ConnectedBank
A *PSD2 solution with Capgemini Digital Platform*
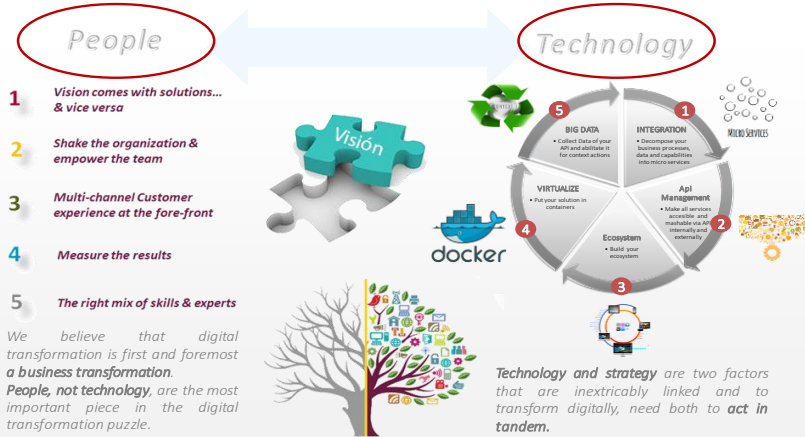
Francesco Iacoboni
Digital Platform Architect

#redhatosd

Who we are

Capgemini Italy Digital Integration Center

Enable the transformation

People

Technology

1. Vision comes with solutions… & vice versa
2. Shake the organization & empower the team
3. Multi-channel Customer experience at the fore-front
4. Measure the results
5. The right mix of skills & experts

We believe that digital transformation is first and foremost *a business transformation*. *People, not technology*, are the most important piece in the digital transformation puzzle.

Visión

BIG DATA
- Collect Data of your API and abilitate it for context actions

INTEGRATION
- Decompose your business processes, data and capabilities into micro services

MICRO SERVICES

Api Management
- Make all services accessible and mashable via API internally and externally

Ecosystem
- Build your ecosystem

VIRTUALIZE
- Put your solution in containers

Technology and strategy are two factors that are inextricably linked and to transform digitally, need both to *act in tandem*.

Cross Market

Dedicated Vertical offering per Sector

Portfolio

People
- **Architecture** to Transform
- Transformation **Governance**

Technology
- Digital **Integration**
- **Api** Power the new Economy
- Build of the **Digital Ecosystem**
- **Cloud** foundation make all accessible everywhere
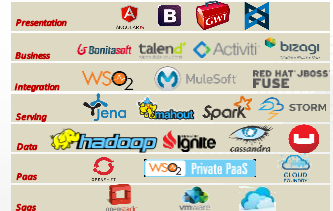- **Contextual** Action leverage on the data of your ecosystem

Customers

Professionals
- 200+ Professionals

Certifications
- Enterprise Architect
- Project Management
- Software Engineer
- Technology Experts

Ecosystem

Presentation	
Business	
Integration	
Serving	
Data	
Paas	
Saas	

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Capgemini hολος   *Effective Digital platform-building strategy*

Integration

*Decomposition of business processes data and capabilities
into well defined common organization services*

Capabilities Description	Step

The decomposition of business processes into business, informational and infrastructural services and the definition of their dependencies provide a solid basis for enterprise information and application architecture. As technology has not played a role in the decomposition of business processes into services, the resulting services are technology-independent. The degree to which services are automated may vary strongly, but this has no influence on the information architecture.

When implementing a service, it is recommend hiding both the chosen implementation technology from other interacting services as well as the degree of automation within the service. This approach provides an organization with the flexibility to change the technology itself as well as the way it is applied in business process implementations.

RED HAT JBOSS BPM SUITE

RED HAT JBOSS FUSE

Capgemini

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Api Management and Microservices

Make all services accessible and mashable via API internally and externally moving to no middleware approach

Capabilities Description

When comparing a microservices architecture and a service-oriented architecture (SOA), it is nearly impossible to gain agreement on how they are related to one another. Adding application programming interfaces (APIs) into the mix makes it even more challenging to understand the differences. Some might say that these concepts are distinct, solve their own set of problems, and have a unique scope. Others might be more generous and say that they achieve similar goals and work from the same principles. They might also say that a microservices architecture is a "fine-grained SOA" or that it is "SOA done right."

Microservices architecture is an alternative approach to structuring applications. An application is broken into smaller, completely independent components, enabling them to have greater agility, scalability, and availability. The dividing line between APIs and internal SOA services has been clear. With the maturing of API management technologies, APIs have brought about such benefits as ease of use and self-administration.

Step
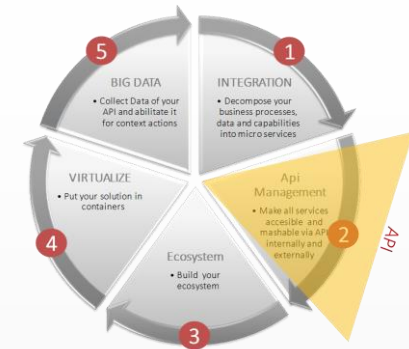
Build an Ecosystem

Use of the services to build an ecosystem with devices partner thirdy party application create a unique experience

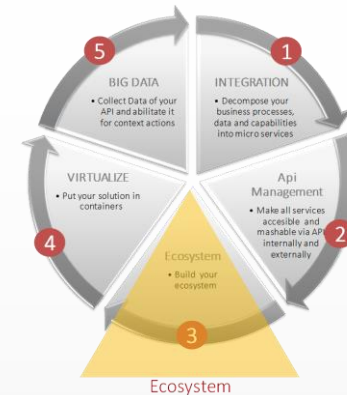| Capabilities Description	Step

Technology ecosystems are product platforms defined by core components made by the platform owner and complemented by applications made by autonomous companies in the periphery.

These ecosystems offer solutions comprising a larger system of use than the original platform owner created and solve an important technical problems within in an industry.

In successful technology ecosystems it is easy to connect to or build upon the core solution in order to expand the system of use and allow new and even unanticipated end uses.

They exist in industrial sectors, where core products in software, manufacturing or scientific machinery nourish an extended community of service organisations that operate as semi-autonomous value-added resellers.

Virtualize

Make the services available to anyone leverage on the cloud foundation

Capabilities Description

Containers help software to run while it is being moved from one environment to another — such as from a developer's computer to staging to production — and have all of the things that are needed to run a program inside the container itself. The host, runtime, code, operating system, tools, libraries, and other components are all inside an isolated environment. Everything is self-contained, so programmers will not have to worry about what flavor of Linux is being used wherever the application is being deployed at a given time. Simply put, it will work everywhere.

This practice is different from the use of a virtual machine (VM) because there is no concern about what operating system is being used. Docker makes it possible to virtualize the operating system itself along with the application and every associated component. is part of a broad move in computing towards Microservices. Microservices are small, fast software applications that run in self-contained units. The service boundaries of each component make it easy to create modular systems.

## Step
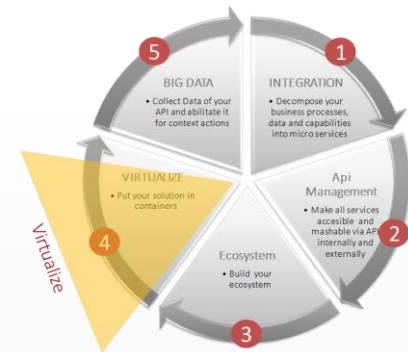
Contextual Action in micro moment

In those moments, customers expect actions to address their needs with real-time relevance

The big data hype creates the wrong perception within enterprises that collecting data is the target, while taking future insight for granted. Unfortunately, the reality is way more complex. While data collection is a mandatory initial step, the secret sauce is the suite of algorithms that can provide valuable suggestions or execute corrective actions based on historic data and real-time context. It would be wrong to assume that every business intelligence solution can make an accurate calculation based solely on regular data without adding the element of rich context to the event.

Successful context-aware artificial intelligence solution requires maximizing the context dimensions that are collected into the big data warehouse Enterprises that will adapt solutions that collect big data and use artificial intelligence to feed mobile and non-mobile users with insightful suggestions will gain a competitive advantage in the market.
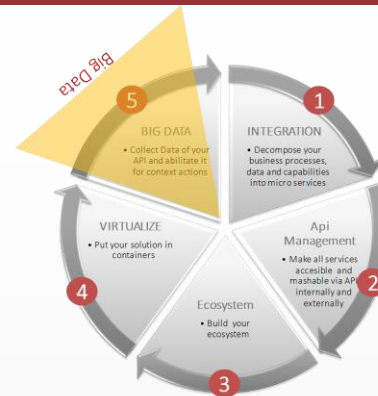
JBoss Data Grid

RED HAT® JBOSS® BRMS

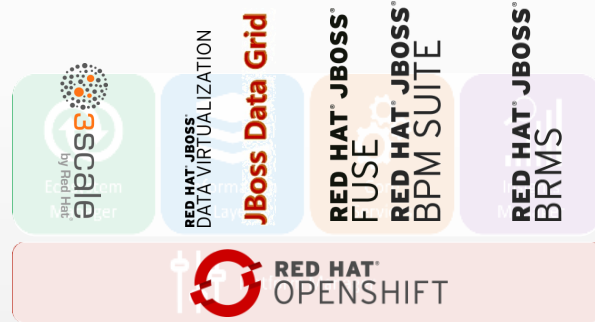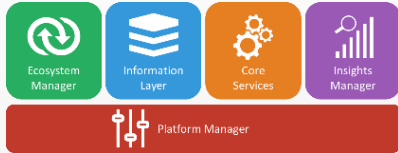**RED HAT® JBOSS® DATA VIRTUALIZATION**

Capgemini ho*λος* powered by RedHat

A digital platform is a technology-enabled business model that creates value by facilitating exchanges in a network

Capabilities Description

First, exceptional customer experiences, with a pronounced shift from reactive to proactive engagement, typically driven by data analytics. **Second,** continual product enhancements, with increasing information content as part of the product experience. **Third,** collaborative innovation with partners that might have once been considered competitors. And finally, dynamic leadership to guide the organization through dramatic cultural change. **While digital platforms might be technically sophisticated, there's a strong case for conceptual simplicity and elegance.**

Ecosystem Manager · Information Layer · Core Services · Insights Manager · Platform Manager

3scale by Red Hat · RED HAT JBOSS DATA VIRTUALIZATION · JBoss Data Grid · RED HAT JBOSS FUSE · RED HAT JBOSS BPM SUITE · RED HAT JBOSS BRMS

RED HAT OPENSHIFT

Effective platform-building is a business strategy that's supported by technology, not the other way around

Capgemini h*όλος*

In the digital economy, the whole is more important than the individual pieces. A successful digital enterprise is one whose departments and functions are more connected and integrated than those that came before.

# Capgemini hολος for PSD2: ConnectedBank

PSD2 Directive Overview

The financial service market will in the coming years greatly impacted by regulatory and technology

Model Change

In 2015 the European Parliament passed the Revised Payment Services Directive (PSD2).

- The **PSD2 will be implemented into national legislation by January 2018** 2 major components of PSD2 impact banks:
- The **Access to Accounts (XS2A),** which requires banks to share payment account information with Third Party Providers (TPPs),
- The **Strong Customer Authentication (SCA),** which requires 2-factor authentication for accessing banking data or initiating payments
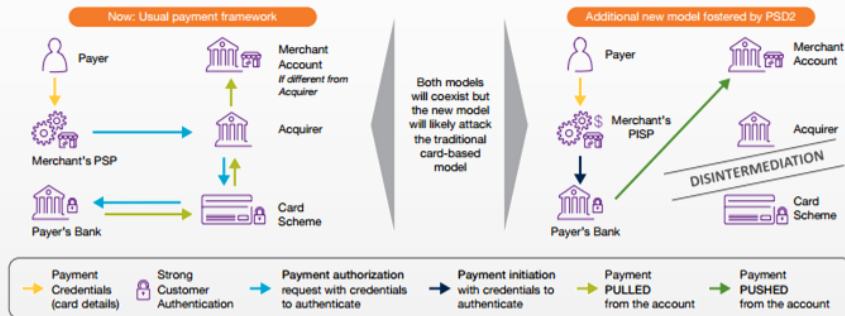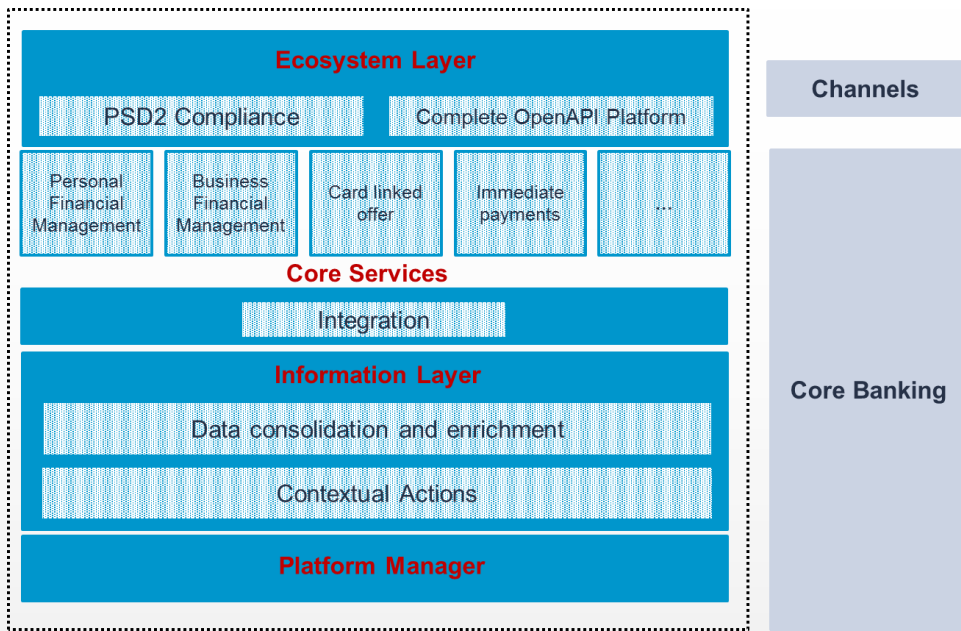

Main Impacts
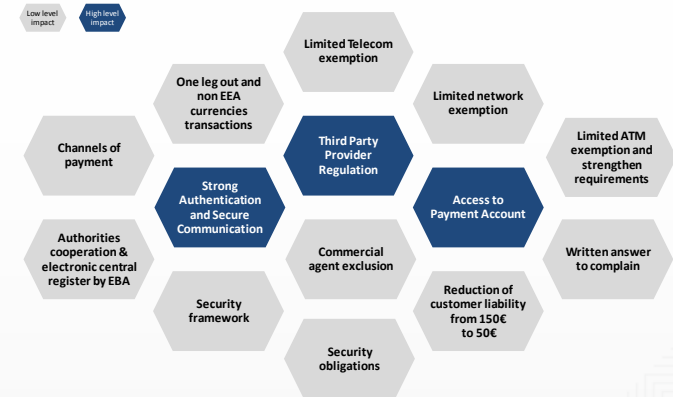
Impacts of PSD2 go well beyond the compliance. By requiring banks to provide access to third parties, PSD2 also imposes to banks to create an infrastructure to integrate third parties into their systems. This will have a deep impact on the different actors which will result in a transformation of the whole industry.
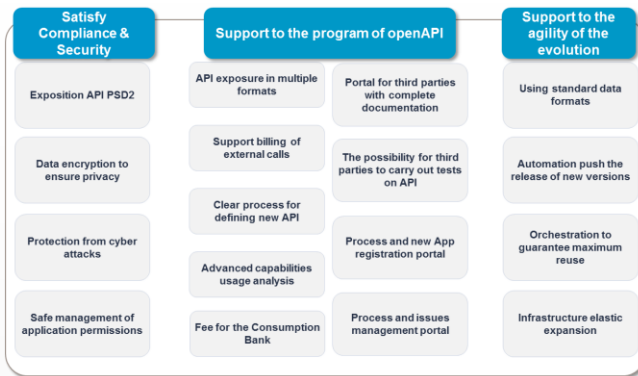
PSD2 Solution Logical view

*Applying ho**λος** for this scenario to enable the open banking capabilities a digital banking transformation accelerator*

Logical View mapped on h**ολος**

Ecosystem Layer

PSD2 Compliance | Complete OpenAPI Platform

Personal Financial Management | Business Financial Management | Card linked offer | Immediate payments | ...

Core Services

Integration

Information Layer

Data consolidation and enrichment

Contextual Actions

Platform Manager

Channels

Core Banking

Requirements Coverage

Satisfy Compliance & Security | Support to the program of openAPI | Support to the agility of the evolution

Exposition API PSD2 | API exposure in multiple formats | Portal for third parties with complete documentation | Using standard data formats

Data encryption to ensure privacy | Support billing of external calls | The possibility for third parties to carry out tests on API | Automation push the release of new versions

Protection from cyber attacks | Clear process for defining new API | Process and new App registration portal | Orchestration to guarantee maximum reuse

Safe management of application permissions | Advanced capabilities usage analysis | Process and issues management portal | Infrastructure elastic expansion
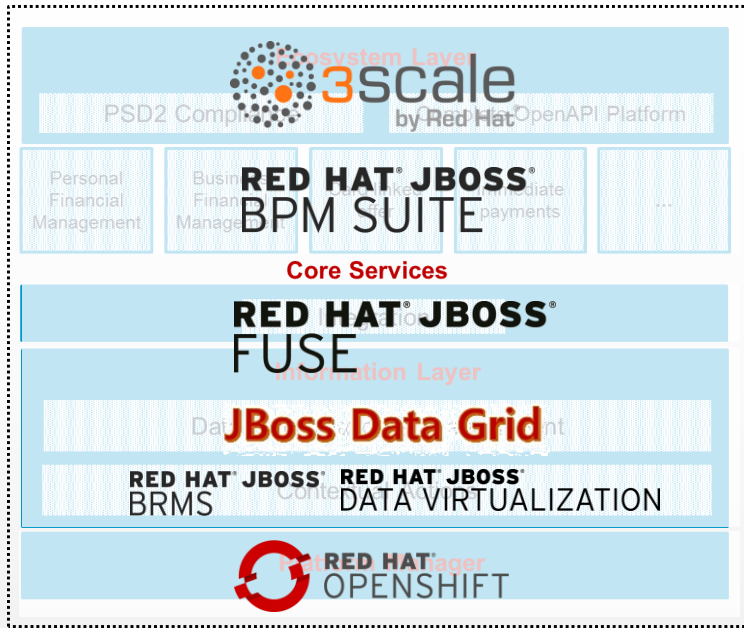
Fee for the Consumption Bank

PSD2 **hολος** Solution, is a ready to install package developed by Capgemini that leverage on cloud components to deliver functional and non-functional capabilities in a very flexible, economic, scalable and time conscious way.

PSD2 Solution Application view

*Powered by Red Hat products PSD2 ho**λος** is a ready to install package to cover the regulation and the angle stone for a new digital approach*

Application View powered by RedHat

Ecosystem Layer

3scale by Red Hat

PSD2 Compliant OpenAPI Platform

Personal Financial Management

Business Financial Manage...

Immediate Payments

...

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Core Services

RED HAT JBOSS FUSE

Information Layer

JBoss Data Grid

RED HAT JBOSS BRMS

RED HAT JBOSS DATA VIRTUALIZATION

RED HAT OPENSHIFT

Channels

Core Banking

Process supported by *PSD2 h**ολος***

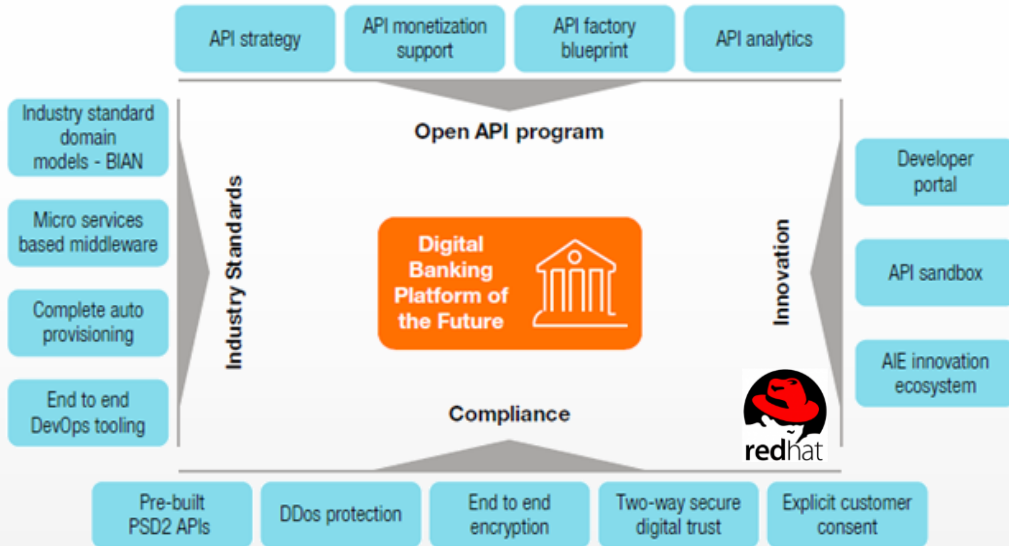| Process	Level of acceleration	Accelerator features
PSD2 API publishing	◑	Many different features: 2,3,4,5,...
New VA API publishing	◔	11: Microservices oriented Design guidelines
New Partner registration	◑	1: Description and usage instructions for each API for a quicker developer portal v1
New Application creation	◔	10: Cloud based per developer dynamic or mock-up sandbox
User App Authorization	◑◑	6: Complete or Sample rule engine for user-application authorization management (OAuth & SCA levels)
App API call authorization	◑◑	7: Complete or Sample rule engine for application-account level access check (OAuth & SCA levels)
Business Monitoring & Billing	◔	8: Monitoring dashboard samples
BigData Analytics	◔	12: Archiving guidelins for JSON streams on non relational DBs
IT TTM, Monitoring, SLA and cost control	◑	9: Automatic Testing & Load testing best practices; 13: Solution telemetry guidelines

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Capgemini and RedHat PSD2 Solution is designed to dramatically lower the cost of compliance by accelerating strategy definition, readiness assessment, and implementation capabilities including new forms of collaboration with a whole ecosystem of business partners.

Capgemini

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After PSD2: The ConnectedBank

Bringing a holistic API strategy, we help banks prepare for Open Banking, leapfrog to the Open API economy, and manage an open ecosystem

An innovation will get traction only if it helps people get something that they're already doing in their lives done better.

The development of the infrastructure to allow collaboration among Banks and Fintech requested by PSD2 is just the start of the change. Banks will have to rapidly develop strategies to compete in this new scenarios.