IoT Platforms in Europe (preliminary results)

Webinar, July 6, 2017
Agenda

How many IoT platforms do we see in the European market?

What are the main challenges and options for clients?

What is our approach for the PAC INNOVATION RADAR?

How do we see the provider landscape today?

What are our next steps?
How many IoT platforms do we see in the European market today?
No real consolidation, but the big players acquire the smaller ones

Acquisitions of IoT platforms:
- Software AG acquired Cumulocity in 2017
- Intel integrated Windriver in 2017 (already acquired in 2009)
- SAP acquired plat.one in 2016
- Microsoft acquired Solair in 2016
- AWS acquired 2lemetry in 2015
- Autodesk acquired seecontrol in 2015
- PTC acquired Thingworx in 2013/14
PAC reviewed 60 IoT platforms in Europe and evaluated 30 – the number of platforms depends heavily on your definitions and scope

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<thead>
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<th>Platform</th>
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<td>Amazon Web Services</td>
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<td>Bosch SI</td>
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<td>GE Digital</td>
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<td>GreenWave Systems</td>
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<td>Windriver (Intel)</td>
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<td>Xively (LogMeIn)</td>
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IoT platforms are difficult to define as they are a collection of existing functions

<table>
<thead>
<tr>
<th>Top level</th>
<th>Overview</th>
<th>In detail</th>
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<tbody>
<tr>
<td><strong>Backend</strong></td>
<td></td>
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<tr>
<td>IoT application management</td>
<td>Application integration (iPaaS)</td>
<td>ERP, CRM, business process management</td>
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<td></td>
<td>Application development (aPaaS)</td>
<td>Developer space for analytics, visualization and application integration</td>
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<td></td>
<td>Data management &amp; analytics (dPaaS)</td>
<td>Storage, DB, analytics tools, AI</td>
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<td>Visualization &amp; event management</td>
<td>Dashboards, apps, event processing</td>
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<tr>
<td>IoT device management</td>
<td>Device deployment and lifecycle management</td>
<td>Deployment, access management, SW updates of embedded SW</td>
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<td></td>
<td>Security</td>
<td>Device control, security updates</td>
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<td></td>
<td>Connectivity</td>
<td>Connectivity management via mobile network, Bluetooth, WiFi, Ethernet etc.</td>
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<td>Device connectors</td>
<td>Data stream conversion</td>
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<td><strong>Edge</strong></td>
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<tr>
<td>IoT gateway</td>
<td>IoT gateway</td>
<td>Data stream conversion, data filtering, edge analytics</td>
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<tr>
<td>IoT device</td>
<td>Embedded SW</td>
<td>Operating system (for application dev.), client SW (for security &amp; connectivity)</td>
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</table>
PAC excluded system integrators with their own IoT platforms and evaluated independent IoT platforms only.

Business models around IoT platforms

- System integrators
- IoT platforms
- System integrator & IoT platform
## PAC excluded IoT platforms for several reasons

<table>
<thead>
<tr>
<th>Reasons for exclusion</th>
<th>Excluded IoT platforms</th>
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<tbody>
<tr>
<td>IoT system integrators (even when they have an own IoT platform)</td>
<td>Atos, Accenture, Capgemini, Device Insight, Axoom, T-Systems, Indian providers, ABB, HPE, Hitachi, QSC</td>
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<tr>
<td>Application management without any device management capabilities</td>
<td>Salesforce</td>
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<tr>
<td>Limited to B2C (smart home)</td>
<td>Apple</td>
</tr>
<tr>
<td>Device or connectivity management without any application management</td>
<td>Jasper</td>
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<tr>
<td>Not visible in Europe today</td>
<td>AT&amp;T, Toshiba</td>
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</table>
What are the main challenges and options for clients?
Main challenge for clients: Finding ONE IoT platform that fits all of their IoT use cases (today and in the future)

Challenges for clients in selecting the right IoT platform:

• Find one IoT platform that addresses all of their IoT use cases
  • IoT starters: directly from the beginning
  • Advanced IoT users: consolidate already existing IoT use cases
• Find a partner for a long term relationship (trust, product roadmap, commitment, financial stability, partner ecosystem)
• Find a easy-to-use platform (totally integrated)
• Avoid any vendor lock-in
• All IoT platforms have sweet spots and limitations
Don’t wait and see – start with different IoT platforms now

You have 2 options:

• Make some trade-offs and identify ONE IoT platform which is the best possible fit for your set of IoT use cases

• Group your use cases and start with different IoT platforms for each group – consolidate later

Wait and see is not an option!

PAC’s recommendations:

• Start with different IoT Platforms and think of consolidation in the future

• Use our use-case-specific benchmark, PAC INNOVATION RADAR for IoT Platforms, as a starting point for platform selection
What is our approach for the PAC INNOVATION RADAR?
Approach: clear user perspective through use cases

Use cases

1. Service providers who manage many different (also retrofitted) IoT devices and integrate the collected IoT data in existing applications
   - **Platform capabilities:** device and lifecycle management, device security and connectivity, device connectors for retrofitting, data visualization, event processing, application integration (iPaaS)

2. Non-IT users who want to connect IoT devices quickly and easily to an IoT platform for simple data processing
   - **Platform capabilities:** drag & drop dashboarding or event processing, simple analytics, simple device management

3. System integrators and application developers who build complex IoT analytics applications
   - **Platform capabilities:** analytics, application development (aPaaS), application integration (iPaaS), data visualization, event processing

4. Product manufacturers who developed IoT devices on embedded SW
   - **Platform capabilities:** Develop embedded software for IoT devices on an IoT operating system which is easily and securely integrated with an IoT platform for device and lifecycle management, device security and connectivity
   - **Comment:** IoT operating systems (embedded OS, RTOS) are special light-weight (low-power consumption, less memory, very reliable) OS for compact/small devices which are connected for example via LPWAN.
# Functional focus areas of IoT platforms around use cases

<table>
<thead>
<tr>
<th>IoT app management</th>
<th>IoT platforms for device development</th>
<th>IoT platforms for device management and data integration</th>
<th>IoT platforms for rapid application development</th>
<th>IoT platforms for analytics applications</th>
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PAC evaluation criteria focus on success factors, not on features and functions

Core evaluation criteria:

- **Portfolio**: Qualitative and quantitative platform capabilities
  - Criteria: Feature & function, USP, easy-to-use, client references, maturity
- **Strategy**: Willingness to survive in a race with limited number of winners
  - Criteria: Strategic focus, activities, partners and thought leadership
- **GTM**: Build and maintain an ecosystem which interacts with the market
  - Criteria: ecosystem of SIs & developers, IoT labs, starter kits, test access
- **Market strength**: Power to win the race
  - Criteria: Financial power, market coverage, partners, client access
We see very focused players like Bosch, PTC and GE and more generalist players like Microsoft or SAP

### IoT platforms for analytics applications
- C3 IoT
- GE Digital
- IBM
- Microsoft
- Oracle
- SAP
- Siemens

<table>
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<tr>
<th>Cluster</th>
<th>Average</th>
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<tbody>
<tr>
<td>Competence</td>
<td>2.2</td>
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<tr>
<td>Market strength</td>
<td>1.7</td>
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### IoT platforms for device development
- Amazon Web Services
- ARM
- Google
- Huawei
- Microsoft
- Samsung
- Siemens
- Windriver (Intel)

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### IoT platforms for device management and data integration
- arrayent
- AWS
- Axiros
- Bosch SI
- Cumulocity (Software AG)
- Eurotech
- evrythng
- exosite
- GreenWave Systems
- Microsoft
- relayr
- SAP
- telit
- Xively (LogMeIn)

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<td>2.4</td>
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<td>Market strength</td>
<td>2.8</td>
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### IoT platforms for rapid application development
- Autodesk
- Ayla networks
- Cumulocity (Software AG)
- C3 IoT
- davra networks
- Dglogik
- Microsoft
- M2MGO
- PTC
- SAP
- telit
- telit

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How do we see the provider landscape today?
Bosch SI, Microsoft and SAP are the market leaders in device management and data integration
PTC, Microsoft and SAP are the market leaders in rapid deployment.
GE Digital, Microsoft, IBM and SAP are the market leaders in analytics applications.
Microsoft is market leader in device development, but AWS and Siemens are catching-up
What are our next steps?
Business models around IoT platforms

System integrators & IoT platforms

System integrator & IoT platform
Thank You
About the CXP Group

The leading independent European research and consulting firm for business software, IT services and digital transformation

150 employees (90 analysts & consultants)

Bangalore - Berlin - Bucharest - Hamburg
London - Munich - New York - Paris
San Francisco - Vienna - Wuerzburg - Zurich
Portfolio

Key offerings

Practices

Analytics & Data Management

Cloud & Infrastructure Services

Digital Customer Experience & IoT

Enterprise Applications & Related Services

Information Security

Strategy & market consulting
(for software & IT Services Providers)

IT advisory
(for end users, large & mid-market companies)

Benchmarks
(products, software vendors, IT services companies)

Analysis
(market, techno, white papers)

Data
(IT expenses, market trends)

Research

Research-based Consulting

Events
(conferences, exhibitions, seminars, webinars)

Workshops

IoT Platforms in Europe – Webinar, July 6, 2017
5 practices to address game-changing topics

Analytics & Data Management
- Analytics (data discovery, data science, predictive analytics)
- Business intelligence (BI strategy, BI organization, BI architecture)
- Performance management (planning, financial consolidation, strategy management)
- Data management (data strategy, data integration, data quality, data governance)
- Data storage (data warehousing, analytical databases)
- Big data (big data analytics, Hadoop)

Cloud & Infrastructure Services
- Cloud-related C&SI, AM
- IaaS
- SaaS
- PaaS
- Public cloud, hosted and managed cloud
- DevOps
- Open source
- ITSM
- Storage
- Network
- Development platforms
- Application life cycle MGMT (application management, testing)

Digital Customer Experience & IoT
- Digital factory
- Connected vehicles
- Smart transport
- Smart home & buildings
- Smart energies & resources
- Digital health
- Digital finance
- Digital government & Smart cities
- Smart retail & CPG
- Digital telco, media, service
- Digital customer experience
- Internet of Things (IoT)
- Artificial intelligence
- Digital workplace

Enterprise Applications & Related Services
- ERP
- CRM
- ECM/BPM (process, workflow, document management, life cycle)
- HRIS
- IT management (organization of information systems, project management)
- Business applications-related C&SI (SAP, Oracle, MS Dynamics, Salesforce)
- SAP-related services (hosting, application management)

Information Security
- Infrastructure security
- Identity & access management
- Governance
- Content and application security
Our offering to business users (large and medium-size companies)

**Research**
- Independent & trusted research helping you align functional requirements with business objectives
- **Benchmarks**
  - BI Survey
  - BARC Score
  - Service Expert
  - PAC RADAR
- **Analysis**
  - CXO Advisory Service
  - Innovation Register

**Research-based consulting**
- Senior consultants streamlining your IS while solving major challenges brought by the digital transformation
- **Missions**
  - Products, software vendors & IT services companies selection mission,
  - IT system audit,
  - Digital program

**Events**
- First-hand information and C-Level networking with experts & peers helping you think ahead of the competition
- **Events**
  - Forum CXP
  - CeBIT (BI & Big Data pavilions)
  - Consumer Identity Summit
  - BARC Congress
  - Leaders’ Circle for BI & Analytics
  - Digital/Vertical workshops

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IoT Platforms in Europe – Webinar, July 6, 2017

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Our offering to vendors (software and IT service providers)

**Research**
- Data-driven research for qualifying/quantifying your business opportunities and allowing you to align your product strategy with market requirements

**Data**
- SITSI (market trends)
- CxO Investment Priorities
- User surveys

**Analysis**
- InSight Analysis reports
- White papers

**Research-based consulting**
- Senior consultants identifying your internal and external growth opportunities and making the most of the digital transformation era

**Missions**
- Market analysis
- Competitive assessment
- Portfolio review
- Partner identification
- M&A target identification
- Commercial due diligence

**Events**
- Outstanding events for leveraging your brand, showcasing your solutions and demonstrating your expertise to C-Level managers

**Events**
- Forum CXP
- CeBIT (BI & Big Data pavilions)
- Consumer Identity Summit
- BARC Congress
- Leaders’ Circle for BI & Analytics

50+ events (incl. seminars, webinars)/year
2017: CXP Group awarded by its customers

Analyst Firm Awards by KEA*

<table>
<thead>
<tr>
<th>Global</th>
<th>Strategy</th>
<th>Analytics &amp; Big Data</th>
<th>IoT</th>
<th>IT services</th>
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“Because of its proven ability to deliver world-class analysis, CXP Group is perfectly positioned to challenge its US competitors.”

“The CXP Group’s strong research and powerful advisory services are making it a natural partner for strategic advice.”

“While CXP Group is known for excellent research, analytics and big data professionals also value its strategy and advisory services.”

“IoT is one area where all three parts of the CXP Group punch above their weight. BARC, le CXP and PAC are all rated especially highly by IoT professionals.”

"IT services is the area where CXP Group creates the most value with its research and advisory services. IT services professionals value CXP Group’s inquiry calls, research reprints and business leads rate especially highly.”

(*) Kea Company is the world’s largest analyst relations consultancy. Each year, its Analyst Firm Awards (based upon the Analyst Value Survey) aim to recognize analyst firms that have won a leading role in specific market segments. The survey conducted by Kea allows to rank analyst firms according to the value they deliver to their users. This year, 15 firms were shortlisted (including Deloitte, Forrester, Frost & Sullivan, Gartner, IDC and KPMG).