API Economy and Business Strategy

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What do the Following Have in Common?

Coffee company goes digital, builds $1.6B payments business, drives 21% of transactions

Car company offers connected car, improves driving experience, sells vehicle data to partners

Bank spurs innovation by offering hackathons, integrates rewards program with retailer partners

Digital disruption fueled by API’s
Digital disruption is requiring companies to find new ways to innovate and reach new customers.
What is a Business API?
- A Business API is a **public persona** for an enterprise; exposing defined assets, data or services for public consumption
- A Business API is **simple** for app developers to use, access and understand
- A Business API can be easily invoked

What Value Does a Business API Provide?
- Extends an enterprise and opens new markets by allowing external app developers to easily leverage, publicize and/or aggregate a company’s assets for broad-based consumption

What “assets, data or services” are exposed via a Business API?:
- Product catalogs
- Store listings
- Order status
- Inventory
- Social interaction
Why APIs? Why Now?
Multi-speed Integration

Scaling your institutional **knowledge and processes**

Speed and agility to drive **innovation and growth**

CIO roles

**Enterprise**

CIO

Integration Architect

Integration Developer

Developer

LoB

Data Scientist

LoB roles

**Digital**
API Economy Supply Chain

Business Assets
Exposable Enterprise Services

Web APIs
APIs providing commercial access to the Business Assets

Developers
Use APIs to create Apps

Apps
Use backend services through Web APIs

End Users
Increase revenue by using Apps with Business Assets

The API Economy
Where companies [providers] expose their (internal) digital business assets or services in the form of (Web) APIs to third parties [consumers] with the goal of unlocking additional business value through the creation of new assets
API Economy
Mobile App Assembly

IBM APIs
- Watson
- Cloud Provisioning
- Xfinity

Insurance APIs
- Life
- Home
- Auto
- Claims

Bank APIs
- Mortgage
- Online Payment
- Loans
- Account Query
- Calculators

Auto Dealer APIs
- Price
- Availability
- Location
- Configuration

Map Provider APIs
- Address
- Locator
- Weather
- Traffic

Mobile App Assemblers
Developers & Partners

New Customers

Providers

Consumers
Typical API Audiences

Private, Internal APIs

Protected, Open-To-Partner APIs

Public, Open-To-All APIs
## Public API Examples – Multiple Industries

<table>
<thead>
<tr>
<th>Industry</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Finance</strong> – Trading Economics API</td>
<td>Provides its users with access to economic data for 196 countries including historical data for more than 300,000 economic indicators, exchange rates, stock market indexes, government bond yields and commodity prices. The Trading Economics API allows users to make calls to get a list of countries, get a list of indicators, get a matrix of countries, get indicators by country, and get indicators by category.</td>
</tr>
<tr>
<td><strong>Financial Services - StrategYard</strong></td>
<td>is an investment strategy trial service that allows individuals to test and evaluate potential investment strategies in a simulated environment. The site allows users to work create, test, and delete multiple strategies, see performance metrics and charts, and automate trading strategies.</td>
</tr>
<tr>
<td><strong>Banking – BankImport API</strong></td>
<td>Provides users with a single place to track their financials over several accounts from different banks. The BankImport API allows developers to automatize the processing of incoming and outgoing money, providing direct access to transactions, bank accounts, and settings.</td>
</tr>
<tr>
<td><strong>Insurance – Insured Rating</strong></td>
<td>enables users to develop a rate plan reflecting risk levels posed by prospective customers. Quote requests can then be made via the Insured Rating API which return coverage and premium information. The data generated helps to manage insurance product offerings and provide accurate rate quotes matched to determinants of risk.</td>
</tr>
<tr>
<td><strong>Energy – EcoSCADA API</strong></td>
<td>Used to monitor energy consumption and identify wasteful energy use. EcoSCADA is useful for establishing benchmarks for energy usage across multiple buildings and monitoring their performance against those benchmarks. The service records data on gas, electricity, and water consumption as well as other relevant factors. This data is stored in EcoSCADA’s online database where it can be accessed by users directly or via API.</td>
</tr>
<tr>
<td><strong>Telecom – StreamWIDE Call Screening API</strong></td>
<td>Provides carrier-grade Value Added Services (VAS) to mobile service providers. One of these services is Call Screening, which allows users to filter calls using acceptance and denial lists, time-based filters, behavior-based filters, delays on incoming or outgoing communications, and more.</td>
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<td>Retail – WishClouds</td>
<td>is a social shopping app that lets people know when products go on sale or change prices. The WishClouds API allows developers to access and integrate the functionality of WishClouds with other applications and to create new applications. Some example API methods include retrieving lists of retailers, retrieving products by lists or categories, and managing account information.</td>
</tr>
<tr>
<td>CPG – Indix</td>
<td>provides information and intelligence about products. Indix provides a Big Data and SaaS tool to support brands and retailers to access product data including descriptions, images, and almost-realtime pricing information. The Indix API allows developers to access and integrate the data and functionality of Indix with other applications and to create new applications.</td>
</tr>
<tr>
<td>Healthcare – BlueButton</td>
<td>is a service that allows people in the U.S. to access their own medical records online in order to track their health and check reports for accuracy. Not all doctors or medical service providers make data available through Blue Button, but the number of providers that do is increasing. Health data can be shared with doctors, specialists, or other trusted persons.</td>
</tr>
<tr>
<td>Health – Fitbit</td>
<td>to create tools and application that access Fitbit services and data. Users can then authenticate an external website/application to use their Fitbit data, and use the external application to push data to Fitbit.</td>
</tr>
<tr>
<td>Government – Consumer Financial Protection Bureau Complaint DB API</td>
<td>Allows applications to retrieve metadata about the dataset and views, query for views matching specified search criteria, or retrieve specific rows of data from the dataset and views.</td>
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<tr>
<td>Government – Census Reporter API</td>
<td>Accessing and making sense of U.S. Census data. Information is divided into categories, and users can search for information by topic or keyword. Each data point comes with context to show how it fits into the larger picture of its state and country. Census Reporter offers visualizations of its data in the form of maps and charts.</td>
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API Economy Drivers

- **Speed**
  - Digital Applications
  - Enterprise Applications

- **Reach**
  - Finding new customers

- **IoT**

- **Domains**
  - B2B
  - B2C
  - Insurance
  - Retail
## The Business of APIs - Monetization

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<th>Developer Gets Paid</th>
<th>Indirect</th>
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<tr>
<td>• Drives Adoptions of APIs</td>
<td>• Business Asset must be of high value to the Developer</td>
<td>• Provides incentive for developer to leverage web API</td>
<td>• Use of API achieves some goal that drives business model.</td>
</tr>
<tr>
<td>• Typically low valued assets</td>
<td>• For example, marketing analytics, news,</td>
<td>• Ad placements</td>
<td>• E.g. Increase awareness of specific content, or offerings</td>
</tr>
<tr>
<td>• Drive brand loyalty</td>
<td>• Capabilities such as credit checks</td>
<td>• Percentage of revenue sold product or services</td>
<td></td>
</tr>
<tr>
<td>• Enter new channels</td>
<td></td>
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**Example:**

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<td>Facebook Login API provides free authentication for any Web / mobile app</td>
<td>IBM Bluemix Developer Cloud – No cost trials, pay per use, scale up and down</td>
<td>Google AdSense APIs pay developers who include advertising content into apps</td>
<td>eBay Trading APIs offer developers access to trading services extending the reach of listings and transactions</td>
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**API Monetization Understanding Business Model Options**
New approach to Innovation: Hackathons, Developer Challenges

- Looking to transform the Digital Banking landscape:
  - Innovative mobile solutions & IoT/Wearables
- 40,000 API calls from more than 100 different groups
- Prototype APIs allowing Developers to interact with fake accounts
  - Account Details (APR/Interest Rate, Available Credit, Payment Due Date, etc)
  - Customer Information (Name, Addresses, Phone Numbers, Email Addresses)
  - Payment Details (Scheduled payments, payment history, etc)
- IBM API Management on Cloud provided Developer Portal & secure access to APIs
- [https://citimobilechallenge.ciondemand.com/citimobilechallenge/pub/#/apis](https://citimobilechallenge.ciondemand.com/citimobilechallenge/pub/#/apis)

- 48 hours, 25 developers, over 400,000 API calls
- Impressive 13 pieces of Intellectual Property for ASDA
- Winning Ideas
  - “George Go!” - search application using multiple descriptors
  - “Clothing Shaker” - create your outfit by shaking your device
  - “Virtual Fitting Room” - use of Xbox Kinect and APIs
- IBM API Management on Cloud provided Developer Portal & secure access to APIs
- [https://www.youtube.com/watch?v=biTvngHl5x8](https://www.youtube.com/watch?v=biTvngHl5x8)
How can the API Economy help you?

• **Mobile (internal dev)** –
  - What data/transactions would your own mobile apps need?
  - Is there data that is generic (e.g. business locations, rates, etc.)?
  - Is there data that is specific to existing customers that should be accessible via your app?
  - What features of the mobile device (e.g. GPS, camera) might be useful in conjunction with your APIs?

• **Partnering** –
  - Is partner on boarding a long difficult process? Would self registration of partners be of value (e.g. more partners, wider geographic coverage)?
  - What data/transactions do you share between yourself and your partners?

• **Public Composite Apps** –
  - What apps might others write that could use your data/transactions?
  - If there were a comparison app for you vs. your competitors would you want to be listed as an option?
  - What other industry sales might also use your products (e.g. car purchase needs bank loan)?
  - Think Mash-ups – what other APIs might make sense with yours? Mapping? Social?
How can the API Economy help you?

• Social / Big Data –
  • How do your systems interact with social media? Can you spot trends in social media and raise alerts or take action?
  • Can you gain insight on your brand and your competition via social media?
  • Can you do real-time analytics combining current customer status/behavior and history?

• Device integration/wearables –
  • How are you positioned to integrate the next UI technology (after Mobile/Tablets)?
  • Does your company deal with devices (e.g. cars, appliances, sensors/meters)? What scenarios can apply to the device (e.g. needs repair/supplies, needs to send status info, interaction between device and xxx)?

• Valuable Data –
  • What data do you collect on your clients?
  • Can your data identify market segments that would be of interest to a non-related industry? (e.g. expensive cars are purchased in this neighborhood, lots of child-related purchases occurring in this neighborhood).
What API Use Cases Can You Think Of?

https://developer.ibm.com/api-management/2015/11/01/api-use-cases-for-every-industry/
Business Strategy

Why are you thinking of doing APIs?
What is/are the **Business** goal(s)?

- Financial?
- Partnering?
- Internal Mobile Development?
- Time to Market?
- Competitive Pressure?
- Market Share?
- Innovation?
- Other ideas?
Organization Structure

Need a strong Core Team and Business leader to own the success of the API initiative
“Just Enough” Governance

For APIs, focus is on speed and time to market. A light weight Governance model is required.

Governance model will vary based on the control of the API consumer audience with increased governance the less the API consumer is controlled.

- **Internal:**
  - Lighter concern on API identification, versioning, security (use internal)
  - Monetization = Chargeback
  - Entitlement enforcement usually soft

- **Partner:**
  - API identification,
  - Versioning plan,
  - Security,
  - Privacy
  - Monetization – maybe?
  - Entitlement enforcement soft or hard

- **Public:**
  - API identification,
  - Versioning plan,
  - Security,
  - Privacy
  - Legal
  - Monetization
  - Entitlement enforcement more often hard

**Always required:**
- Communication
- Measurements
Communication

APIs need to be marketed to the target audiences.
- Do lunch and learns for internals
- Use your partner channel communications
- Publicize external APIs on common sites (e.g. Programmable web).
- Run Hackathons, attend/run events
- Communicate internally to executives the status of the initiative and the achievement toward the initiative goals.

Tailor the message to what the audience needs to know.

Communication drives the value and helps keep the funding and expansion of the initiative.
Challenges with Multi-Speed IT

Scaling your institutional knowledge and processes

Speed and agility to drive innovation and growth

CIO roles

Enterprise

Digital

LoB roles
Challenges with Multi-Speed IT

- What business outcome is expected?
- How will business & IT roles be impacted?
- How to manage the consumption of APIs across the enterprise?
- How to provide self-service for internal & external developers?
- How to enforce security at runtime?
- How to throttle and provide controlled access?
- How to introduce change with new versions?
- How do I know who is using my service and how much?
- How much should I charge for access to my service?
IBM API Connect: Simplified & Comprehensive API foundation

What is API Connect?
An integrated creation, runtime, management, and security foundation for enterprise grade API’s and Microservices to power modern digital applications

What does API Connect provide?
• Automated, visual and coding options for creating APIs
• Lifecycle and governance for APIs, Products and Plans
• Node.js and Java support for creating Microservices
• Integrated enterprise grade clustering, management and security for Node.js and Java
• Access control over API’s, API Plans and API Products
• Advanced API usage analytics
• Customizable, self service developer portal for publishing APIs
• Policy enforcement, security and control
API Connect Powers Digital Applications

Manage and Secure existing or System APIs, regardless of back end language or technology

Create, Run, Manage and Secure new APIs

Create, Run, Manage and Secure new Microservices in Node.js or Java
API Connect: Flexible Packaging

Deployment
- Deploy where it’s most convenient for you
  - Deploy on IBM Bluemix
  - Deploy to 3rd party clouds
  - Deploy on-premises

Licensing
- Pay only for what you need
  - Subscription (API calls/month)
  - Perpetual (per PVU, unlimited API calls)

Used mixed deployments for greater flexibility:
- Deploy an API from on-premises development environments to off-premises staging/production environments
- Subscription entitlements (API calls/mo) can be split over multiple API Connect instances
API Connect: Component View

For API owners, developers, business users (API providers)

For developers (API consumers)

Enforce runtime policies to secure & control API traffic

For operations, unified ops & mgmt for Node & Java runtimes

For developers to create, test APIs locally & DevOps to automate API tasks

Execute API & Microservices business logic in Node & Java

Developer Portal

API Manager

API Gateway

Developer Toolkit

Collective Controller

Microservices Compute Runtime
API Connect: Topology View

- **Developer Portal**
- **API Management Node**
- **Collective Controller**
- **Microservices App Computer Runtime**
- **API Gateway**
- **Developer Toolkit**

- **External App Developer**
- **Partner App Developer**
- **Internal App Developer**

- **Mobile & Web Apps**
- **Business Partner Apps**
- **Enterprise Internal Apps**
- **Internet of Things**

- **Data Store**
- **Cloud Service**
- **Application Server**
- **ESB / Middleware**
- **z System / Legacy Apps**

- **Microservices Traffic**
- **API Traffic**
One portfolio to meet all your digital applications’ needs

**DataPower Gateway**
High performance gateway to secure multi-channel traffic across mobile, IoT, cloud, web, B2B, SOA and APIs

**MobileFirst Platform Foundation**
Essential mobile backend services pre-integrated with advanced safeguards, management and analytics

**API Connect**
Create, Run, Manage & Secure new or existing APIs and Microservices in a hybrid deployment with Node.js and Java to power modern digital applications

Use one or all of these components together based on project needs
IBM API Economy Journey Map
Charting the evolution of Digital Transformation

5 stages of maturity
- Discovering & Experimenting to Gain Market Understanding
- Implementing Targeted Market Solutions
- Expanding to Full Digital Market Solutions
- Innovating with Predictive Transformation
- Learning Using an Unstructured Approach

With 2 perspectives
- Business
- Technology

Across several dimensions
- Business approach
- Management
- Architecture
- Information & content
- Process & methods
- Infrastructure

And several factors for each dimension
- Business drivers, perspective, industry integration, monetization
- Organization, audience, communication, measurements
- Style, application architecture, configurability, variability
- Scope, exposure, content management, Taxonomy
- Lifecycle, API Identification, dependency management, Devops
- QoS, deployment, security, availability, performance, scalability
Services & Training to Ease Your API Economy Journey

Workshops and Service Engagements

New Open API Initiative
\textit{IBM is working to ensure APIs can be open & accessible}

• The Open API Initiative (OAI), a Linux Foundation Collaborative Project
  • To address the challenges of standardizing and documenting the APIs that are driving today’s API economy
  • Based upon the widely adopted Swagger specification and format (donated by SmartBear), for open collaboration and governance via a broad community of vendors and users
  • The OAI goal is a vendor-neutral, portable and open specification for providing technical metadata for RESTful APIs
Investments in Industry Ecosystems

Banking

BIAN REST APIs

• IBM is working with the Banking Industry Architecture Network (BIAN) to create common IT standards for the banking industry, specifically:
  • IBM created common banking API definitions based on BIAN standards.
  • IBM has created REST APIs based on BIAN standards so banks won’t have to start from scratch to create their APIs. This move will also help standardize application components and simplify and accelerate the creation of applications.
  • REST APIs are on a portal in IBM Bluemix at ibm.biz/bianapiportal

Healthcare

HL7 & FHIR

• IBM is working with HL7 standards organization on the Fast Healthcare Interoperability Resources (FHIR) API standard for exchanging healthcare information electronically.

  • IBM is creating a sandbox for developers to develop and test FHIR APIs on IBM Bluemix.

“"We are pleased to be working with IBM to promote banking industry standards and encourage collaborative, innovative solutions for banks... IBM’s sharing of banking industry APIs – with the additional operational value from IBM’s Banking Industry models – will accelerate development, propel adoption and set the stage for enhanced business benefits and future growth.”

– Hans Tesselaar, Executive Director, BIAN

“The HL7 Organization looks forward to the innovative results we expect from IBM to support the development of the FHIR (Fast Healthcare Interoperability Resources) standard. IBM brings a wealth of experience in healthcare enterprise IT, and shares HL7’s goal of driving FHIR to be pervasive in the healthcare industry. Our work together will help shape the FHIR standard of the future.”

– Dr. Charles Jaffe, CEO, HL7

API Harmony – Building applications in the Cognitive era

Matchmaking APIs and creating “smarter” developers – IBM BlueMix Labs

Developer

App

API

App starts to get built

More APIs are added to the app

API bindings are enabled for platform, language

I am looking for a messaging API

Cool, I would like to add payments

Nice. How is authentication handled? Which package is often used for my lang.?

Recommend the most relevant APIs

Recommend the most compatible APIs

Recommend development artifacts, best practices, data handling, code aids, etc.

Automatically load or deploy artifacts ready for use

API Harmony

Advisor

Use

API datasets

Development artifacts

The best place to find, learn about, and use web APIs.
IBM’s own API journey with Watson

The Watson that competed on Jeopardy! in 2011 comprised what is now a single API—Q&A—built on five underlying technologies.

Since then, Watson has grown to a family of 28 APIs.

By the end of 2016, there will be nearly 50 Watson APIs—with more added every year.
"IBM is moving faster than others to enhance its solution’s capabilities. Among the vendors in the Q3 2014 Wave evaluation, IBM has made the broadest and deepest improvements to its solution."

Full report available on Forrester website at:
Worldwide API Management 2015 Share Snapshot

Source: September 2016, IDC #US41701915
APIs #madewithIBM

Grow and scale your solution with Industry leading API Gateway
  • IBM’s API gateway is used by over 2200+ customers worldwide
  • Unmatched- Performance & Scale: Majority of big US & European Banks & Insurance firms rely on this platform

Create, Run, Manage, and Secure APIs
  • IBM is the only vendor to supply a single integrated offering for end-to-end API lifecycle

APIs are the glue for Mobile and SOA
  • IBM is the leader in SOA, Integration and Mobile
  • A unified platform for Mobile App Management & API Management using a single gateway with integrated app & API analytics
  • Investing heavily on API centric IoT, Bigdata Analytics, Cloud and Integration

An ecosystem we have built that you can depend on
  • Expand your API reach to millions of developers instantly through the Bluemix & API Management Integration

Driving Innovation in API Management & API Economy
  • API Harmony: Not just an easy discoverable API catalog but includes API recommendations & best practices powered through analytics
  • Single click to discover services from legacy & core applications

Eat our own dog food
  • We have put our neck on the line: Bluemix, Watson, ibm.com leverages the same API gateway and API Connect solution
Experience IBM API Connect for Free

GET /apicheck?price-free

- "create": "APIs in minutes",
- "run": "APIs and microservices based on Node.js and Java",
- "manage": "API lifecycle",
- "secure": "APIs via programmable micro gateway"

Laptop
Developers: Create and run APIs on your laptop

IBM Bluemix
Developers, Admins, Business Users: Create, run, manage and secure APIs on Bluemix

Key Capabilities

Create
Organizations can create in minutes high-quality, scalable and secure APIs for enterprise systems such as application servers, databases, enterprise service buses (ESBs) and mainframes.
Try on your laptop, on IBM Bluemix or hybrid cloud.

API developer community site
on APIs,
API economy, API Connect

Includes
✓ API community forum
✓ API events
✓ Best practices blog
✓ Videos

developer.ibm.com/apiconnect
Alan’s API Social Interactions…

Videos and Podcasts:
- Alan Tells All About APIs
- Introducing API Connect
- APIs and SOA – Better Together
- IT Uncensored – What is API Management?
- Healthcare and APIs
- Banking on APIs – part 1
- Banking on APIs – part 2
- PSD2: Banking and the API Economy
- API Connect Video Series: API Use Cases
- API Connect Video Series: API Economy Best Practices
- API Connect Video Series: IOT - Focus on Security
- API Connect Video Series: API Monetization
- API Connect Video Series: APIs and Services What’s the difference?
- API Connect Video Series: API Economy - What's happening and where is this going? (Part 1)
- API Connect Video Series: API Economy - What's happening and where is this going? (Part 2)

Blogs:
- Becoming a Digital Business – Is API Management Enough?
- Internet of Things APIs – Focus on Security
- IBM API Connect: Powering the New Channel
- API Industry Standards and Regulatory Requirements
- The API Economy Journey Map: How Are You Doing?
- API Economy Journey Map FAQs
- How To Get To Two Speed IT
- Positioning APIs and Services – Let’s End the Confusion!
- Organization and Governance of API Initiatives
- Identifying Good Candidates for APIs
- API Economy Drivers
- I Already Have Partners Accessing My Services. Why Should I Use APIs?
- Don’t be Afraid of Public APIs
Alan’s API Social Interactions…

Industry use case blogs:
- API use cases for every industry
- APIs for Aerospace and Defense Blast Off
- What’s driving APIs in Automotive?
- Banking on APIs
- Drilling into API usage in Chemical and Petroleum
- APIs for CPG – Managing Bathrooms to Supply Chains
- Learning your ABCs using APIs – APIs in Education
- No Shock the Electronics Industry is Charged Up about APIs
- Financial Services – Planning to Retire on APIs
- Government APIs – Do More with Less
- Healthcare APIs – A Cure to Accessing Healthcare Systems
- Healthcare Providers – A Prescription for APIs
- APIs for Insurance – Avoid the Risk of Falling Behind
- APIs: A Prescription for Challenges in Life Sciences
- Media and Entertainment – Hooray for APIs!
- Unearthing API Use Cases in Metals and Mining
- Today’s Special: APIs for the Retail Industry
- ReshAPIng Cities – Using APIs to Build Smarter Cities
- Telecom and APIs – Now We Are Talking
- APIs are Taking Off In Travel and Transportation
- APIs for Utilities – Let’s Do Something About the Weather!

White Paper Downloads:
- API Economy Best Practices (+ Blog)
- API Monetization Understanding Business Model Options (+ Blog)
- Identifying API Use Cases: Banking (+ Blog)
- Identifying API Use Cases: Telecommunications (+ Blog)
- Identifying API Use Cases: Retail (+ Blog)
- Identifying API Use Cases: Government
- Identifying API Use Cases: Automotive
- Identifying API Use Cases: Insurance
- Identifying API Use Cases: Healthcare / Life Sciences
- Identifying API Use Cases: Travel and Transportation
Questions?