kony DBX
Digital Banking Experience

Kony PSD2 Solution

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THE KONY PSD2 SOLUTION

The Payment Service Directive release 2 (PSD2) mandates all Banks in the European Union to open their proprietary systems and expose standard APIs that allow third parties and other banks access to account information for making payments and other financial transactions. This means that Banks now must compete with a new wave of Fintech disruptors touting innovative digital payment and wallet solutions. Companies such as Apple, Samsung, Amazon, and PayPal are already eating away at Banks' traditional margins and they must now find ways to compete. One of the key ideas is to make payments much simpler and cheaper by cutting out the intermediaries so that the retailer receives payment directly from the Customer's Bank with their permission.

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The Kony PSD2 solution

Previously, Banks held a monopoly over their Customers' data and access was only possible through the Bank's systems. The first payment directive, PSD1, was introduced in 2007 to help encourage Euro payments alongside SEPA (Single Euro Payments Area) to standardize transfers. Whereas PSD1 was largely optional, the revised edition (PSD2) released in 2015, is mandatory for all EU member countries to incorporate the directive into their national laws and regulations by 2018. This means that all Banks must comply and become "open" in 2018, but many have been slow to adopt.

The successful implementation of PSD2 is set to promote the rise of a new generation of Account Information Service Providers (AISPs) and Payment Initiation Service Providers (PISPs). These new contenders such as digital banks, retailers, Fintech organizations, telecommunication companies, social media networks, and software giants such as Apple, Microsoft, and Amazon all want a piece of the digital banking pie. The competition will be fierce and slow adopters will become irrelevant.

It is important to note that PSD2 is not a standard and many Banks have implemented their own versions of "open" APIs. Efforts were started in 2017 by the European Banking Authority (EBA) to draft both regulatory and technical standards, RTS and ITS. It's not just a case of providing wrappers around existing services like some vendors claim, but implementing open APIs as compliant as possible to EBA guidelines, making them easy to discover and consume, and with the necessary additional business logic, security protection layers, and API management capabilities.

The road to regulation

At Kony, helping Banks implement PSD2 means two things. Kony's own Digital Banking Application Suite supports account and payment aggregation for multiple back-end Core banking systems and payment gateways. I.e. you can add and manage accounts and cards from any of the supported "open" Banks and process transfers and payments between them. In addition, Kony's Digital Banking Platform provides a standard set of Open APIs and the management necessary for Banks to securely expose their own PSD2 compliant services for other Banks and third parties to consume.

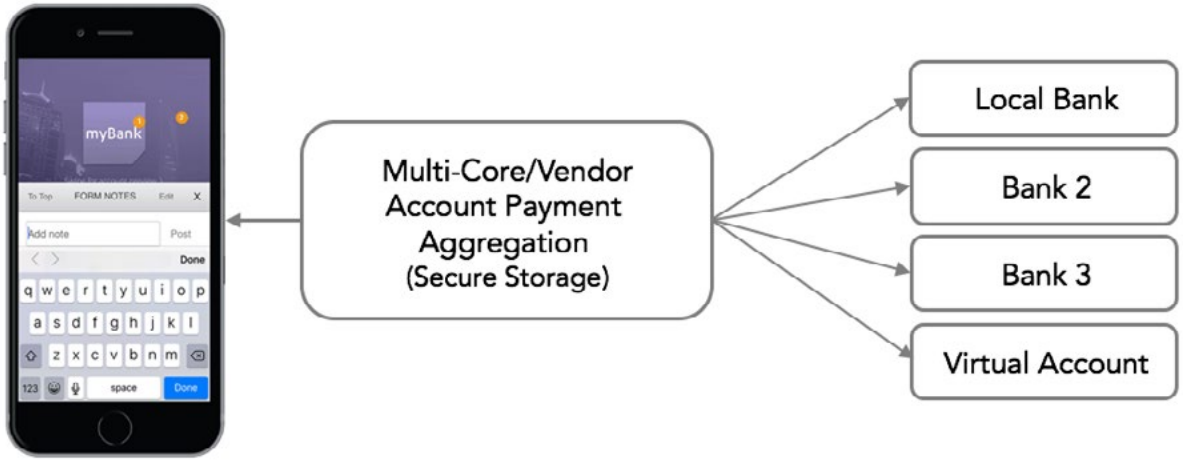
The Kony Digital Banking Solution provides the following PSD2 support for Banks:

- The Kony Retail (consumer) Banking, Business Banking, and Wallet applications supporting multi-Bank account/transaction (AISP) and (PISP) payment/transfer aggregation.
  - Add, manage, list accounts and cards from multiple banks
  - Search and list transactions across multiple banks, including PFM aggregation
  - Easily perform transfers between multiple banks
  - Perform direct payments from any of the listed bank accounts
  - And much more ...
- A standard set (60+) of secure open banking APIs covering: login, accounts, transactions, transfers and payments, ATM/Branch locator, PFM, etc.
- Comprehensive and secure API management through a Visual studio

Middleware aggregation functions and secure data

As briefly discussed earlier, account aggregation is the ability to manage bank accounts and cards from many different core banking systems and is only possible with banks that have exposed their Customer account data through "open" APIs as per the PSD2 directive. To do this, features need to be added to the mobile app to login and add/remove accounts and cards from other external banks. In addition, aggregation functions and secure data storage must be added to the middleware layer to loop through the accounts associated with the user, collect all the data, and then present a consolidated view back to the app. So now, the mobile and online banking apps become multi-bank capable instead of single bank focused as with the older generation; and the logic and supporting data needs to be implemented in the middleware, whereas before it was simply a pass through or "over the air" integration to the single back end. The Kony Digital Banking Platform effectively becomes the broker between all the banks.

The same applies to payments and transfers in the "new core." Once external accounts and cards have been added, a payment aggregation function is required to support cross-bank transfers, and payments using an external source other than the local bank. A key deliverable of PSD2 is for payments to be processed directly with the bank, bypassing intermediaries.



Secure Data Storage and local services

As soon as you start storing transactional or personal data, strict regulation and security controls apply. In the case of the aggregation functions, all associated data to support account and payment processing needs to be stored centrally and not via back-end Core systems and third party vendors. The Kony Digital Banking Platform supports this by providing the base data model, physical database schemas, and local services to access the data. It is then up to the Bank to implement the database in their secure environment and comply with the regulation and audit requirements.

Open Banking model

An open banking data model is provided that describes all the Banking objects and relationships for consumer banking, business banking, loan origination, and wallet/payments. This is the foundation to enable PSD2 services now and into the future. The model is exposed to applications using a generic business object service layer and these objects may also be exposed as RESTful services. Kony Fabric® (provided standard with the Digital Banking Platform) provides all the API management necessary to securely expose these services to external Customer and Third-party Banks and Vendor applications. In this way, other external banking applications can perform functions such as account/payment aggregation, card management, etc. As well as front-end integration, the data model is key to mapping and interfacing with back-end systems. Banks may also extend and add their own definitions to the model.

API management

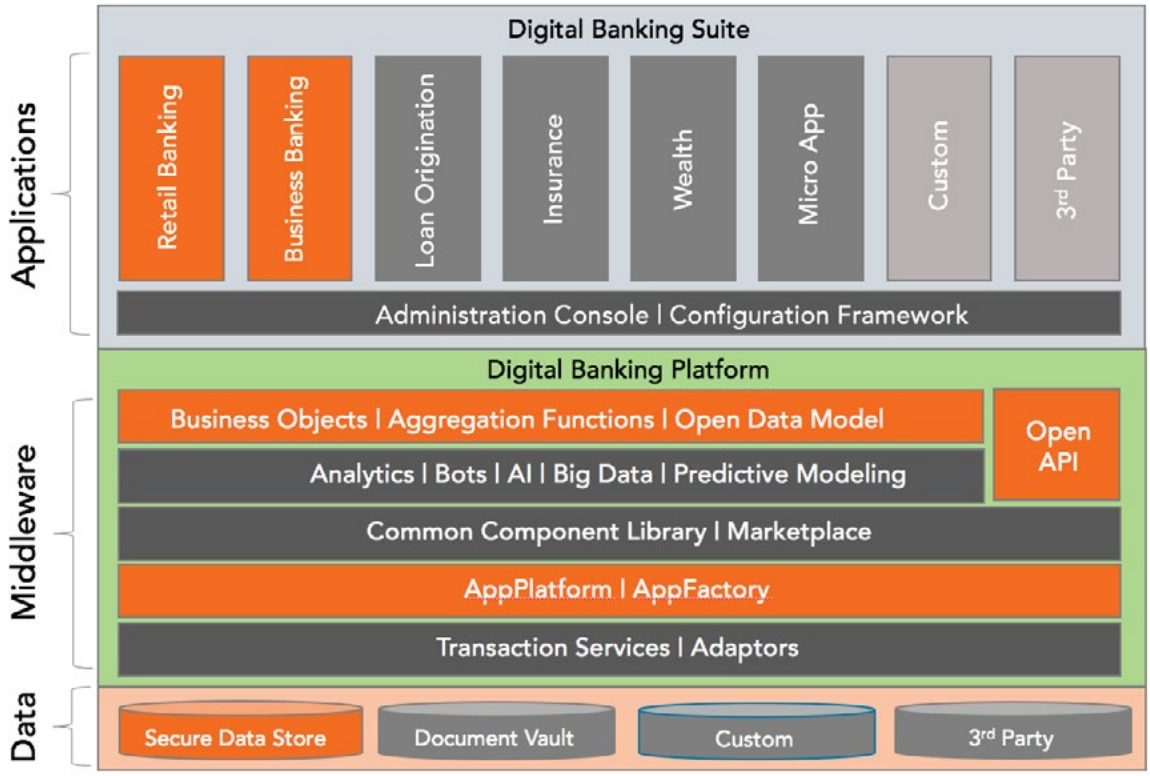
Kony Fabric API management is included in the Kony Digital Banking platform and is essential to enabling Banks to design, implement, test, deploy, and manage their open banking APIs. It also provides documentation and discovery services to assist Third Parties to implement them. Key functionalities include:

- Manage security policies
- Throttling controls to control the rate of requests per client, essential to prevent DOS attacks
- Version management
- Documentation
- Ability to include additional "API" business logic for validations, conversions and security
- Performance scaling
- Discovery services

API management also includes managing any existing REST APIs in the enterprise and managing external Third-party APIs as well. It also provides the ability to build new APIs using technology connectors and business adapters to complete your API catalog and provides the ability to document and share APIs through an API Developer Portal. These API Management capabilities work seamlessly with other Kony Fabric capabilities to form a comprehensive hybrid integration platform.

Kony Digital Banking Solution components

The following diagram highlights the specific components (in red) that are used to support PSD2 for both the Kony Digital Banking application suite and exposing open APIs to other Banks, custom apps, and Third Parties.



Open Banking APIs

Kony delivers a set of 60+ Open Banking APIs as a part of the Digital Banking Platform. This list is continually evolving and expanding as new functionality is implemented. Customers can also easily implement their own APIs for specific use cases. The following list is an example of supported APIs, and as you can see there are many more open API services exposed than those required just for PSD2. Any API that is not needed may be disabled using Kony's API management.

Login	Login	Login and authenticate the user.
	deletePin	Delete the PIN defined in case of PIN-based login.
Accounts	getAccounts	Retrieve the list of all accounts for the logged-in user.
	getAccountStatements	Retrieve the list of all statements of the selected account; however, this does not include the content within each account statement.
	getAccountType	Retrieve the list of all supported account types.
	getAccountCashFlowDetails	Use the data from the service to populate the cash flow chart, within the Account Insights screen.
	getTransactions	Retrieve the list of transactions, as well as details of each transaction. The service is used for the following: - Accounts: Recent transactions, search transactions - Transfers & Payments: Recent and scheduled transfers, and payments
	updateAccountName	Update the account nickname.
Alerts	getUserAccountAlerts	Retrieve all the account-related alerts of users.
	getUserAlerts	Retrieve the user level alerts such as security alerts, deal alerts and general alerts.
	updateUserAccountAlert	Update various account-level alerts. For example, the value of the minimum balance threshold.
	updateUserAlert	Update user level alerts, for example, turn off the Deals Expiring alert.
Transactions	createTransfer	Create various transactions such as transfer, bill pay, P2P, and remote check deposit.
	deleteTransaction	Cancel any of the scheduled transfers, bill pay or p2p transactions.
	getTimePeriod	Display time period such as one day, two days, one week - used while defining the recurrence of a transfer/bill pay.
	updateTransaction	Update any of the scheduled transfer, bill pay or P2P transactions.
ATM & Branch Finder	getLocations	Retrieve the list of all ATM and branch locations, for a specific search criterion or the location coordinates. The service fetches all the details in the same call.
Bill Pay	createPayee	Add a new bill payee.
	deletePayee	Delete an existing bill payee.
	editPayee	Update details of an existing bill payee.
	getPayeeList	Retrieve the list of all bill payees registered for a user.
	getBillerCompany	Retrieve the list of all companies that are registered with the bank for Bill Pay.
Manage Cards	updateCard	Perform various actions for the card such as reporting loss of card, activating or deactivating the card, etc.
Check Reorder	getCheckOrders	Fetch the list of previous check re-order requests made by the user.
	createCheckOrder	Make a new check book request by a user.
Device Registration	registerDevice	Register a device for a user.
	deviceRegistrationStatus	Identify the registration status of the device for a user.
	deRegisterDevice	De-register a device for a user.
Enrollment	createUser	Enrol a new user to mobile banking.

Informational Content	getExchangeRates	Fetch the exchange rates against the bank's currency.
	getInformationContent	Fetch informational content such as Terms & Conditions and FAQs.
	getInterestRates	Fetch interest rates for various products, for example, a certificate of deposit.
Manage Cards	getCardDetails	Retrieve the list of all the cards available for a user.
Secure Messaging	createMessage	Create a new message.
	deleteMessage	Delete an existing message.
	getMessageCategories	Get a list of various message categories used while creating a new message.
	getMessages	Get all the messages - inbox, sent folder, drafts and others.
	getMessageSubCategories	Get a list of various message subcategories used while creating a new message.
	updateMessage	Update an existing message, mainly used for editing a draft message.
My profile	updateUserDetails	Update personal information such as contact details, user name, and password.
	getUserDetails	Get the profile details of the user.
New Account Application	getAccountFeatures	Get various product features such as rates, conditions, etc. while applying for a new product.
	getProductList	Get the list of products available within a state while applying for a new product.
	getStateList	Get the list of states while applying for a new product.
	newAccountCreation	Submit an application for a new product.
P2P	getPayPersonList	Retrieve the list of all P2P payees registered for a user.
	createPayPerson	Register a new P2P transfer recipient/beneficiary.
PFM	editPFMtransaction	Define the category for an uncategorized expense.
	getChartTransactions	Retrieve the expenses for a specific category of a specific month.
	getPFMBarGraph	Retrieve the amount spent for each month.
	getPFMBudgetSnapshot	Show the budgets allocated and the amount spent for each category, for the current month.
	getPFMCategories	Retrieve the list of various PFM categories used to manually categorize an expense.
	getPFMPieChart	Show the expenditure across various categories for a specific month.
	getPFMTrasactions	Retrieve the list of all uncategorized transactions.
Security Challenge Questions	verifyUserSecurityQuestions	Validate the security questions answered by a user.
	getUserSecurityQuestions	Retrieve the list of security questions before the user logs in.
	getSecurityQuestions	Retrieve the list of security questions after the user logs in.
Transfers	getCountryList	Retrieve the list of all countries while registering a new international account as an external transfer recipient/beneficiary.
	createExternalAccount	Register a new external recipient or beneficiary (domestic and international) for transfers.
	getExternalAccounts	Retrieve the list of all external accounts pre-registered for the user.
Security Challenge Questions	createUserSecurityQuestions	Set up security questions for users while enrolling a user to mobile/online banking.
Application Settings	getApplicationProp	Retrieve the default application parameters such as currency code, banner URL and more.

About Kony DBX

Banks and credit unions are struggling to keep pace with innovation. A 2017 global study released by Kony and Wakefield Research shows that as customer expectations rise, 87% of global business leaders agree that their companies do not have the time or resources to develop their own mobile applications. Layer that challenge on top of an innovative digital banking platform – fully integrated with all back-office functions – and digital banking becomes a hill too steep to climb for some.

This dilemma is the genesis for Kony DBX. It helps financial institutions of all sizes take hold of their future.

Take control of your future with Kony DBX

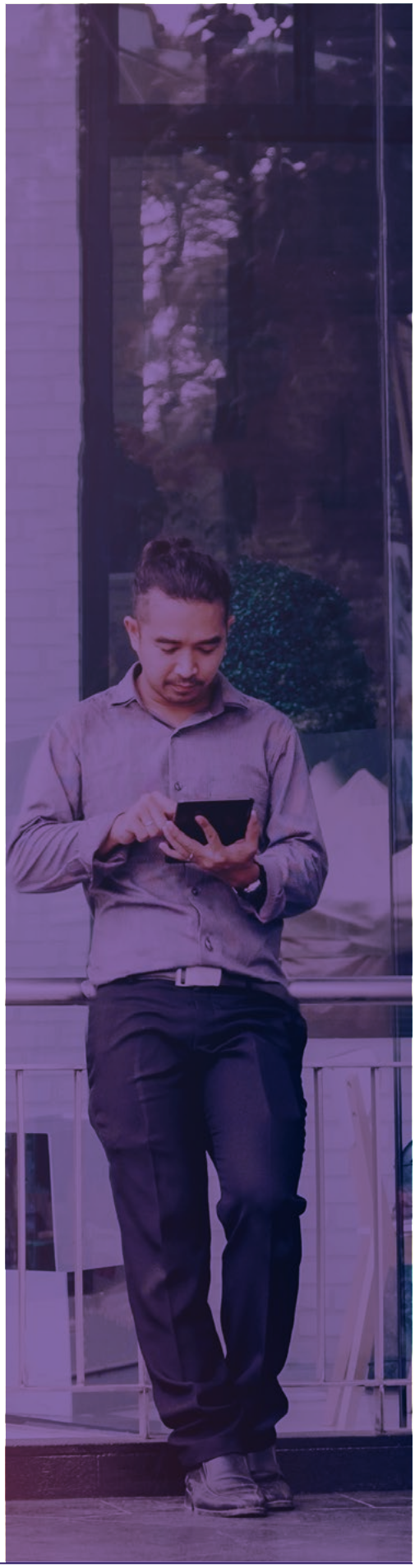
Kony empowers banks tand credit unions to transform digital banking experiences and accelerates their transformation so they can compete today. By putting banks and credit unions in control now, Kony enables them to take control of their future.

Unlike slow-moving core system vendors or rigid out-of-the-box application providers, Kony empowers accelerated deployment of a full portfolio of frictionless, personalized and secure banking applications that both attract new customers and drive long-term customer loyalty.

Kony DBX delivers a portfolio of turnkey applications for digital banking, which lowers implementation costs compared to custom development and also provides easy integration with existing core systems. Kony enables banks and credit unions to future-proof their customer relationships by enabling rapid delivery of exceptional digital banking experiences that keep pace with changing customer needs. On your journey to digital banking transformation, don't outspend your competition, out-partner them.

Have questions about how Kony's top-rated digital banking platform can help you?

Learn more at dbx.kony.com | LinkedIn | Twitter | Facebook



About Kony, Inc.

Kony is the fastest growing, cloud-based digital application and low-code platform solutions company, and a recognized industry leader among digital experience development platform providers. Since 2008, Kony has been helping organizations of all sizes stay ahead by accelerating their digital success.

Built on the industry's leading digital platform, Kony provides the most innovative and secure omnichannel applications, with exceptional user experience and app design. Kony's cross-platform, low-code solution also empowers organizations to develop and manage their own applications to better engage with their customers, partners and employees. By seamlessly leveraging and connecting applications to all types of data sources and information, Kony also enables organizations to transform their business processes and gain valuable insight. Kony was named the first place winner in CTIA's MobITs Awards in the Mobile Applications, Development & Platforms category and included on the Inc. 500|5000 list of fastest growing private companies in America.

The Forrester Wave™: Digital Experience Development Platforms, Q2 2018 recognizes Kony as a DXDP Leader with the highest rated platform solution in the Current Offering and Strategy categories.

In particular, Kony had among the highest scores for the following criteria:

- Developer Experience
- Integrated portfolio offering
- Product vision
- Road map
- Planned enhancements and
- Supporting products and services

Watch how Kony worked with Partners Federal Credit Union to help accelerate their digital transformation

https://www.youtube.com/watch?reload=9&v=LIvaqka6UCo

Step-by-step instructions for how to create a digital banking transformation roadmap that works for your company.

http://forms.kony.com/digital-banking-transformation-playbook-en-eb_asset.html