



DigitalEdge PSD2  
by asseco READY✓

SAVE TIME, SAVE MONEY, GROW & SUCCEED!



asseco



## Move Your Digital Strategy Forward

Banks that introduce a omnichannel strategy are seeing double-digit growth across their digital channels.

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Today's customers not only bank in branches but are also spending more time banking online. To engage this growing percentages, you need a digital banking strategy that allows customers to bank with you at any time and from any device.

Our **digital banking platform** gives customers a personalized banking experience – whether they are banking from their smartphone or in their local branch. It ensures that customer data flows seamlessly across both self-service and assisted touch points, so you can offer a consistent digital experience. This will help you stand out from your competitors, build customer loyalty and reduce churn.

## Build on proven foundations and experience

We have a long experience in delivering applications for **digital channels** of banking products and services delivery.

- **2000**  
First implementation of web banking
- **2003**  
Add SMS banking as new channel
- **2007**  
First native mobile app implementation
- **2014**  
First version of APIs  
First implementation of omnichannel
- **2015**  
Second evolution of the hub and APIs
- **2016**  
New native mobile app released simultaneously for iOS & Android  
New Responsive Web App

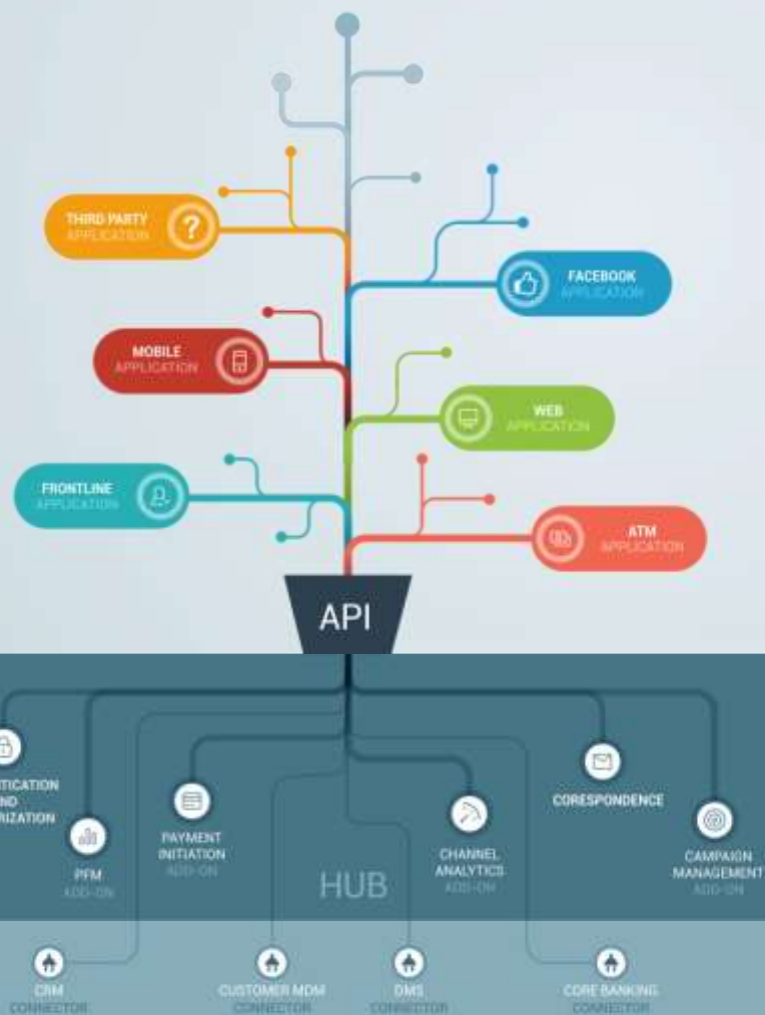




# DigitalEdge

by asreco

PSD2  
READY ✓

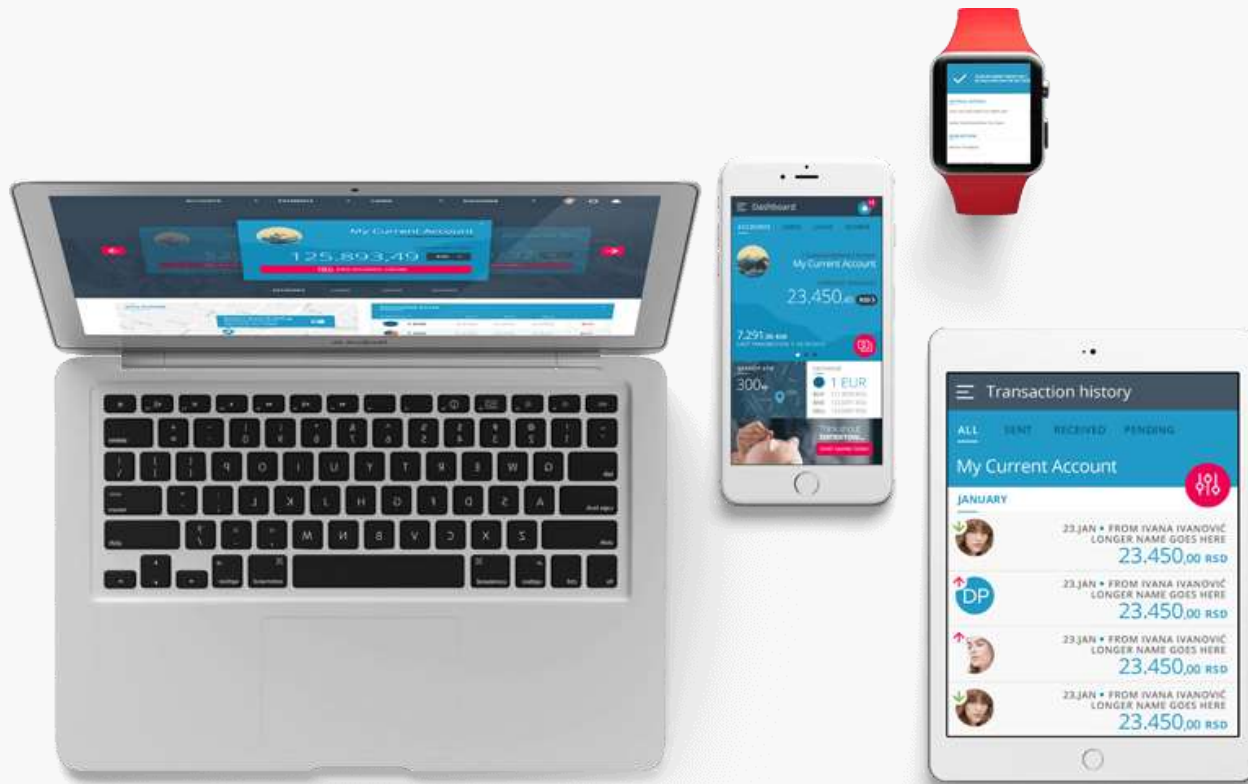


# TOUCHPOINTS MOBILE WEB ...

Digital Edge support all current and future touchpoint applications. Addition of a new touchpoint app for smartwatch and be **half easy** with our solution.

# Omnichannel experience

The **Same UX** regardless the touchpoint (Mobile, Web, ATM, Facebook, etc.)



# Touchpoint Applications

**Customer Experience** that makes all the difference.

Comparing banks by rates and fees of their products is rational part of customer purchasing decisions. **Experience** that customer has with your touchpoints is what triggers emotions and creates preferences that customer does not bother to rationalize.



## Web

- responsive web design
- extensible
- widget based
- supports personalization



## Mobile

- native app (optional hybrid)
- extensible
- widget based
- Supports personalization



## ATM

Customers now want to go to the nearest ATM to pay bills, exchange currency and make cardless cash withdrawals.



## Facebook/Mashups

Facebook application is a must these days. Digital Edge provide all required APIs to support Mashups.



## Frontline

We included in the roadmap of our portfolio (2016) support for branch and contact center.



## Third Party

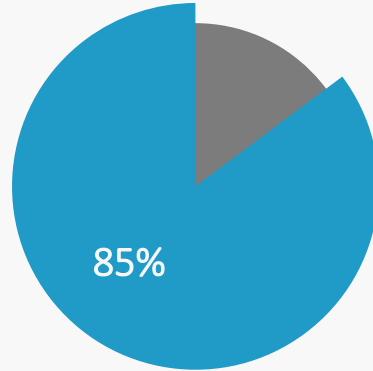
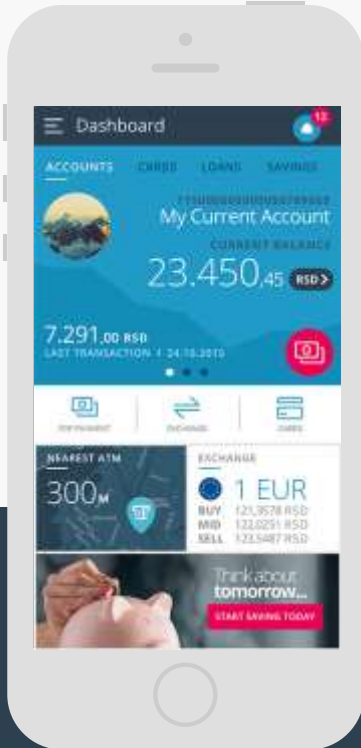
APIs provided are open and secure and can be used by third party applications. APIs can be use as a channel itself.

Our touchpoint applications let you meet and exceed expectations of customers who are becoming more demanding every day by turning your products and services into **experiences** across self-service and assisted touchpoints.



# Mobile phone users care about native experiences

By offering **native** applications banks can increase satisfaction and active usage.



## 85% users prefer native

In recent survey by Equation Research 85 % of respondents preferred native apps because of speed, high quality interfaces, and platform features. Source: Equation Research Study



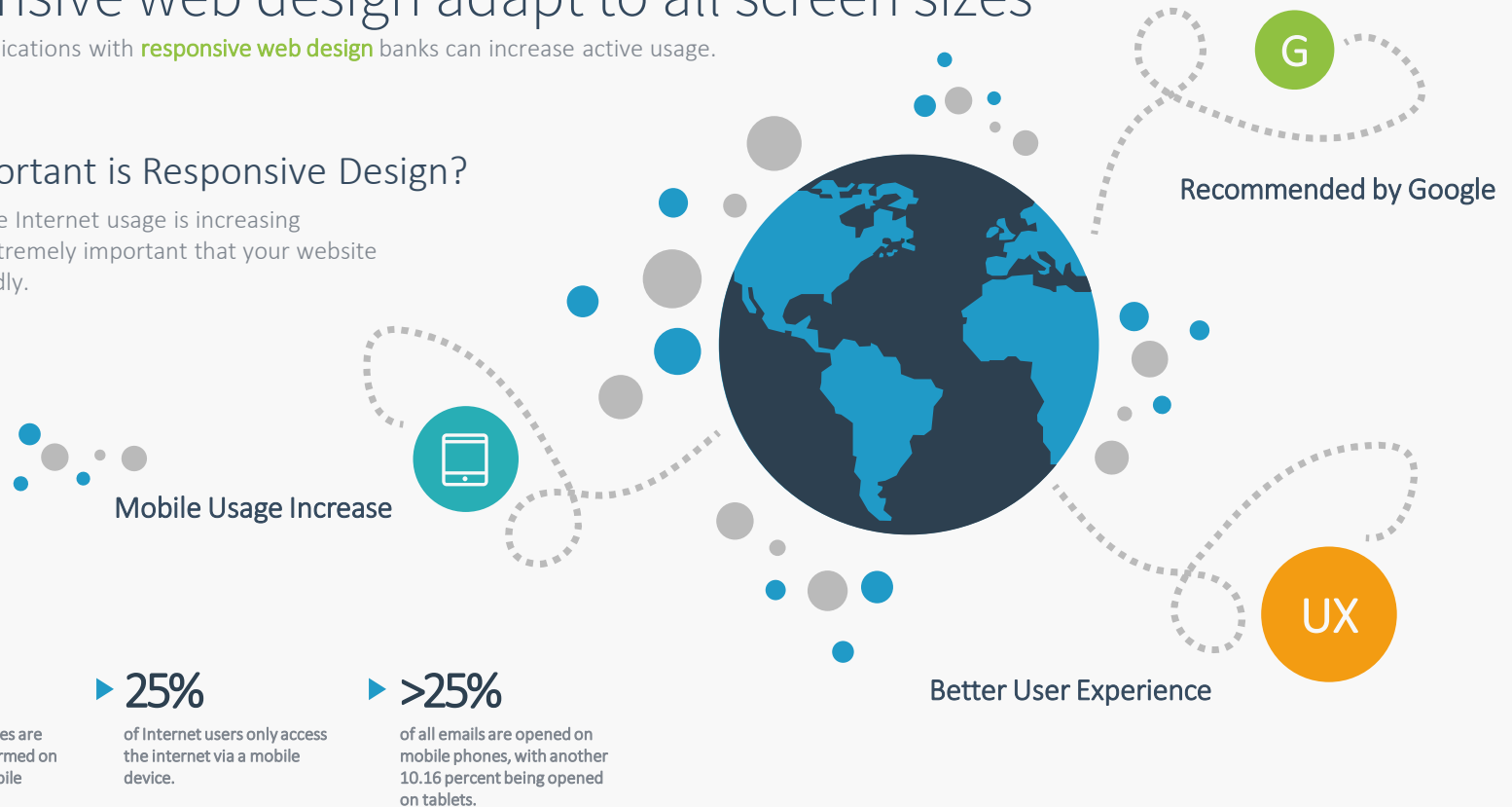
Banks offering native apps can significantly increase user satisfaction which in turn increases active usage of mobile app and likelihood of users to recommend the app and the bank to others.

# Responsive web design adapt to all screen sizes

By offering applications with **responsive web design** banks can increase active usage.

## How Important is Responsive Design?

Because mobile Internet usage is increasing steadily, it's extremely important that your website is mobile friendly.



# Designed with you

## Native app

Flawless user experience.



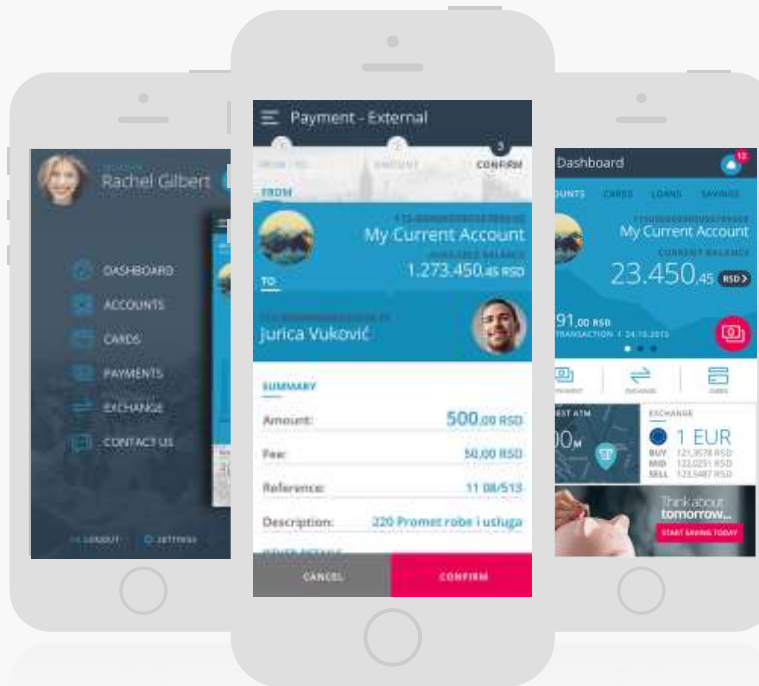
## Security

Secured with embedded token but easy to authenticate with PIN only.



## Info & Orders

Provide all financial information and can collect all customers' orders



## Geolocation

Shows relevant locations based on geolocation.



## Dashboard

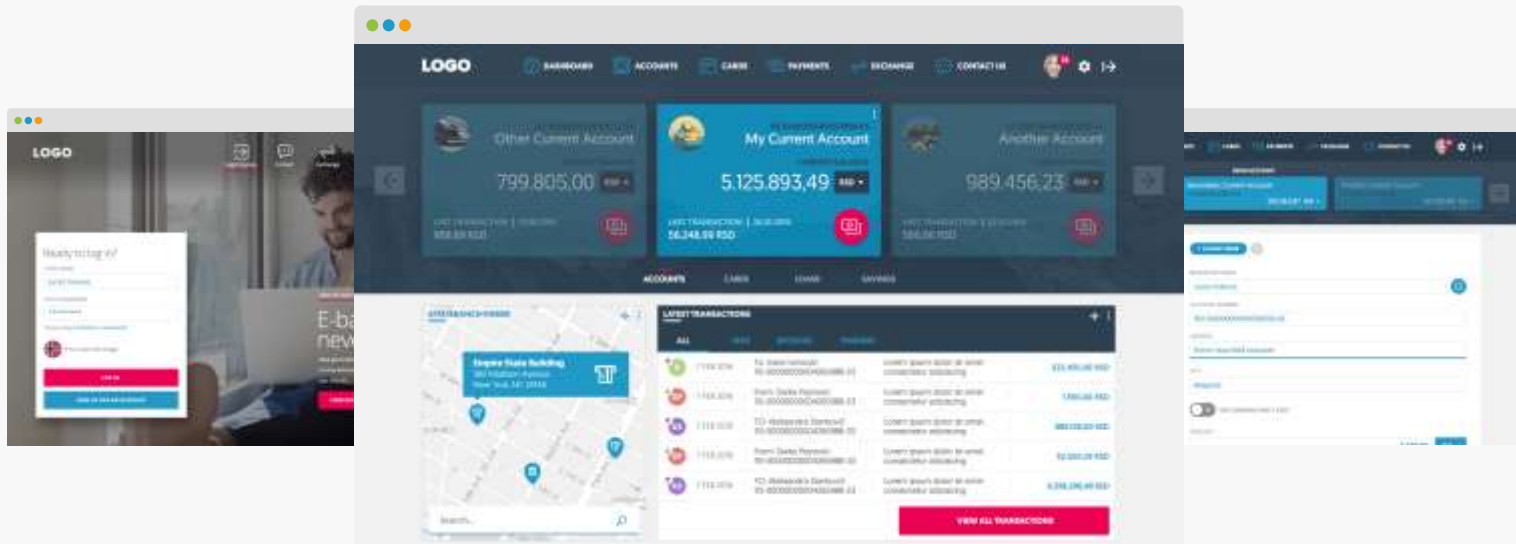
Dashboard with personalization capabilities



## Messages

Send and receive secure messages, alerts, and notifications

# Designed with you



## Graphics

Graphic representation of figures



## Widgets

Application based on widgets which can be combined in different ways.



## Locations

Shows relevant locations based on geolocation.



## Dashboard

Dashboard with personalization capabilities

# Touchpoint Features and Capabilities



## Self-enrollment and customization

- Online registration with ship to order option
- Dashboard configurable by each customer/user
- Complete self care options (profile, preferences, own authentication and authorization, etc.)



## Online customer care

- Live chat for quickly guiding of customers online
- Complaints registration and management
- Callback request registration and management
- Tools for customers care evaluations



## Channel analytics

- Track all customers' interactions through all channels
- Offers graphical tools for truly understand user' behavior: Real time channel activity, Goal conversion tracking, Geolocation, Page transitions



## Customer servicing

- Show financial information about
- Order transactions: payments, standing orders, direct debit, bill presentment, FX and funds transfer
- Setup new arrangements (deposit, loans, cards, etc.)



## Product catalogue

- Sale products, services and packages
- Customers qualify for products, services and packages based on their profile




## Interoperability

- Provide REST APIs
- Isolation of service layer from front ends
- Compliant with BIAN Standard

# Corporate Banking


Digital Edge fulfill requirements of corporate and SMEs customers for special banking products and services.

## Transaction Batches




Corporate and SME customers has many daily transactions and usually they get transaction list from their ERPs. So, importing and processing batches of transactions is key requirement for them.

## Complex Authorization




One of the special needs of corporate and SME customers is complex authorization schemes with multiple authorization persons for certain accounts and with certain amount limits.

## Debit instruments




Corporate and SME customer can see in any moment what cheques, promissory notes, and bill of exchange have to collect or pay. They can see this future incoming and outgoing in cash flow (calendar or balance evolution).

## Trade Finance



Companies with import and export activities need to finance their activity. Usual products for financing trading activities are letter of guaranties and letter of credit.

## Cash Flow



For all banks' customers the cash flow is very important but for corporate and SMEs it is one of the most important banking tool. Digital Edge provide transaction calendar and balance evolution charts.

## Investment

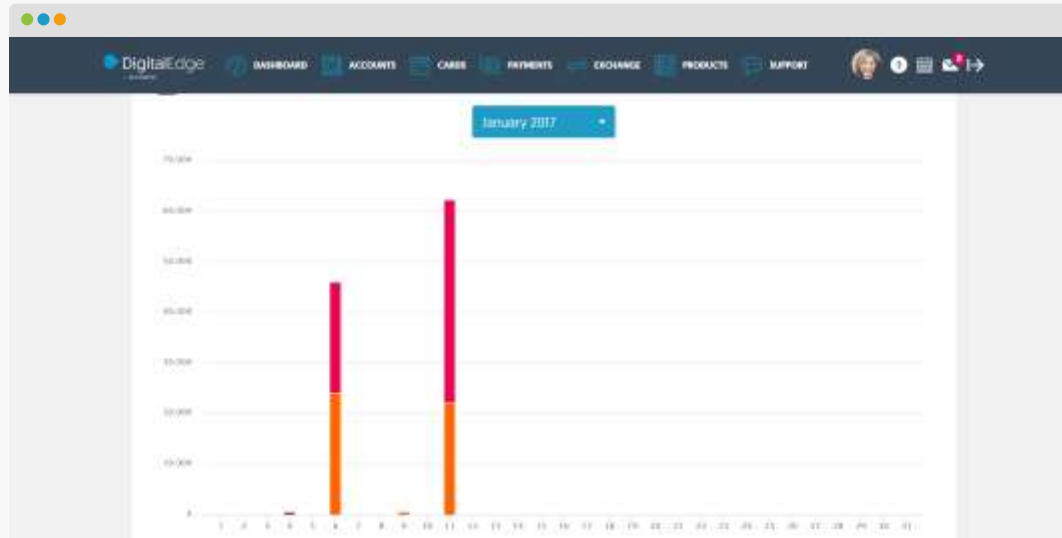


Companies needs investment tools more than private individuals. Usually corporations deal with investment fund units and securities.

# Balance Evolution Chart

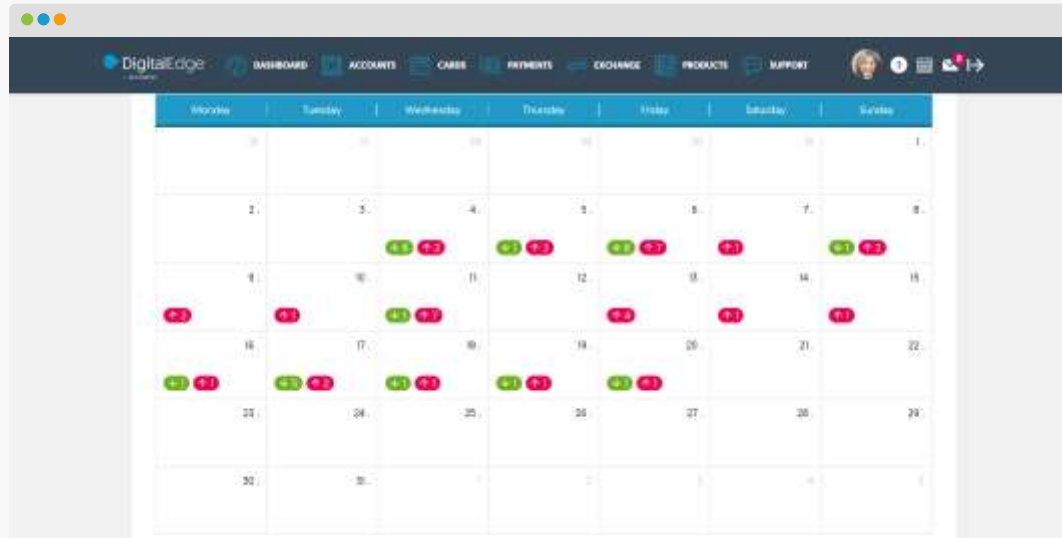


# Incoming and Outgoing Chart





# Incoming and Outgoing Calendar



# Mobile UI Customization

## Native app

Flawless user experience.



## Security

Secured with embedded token but easy to authenticate with PIN only.



## Info & Orders

Provide all financial information and can collect all customers' orders



## Geolocation

Shows relevant locations based on geolocation.



## Dashboard

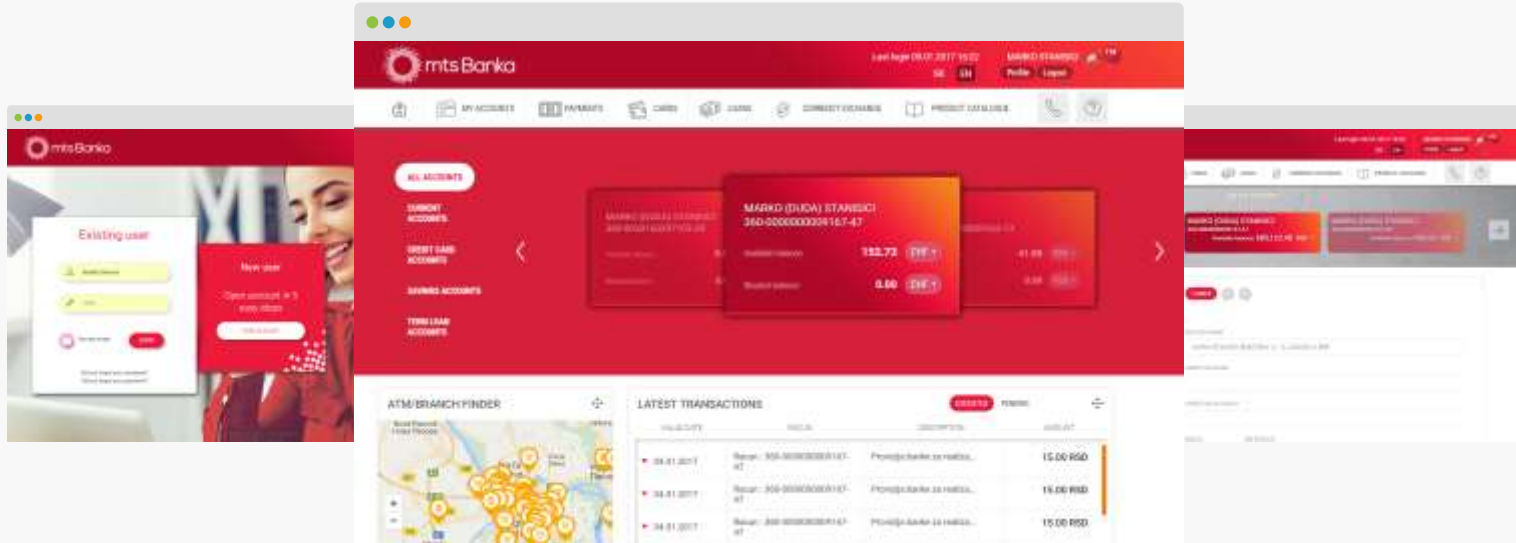
Dashboard with personalization capabilities



## Messages

Send and receive secure messages, alerts, and notifications

# Web UI Customization



## Graphics

Graphic representation of figures



## Widgets

Application based on widgets which can be combined in different ways.



## Locations

Shows relevant locations based on geolocation.



## Dashboard

Dashboard with personalization capabilities

THE HUB

APIs

COMPONENTS

ADD-ONS

# The Hub

Consistent and Connected Experience across different channels.

Giving your customers consistent and connected experience across different channels with siloed applications that do not share their capabilities and connectivity is an uphill battle.



## All Channels, One Hub

Our Digital Hub helps you improve customer engagement and provide a consistent experience, as it allows you to offer more business services across more channels.



## Open APIs

Open your backend with APIs and connectors compliant with BIAN standard. Adding new touchpoint effort is reduced by half.



## Security

Strong authentication and flexible authorization. Supports two-factor authentication and digital signatures required by PSD2

By connecting your **present and future touchpoint applications** to a hub that offers shared digital banking capabilities, orchestrate processes across channels and takes care of connectivity to backend systems you instantly make your touchpoints consistent and more agile for future demands.

# APIs Catalogue









The Open **APIs** for everyone's use

**assecO** REST API Guide & Reference [View license](#)

## REST API Guide and Reference

AssecO REST APIs represent collection endpoints that serve the needs of banking applications. While each API exposes specific functionality, technical concerns of API usage have been designed in a consistent manner to enable easier integration into channel applications. This section describes concerns and usage patterns that are common to all APIs.

[Read AssecO REST API Reference License before using the materials](#)

<b>/location</b>  Get location and availability of branches and ATMs <a href="#">EXPLORE</a> <a href="#">LEARN</a>	<b>/identity</b>  Enroll users and manage their online identity <a href="#">EXPLORE</a> <a href="#">LEARN</a>	<b>/content</b>  Store and access documents and other digital content <a href="#">EXPLORE</a> <a href="#">LEARN</a>	<b>/correspondence</b>  Format and deliver customer correspondence <a href="#">EXPLORE</a> <a href="#">LEARN</a>
<b>/campaign</b>  Target customers and prospects with offers <a href="#">EXPLORE</a> <a href="#">LEARN</a>	<b>/authentication</b>  Authenticate users with different credentials <a href="#">EXPLORE</a> <a href="#">LEARN</a>	<b>/entitlements</b>  Track customer access rights and usage limits <a href="#">EXPLORE</a> <a href="#">LEARN</a>	<b>/authorization</b>  Verify sensitive actions <a href="#">EXPLORE</a> <a href="#">LEARN</a>

## Open APIs under your control.

APIs compliant with **BIAN** open our solution for new touchpoints and mashups.

It also sets an isolation point between backend systems – which change rarely – and touchpoint applications – which change frequently. This helps you be more agile in customer experience layer.

# PSD2 Topics



## Authentication

PSD2 requires strong customer authentication (SCA) using multiple factors (MFA). There are three categories of authentication elements: elements categorized as knowledge, elements categorized as possession, and elements categorized as inherence



## Authorization

Codes for transaction authorization should be directly linked (Dynamic Linking) with transaction data. This means that should be a direct link between these codes and at least transaction amount and destination account.



## Antifraud

Activity monitoring should be in place in order to detect and mitigate the fraud risk of transactions. This monitoring requires real-time transaction-risk analysis. This analysis should consider existing behavioral patterns related to customers' payments and other factors like location,



## TP Access Information and Services

Banks (ASPSP) should provide TP service providers with account information services and payment initiation services.

# PSD2 Access to Account (XS2A)

Digital Edge is **Compliant** with Payment Service Directive revision 2

## Third Party Service Providers

PSD2 Introduced definition and regulation for many new actors. Out of these 2 are important for the credit and payment institutions: Account Information Service Provider (**AISP**) and Payment Initiation Service Provider (**PISP**)

### Authentication & Consent

First of all any TP SP need to authenticate the user of its service against the online banking of ASPSP

### Payment Initiation

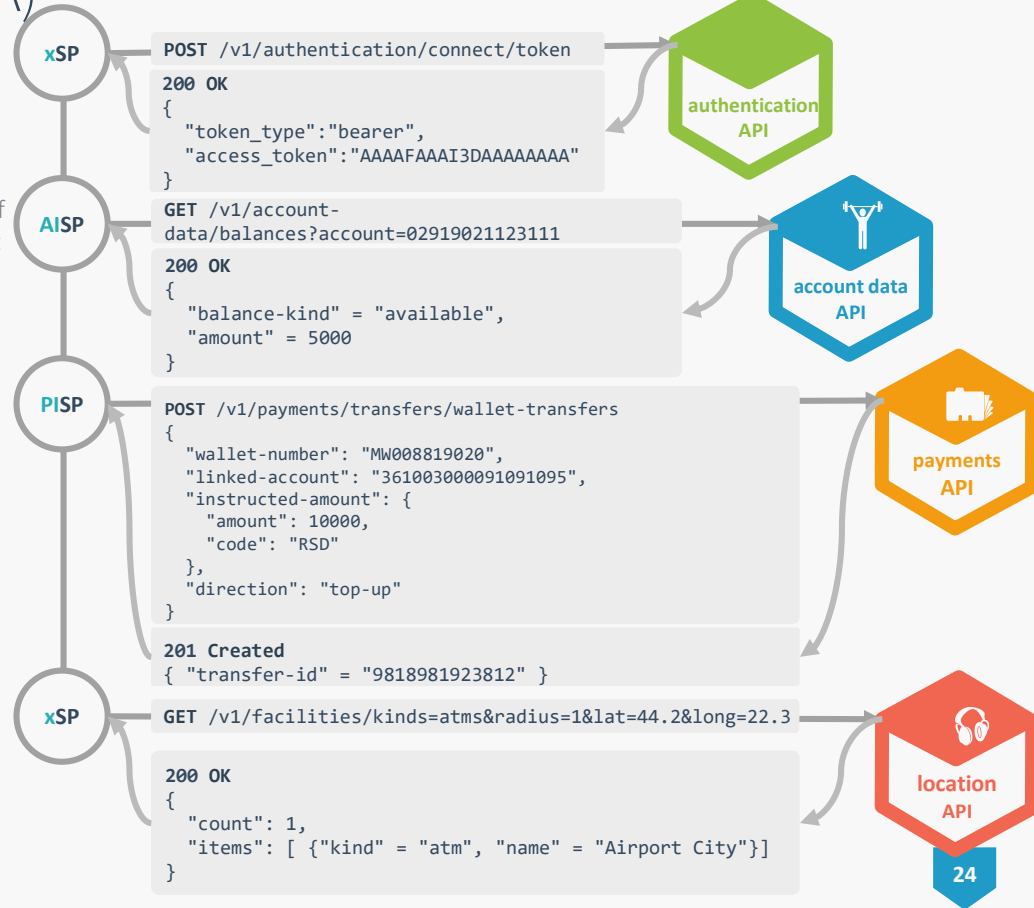
Once authenticated the PISP can initiate a payment in the name of customer that should be authorized according with ASPSP policy.

### Account Information

Once authenticated the AISP can access the account information of the customer account using ASPSP API

### Other Services

DE allows bank to expose other APIs than Account Data and Payment so the TP SP can get information about ASPSP locations and products





# The Hub Components

One hub to power all your touchpoints.



## Authentication & Authorization

**Authentication** exposes OpenID Connect Core 1.0 compatible endpoints for authentication using OAuth 2.0 authorization framework.

**Authorization** enables authorization of sensitive actions performed by customers or agents using 2nd factor authentication. Sensitive action authorizations can be explicitly requested by applications or they can be initiated by APIs during authorization checking. Support for 4 eyes verification and separation of duties will be added in future.



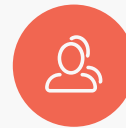
## Correspondence

Our Correspondence module allows you to engage customers across all of their preferred channels, such as email, SMS, push messaging, chat, video, social media and secured inbox.



## Availability (ODS)

The ODS component ensure 24/7 availability of DE touchpoints even in case of CBS not available. It stores operational data from CBS in order to show them to customers and collect payments from customers and forward to CBS when the last one become available.



## Identity

Manages online identity and credentials of users. This covers signup process, confirmations of contact points, changing and recovery of forgotten passwords and usernames. Logins from external identity providers can be linked to user profile. Hint pictures, security questions and password policy enhance user experience and security of the recovery processes.

# The Hub Add-ons

One hub to power all your touchpoints.



## Authentication Server – SxS

SxS is a two-factor authentication server specifically designed to meet the business and regulatory requirements of multi-channel organizations (financial institutions, managed service providers, and other organizations).

SxS enables simultaneous use of different types of end-user devices and OTP standards, simplifies user experience, increases security, and reduces cost by enabling organizations to apply consistent strong authentication and authorization over multiple service channels, including web and phone.



## Text & Video Chat – Live

Is an advanced CRM platform with support for different communication channels and business processes. It integrates wide range of technologies and modules which are part of standard Contact Center solution. Live is a powerful tool for improvement of relations with the clients and efficient allocation and organization of support resources.



## Personal Finance Manager – PFM

PFM is an advanced online Personal Finance Management (PFM) solution that enables bank's online banking clients to manage their finances by keeping track and making analysis about personal incomes, through automatic categorization of all transactions, by making plans about spending and incomes, through receiving financial help and recommendations.



## Channel Analytics – Piwik

Our Channel Analytics give you insight into how all of your channels are performing. For example, it includes dashboards and drill down features that let you monitor the number of transactions on each channel. You can also see how often customers are using each channel, so you can determine their preferences.

# INTEGRATION THINGS WORKING TOGETHER

# Type of System to Integrate with

## Core Banking Systems

The point of using Lorem Ipsum is that it has a more-or-less normal distribution of letters, as opposed.



## Payment Systems

Payment Order connector enables payment initiation in backend systems. Different kinds of payment instruments are supported and different styles execution.



## External CRM

Our Offer Management and Campaign Execution connectors cover sales processes with operations supporting applications for a product, customized proposals, simulations, real-time offers, response capture etc.



## Contact Center

APIs such as Offer Management, Customer Arrangement, Customer Case and Customer Order can be called by external call center in order to see and amend details of customer electronic arrangement, view ongoing sales offers, view and resolve customer care issues.



## Bill Payment System

Our Bill Presentment connector defines the operations necessary to subscribe to new bills, get new bills for presentment and cancel subscriptions.

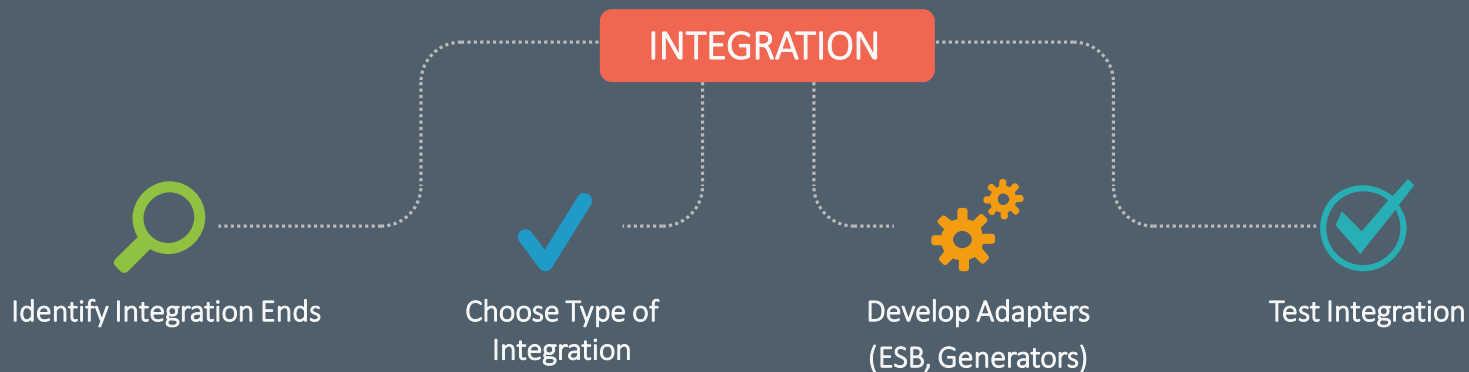


## Other

Other system like external Chat Services, Advertisement Servers, Video Chat Services, Messaging Systems, etc.



# What to do for integration?



Integration with backend systems is organized as a set of **connectors** that have a defined **APIs** surface and **adaptors** that accommodate specifics of different backend systems. Integration code is available to bank and is provided within ESB tool.

# Integration Options Across Tiers

We offer a variety of integration options. Depending on specific requirements for the connector and employed integration styles, integration can be achieved at different tiers.



## Functional Integration

Happens on application tier where one application is invoking the business logic of other application.



## Data Integration

Happens at the data tier effectively avoiding any business logic that remains unaware of the data flow.



## UI Integration

Happens on presentation tier where one application redirects user to UI of another application. UI redirection and UI composition styles are used.



## Link to Desktop Apps

Start application with parameters or use proprietary URI schemes and handlers registered in the OS.

**REST APIs** is the preferred integration methods nowadays. As all modern applications our solution provide and consume APIs. A complete set of secured APIs including **Payments, Customer Service, Sales, Master Data, and Digital Engagement** can be consumed by all channels and third party applications in order to provide consistent view of customer data and interactions.

# Success Factors for Integration

## Support Modern Technologies

We have integration experience with wide range of systems and technologies but we prefer the followings:  
REST APIs, WS, MQ, direct data access, and text files.



## Provide Integration Option

Preferable options in order: functional integration, data integration, UI integration, and link to desktop apps.



## Test & Dev Environments

Environments for test and development must exists with complete set of data provisioned.



## Provide Documentation

Comprehensive documentation exists for all APIs.



## Support from TP Provides

Support from TP provider is required in order to solve bugs and provide guidance for integration



# EXTENSIBILITY MICRO MACRO UI & UX



# Types of Extensions

Digital Edge is an **open** and **extensible** platform.

## ADD NEW TOUCHPOINT APP

Add completely new application (web, mobile, ATM, Facebook, mashup)

## ADD NEW WIDGET

This is similar with new module for web app but it is linked on the dashboard instead of main menu.

## ADD NEW APIs

Add new API under the same horizontal infrastructure. API is preferably developed with C#/.NET but not only.

## ADD NEW MODULE TO APPs

Web app is modular so new modules can be added. Module can be external Web app or module deployed on the same web server. Deployment of new module can be done without service downtime.

## EXTEND/CHANGE FUNCTIONALITY

An existing functionality in a application screen can be changed or extended. This modification require Development License. Backward compatibility is in the responsibility of the developer.

## EXTEND/CHANGE EXISTING API

An existing API can be changed or extended with new methods. This modification require Development License. Backward compatibility is in the responsibility of the developer.



CUSTOMIZATION  
STANDARD  
UI & UX  
BRAND BOOK

DIGITAL EDGE

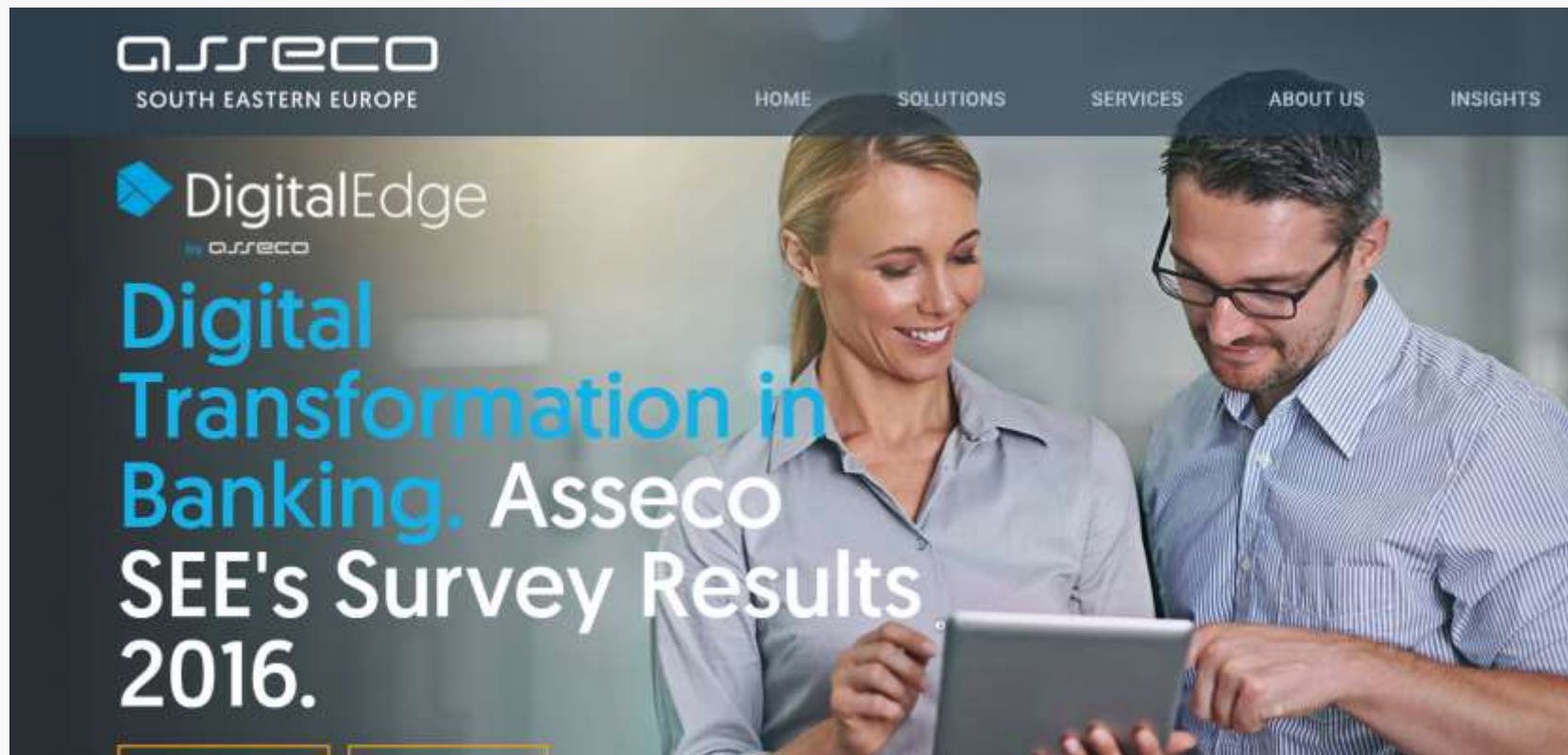
# ROADMAP

MORE

INFORMATION

# Visit Asseco's Digital Banking Microsite

<http://digitalbanking.asseco.com/>





# Thanks for listening

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