Beyond early adoption - what is the road ahead for the Internet of Things?

Jim Morrish, Founder and Chief Research Officer
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About Machina Research

• Machina Research is the world’s leading provider of market intelligence and strategic insight on the rapidly emerging Machine-to-Machine (M2M), Internet of Things and Big Data opportunities.

• We provide market intelligence and strategic insight to help our clients maximise opportunities from these rapidly emerging markets. If your company is a mobile network operator, device vendor, infrastructure vendor, service provider or potential end user in the M2M, IoT, or Big Data space, we can help.

• We work in two ways:
  o Our Advisory Service consists of a set of Research Streams covering all aspects of M2M and IoT. Subscriptions to these multi-client services comprise Reports, Research Notes, Forecasts, Strategy Briefings and Analyst Enquiry.
  o Our Custom Research and Consulting team is available to meet your specific research requirements. This might include business case analysis, go-to-market strategies, sales support or marketing/white papers.

• The company was founded in 2011 by Matt Hatton and Jim Morrish, two experienced industry analysts and the team has grown substantially since then.
Some of our clients

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A diverse set of motivations ...

- Regulation
  - Smart Meters
  - eCall

- Features
  - PS Vita
  - Connected Car

- Efficiency gains
  - Big Belly Solar
  - SF Park

- New business models
  - Sealed Air
  - Zipcar

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... drives a need for a granular analysis of M2M

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Potential for Internet of Things application is almost without bound

Sources of Information

- M2M applications
- M2M devices
- Corporate IT systems
- Published data feeds
- Crowdsourcing
- End users
- Social Media
- Other IoT applications

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FreeDigitalPhotos.net: EA, renjith krishnan, Keattikorn, franky242
# Key differences between M2M and IoT

The difference between M2M and IoT  
Source: Machina Research 2014

<table>
<thead>
<tr>
<th>M2M</th>
<th>IoT</th>
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<tbody>
<tr>
<td>• Connected devices and associated applications</td>
<td>• Complex applications and data analysis</td>
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<tr>
<td>• Fixed solution parameters</td>
<td>• Heterogeneity and flexibility of solution components</td>
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<tr>
<td>• Rigid solution architecture</td>
<td>• Distributed and federated processing, storage and querying</td>
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<tr>
<td>• ‘Speed’ designed in where necessary</td>
<td>• ‘Speed’ needs to be supported as and when requirements emerge</td>
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<tr>
<td>• Applications in the context of verticals and niches</td>
<td>• Data disassociated from any source</td>
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<tr>
<td>• Data is meaningful in context</td>
<td>• Semantic richness, shared context and ontologies</td>
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<tr>
<td>• Structured data</td>
<td>• Semi-structured and unstructured data</td>
</tr>
<tr>
<td>• Predictable growth (in connections and data generated)</td>
<td>• Unpredictable growth driven by network effects</td>
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<tr>
<td>• Data ownership often clear</td>
<td>• Data ownership often very unclear</td>
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From closed and siloed solutions to open, agile and highly flexible architectures

<table>
<thead>
<tr>
<th>Traditional IT</th>
<th>M2M</th>
<th>Operational Technology</th>
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<tbody>
<tr>
<td>• Well-defined purpose and architecture</td>
<td></td>
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<tr>
<td>• Extensibility required new end-to-end programming capabilities</td>
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<tr>
<td>• Singular application purposes with designed and defined data structures</td>
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<tr>
<td>• Data used for historical analysis – descriptive analytics (reporting)</td>
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<table>
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<th>Internet of Things</th>
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<tr>
<td>• Open architecture – scalability, agility and flexibility, leveraging cloud services</td>
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<tr>
<td>• Understanding IoT: data is ultimately separated from the architecture</td>
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<tr>
<td>• Multiple application designs and services created from shared data</td>
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<tr>
<td>• Analytics used for descriptive, predictive and prescriptive purposes</td>
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The IoT opens new opportunities for companies and changes business models...

**Predictive maintenance**
Connected devices provide real-time performance data enabling advanced predictive analytics
Reducing potential downtime and lost production
- e.g. engine maintenance, manufacturing, etc.

**Ongoing customer relations**
Connected devices provide manufacturers with ongoing relations with end users through their products
Brand strengthening and long tail sales
- e.g. connected car, white goods, etc.

**Business models**
Connected devices enable usage monitoring of machines and pay as you use models
Competitive pricing models for end customers
- e.g. car sharing schemes Zipcar, City Car Club, etc.

**Data sharing**
Range of different connected devices will provide a steady stream of data
Opportunity to design new products and services
- e.g. smart cities

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The IoT will require enterprises to adapt to a new business environment

- Machines
- Applications
- Data
- Dynamic objectives
- Changing requirements
- Developing opportunities
- Open & Closed Systems
- Partnerships and Collaborations
- Business models
- Unpredictability
- Strategic rather than operational decision
How to define IoT revenues?
Many of these sectors are already well established within the IT industry

Selected IT market spend, USD Tn (nominal), 2014-24
Source: Machina Research 2015

- Consulting and project work
- IT Services
- Enterprise Software
- Data Center Systems
The total IoT opportunity will approach USD4.5Tn by 2024

- Clearly IoT services represent a very substantial opportunity
- Opportunities for new IoT business propositions are incremental, on top of these figures
- And that’s the message: IoT will be huge, and will disrupt almost all aspects of enterprise
- Be prepared!
Enterprise drives the adoption of IoT, but consumers will reap much of the benefit

- Greater efficiency means better goods and services at lower prices
- And new products and services:
  - Usage based (automotive) insurance
  - Smart metering supporting new energy tariffs ...
  - ... and Virtual Power Plants
  - Servitization
- And better use of existing resources
  - Natural resources ...
  - Infrastructure ...
  - Skilled manpower in fast developing markets ...
  - ...

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Machina Research’s Thought Leaders

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