Connected Home Overview

The European Perspective
The connected home concept has been discussed for at least 10 years, but has not yet materialized with mass market adoption due to a number of key barriers.

GENERAL OVERVIEW

**Connected Home Concept**

Connecting home electronics to one another and the Internet to create advanced functionality and usability

**Key Barriers**

Longstanding vision for a future “smart home” has been slow to develop because of:

1. Lack of consumer comfort with remote control of elements
2. Multiple connectivity standards
3. Many vendors, many proprietary approaches with no interoperability
4. Lack of integration among devices / platforms
5. Complex and expensive installation and setup
6. Lack of understanding of value prop
7. Lack of mass market awareness

First Prediction in 2002:

- Slow development within clusters
- Key barriers preventing mass adoption and integration across clusters have to be overcome

Source: AltmanVilandrie & Co., Solon
However, all connected home markets are expected to grow as proliferation of smart devices increases and regulatory landscape and technology changes.

**General Overview**

**Global market development for use of connected products**

$\text{bn 2016, CAGR 2010-2016}

- **Confluence of trends drives adoption:**
  - **Strategic** – requirement to find new revenue sources and stop cannibalisation
  - **Market** - Increasing smart device proliferation
  - **Regulatory** - Green economy objectives
  - **Technology** - interoperability and reducing cost for equipment

Includes connected and non-connected products

Source: GSMA, Berg Insight, Solon
Many players are expanding from one cluster of the connected home into others – most hope to “Own the Home”

### GENERAL OVERVIEW

<table>
<thead>
<tr>
<th>Entertainment</th>
<th>Communications</th>
<th>Managed Home Network</th>
<th>Energy Monitoring</th>
<th>Automation &amp; Control</th>
<th>Security &amp; Monitoring</th>
<th>Health &amp; Fitness</th>
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<tr>
<td><strong>Equipment-only Providers</strong></td>
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Source: AltmanVillardie & Co., Solon
Many of the traditional barriers to connected home adoption are being overcome, but key questions remain

### Key Barriers

- Comfort with remote control
- Lack of connectivity standards
- Many proprietary vendors and approaches
- Lack of integration among devices and platforms
- Complex and expensive installation and set up
- Lack of understanding of value prop
- Lack of mass market awareness

### Market and Technology Developments

- Mass adoption of smartphones and apps puts simple control in everyone’s hands
- WiFi nearly universally available; Zigby winning in key low cost/low power use cases
- Cloud services, Android, and iOS creating a unifying framework
- Smartphones, tablets, cloud, and WiFi provide lower cost platform; but some use cases remain difficult to set up
- Smartphone make understanding easier, but do people care?
- Larger players moving into this space with marketing muscle

### Key Questions Remain

- How to get the costs, installation and business model right?
- What use cases (if any) do customers want?

Source: AltmanVilandrie & Co., Solon
Solon Survey 2012 focusses on the Consumer perspective of the Connected Home market

A parallel survey of online users in 5 countries covering the key aspects of the Connected Home

- Home Entertainment
- Home Monitoring & Control
- Home Energy Management
- Home Health Services

Representative sample of N= 1000 per market

Key insights from the survey

- Which clusters have the highest customer appeal today and in future?
- Which providers will customers buy from?
- Which factors drive product use and interest?
- Which factors limit uptake and what strategies can operators apply to mitigate them?
Connected Home Overview

The European Perspective
Raising awareness of available services and articulation of consumer benefits should be key priorities for product development and communication efforts.

Willingness to buy services as a subscription and higher likelihood to buy bundled makes this an interesting addition to existing multi-play offers.

Telcos and utilities in pole position as they can leverage trusted brands and strong service organizations. Their appeal is strong across services and countries making this a scalable opportunity.

Source: Solon Connected Home Survey 2012
In the US, Connected Entertainment has reached mass market status. Other connected home services still in their infancy.

CURRENT USAGE OF CONNECTED HOME SERVICES

Usage of connected home services
% of respondents per country, 2012

- Longer availability of streaming options in the US has made Entertainment a mass market
- Home entertainment usage is 2x – 4x greater than the next most used service

Source: Solon Connected Home Survey 2012
Priority of interest in connected home services is similar across countries, with home entertainment the most interesting

Share of 1st or 2nd most interesting ranking across cluster
% of total respondents

- Most respondents show strongest preference for Home Entertainment services
- Energy and Monitoring close second, Health with significant gap

Based on four European markets (UK, Germany, Spain and Poland)
Source: Solon Connected Home Survey 2012
Amongst those that show interest, Home Monitoring and Energy with strongest untapped absolute potential. Health with strong interest in niche market.

**CONSUMERS’ INTEREST IN CONNECTED HOME SERVICES**

<table>
<thead>
<tr>
<th>Home entertainment</th>
<th>Home monitoring and control</th>
<th>Home energy management</th>
<th>Home health services</th>
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</table>

**PREFFERD CLUSTERS**

Based on four European markets (UK, Germany, Spain and Poland)
Source: Solon Connected Home Survey 2012
Purchase intentions amongst those who “get” the product are very high. About 70% of people with a preference are also planning to buy services.

**Transition interest – purchase intention**

% of people interested in cluster, % of people intending to purchase within a year

- About half of those aware of the service are either likely or very likely to buy the service.
- More than two thirds of people with an interest in Connected Home Services are likely to buy them.
- Challenge for providers is to increase awareness and communicate benefits clearly.

Source: Solon Connected Home Survey 2012
Operators should target the 35-54 age bracket as they combine highest untapped potential with spending power to afford services

### TARGET GROUPS

**Percentage take-up of specific use cases, by age**
*Percentage of specific use cases presented to respondent, 2012*

- Use
- Interested in

- **Early adopters especially in the younger segments**
- **Opportunity to grow in 35-54 bracket as one third of the market with unserved interest in Connected Home services**
- **Operators will need to adjust their marketing and sales approach to cater for that target group**

Source: Solon Connected Home Survey 2012
To broaden market adoption, operators will have to invest in product development and communications.

**Reasons not to purchase connected home services**

*% of respondents, 2012*

- **Too expensive**: 51%
- **No benefit**: 37%
- **Too complicated**: 28%
- **Not available**: 25%
- **Other**: 11%

- A large proportion of the market is currently not addressable as they are either not aware of the services or don’t see the benefit.
- Operators will have to educate the market and strong marketing and sales organization will be key assets.
- Additionally operators need to think of alternative pricing models, e.g. subscription or partner-based.

Source: Solon Connected Home Survey 2012
Telcos and Utilities in pole position to develop market as consumers view them as the most reliable source for Connected Home services

Willing to purchase from (provider)
% of respondents willing to purchase, 2012

- Reliability and ease-of-use are key aspects that consumers ask for when buying Connected Home Services
- Telco and utilities with highest ranking across all clusters indicating that trust and service capabilities are important than innovative consumer brands
- Opportunity for telco and utilities to develop own ecosystems as well as platform solutions

Source: Solon Connected Home Survey 2012
Two thirds of the market can be addressed with longer term subscription models. Opportunity to bundle and reduce churn

**BUYING BEHAVIOUR**

Most preferred payment method for connected services

% of respondents, 2012

- Payment method is an important factor when localizing a product as preferences differ between markets
- Connected home operators should provide a range of payment options to capture the whole market.
- Operators have the opportunity to influence a large share potential customer regarding payment method and integrate offers in a multi-play logic

Source: Solon Connected Home Survey 2012
Respondents who currently have bundles are twice as likely to buy connected services in the next year providing interesting up-sell opportunity.

**BUYING BEHAVIOUR**

### Likelihood to purchase additional service in the next year

**% of respondents, very likely purchase only**

- **Have bundles**
- **No bundles**
- **Uptake ratio 1st to 2nd most used service**

<table>
<thead>
<tr>
<th>Service</th>
<th>Uptake ratio</th>
<th>1st to 2nd</th>
<th>1st to 2nd</th>
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<tr>
<td>Entertainment</td>
<td>2.1x</td>
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<tr>
<td>Energy</td>
<td>2.5x</td>
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<tr>
<td>eHealth</td>
<td>2.7x</td>
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<tr>
<td>Monitoring</td>
<td>2.3x</td>
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- **Respondents who currently buy services in a bundle are twice as likely to buy connected home services during the next year.**

- **Opportunity for operators to upsell Connected Home Services as part of their multi-play bundles.**

Source: Connected Home Survey 2012
Solon Connected Home Survey 2012 - Key take-aways

1. Connected Home is finding its way into the consumers’ life. Entertainment is on the brink of becoming a mass market product in Europe and will thus see accelerated growth over the next years.

2. Other clusters are still early stage but show significant potential that is currently largely untapped. Energy management and health will benefit from favourable public policy commitments.

3. Telcos and utilities are best positioned to develop the market and to play an integrator role. For Telcos, Connected Home is an interesting opportunity to reduce churn and offset ARPU losses.

4. Business cases for Connected Home will have longer investment horizon. For operators to be successful, they will have to rely on partnerships and acquisitions.
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