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Indecomm Technology

DIGITAL ENGINEERING AND ENGAGEMENT

Intelligent apps and analytics

Technology Trends 2018 – Gartner Research

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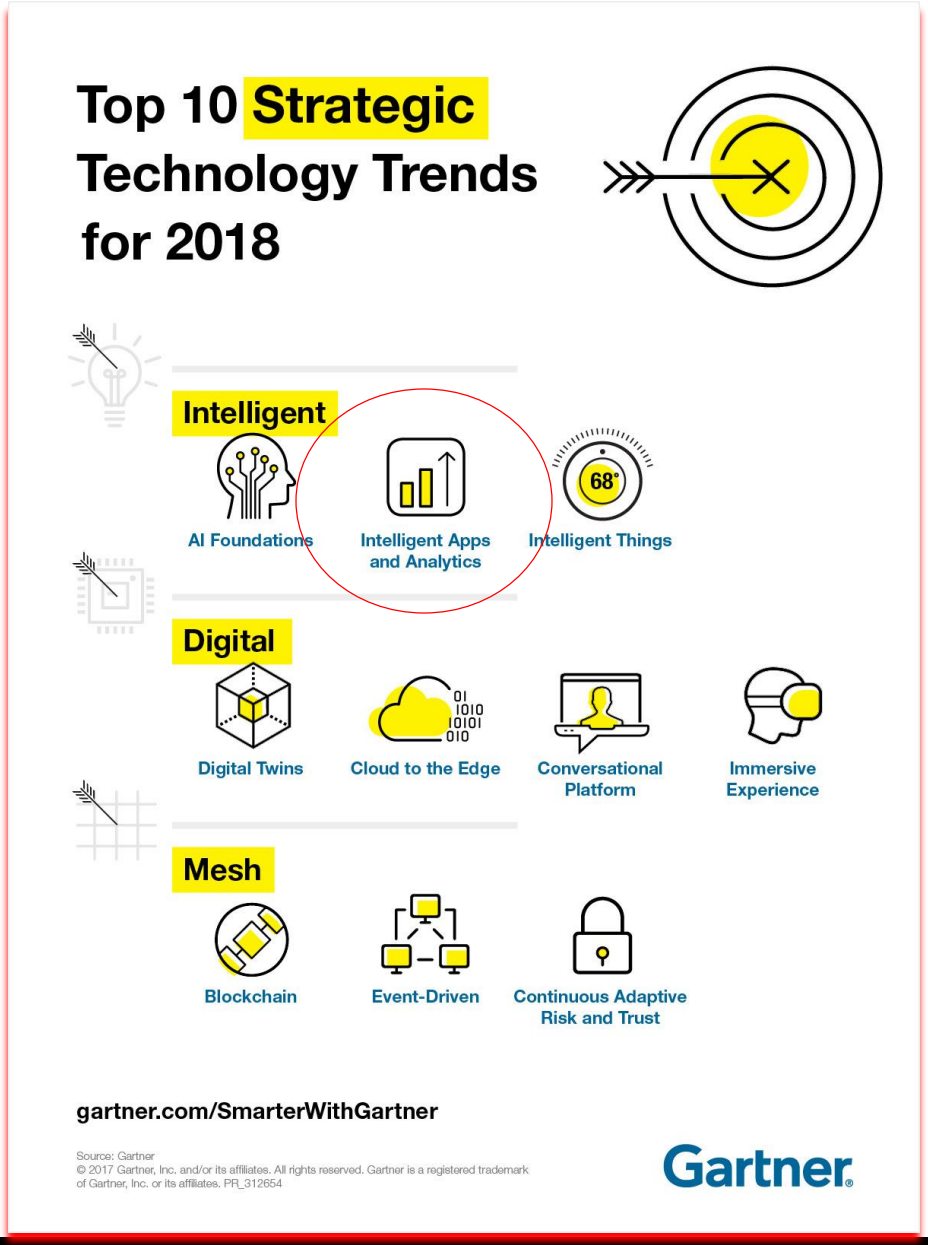

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What is analytics?

- Ability to collect and use data to generate insights that aids fact based decision making

Where does data come from?

- Emails, browser logs, website visit and purchases, maps, YouTube (100 hours of video uploaded every min), Facebook (2,00,000 photos added to fb every 60 sec)
- Car Gadgets, Shopping, Shipping, TV, Financial systems, HR information, ERPs

Where is analytics used?

Analytics usage example

https://www.youtube.com/watch?v=wz0bQeLty8c

Types of Analytics

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- Descriptive

"What happened"

- Diagnostic

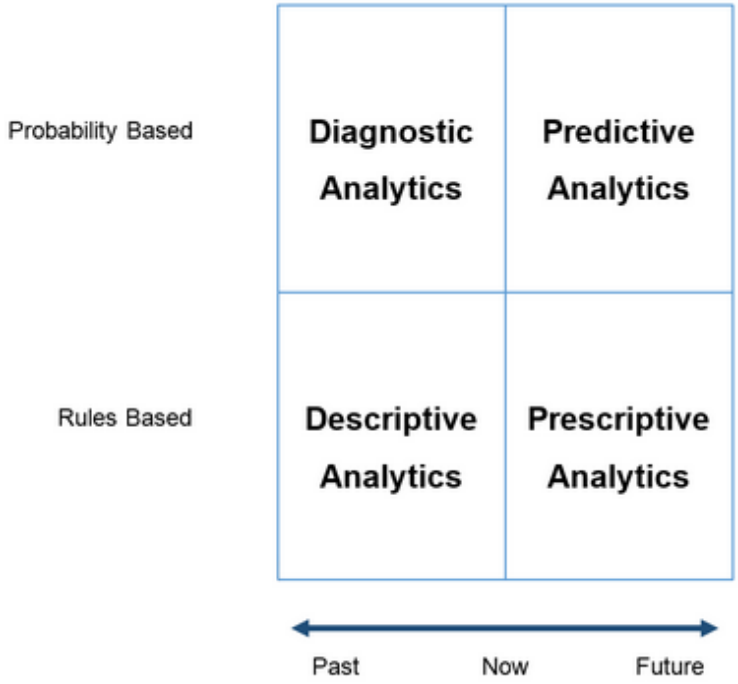
"Why did this happen?"

- Predictive

"Predict future events or trends"

- Prescriptive

"You should do this…"



Tools and software used for analytics

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- Open-source software predictive analytic tools include:

Apache Mahout, GNU Octave, KNIME, OpenNN, Orange, R, scikit-learn (Python), Weka

- Commercial predictive analytic tools include:

Alpine Data Labs, Alteryx, Angoss KnowledgeSTUDIO, Actuate Corporation BIRT Analytics, IBM SPSS Statistics and IBM SPSS Modeler, KXEN Inc. Modeler, Mathematica, MATLAB, Minitab, LabVIEW[34], Neural Designer, Oracle Advanced Analytics, Pervasive, Predixion Software, RapidMiner, RCASE, Revolution Analytics, SAP HANA and SAP BusinessObjects Predictive Analytics, SAS and its Enterprise Miner, Sidetrade, Stata, Statgraphics, Statistica, Tibco Software

- What's Machine Learning?

Science that gives computers the ability to learn without being explicitly programmed.

In the past decade, machine learning has given us self-driving cars, practical speech recognition, effective web search, and a vastly improved understanding of the human genome.

Machine learning is so pervasive today that you probably use it dozens of times a day without knowing it.

Tools and software used for machine learning

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- **Free and open-source software**

CNTK, Deeplearning4j, dlib, ELKI, GNU Octave, H2O, Mahout, Mallet, MEPX, mlpy, MLPACK, MOA (Massive Online Analysis), MXNet, ND4J: ND arrays for Java, NuPIC, OpenAI Gym, OpenAI Universe, OpenNN, Orange. R, scikit-learn, Shogun, TensorFlow, Torch, Yooreeka, Weka

- **Proprietary software with free and open-source editions**

KNIME, RapidMiner

- **Proprietary software**

Amazon Machine Learning, Angoss KnowledgeSTUDIO, Ayasdi, IBM Data Science Experience, Google Prediction API, IBM SPSS Modeler, KXEN Modeler, LIONsolver, Mathematica, MATLAB, Microsoft Azure Machine Learning, Neural Designer, NeuroSolutions, Oracle Data Mining, RCASE, SAP Leonardo, SAS Enterprise Miner, SequenceL, Skymind, Splunk, STATISTICA Data Miner

What?

- Application intelligence is the process of using machine learning technology to create apps that use historical and real-time data to make predictions and decisions to deliver rich, adaptive, personalized experiences for users.

Why?

- The availability of massive computational power and low-cost storage to feed machine learning models,
- The ease of use with which developers can take advantage of machine learning techniques,
- The adoption of microservices as a development paradigm for applications, and
- The proliferation of platforms on which to develop applications, and in particular platforms based on “natural user interfaces” like messaging and voice.

Intelligent Apps Trends

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- IDC research states “by 2018, more than half of the teams developing apps will embed some kind of cognitive services in them, up from 1% in 2015.”
  That is an unprecedented growth and transformation rate.

- Another article titled “Internet Of Things Market To Reach $267B By 2020” brings forth some key predictions that have ramifications on “intelligent apps” including:
  - Spending on Internet of Things (IoT) applications is predicted to generate €60B ($64.1B) by 2020.
  - IoT Analytics spending is predicted to generate €20B ($21.4B) by 2020.

Intelligent Apps – predicted spend

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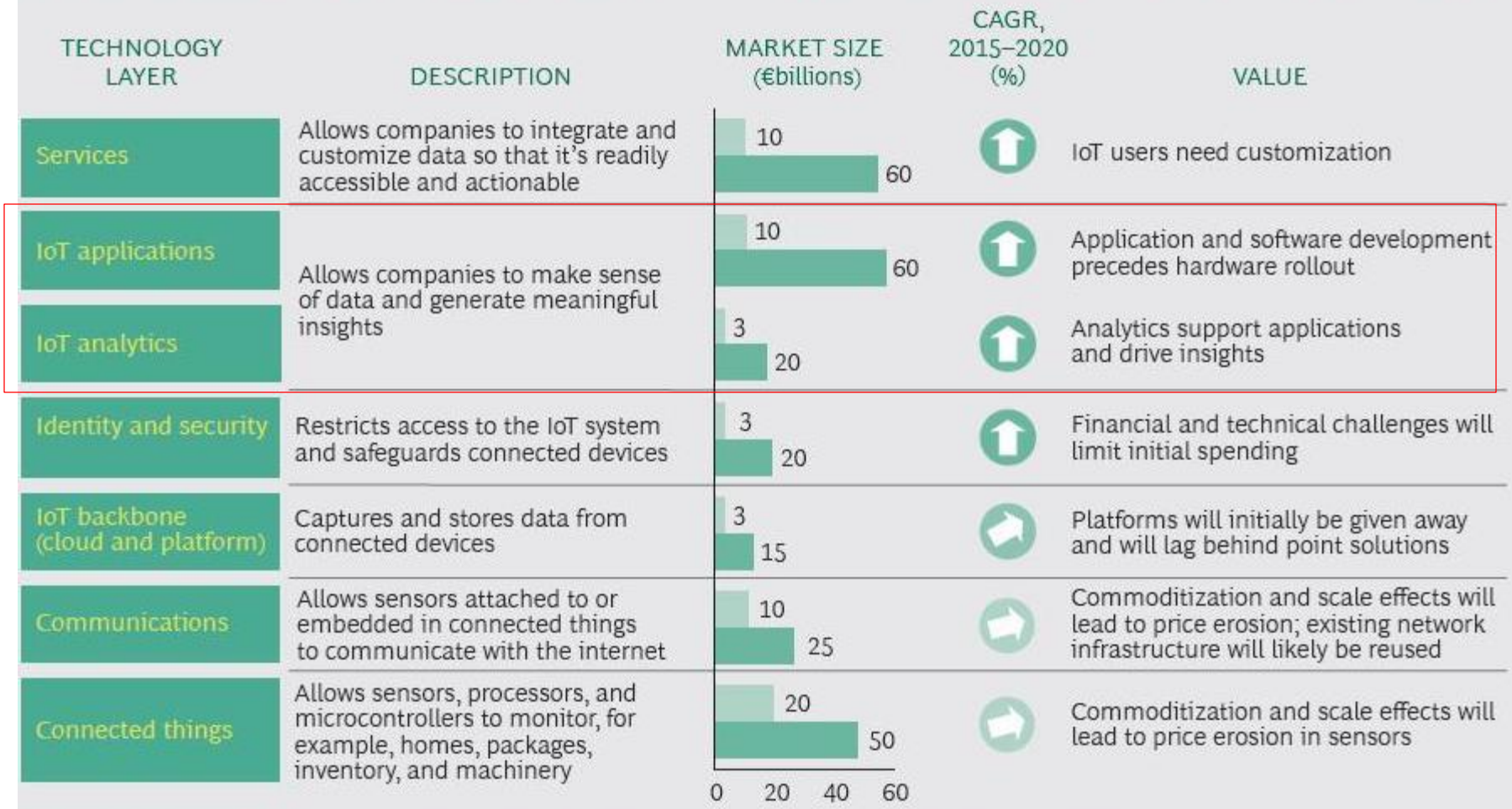
EXHIBIT 1 | Services and IoT Applications and Analytics Will Capture Some 60% of IoT Spending



Sources: IDC; Gartner; ABI Research; BCG Internet of Things buyer survey; expert interviews; BCG analysis.

Building Intelligent Apps

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Examples of Intelligent Apps

https://www.youtube.com/watch?v=9LtAj-QpfMQ

Examples of Intelligent Apps - continued

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- Digit automates the savings habits we all should have adopted the day we got our first jobs (but many of us didn't). Just connect your checking account to the app, and Digit will identify how much money is coming in and also learn your spending habits.
- Once it does so, it will begin to transfer a little bit of money every few days into a savings account. The app features a no-overdraft guarantee to ensure it doesn't take out more money than you can afford.
- Then, whenever you need to access your savings, Digit will transfer the specified amount back into your checking account for free.

Examples of Intelligent Apps - continued

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- Escape's AI isn't invasive at all, but it can uncover some insights about your Facebook or email habits that might make you blush. The app simply tracks how much time you spend on social networks or how much time your spend in your inbox. Each day, it will give you a report about how many times you got distracted.

- The devs call Escape "a calorie counter for the mind," and that's a pretty apt comparison. Just as with calorie tracking, distraction tracking lets you identify weak points, create better habits, and most likely unclutter your brain.

Examples of Intelligent Apps - continued

- Gluru crawls your computer and your cloud storage to uncover every file you might need and every person you might need to contact. By making these connections, it helps make every component of your digital life more accessible. Then, when it recognizes you have a meeting or an event, it will send you a link to all the relevant files you'll need. And the more you use the app, the more it learns about your needs.

Examples of Intelligent Apps - continued

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- Peter is a smart attorney built with AI to automate some of the easier tasks a human attorney might have to perform. You can cc Peter on your emails, and the app can help you put together a non-disclosure agreement or timestamp a paper contract, for example.

Closing remarks

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- It only makes logical sense to integrate analytics with application development to create intelligent apps that not only deliver a more compelling user experience, but also learn from the user engagement to become more relevant and important to those users.

- I mean, why collect all this transactional, social, mobile, wearable and IOT data if you aren't going to do something with it. And the most logical way to drive action (optimized operational decisions) from the data and analytics is via intelligent applications.