-life insurances like car, home, medical insurances
- Off-balance positions offered by employer:
 - Company car (including fuel card)
 - Insurances
 - Company credit card
- Other off-balance positions:
 - Loyalty programs/cards

In order to capture, maintain and visualize these assets, liabilities and off-balance positions, banks should have a **tool to manage them**. Capilever provides a software solution to efficiently manage those assets and liabilities. This tool called "**NLPT**" (= **Non-Liquid Position Tool**) allows banks to quickly capture this information and manage its lifecycle.

Capilever NLPT software solution

Capilever's "**Non-Liquid Position Tool**" product (= **NLPT**) provides an **end-to-end, user-friendly, white-labelled pre-packaged** solution for managing all customer's assets, liabilities and off-balance positions not serviced by the bank. This solution allows bank employees and customers to input the positions and associated transactions, allow (semi-automated) valuations of the positions and get a full overview of all positions.



Manage non-liquid positions



Transactions on positions



Valorization



Benchmarks and indices



Product dictionary



360° overview



CMS

- **Manage positions** (create/update/delete) – assets / liabilities / off-balance positions:
 - Introduce all details of the position, with info like type, name, classification, status, quantity, ISIN code, date of buy/sell, and indication if position can be showed to customer or not
 - Add (optionally) 1 or more tags to each position
 - Add ownership of position (e.g. alone, me + my partner, my partner, children...).
 - Introduce specific details of the position, specific by asset type, required for automatic valorization, e.g.
 - Picture of object
 - Real estate: address, number of rooms, cadastral income, size (m² total building; m² ground; m² habitable surface)
 - Art: artist, year of creation, type of object...
 - ...
 - When inputting a securities account at another bank, the client has the option to input the securities account as 1 position or to input the individual positions
 - Manual input via screens or upload via Excel files are possible
 - Allow to block/unblock a position as collateral for a credit, including the generation of a digital document that the customer can electronically sign in order to block the underlying asset(s) as collateral
 - Generate alerting to sell position in case of issues with associated credit
- **Manage transactions** on the positions:
 - Either automatically created when adapting the position details or inputted separately in which case the system requests to update the quantity of the specific position
 - Typical info inputted for a transaction is date, nature (Buy/Sell) and quantity
 - Manual input via screens or upload via Excel files
- **Manage valorization** of the positions:
 - Input how a position should be valuated, i.e.
 - Type of valorization:
 - o Manually by customer (= manual input by customer)
 - With workflow for validation by bank employee where bank employee is notified when value is introduced or updated
 - o Manually by bank (= manual input by employee of the bank)
 - o Automatically based on rules:
 - Start from initial value (manually inputted by customer) and then indexed based on benchmark
 - Start from initial value and then reduced with a fixed or relative amount with a pre-defined frequency (e.g. a car reduces in value, so car could be valorized at initial value of 30.000 EUR, with a reduction of 3% every 3 months).
 - o Integrate with external APIs for valuation or balance retrieval, e.g.
 - Integration with API of voucher company (e.g. Monizze, Sodexo, Edenred...)
 - Integration with eStox application of Fednot (i.e. digital security register system) to retrieve private equity positions
 - Integration with government credit bureau to retrieve outstanding balance of credits
 - Valuation of security based on API call using ISIN code of the position to retrieve price
 - Valuation of real estate / art based on external real estate estimator / art estimator
 - Indication whether valorization can be shown to customer
 - Frequency of revalorization
 - Automatic generation of notifications when it is time to re-evaluate a specific position
 - Visualize total value of assets/liabilities of customer
 - Visualize historical evolution of value of a position
 - Calculation of collateral value based on different characteristics (asset type, valuation, last revaluation date and type of valuation)
- **Manage benchmarks / indices:**
 - Allow creation and management of value of different benchmarks/indices, which can be used for valorization indexation e.g.
 - Index of wine prices, e.g. Liv-ex Fine Wine 1000 Index
 - Real estate index, e.g. US REIT Index, MSCI World Real Estate Index...
 - Art index, e.g. ArtPrice100

- **Manage product dictionary:**
 - Bank should be able to link specific info (managed in content management system – see below) to a specific asset/liability type, with additional rules based on customer type, valorization...:
 - Marketing banners
 - Articles/blogs/public hyperlinks
 - Links to chat/mail with expert employees on the product
 - Links to cross-selling product pages (e.g. insurances)
 - Links to external services (e.g. maintenance, storage/safeguarding/conservation, repair/restoration...)
 - Input of product characteristics, used for valorization/collateral value calculation:
 - Default value and allowed values for type of valuation
 - Haircut value for collateral value calculation
- **Give holistic overviews:**
 - Different overview types on screen, but also through generation of reports
 - Grouping of Assets/Liabilities where user can determine grouping criterium
 - Different filters:
 - For bank employee:
 - o All positions of specific customer
 - o All customers with specific asset/liability type
 - For customer:
 - o All positions with specific tag
 - o All positions with specific ownership
 - Possibility to search for specific assets/liabilities on full customer base
 - Create snapshot on specific date. This stores the positions and their value on the current date. User has ability to add a title and comment to the snapshot. E.g. customers wanting to have an end-of-year view on their total wealth. These snapshots are also interesting to evaluate certain situations or changes in life:
 - Couple decides to go live a few years abroad. At that moment it might be interesting to take a snapshot before and after, to see which impact the years abroad have had
 - It can also be interesting for couples deciding to go live together or marry and still have separate accounts. Each person takes a snapshot. Suppose they separate, they take again snapshot and subtract the initial snapshot from it. The delta they divide in 2
 - Ability to view previous snapshot and compare 2 snapshots or current situation with previous snapshot. Tool visually indicates which positions have been added/removed/changed and gives the difference in total value and yearly return
- **Content Management System:**
 - Allow bank to input and upload information/articles/blogs/... on different non-liquid positions
 - This info can be visualized by customers

All modules are exposed by clear and well-documented APIs, so that:

- Positions/Transactions can also be uploaded via APIs, allowing easy integration with existing systems
- Information can be easily extracted, e.g. for generation of holistic reporting





Benefits

A tool to manage the (today largely unknown) non-liquid assets and liabilities of a customer gives many benefits for both the customer and the bank.

Customer Benefits

- All assets of the customer can be used as **collateral** for the flexible and real-time “Asset based loans” (see LABL offering of Capilever)
- Receive a **full holistic reporting** of all assets and liabilities, allowing to get a full overview of the customer’s wealth
- **Improved investment advice**, i.e.
 - Investor profiling based on a full view of the customer
 - No obsolete MiFID suitability warnings, when investments at the bank do not match the customer’s investor profile. For example suppose investor profiling of the customer results in a moderate risk profile, but the customer is using 1 bank to deposit all their low-risk investments, while he uses another bank to do some more aggressive trading. Without a full overview of the customer’s wealth, both banks would give unnecessary warnings & recommendations (1 bank advises to invest more in risky products and the other bank to invest less in risky products)

Bank Benefits

The NLPT tool also provides several advantages to the bank:

- **Extra credits being sold:** generate new business of “Asset-based loans”. Typically, customers would have postponed their acquisition or sold off their assets to meet short term liquidity needs. Now thanks to the increased collateral scope and transparency through NLPT, the customer has more assets at their disposal to act as collateral for “Asset-based loans”, resulting in more potential for requesting asset-based loans. Through defensive collateral weighting, the overall risk of the bank can be correctly managed
- **Increase customer retention:** the higher number of asset-based loans results in a lock-in at the bank, but furthermore the improved servicing as a result of the NLPT tool and the efforts performed by the customer (supported by bank employee) to input all their wealth components, provide a strong lock-in of the customer
- **360° dashboard and reporting** providing a full overview of the customer's wealth, allowing to:
 - Provide better advice to the customer
 - Better service the customer
 - Avoid any personal Excel files and other unmanaged tools used by bank employees to keep track of important info on customers
- Provide a **larger pallet of services to the customer** with management/advice on non-liquid products and added-value services like insurance, conservation, restauration...
- Identify **more cross-selling opportunities**, i.e. a view on all customer's assets and liabilities allows to provide additional services or products which customer does not have yet or to provide more competitive offers for products or services that the customer has at competition
- Obtain **better control on compliance issues and risk**

Note: for these non-liquid positions, in case they are used as collateral in the bank for a (LABL) loan, it is not possible to fully guarantee that they are not used as collateral at another bank or that they are not sold during the lifetime of the credit. This risk cannot be fully eliminated, but can be mitigated by several actions:

- By the contract signed by the customer, in which they sign that the position will act as collateral for the credit and that they will not sell or use it as collateral for other credits during the lifetime of the credit
- By applying a large haircut to the value of the asset (typically haircuts of 90% are applied). This large haircut is required for 3 reasons:
 - The risk that the exclusiveness and availability of the collateral cannot be fully guaranteed
 - The liquidity risk, as most of these assets cannot be easily liquidated
 - The uncertainty and lack of continuous updates of the valuation as most of these assets cannot be easily valued
- By requesting the customer to provide regular updates on the state of the assets, e.g. a new picture (with date/time included as meta-data) of the object acting as collateral



Solution overview

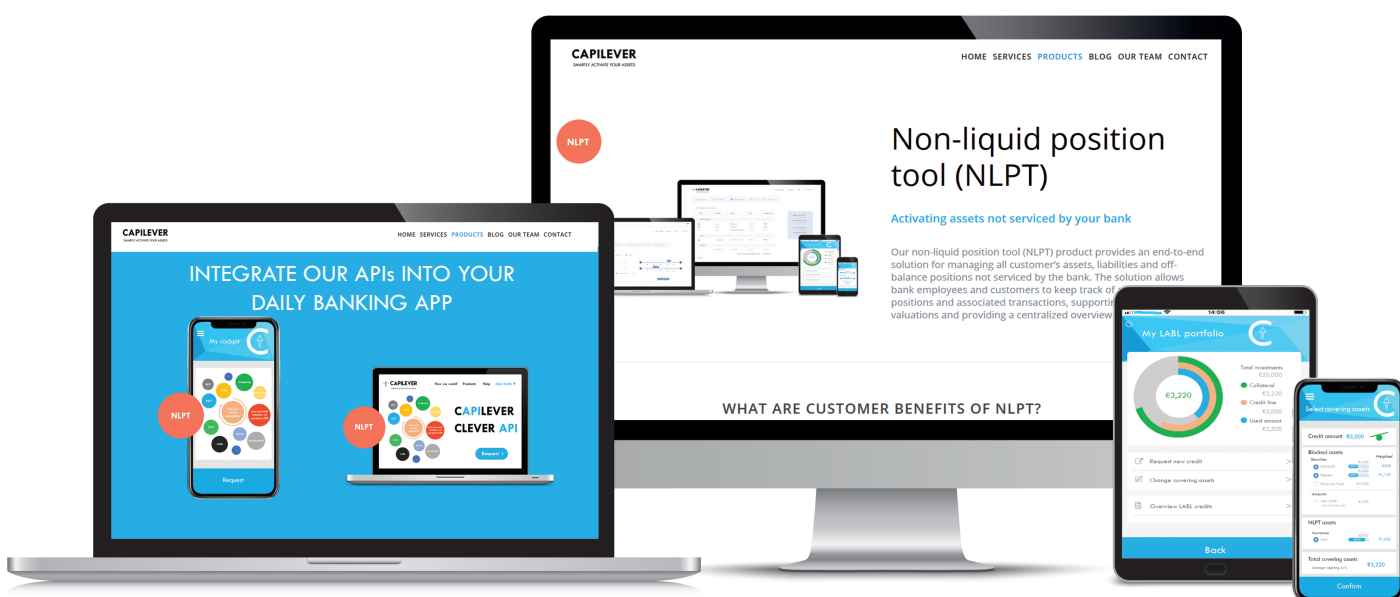
The NLPT tool is a **packaged software solution**, which can be **easily configured** via parameters and **customized** via software extensions.

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 for these screens, but when bank wants to fully integrate and style in the house-style it is recommended to build their own front-end. As front-end is decoupled from 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:
 - Management of positions
 - Management of transactions
 - Position valorization
 - Parameterize the application (product dictionary, CMS...)
 - Collateral value (= haircut algorithm) calculation
 - Monitoring & Alerting
 - Automatic actions (e.g. automatic re-valuation)

Database layer

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

Integration layer

- The NLPT system can be used as a stand-alone application, but the application's added value can be largely increased via integrations. Example integrations are:
 - Automatic creation/update of positions/transactions (from specific tools currently used at the bank to manage non-liquid positions)
 - Retrieve positions/transactions for holistic dashboarding/reporting, but also to be used in MiFID investment profiling and MiFID suitability tools
- The NLPT system comes with a standard integration with the Capilever LABL tool. When both modules are acquired by the bank and the bank chooses to allow non-liquid positions to also act as collaterals for asset-based loans, the LABL tool allows to open credits using the non-liquid positions as collateral. Following integrations are foreseen by default:
 - When retrieving assets that can act as collaterals, also a call is made to the NLPT tool. The NLPT tool not only provides all details of the positions, but also their value and collateral value (i.e. the NLPT tool calculates the haircut)
 - If customer decides to use an NLPT (partial) position as collateral for an asset-based loan, the LABL tool makes a call to the NLPT tool to block the position. The NLPT tool blocks the position and returns a contractual document to the LABL tool to be signed by the customer in order to block the corresponding NLPT asset. This is required, as – contrarily to the (liquid) positions deposited at the bank, which can be really blocked – the blocking in the NLPT tool is a conditional blocking, as the bank cannot avoid the asset to be sold when blocked in the NLPT tool
 - The LABL tool also informs the NLPT tool when an asset can be unblocked (e.g. when the linked credit is fully paid back) or when an asset should be sold to solve an issue with a credit
- 2 types of APIs are used for integration:
 - APIs exposed by the NLPT tool:
 - o Well-documented REST-based APIs to retrieve info from the NLPT tool or to make updates to it
 - APIs called by the NLPT tool:
 - o 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
 - o The integration layer transforms those standard NLPT APIs to the proprietary APIs of the bank.
 - The integration layer also foresees several mocks (against the pre-defined internal REST-based APIs) in order to setup and test the application without integration with the bank systems

Example use case

Michel is very active in real estate. Michel invests all his savings in buying cheap houses, which he renovates and restructures in several apartments, which he rents out. All in all, Michel has already acquired 4 houses, housing a total of 12 apartments. The total worth of these houses is €1,4 million and provides him a rental income of €8.000 per month. Michel would like now to place solar panels on all his 4 houses. This is an investment of €80.000 in total, for which he does not have the necessary liquid money available.

Luckily his bank is an innovative bank, which offers the “asset-based lending” product, also on “non-liquid positions”. Michel inputs his 4 houses with necessary proof documents (like pictures and other official documents) in the tool and a valuation is made at a total of €1,4 million. At a haircut value of 90% the bank can offer him an LABL loan for €140.000 at around 2-2.5% interest rate. Michel decides to block 3 houses in the tool, which gives him a loan of €105.000, allowing him not only to do the solar panel investment, but also to install a heat pump on all 4 houses.



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