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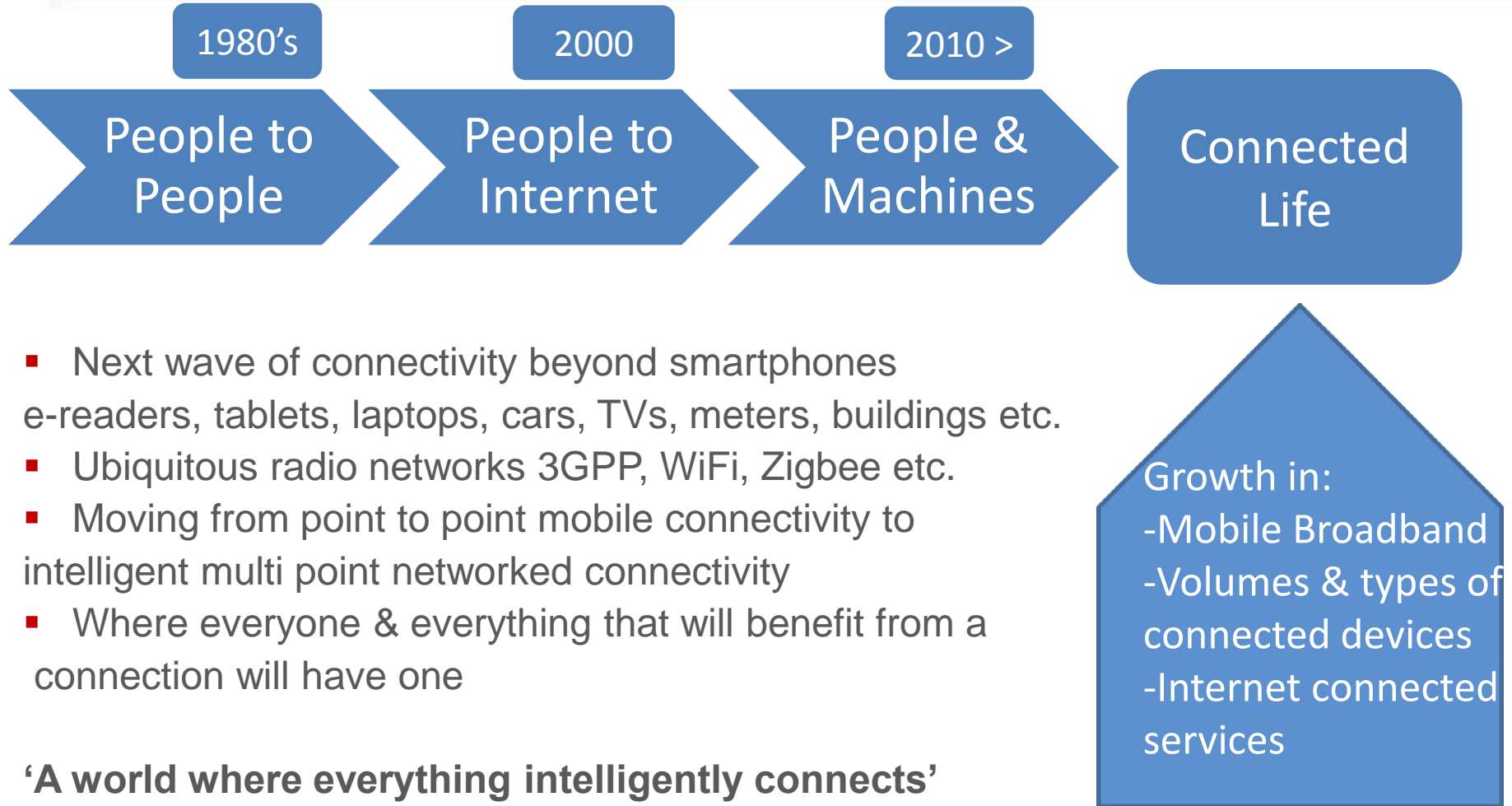
The Connected Life.

Realising the potential of the Connected Life

Andrew Parker, Project Marketing Director April 24th 2012, Seoul



What is the Connected Life?



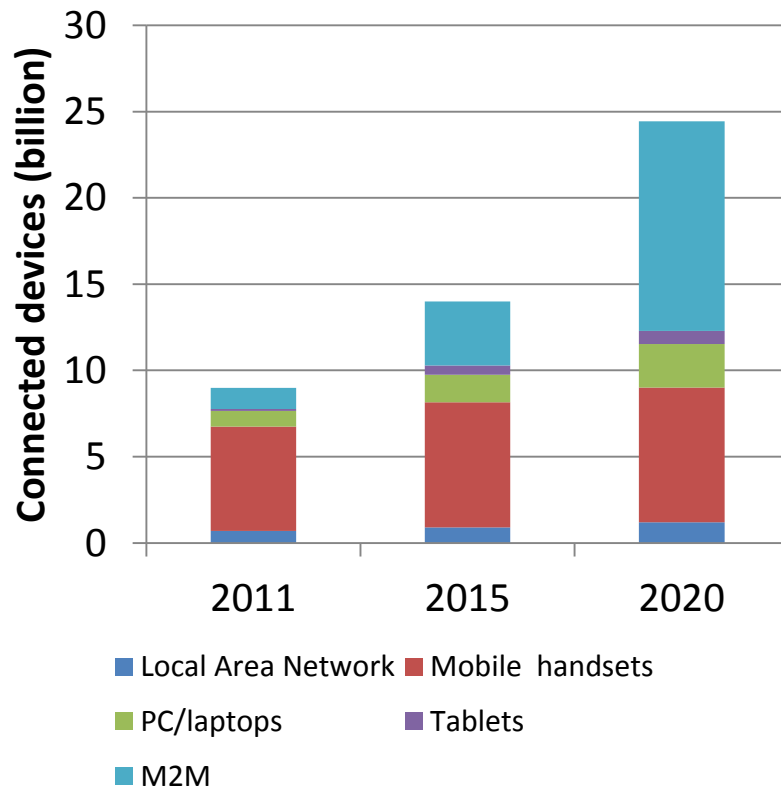
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The impact will be comparable with the advent of the internet...

The 'Connected Life' in 2020: a world of 24 billion connected devices

Connected devices 2011-2020

Source: Machina Research, 2011



¹ "Connected devices" comprises all devices used for transmitting and receiving packet data telecommunications via any wide-area or local area network. It includes PCs/laptops, mobile handsets, tablets and numerous M2M applications

- Global connected devices¹ will increase from 9 billion in 2011 to 24 billion in 2020 across all technologies
- Growth will be dominated by M2M, which will account for half of all devices in 2020, up from 14% in 2011
- A USD1.2 trillion opportunity for operators

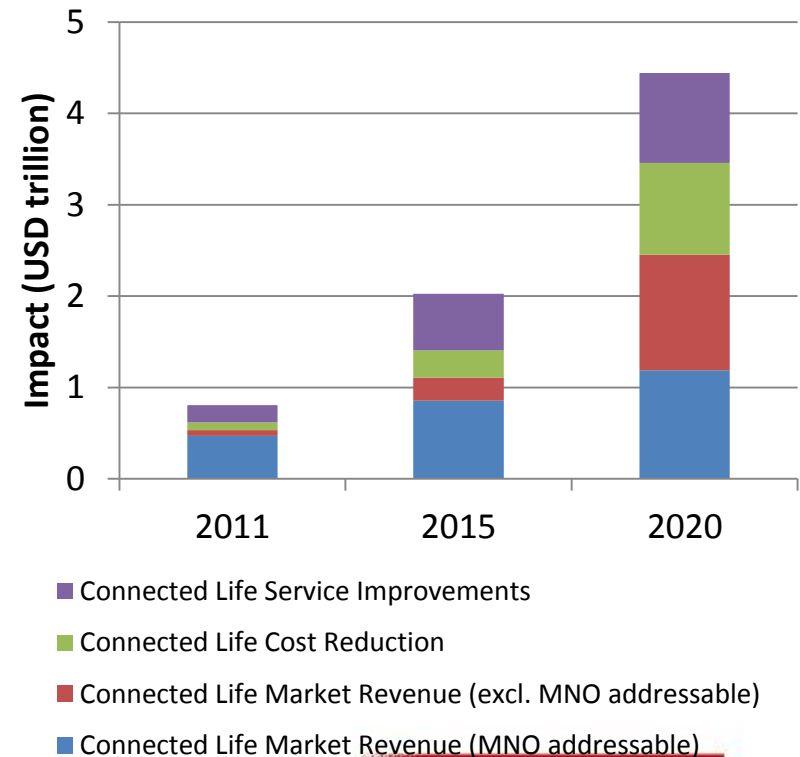


The Connected Life: a USD4.5 trillion global impact

- **Connected Life Market Revenue will be USD2.5 trillion in 2020**
 - Revenue from the sale of connected devices and services, as well as related services that are provided over those devices
 - USD1.2 trillion addressable by MNOs
- **Connected Life Cost Reduction & Service Improvements is calculated at USD2 trillion**
 - Less direct, but nevertheless tangible, benefits to businesses, organisations and consumers stemming from the evolution of the Connected Life.
 - USD1 trillion stemming from cost reductions
 - USD1 trillion from service improvements directly associated with Connected Life products and services.

Global impact of the Connected Life 2011-2020

Source: Machina Research, 2011



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About the research

- Undertaken by Machina Research during December 2011 and January 2012 in conjunction with the GSM Association
- Building on the Machina Research forecast database
 - 54 countries
 - 60 application groups
 - Connections, traffic and revenue
 - 2010-2020 forecasts
- For each application group we identified the impact that connected devices would have in three key areas:
 - Connectivity, devices and service revenue (from Machina database), and revenue from related services
 - Cost reduction
 - Service improvement

Global impact of the Connected Life, example application: connected car insurance

Source: Machina Research, 2011

Category of impact	Type of benefit
Connected Life market revenue	The connected PAYD insurance device, device/service management, the provision of connectivity and the sale of PAYD insurance.
Connected Life cost reduction	Cost reductions for drivers through only paying for the cover that they need, cost reductions for insurers through better information and the ability to better manage risk and better enforce policy terms and conditions.
Connected Life service improvements	The ability to better tailor insurance policies to individual driver needs.

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Hot 10 applications in terms of business impact

1. Connected car

- Price premium associated with the sale of all connected vehicles equating to 20% of value
- USD600 billion
- Total value of the automotive industry is calculated as USD2.2tn in 2010 (based on industry est.), growing to USD3.2tn in 2020. Increase in vehicles from 1.2tn to 1.6tn

2. Electric vehicle charging

- For reasons of payment, location and booking, EVC points will be connected. This category equates to charging fees
- USD550 billion
- Value of the market is miniscule today

Hot 10 applications in terms of commercial impact

3. Clinical remote monitoring

- Remote monitoring serious illnesses
- USD350 billion in healthcare cost savings and pre-emptive action
- Health spending in OECD (70% of world economy) today is ~USD5tn (40% private).

4. Security

- Enhanced remote monitoring and flexible security management
- Cost savings USD250 bn
- Global 'private security' market is worth USD100-USD140 billion today (source: Ecorys) on a much narrower definition

Hot 10 applications in terms of commercial impact

5. Assisted Living

- Enabling continuing independence for old and infirm out of care homes
- USD270 billion saving
- Health spending in OECD (70% of world economy) today is ~USD5tn (40% private)
- Cost of long term care is currently USD600 billion in the OECD.

6. PAYD car insurance

- Facilitating flexible time, usage and behaviour models for car insurance e.g. PAYD and PHYD
- USD210 billion in premiums and USD25 billion in improved QoS
- Value of car insurance market today is USD620 billion (source: Swiss Re, Association of British Insurers)

Hot 10 applications in terms of commercial impact

7. Car hire, share and HP

- Improved service (e.g. real-time charging) for car hire, HP etc schemes
- USD150bn in related rev and USD75bn cost savings
- Lease/rental market worth USD38 billion in 2011 (source: rental companies)
- HP est as USD270bn in 2010
- New opportunities for share car. Low rev today

8. Traffic management

- Toll revenues, road charging, congestion charging and parking fees
- Tax revenue of USD100 bn
- Road tolling was 0.07% of GDP in the US in 2009 (USD10 billion) with variance was between 0.1% (HK) and 0.02% (NL)
- Total tolling revenue USD96bn, parking USD29bn in 2020

Hot 10 applications in terms of commercial impact

9. Smart meters

- Reduce/remove cost of manual meter reading
- Automatic Meter Reading will save utilities USD20 billion
- Cost saving based on USD5 per meter per annum in saved cost in the US
- Variation between USD9 in Norway and USD0.1 in Nigeria

10. Building automation

- Energy savings associated with connecting Heating, Vent, Air Con. and other power management
- USD40 billion in energy savings
- Represents a tiny fraction of global spend on electricity



In Conclusion

Some considerations for realising the potential of the connected life

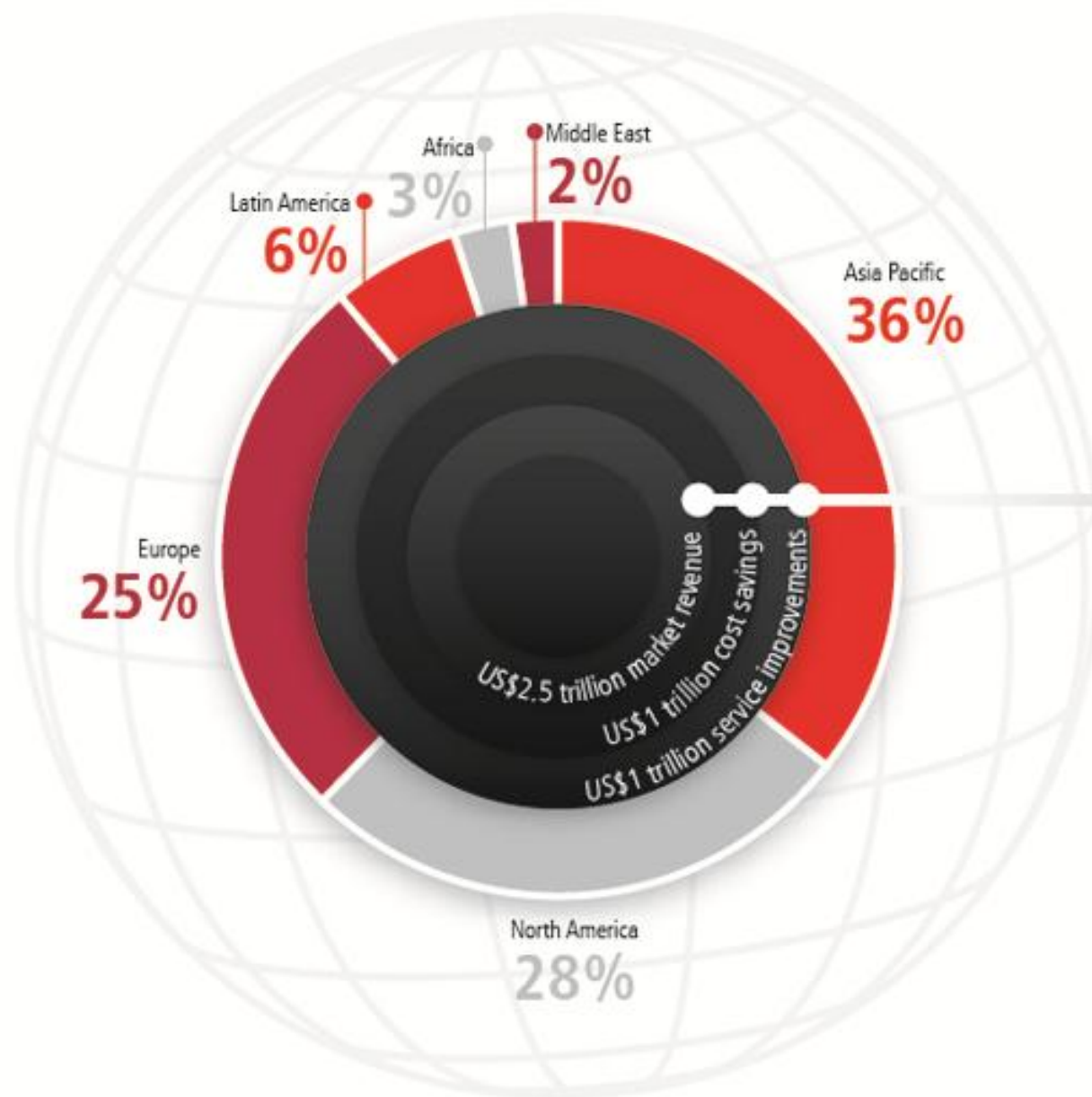
- The Connected Life is much more than just revenues, cost savings & service quality
- Operators need to address more of the value chain associated with services beyond mobile data connection
- Flexible partnerships between Operators & Industries to leverage different strengths
 - Develop a range of new business models to help create valuable new market opportunities
 - Need to realise the power, scale, intelligence & opportunity provided by standards based Mobile Broadband

More information on the Connected Life and to join our new professional industry group – The Connected Community

www.GSMAconnectedlife.com

Email - aparker@gsm.org

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Business Impact of the Connected Life 2020

US\$4.5 trillion

Connected Life market revenue
US\$2.5 trillion

- US\$1.2 trillion addressable by Mobile Network Operators

Cost savings resulting from Connected Life
US\$1 trillion

Service improvements resulting from Connected Life
US\$1 trillion

The Connected Life, with 24 billion connected devices projected by 2020, will create new revenue streams, business models and service improvements, and through industry collaboration can make a global business impact of US\$4.5 trillion.



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Background slides

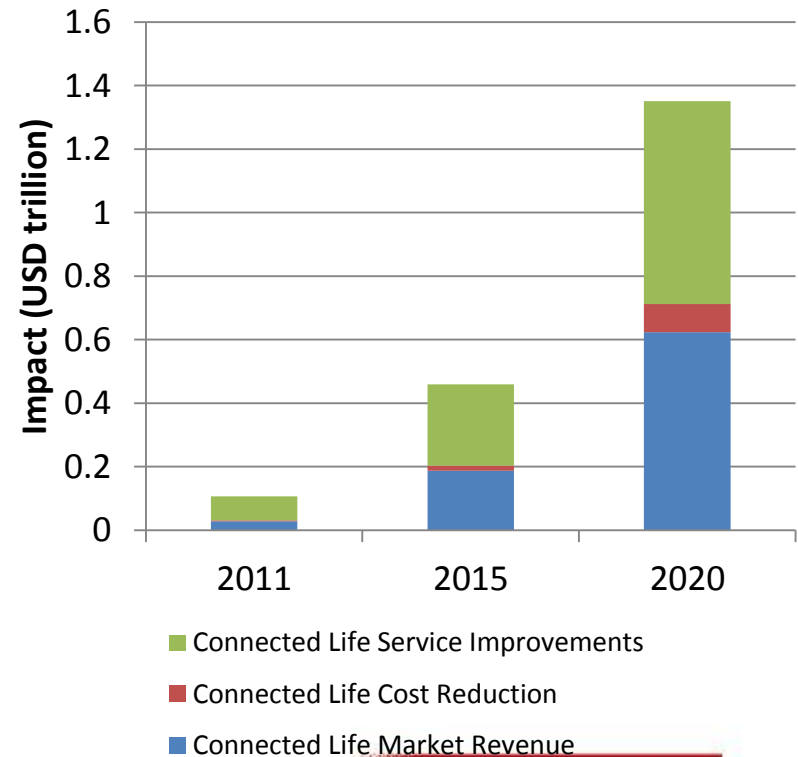
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Automotive

- **The biggest impact from the Connected Life**
- **Connectivity will become an implicit part of the driving experience**
 - Some sort of mobile connectivity will penetrate 90% of new vehicles, up from 10% today
 - Electric vehicles must be connected
- **New business models will be created:**
 - PAYD insurance
 - New models of vehicle 'ownership'
 - In-vehicle entertainment

Global impact of the Connected Life in the Automotive Sector 2011-2020

Source: Machina Research, 2011



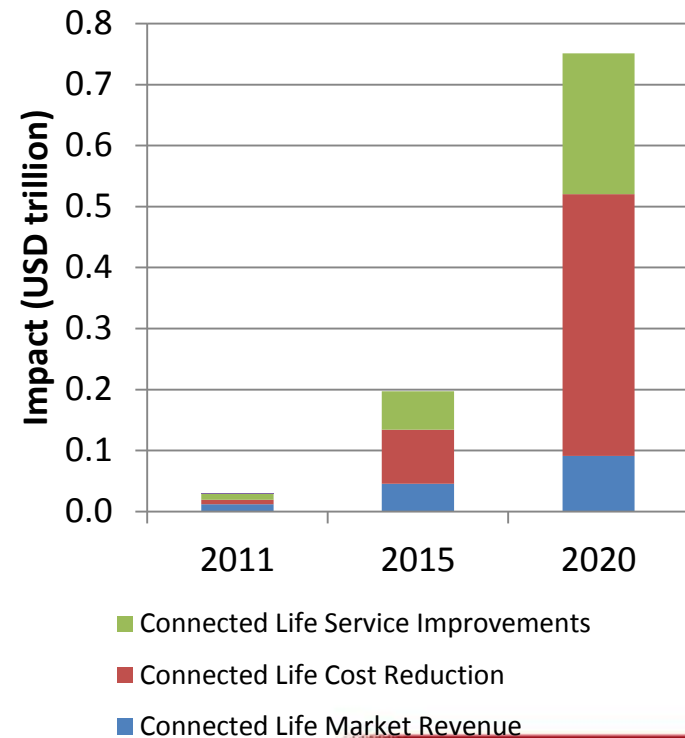
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Healthcare

- **Huge cost savings can be recognised in healthcare**
 - Clinical remote monitoring will generate USD350 billion in cost savings and benefits from pre-emptive action
 - 'Assisted Living' applications (from Vitality Glow-Caps through to comprehensive living solutions) will allow people to stay in their homes longer, saving USD270 billion
 - Numerous other applications including telemedicine and first responder connectivity will also generate cost savings and quality-of-service improvements

Global impact of the Connected Life in the Healthcare Sector 2011-2020

Source: Machina Research, 2011



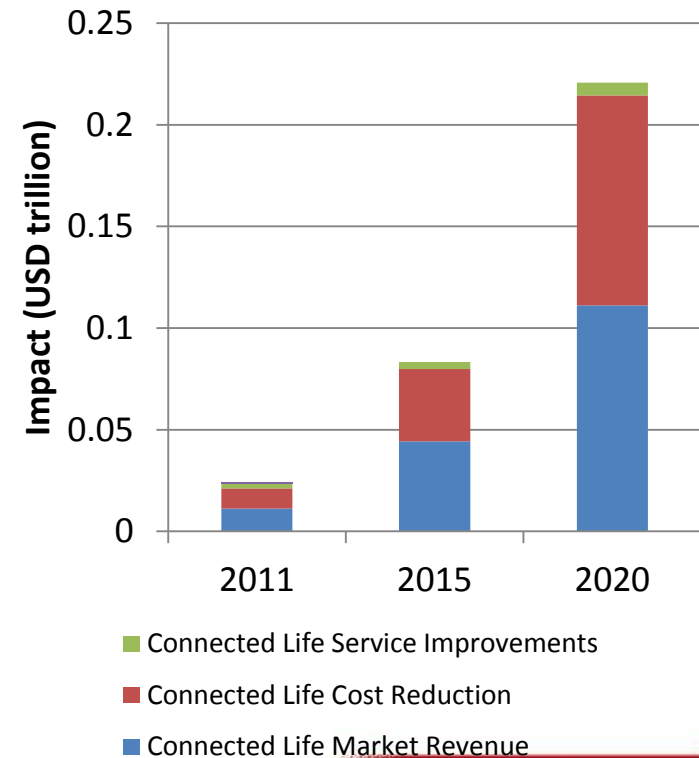
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Utilities

- **Smart meters will facilitate big cost reduction gains**
 - Utilities – automated meter reading and fraud reductions worth USD20 billion in 2020
 - Home-owners – changing user behaviour in reducing energy usage (and thus spend) to the tune of USD85 billion
- **Other utilities benefits include:**
 - Revenue generated from electric vehicle charging
 - More secure and reliable distribution network

Global impact of the Connected Life in the Utilities Sector 2011-2020

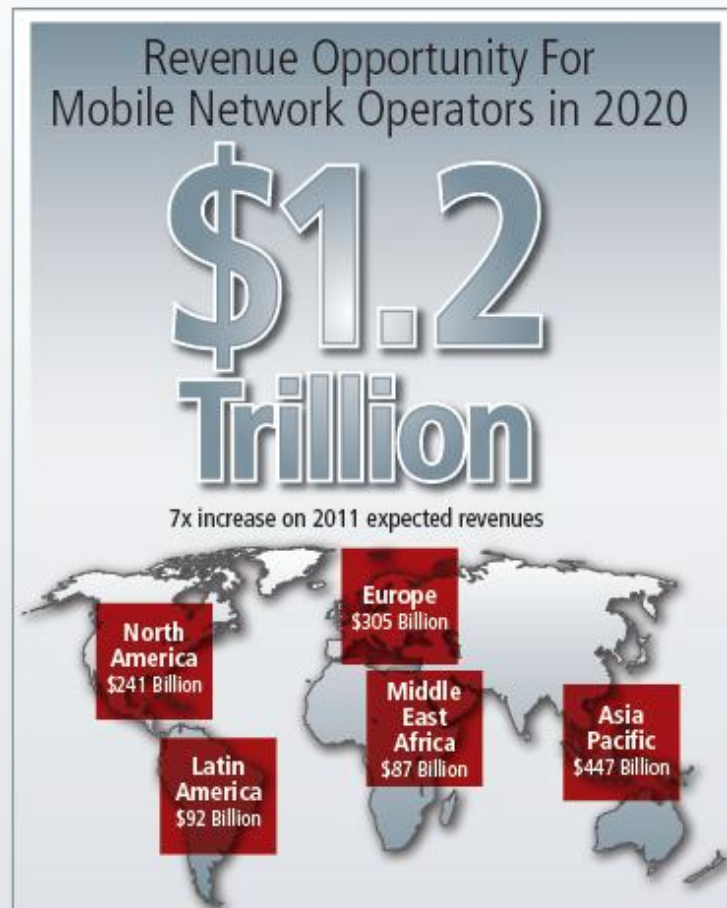
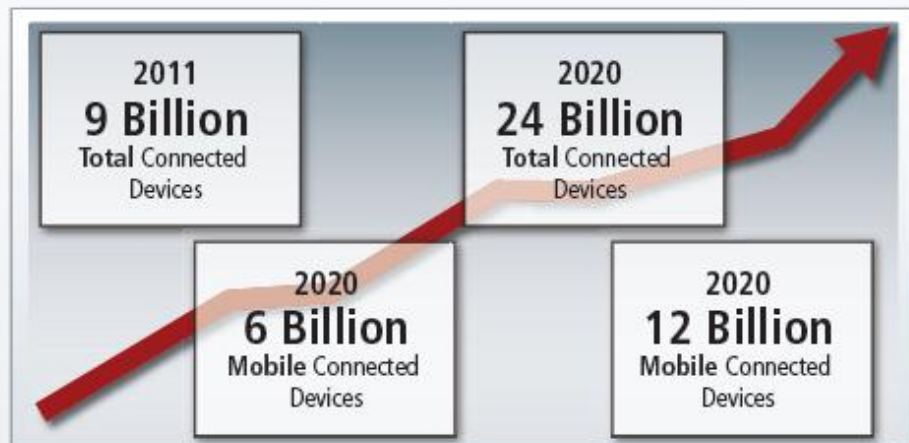
Source: Machina Research, 2011



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The Connected Life by 2020



Creating opportunities through cross-industry collaboration

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