Matrix digital core banking.

the fintech engineers introduce Matrix Digital Core Banking Platform

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summary.

Matrix is the next generation Digital Core Banking Platform using state-of-the-art technology to offer functionalities that any modern financial services operation needs independent of their client segments, products and services. Matrix enables open API Banking, helps Financials with regulatory requirements like PSD2 and GDPR, and fully unlocks the potential of the fintech ecosystem.

Matrix connects to any (legacy) core banking system, to provide true agility, responsiveness towards the market requirements and an excellent Digital CX. Matrix can also replace the legacy core with a lean & mean product and transaction engine for achieving a full Digital Transformation.

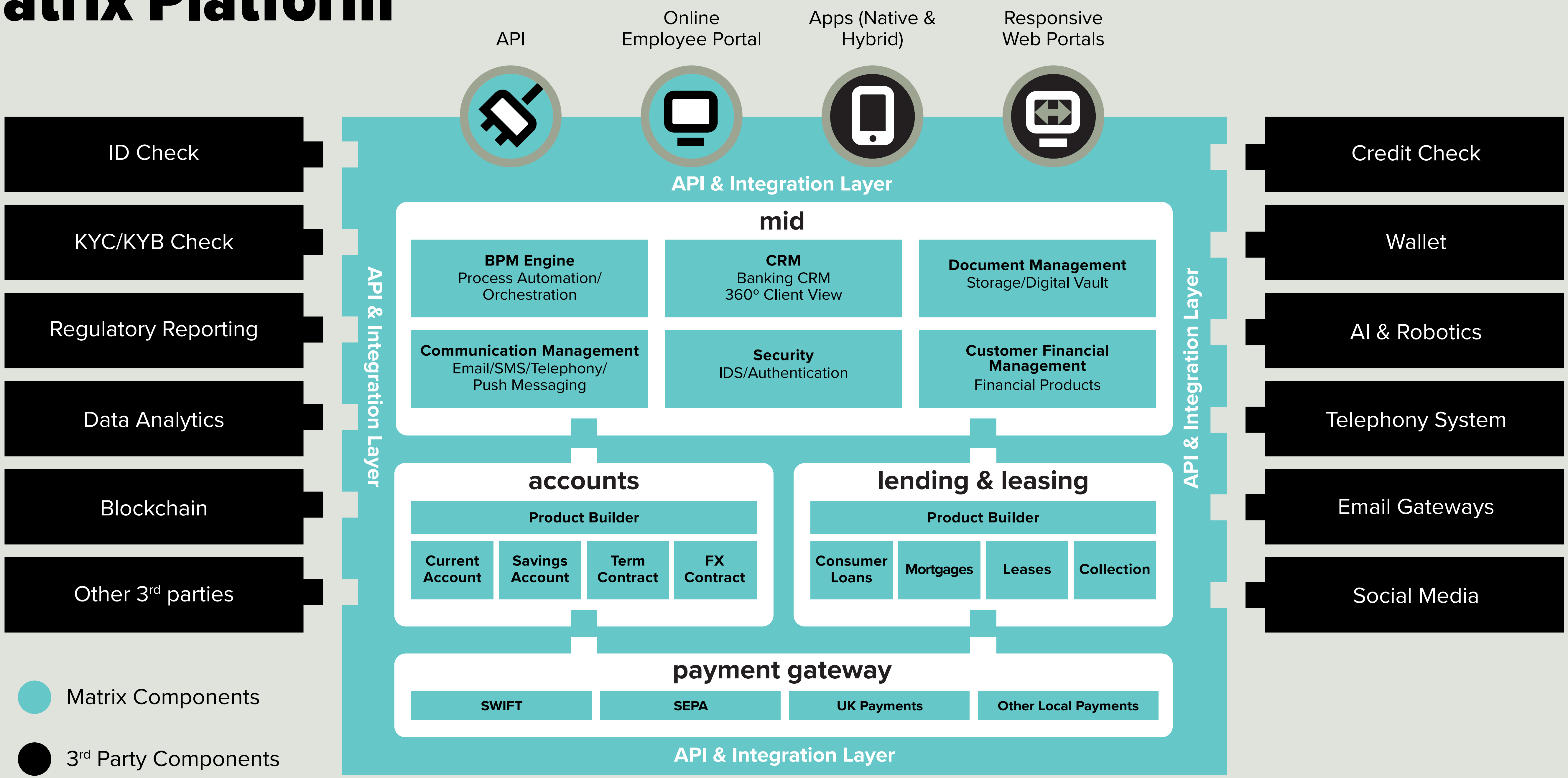
Matrix can be implemented – on site or hosted – in short, sharp phased projects to bring fast returns and reduced risk.

The following solutions can be built within 3-9 months:

- Marketplace and Open API Banking
- Robo Advice
- FX Trading & Payments Platform
- Lending (Retail & SME)
- Savings & Deposits

All of the solutions are applicable to greenfield or incumbent organizations in Retail Banking, SME Banking and Wealth management.

Matrix Platform

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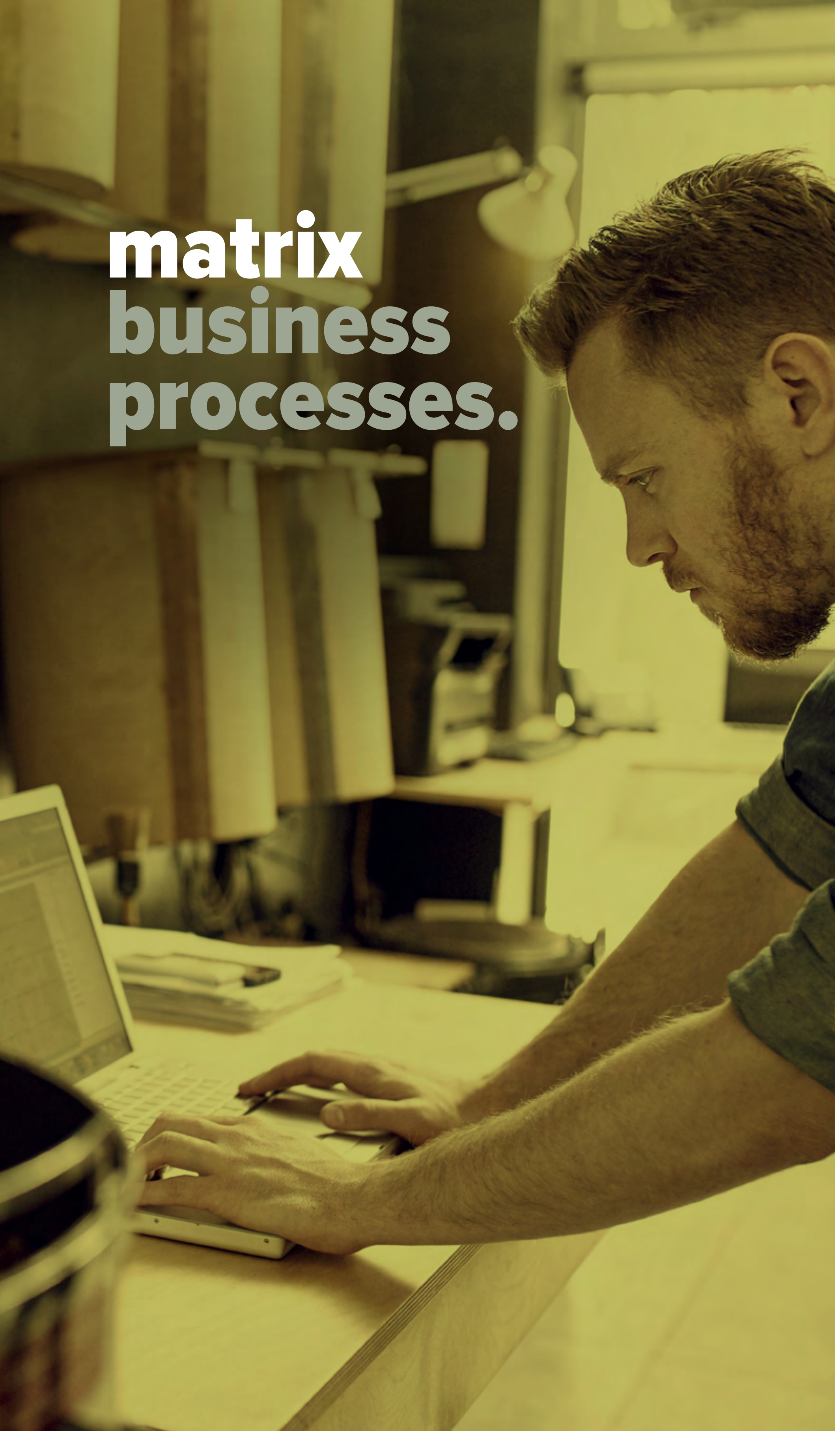
business process management.

The BPM module efficiently manages, visualizes and logs all banking processes, covering the client and product life cycles. This includes client onboarding and maintenance for any financial product or service, plus KYC and other compliance-related processes. The BPM is integrated with all other Matrix modules and the service layer enabling unprecedented levels of STP. The goal for straight through processing is to present the employee with a task only when things need to be checked, or approved.

The BPM is able to initiate communication with clients, monitor balances or outside events and check external services to validate certain steps, whilst logging all steps in any process and allowing any person on the system (assuming appropriate rights have been granted) to be part of the workflow. Individual tasks in any workflow can be manual, semi-automatic or fully automatic.

They can be performed in sequence or – if desired – in parallel. All business processes can be initialized and started with a single web service call in the Matrix Service Layer.

Matrix is shipped with the most important reference processes including underlying activities, such as integration, communication and automation activities. These reference workflows and templates serve as a basis for implementation, substantially accelerating the setup of a banking operation.



matrix business processes.

Client onboarding
Including client communication and connection to external services for Social Security check, ID verification and other compliance services.

Client self-maintenance
Facilitating customers to manage their personal details 24/7, without live person interaction.

Transactions
Supporting payments withdrawals, account statements, trades, etc. including native integration with the Matrix Accounts payments system supporting SEPA, SWIFT and internal transfers.

Cards
Supporting real-time linking directly to the card service provider(s) for both debit and credit cards.

Communication
Supporting all customer interaction methods, including link to Voice (e.g. Avaya, Cisco). Matrix has an integrated Chat function and facilities linking to external Chat services.

Closure
Account closure, bankruptcy, divorce and death of client.

Compliance
KYC, CDD and MiFiD related processes.

customer relationship management.

Matrix includes a highly flexible CRM with an entity structure enabling multiple relationships between persons, corporates and portfolios or accounts. The CRM is fully integrated with the financial information, BPM, Document and the Communication modules of Matrix, i.e. emails, SMS, WhatsApp and push messages.

The CRM module fully supports retail activities and corporate structures and gives a full 360° view of all information on all entities as well as all related communication and documents. The CRM can be managed entirely using the Matrix service layer or through the Matrix online employee portal.

A rich logical data model is the foundation of the CRM where best practices have been exercised to achieve a practical approach in gathering and maintaining CRM related data.

The system's data model supports an extensive set of customer attributes as well as a complete suite of industry standard products and their attributes: accounts, contracts, securities, insurances and custom assets.

document management.

The document management module supports storing of the most common file types (Word, Excel, PowerPoint, audio, video, text etc.). The document archiving is fully integrated with the 360° client view.

Once documents are stored in Matrix several processes react on them to make them more accessible to the user. This includes generating a thumbnail of the documents for overview, digitally signing the documents to ensure authenticity and text-extraction using OCR to enable full-text search within documents.

The document management module is also integrated with the BPM module, ensuring that any incoming or created document is automatically stored in the right folder, with the possibility to have documents for internal usage, or display them to the customer.

The Document Archiving module is loosely coupled and can easily be replaced or integrated with any existing Document Management System.

communication management.

Matrix efficiently manages all incoming and outgoing client communication, ranging from emails and letters to SMS (e.g. to provide a temporary password), push messages and call center contacts. All outgoing communication is template-based, easily configurable without any coding.

customer financial management.

Matrix is the center for all customer related data and it's imperative that all customer related financial data is stored within the Matrix financial data warehouse. This data is used for providing insight to the financial situation. In most cases all products offered to clients go first through the onboarding processes of Matrix before opening them in the back office systems using the Matrix Integration Layer.

As part of the financial suite of Matrix, a full product hierarchy is provided to setup any type of financial instrument. This can be cash and savings accounts, contracts, securities, mortgages, insurances, or even FX Swaps/outrights.

The support for other assets are also included and within the hierarchy custom asset class builder enables the use of real estate, art, cars and any other type of assets as part of the customer portfolio. This is important when covering all different assets of complex structures of customers. Risk weighting and Tax classes are also fully supported within the product hierarchy.

business reporting.

Matrix integrates with Microsoft's Reporting suite for producing business reporting and client statements.
It enables the users to run statements and queries on the database using pre-defined reports and present them in any form (on screen, email or push notification) or file type (PDF, Word, Excel, CSV).

All generated reports are template driven, implying any user of the system with proper rights can access the report.

security.

Matrix holds security to the highest standards, thanks to the latest internal and external security technology developed as part of Matrix and as part of our SaaS. The system has an auditing feature and a sophisticated security architecture. On service level the system uses state-of-the-art claim based security using an Identity Server, while using role based security on data level.

Auditing is configurable and can be used to audit access to the system down to the lowest level of input parameters and results of every service rendered. Our SaaS runs on Microsoft Azure, which contains the highest security standards, such as zero touch environment, Multi-Factor Authentication, Privileged Identity Management, and encryption at rest & in transport using TLS 1.2.

matrix ecosystem. connect with the world of fintech.

One of the most valuable advantages of Matrix is the easy adoption of loosely coupled (new) services or applications to the system. Over the system lifetime so far, many of those services have been engineered and are now also available for other clients and prospects through either the Matrix partnership agreement or on a client-specific basis.

The following services and systems are available in the Matrix ecosystem:

- Risk systems
- Bio metrics solutions
- AML (Anti Money Laundering) systems
- PFM (Personal Financial Management) solutions
- Legal & business reporting systems
- Security Authentication Systems
- Social Media Systems
- CDD systems
- Government Controlled Supervisory Services
- Price feed Services
- Rating Services
- Brokerage Systems

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The upcoming app store serves as a trusted marketplace for banks where partners can sell their innovation and add-ons to the Matrix platform. The Matrix APIs facilitate compliance with PSD2 regulation. Matrix has proven connectivity to well-known systems such as Temenos T24, Oracle Flexcube, Sopra Banking and others.

Matrix is the ideal solution for banks that want to move to next generation digital core banking without having to replace their legacy systems.


Matrix Accounts.
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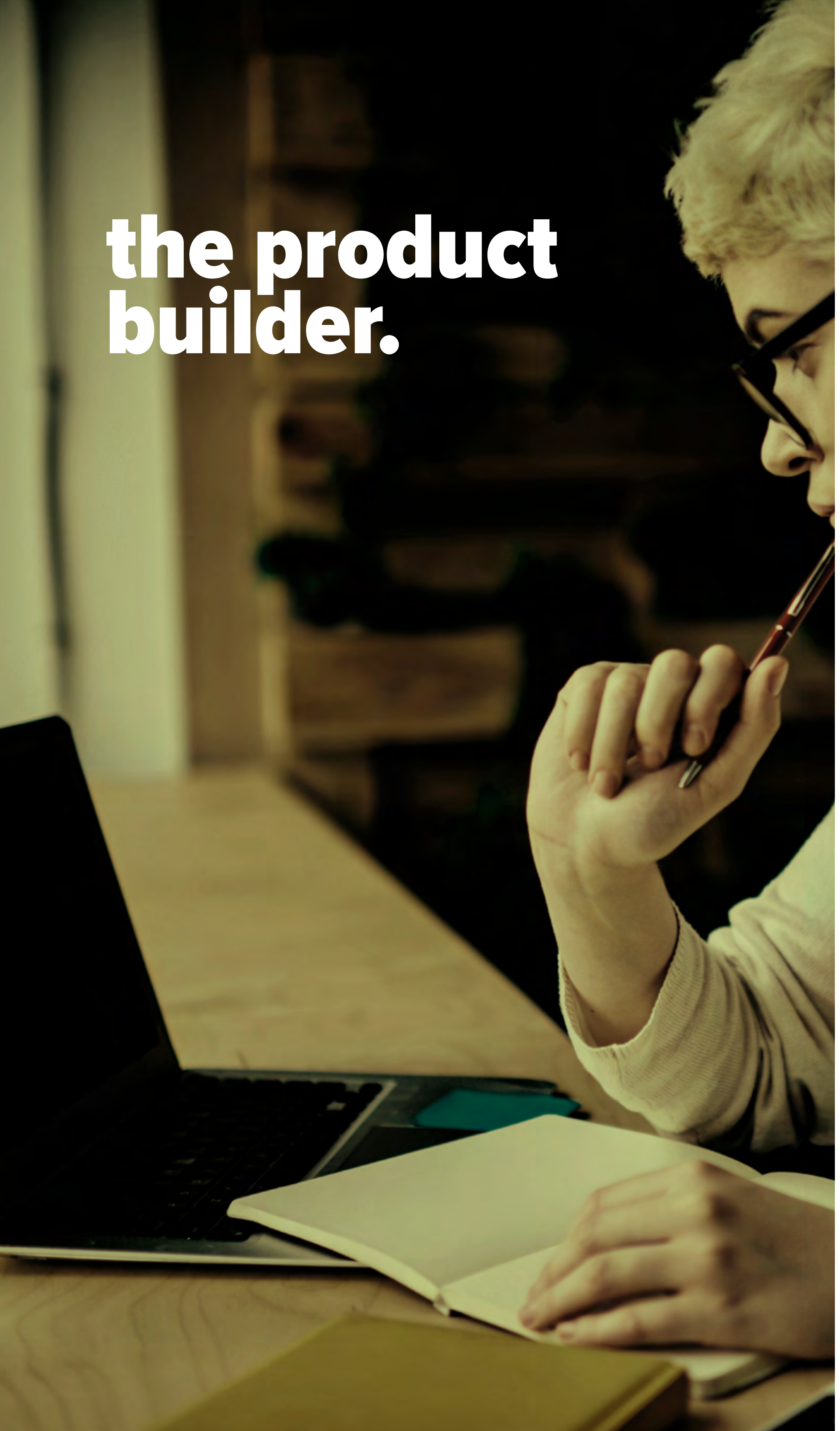
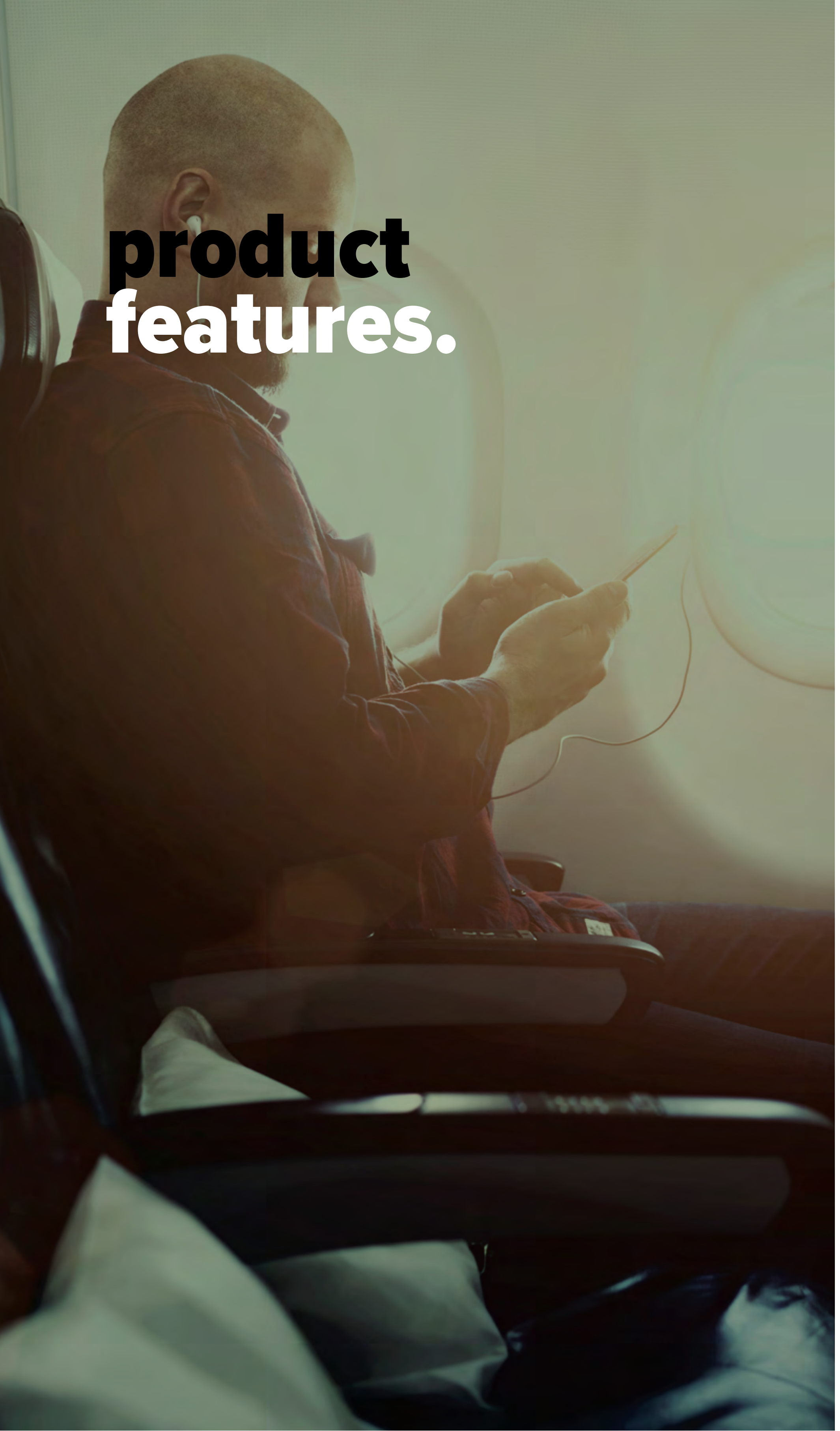
Matrix Accounts is the product administration module that enables full front-to-back banking within the Matrix Platform. It administers financial products such as cash accounts (Current and Savings accounts), term deposits, loans and FX contracts products.
Matrix Accounts is a lean back office solution that brings agility and is highly adaptable. Stripping down the back-office system is achieved by taking out all customer-related parts and transferring them into the digital core banking platform, e.g. workflows, emailing, document generation.
The following section describes Matrix Accounts features and functionalities.



the product builder.

The heart of Matrix Accounts is the product builder that simplifies and streamlines the creation of highly customizable products. Flexibility and agility are achieved by providing the user with many configurable components, which are combined to create cash account products. The product builder is used to define products allowing the user to assign features (Cash Account, Loan, Term Contract, and FX contracts), including the currency of the account. Since the defined products are set up using schemes and features, they can easily be reused and adapted to create new products on the fly.

product features.



Cash Account
The Cash Account feature supports savings and current accounts. This is a flexible product feature that supports multicurrency accounts with both fixed interest, multiple interest tiers and overdraft functionalities.

Term Contract
This feature supports term deposits, with both fixed interest and multiple interest tiers. For fixed length term deposit accounts, compounding interest amounts can be paid out to a linked savings account. When matured, the interest and balance are paid out to the linked account.

FX Contract
Matrix Accounts' feature for storing and managing FX spots and FX Forwards contracts. Options can be configured for Settlement processing, Mark-to-market calculations based on data feed, and P&L bookings.

Loan Contract
The flexible loan feature supports linear, annuity and irregular cashflows. This handles additional payments where the remaining cashflow is recalculated.

schemes.

In Matrix Accounts, schemes can be configured, connected to products, and reused as part of the product configuration.

Interest scheme

The attributes of various interest rates available are defined in the interest schemes. It is possible to define compounding information, day count fractions, and holidays and tax rules. Rates can be defined as fixed or variable and tiering is possible. Variable rates can be defined from the rate sources. These rate sources can be taken from external sources (e.g. Euribor) through an interface.

Fee schemes

In the fee scheme it is possible to define various types of account fees. The fees can be fixed or variable (relative) and are assigned to specific transactions on the accounts.

Transactions scheme

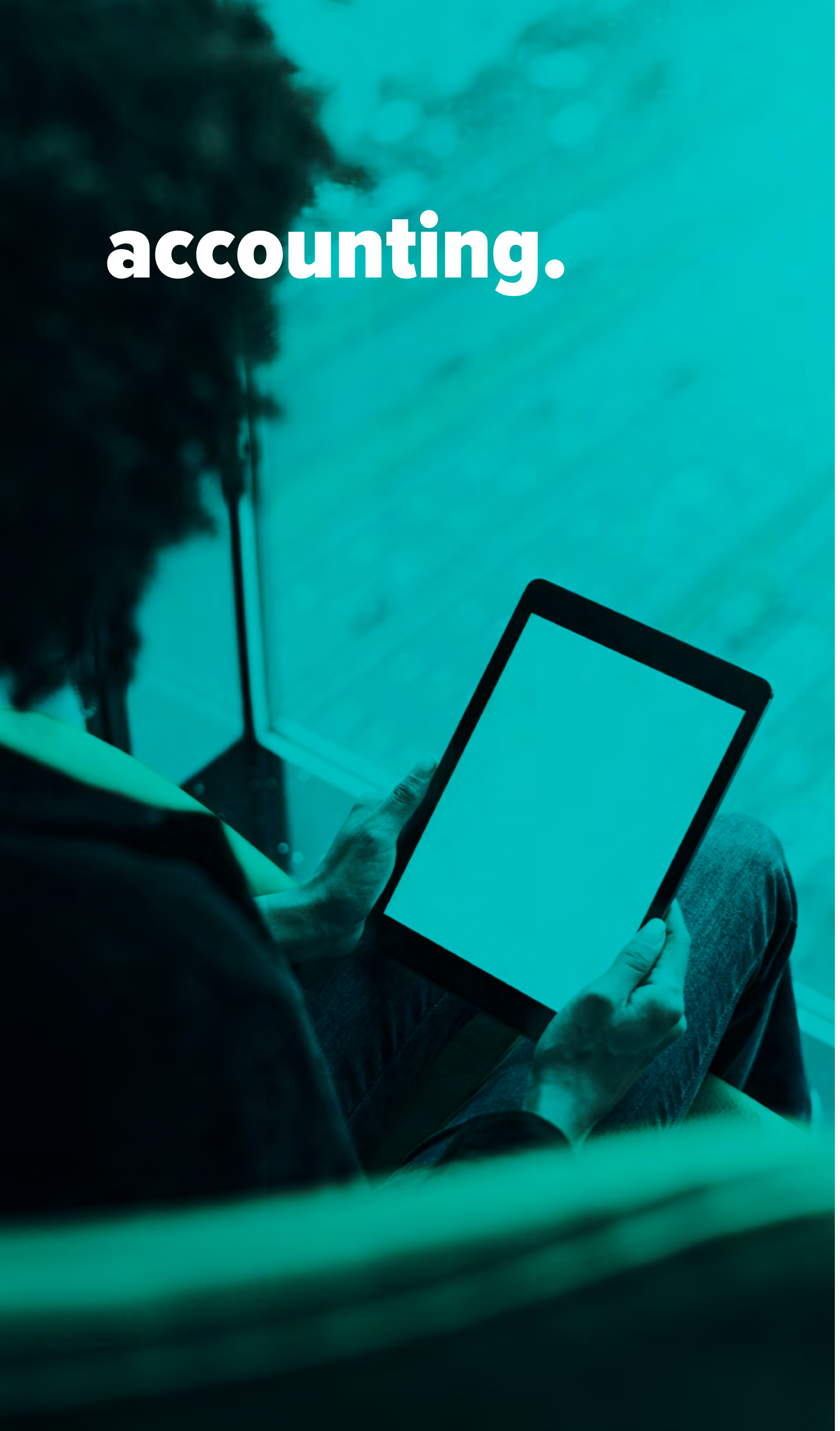
Transactions are used to define events during the account lifecycle when charges are applied to an account. An example would be at the “end of day”. These transaction schemes are assigned to a product and orchestrate the counter booking behavior of the product.

Tax scheme

Any taxes applicable to an account are defined using this scheme. Here the balance level at which the tax is applicable is defined. It is also possible to define different tax tiers and dierent tax rates. The tax rates are interfaced from different sources.

Payment Allocation scheme

It is possible to define the order of priority on payment charges made to an account. This allows the bank to ensure that certain charges are collected first, i.e. in case of low balances on an account.



The sub-ledger is configured in Matrix Accounts. This can then be interfaced to the General Ledger of the Bank, like SAP and Oracle.

Accounting Keys

The user can specify the accounting keys here in line with the overall ledger in order to facilitate easier integration.

payments.

Payments
An integral component is the ability to handle different payments, as well as handling internal accounts transfers. Matrix Accounts can handle SEPA and SWIFT payments. Payments are handled by the system in a batch. If only one payment is received then this payment has a unique batch-id. Every payment and every batch has the possibility to be reverted.

Scheduler
This feature enables scheduled periodic task creation like EOD, Checks for payments, and other tasks depending on the needs of the client.

Payment gateway
Incoming and outgoing SEPA and Swift payments are handled by the Payment Gateway extension. It can be configured to use filesystem or MQ input and output. Further capabilities can be configured like external account numbers, cutoff times and more.

Matrix lending & leasing.

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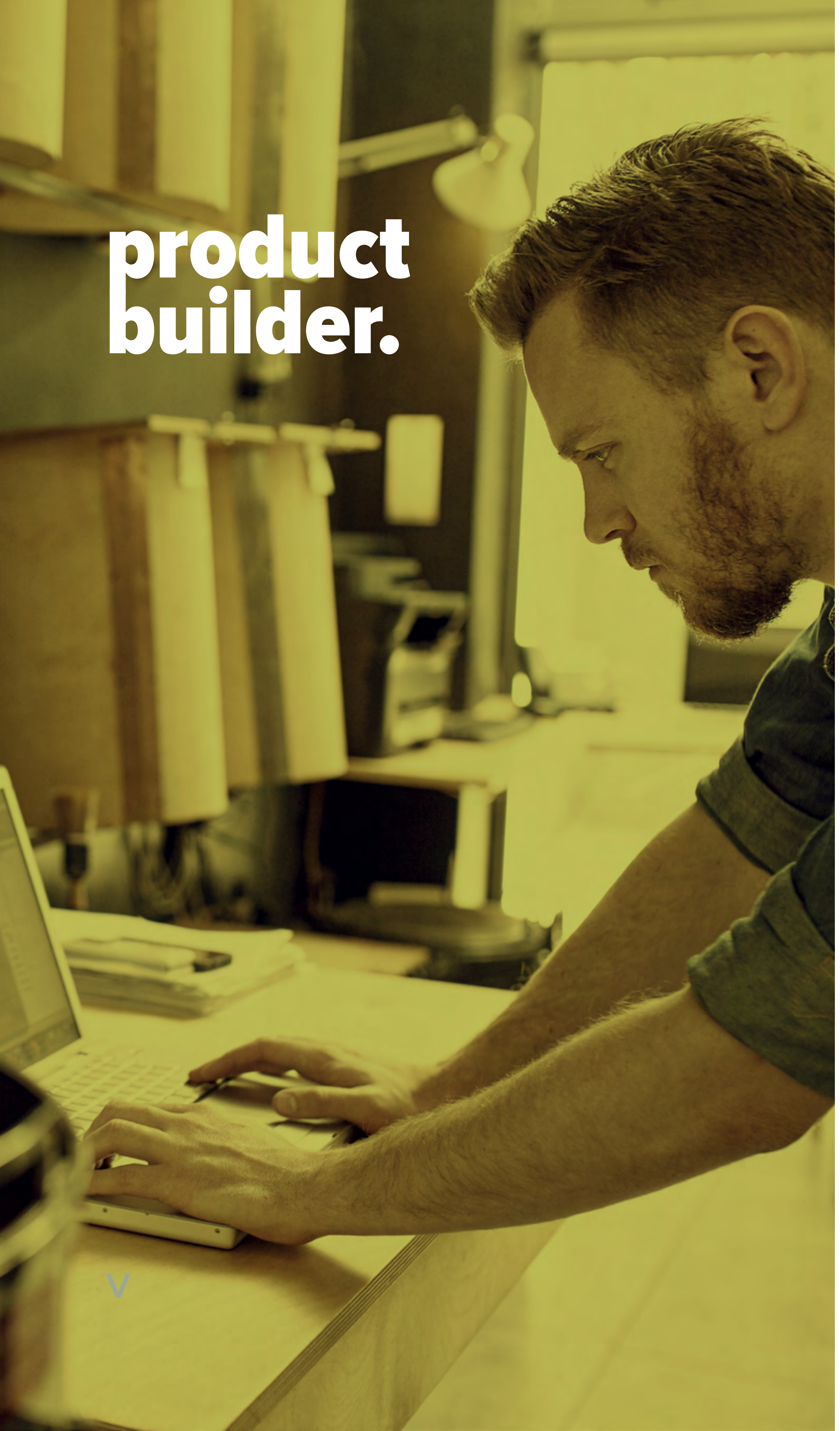
Matrix lending & leasing is the product administration module supporting the full life-cycle of loan products and their related agreements within the Matrix Platform. It's the proven in-service calculation and management engine used by banks and financials for handling complex lending and borrowing products.

Agility and high levels of adaptability allow new loan products to be easily added. All customer-related processes such as workflows, emailing and document generation are located in the BPM module, keeping lending & leasing as a lean back-office solution.

Matrix lending & leasing offers a comprehensive range of financial loan products that are easily launched and administered, allowing product agility and quick-time-to-market.

- Consumer loans
- Mortgages
- Credit card lending
- Student loans
- Corporate loans
- Revolving credit facilities
- Operational leasing
- Hire purchase
- Equipment financing



product builder.

The heart of Matrix lending & leasing is the product builder that simplifies and streamlines the creation of highly-customizable products. Flexibility and agility are achieved by providing many configurable components which can be combined to create bespoke lending and leasing products.

The product builder is used to define products and allow features such as Loans, Lease Agreements, Revolving Credit and Collateral to be assigned, including the product currency. Defined products are set up using schemes and features which allows them to be easily reused and adapted on the fly to create new products.

product features.

Loans
The Loan feature is the base for lending products such as Consumer and Corporate loans, Credit Card lending and all asset-backed lending products. A loan (including Mortgages) can also be defined in combination with the Collateral feature. Flexible interest and repayment structures can easily be added and amended.

Asset Backed Lending
This feature supports leasing agreements, including asset-backed leasing agreements created in combination with the Collateral feature. The feature calculates periodic payments with or without residual value and VAT. Different types of leases can determine ownership of the asset at the end of the leasing period. Leasing types include operational leasing, financial leasing and hire purchase.

Revolving Credit Facilities
A framework for committed amount, a draw-down schedule and a calculated commitment fee are the main elements of this feature. It is the base for line-of-credit, corporate lending, overdrafts and student loans, using either a draw-down schedule or on-demand disbursements.

Asset Backed Leasing
By applying the Collateral feature to loans or leasing, an asset-backed product can be defined. Collateral supports multiple assets, for example properties, vehicles, machines, inventory, cash, valuables, aircraft, vessels, bank accounts, securities and portfolios. These loans are used for products such as mortgages, equipment financing and hire purchasing, as well as lease agreements.

schemes.

Repayment Schemes

Repayment schemes are flexible and include equal principal (equal instalments), equal payments (annuity), irregular payments and seasonal payments. Repayment schemes use holiday calendars and various date rolling types, such as latest business day before, nearest business day in time preceding or following, next business day after, next business day after modified, roll to last day of month or first business day of next month or no rolling. Terms for repayment of principal and interest can be different, allowing for periods of interest-only payments.

Interest Schemes

Interest schemes can be fixed and/or floating (for example Euribor and Libor), and can be multi-tiered, including base funding, different margins, and rollups. Interest calculation methods are simple or compound, and supported day-count conventions are 30/360, 30E/360, 365/360, 365/365, ACT/360, ACT/365, ACT/ACT AFB, ACT/ACT ISDA and ACT/ACT ISMA. Interest rates use a validation period, and reassessment dates can be defined. Interest options include caps and floors.

schemes.

Fee Schemes
In the fee schemes it is possible to define various types of agreement, payment and arrears fees. The fees can be fixed or variable and are assigned to specific transactions on the agreement.

Tax Schemes
Taxes applicable to an agreement are defined using this scheme.

Payment Allocation Schemes
The allocation of extra payments to an agreement can be defined. First fees and arrears are paid, then different types of extra payments can be used, such as accrued interests, next payment, last payment or allocated evenly to the remaining repayment flow.

daily operations.

Payments
Expected payments due (days in advance) can be notified daily to the debtor then, when paid, allocated to the agreement. Payments can also be notified and received, to and from the Payment Gateway using the Matrix Platform.

Balance Calculations
Balance calculations are performed at end-of-day or on-demand, calculating due and not-due balances, including NPV calculations. Loan-to-value is also calculated for asset-backed agreements.

Scheduler
Scheduled periodic task creation such as EOD, checks for payments, and other tasks depending on the needs of the client are easy to implement.

Term Changes
Advanced capabilities in arrears resolution include decreasing or increasing the duration of the repayments, payment holiday or grace periods for payments, restructuring (rolling arrears to the principal of the agreement), refinancing and early pay-up. Pay-up fees can be applied using a range of calculation methods.

Collection
The collection (dunning) process can be associated with relevant notifications and fees. Such processes monitor the number of days in default and manage the arrears status of the agreement, such as intermediate, final warnings, lawyer collection, foreclosure and repossession.

accounting.

The sub-ledger is configured in Matrix lending & leasing and then interfaced to the general ledger system of the bank, for example SAP, Microsoft Dynamics and more.

Accounting Keys

Accounting keys can be specified to align with the overall ledger to facilitate easier integration.


for more information
and demo.
fivedegrees.com
+31 880086400
sales@fivedegrees.com
five°degrees
the fintech engineers