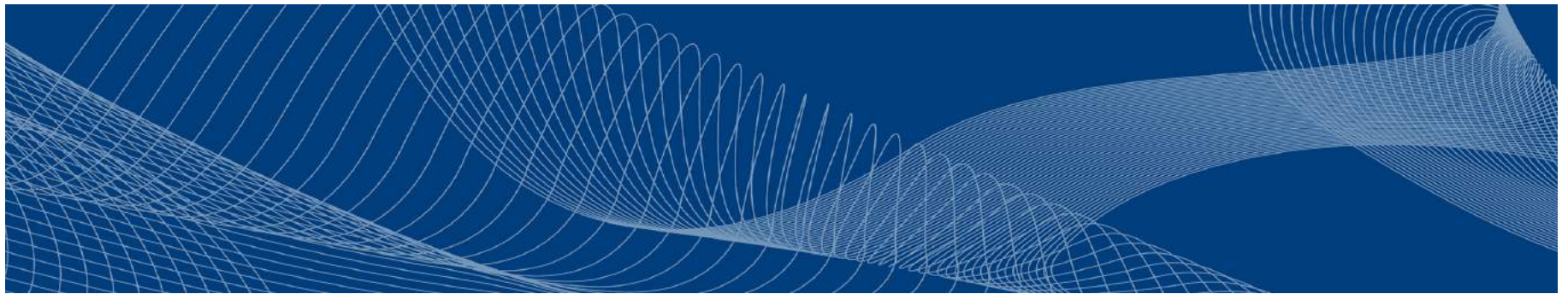




BARC · Ie CXP · PAC



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

- Amazon Web Services
- ARM
- arrayent
- Autodesk
- Axiros
- Ayla networks
- Bosch SI
- Cumulocity (Software AG)
- C3 IoT
- davra networks
- Dglogik
- Eurotech
- evrythng
- exosite
- GE Digital
- Google
- GreenWave Systems
- Huawei
- IBM
- Microsoft
- M2MGO
- Oracle
- PTC
- relayr
- Samsung
- SAP
- Siemens
- telit
- Windriver (Intel)
- Xively (LogMeIn)

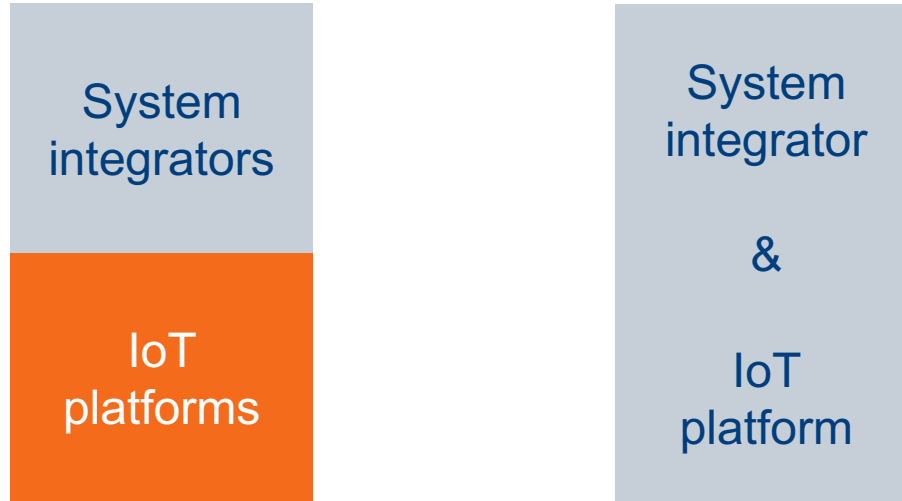
IoT platforms are difficult to define as they are a collection of existing functions

	Top level	Overview	In detail
Backend	IoT application management	Application integration (iPaaS)	ERP, CRM, business process management
		Application development (aPaaS)	Developer space for analytics, visualization and application integration
		Data management & analytics (dPaaS)	Storage, DB, analytics tools, AI
		Visualization & event management	Dashboards, apps, event processing
	IoT device management	Device deployment and lifecycle management	Deployment, access management, SW updates of embedded SW
		Security	Device control, security updates
		Connectivity	Connectivity management via mobile network, Bluetooth, WiFi, Ethernet etc.
		Device connectors	Data stream conversion
Edge	IoT gateway	IoT gateway	Data stream conversion, data filtering, edge analytics
	IoT device	Embedded SW	Operating system (for application dev.), client SW (for security & connectivity)

PAC definition: IoT device AND application management

PAC excluded system integrators with their own IoT platforms and evaluated independent IoT platforms only

Business models around IoT platforms



PAC excluded IoT platforms for several reasons

Reasons for exclusion	Excluded IoT platforms
IoT system integrators (even when they have an own IoT platform)	Atos, Accenture, Capgemini, Device Insight, Axoom, T-Systems, Indian providers, ABB, HPE, Hitachi, QSC
Application management without any device management capabilities	Salesforce
Limited to B2C (smart home)	Apple
Device or connectivity management without any application management	Jasper
Not visible in Europe today	AT&T, Toshiba

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

	IoT platforms for device development	IoT platforms for device management and data integration	IoT platforms for rapid application development	IoT platforms for analytics applications
IoT app management	Application integration (iPaaS)	Application integration (iPaaS)	Application integration (iPaaS)	Application integration (iPaaS)
	Application development (aPaaS)	Application development (aPaaS)	Application development (aPaaS)	Application development (aPaaS)
	Data management & analytics (dPaaS)	Data management & analytics (dPaaS)	Data management & analytics (dPaaS)	Data management & analytics (dPaaS)
	Visualization & event management	Visualization & event management	Visualization & event management	Visualization & event management
IoT device mgmt.	Device deployment and lifecycle management	Device deployment and lifecycle management	Device deployment and lifecycle management	Device deployment and lifecycle management
	Security	Security	Security	Security
	Connectivity	Connectivity	Connectivity	Connectivity
	Device connectors	Device connectors	Device connectors	Device connectors
Edge	IoT gateway	IoT gateway	IoT gateway	IoT gateway
	Embedded SW	Embedded SW	Embedded SW	Embedded SW

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

Cluster	Average
Competence	2.2
Market strength	1.7

IoT platforms for device development

- Amazon Web Services
- ARM
- Google
- Huawei
- Microsoft
- Samsung
- Siemens
- Windriver (Intel)

Cluster	Average
Competence	2.7
Market strength	2.2

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)

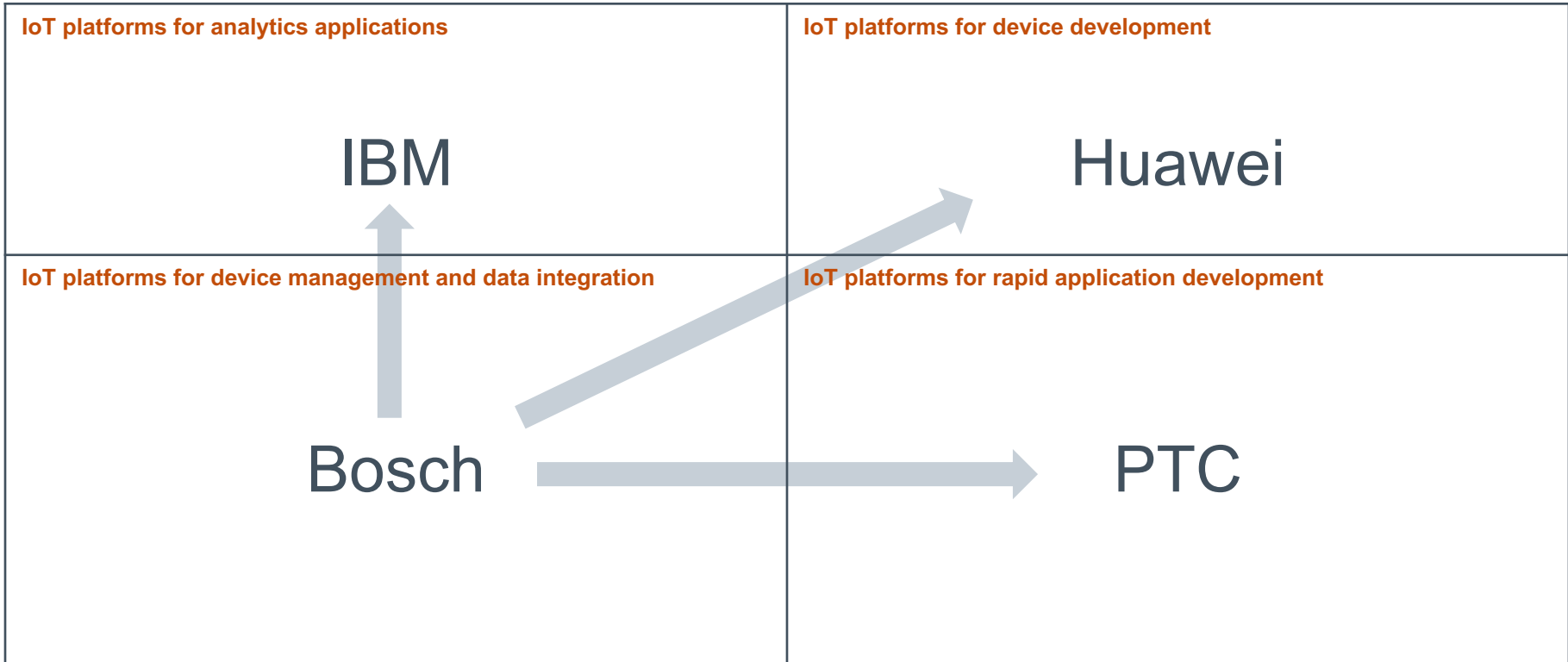
Cluster	Average
Competence	2.4
Market strength	2.8

IoT platforms for rapid application development

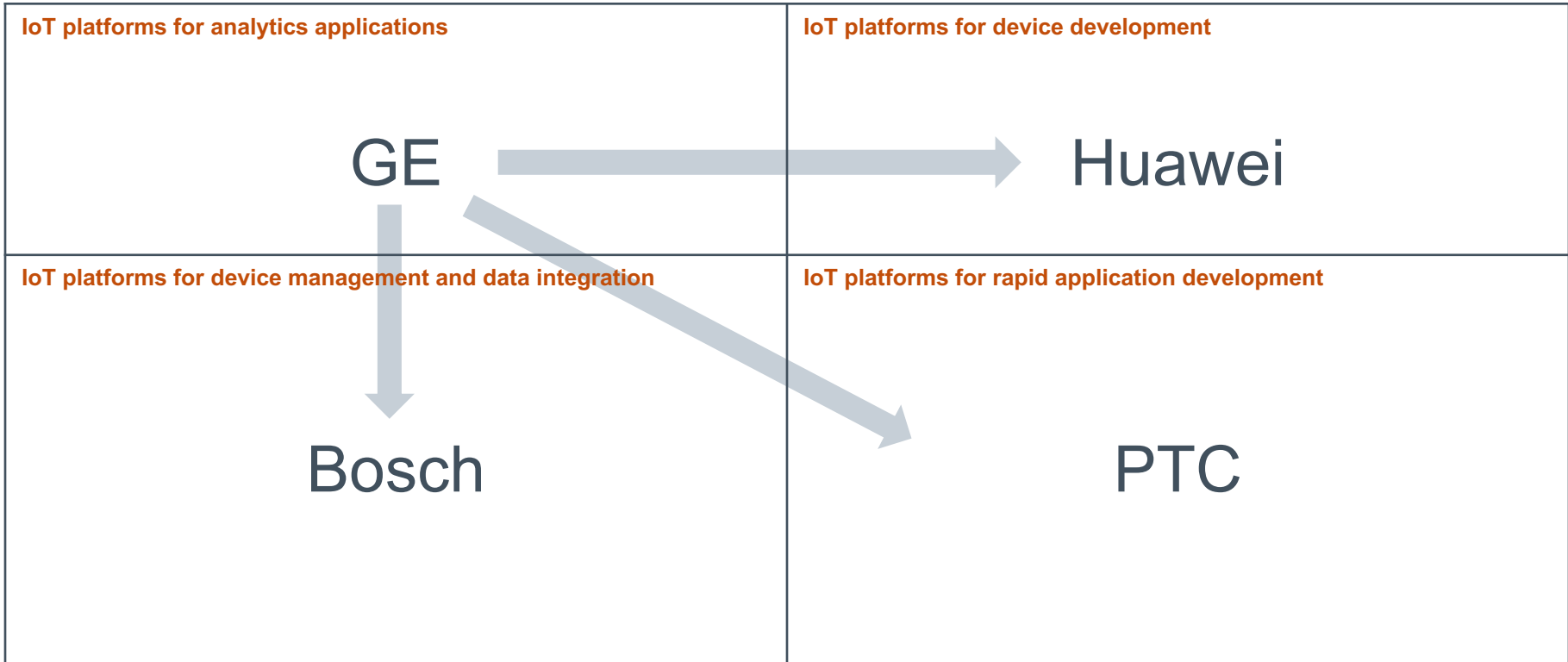
- Autodesk
- Ayla networks
- Cumulocity (Software AG)
- C3 IoT
- davra networks
- Dglogik
- Microsoft
- M2MGO
- PTC
- SAP
- telit

Cluster	Average
Competence	2.5
Market strength	2.8

We see several cooperations of specialized IoT platforms across the use cases they focus on – for example Bosch



We see several cooperations of specialized IoT platforms across the use cases they focus on – for example GE



How do we see the provider landscape today?

Bosch SI, Microsoft and SAP are the market leaders in device management and data integration

IoT Platforms for Device Management in Europe 2017



PTC, Microsoft and SAP are the market leaders in rapid deployment

IoT Platforms for Rapid Deployment in Europe 2017



GE Digital, Microsoft, IBM and SAP are the market leaders in analytics applications

IoT Platforms for Analytics Applications in Europe 2017



Microsoft is market leader in device development, but AWS and Siemens are catching-up

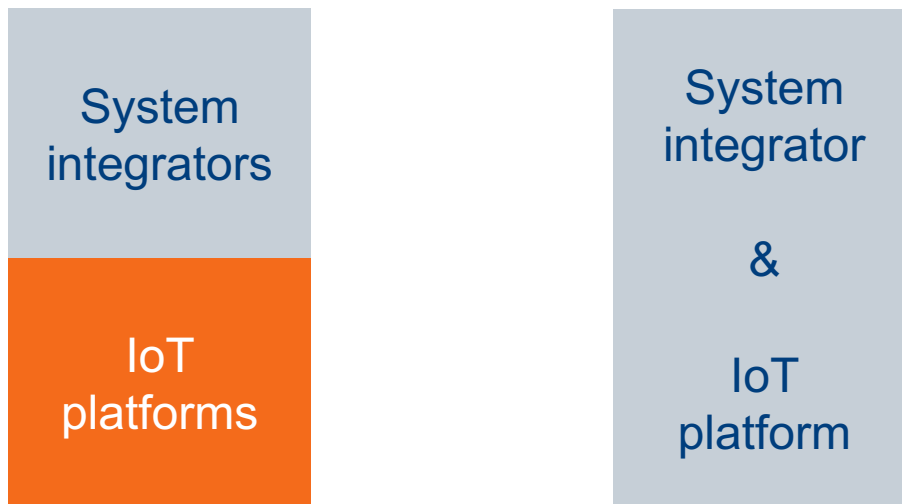
IoT Platforms for Device Development in Europe 2017



What are our next steps?

Evaluation of IoT system integrators in Europe in the 2nd half of 2017 and next PAC Innovation RADAR on IoT platforms in Europe in 2018

Business models around IoT platforms



Thank You

About the CXP Group



BARC · |e CXP · PAC

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



150 employees
(90 analysts &
consultants)



Research



Consulting

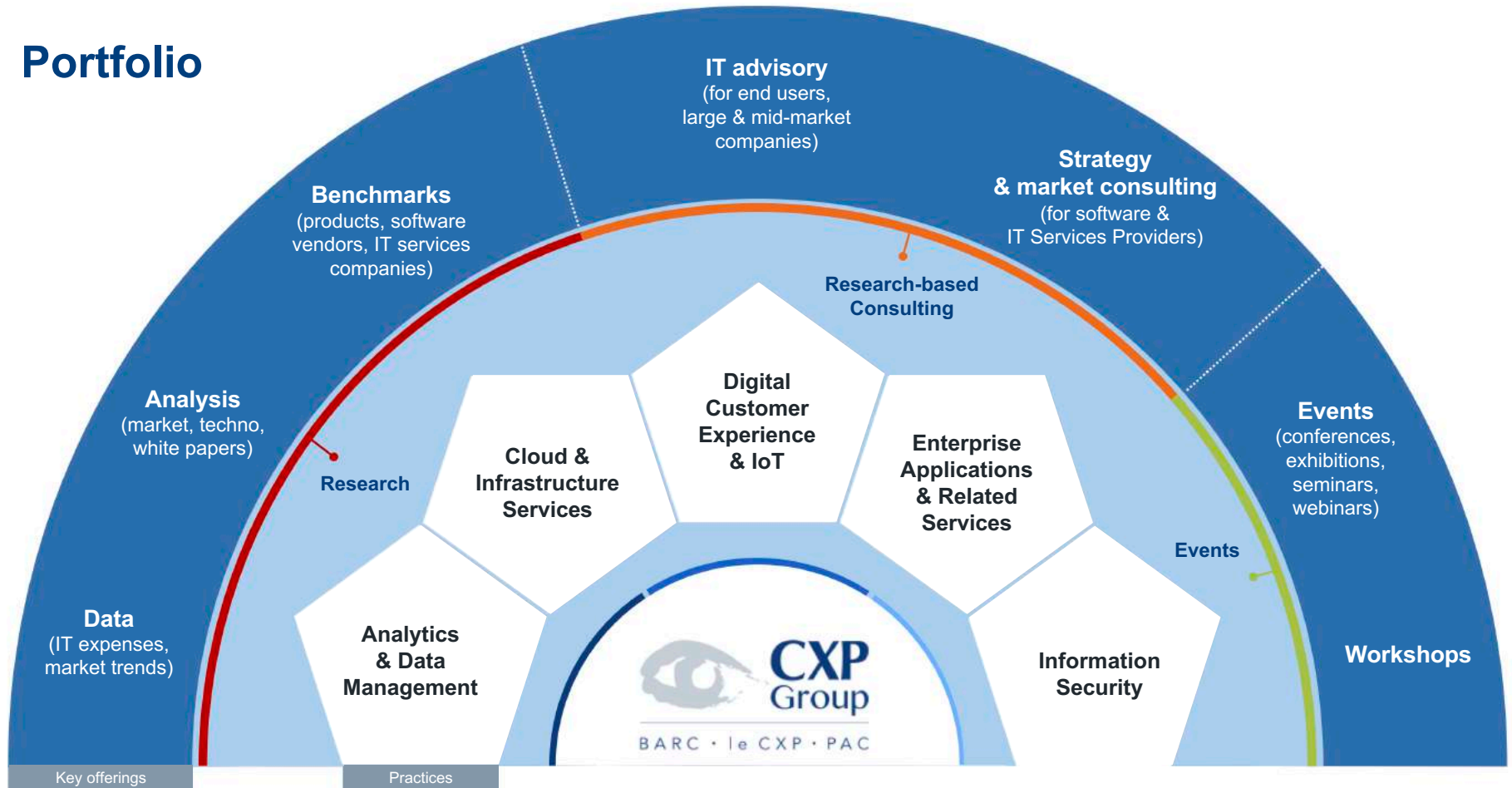


Bangalore - Berlin - Bucharest - Hamburg
London - Munich - New York - Paris
San Francisco - Vienna - Wuerzburg - Zurich



Events

Portfolio



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

Major products & services



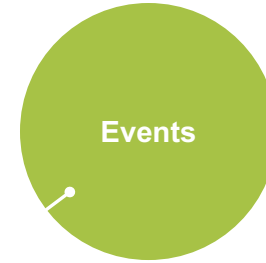
Research-based consulting

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

50+ events (incl. seminars, webinars)/year

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

Major products & services

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

50+ events (incl. seminars, webinars)/year

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

2017: CXP Group awarded by its customers

Analyst Firm Awards by KEA*



Global

“Because of its proven ability to deliver world-class analysis, CXP Group is perfectly positioned to challenge its US competitors.”



Strategy

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



**Analytics
& Big Data**

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



IoT

“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

“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).