EUROPE'S SMART HOME MARKET – HIGHLY CONCENTRATED BUT GROWING

Based on BSRIA Smart Home 2010 Europe study (updated to 2012)

Europe's smart home market is still a niche market, despite the continuous development over the past 10 and more years, but there is growing interest with an upward trend seen in the market size, a new study from British building environment market intelligence provider BSRIA has found.

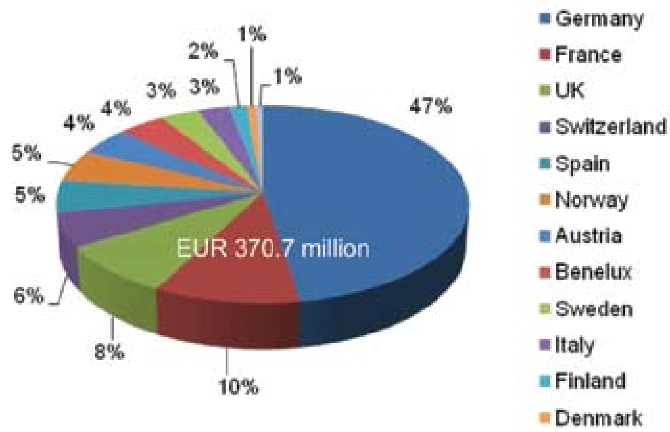
Home control can be traced back to the 1980s with controls on electrical equipment. The smart – or intelligent – home has been in development for over 10 years, but awareness by consumers of smart home products and systems remains low. However, in the last year, more people from the industry have started talking about the smart home, due to the interest in energy conservation in the home.

Broadly the smart home market can be segmented into three areas:

- Smart home products
- Home energy management
- Residential environmental controls.

SMART HOME PRODUCTS

In 2010 Europe's smart home market, including products along with the system integration (design, installation, wiring, customized programming, etc.) and installation labour, was valued at €529.6 million. This is up 18% from the €448.3 million of 2008.



Breakdown of Europe's smart home market

The geographical breakdown of the market is shown in Figure 1. This shows that Germany is the largest market in Europe by far, followed by France, UK, Switzerland and Spain in decreasing order.

Of the total market, that pertaining to smart home products totaled €370.7 million in 2010.

In general, products can be classified into three categories:

- User interface, which is the device enabling communication between the occupier and the smart home system
- System controller, which controls specific equipment according to user command
- Field devices, which receive commands and execute the corresponding actions.

Field devices have the largest share in the smart home product market (€174.9 million). These include different kinds of sensors (motion, light, temperature) and actuators (blinds, curtain, window, door, water valve).

The user interface is the second largest category (€90.8 million). The most common user interface devices are LED touch panel type that acts as a central control panel, smaller LED with buttons, and simple push buttons. As LEDs become more affordable and because they are extremely flexible, larger LED touch panel devices will become popular.

As smartphones and tablet PCs (e.g. iPhone, iPad, etc.) are becoming more popular, these are turning into a second user interface. Many manufacturers are launching new apps to turn these smart devices into another control on the smart home system. The industry is still puzzling about the future trend, whether these smart IT devices are going to be a substitute to the traditional user interface or complementary.

Consumers today also use more (mobile) internet access, and smart home systems are latching on to this trend by enabling control over IP. There are more gateways or web server devices added onto the smart home system to allow remote control via internet. These kinds of products are grouped in the 'others' category (€54.7 million).

System controllers have the smallest share because some of the user interfaces already have control capability. Therefore, system controllers do not exist in some systems.

SMART HOME MARKET SEGMENTATION

In terms of the market by customer segment in Europe, smart home products are still mainly installed in expensive housing (typically with a value more than €1 million) due to their high cost (Table 1).

Customer segment	Euro million	%
Luxury villas	126.5	34%
Luxury apartments	42.7	12%
Mid-range houses	42.0	11%
Mid-range apartments	13.1	4%
Zero/low energy homes	9.0	2%
Assisted homes	11.0	3%
Hotels	36.0	10%
Other commercial buildings	90.5	24%
Total	370.7	100%

Table 1 – Smart home market size by customer segment (2010)

A multi-room type KNX system starts from €7,000. A true smart home system starts from €30,000.

The key demand side drivers remain comfort and convenience, with lighting, blinds control and entertainment systems the major applications in smart home systems. However, there is a growing trend in multi-room control integrated with heating.

Interestingly, assisted living home is an important market in the Netherlands with financial support from the government.

KNX is the most popular protocol, sharing 68% of the market. The remaining protocols are proprietary and other wireless protocols such as Z-Wave and EnOcean. ZigBee has more presence in the home energy management system (HEMS) market.

DEFINITIONS

Smart home

- A smart home is the residential extension of "building automation" with a smart home system providing integrated centralized control on individual systems.
- Building component control refers to the control of blinds, curtains, windows, doors, etc.
- Environmental control system refers to heating, air conditioning and ventilation.
- Smart appliances include all household smart appliances including clothes dryers, clothes washers, refrigerators, freezers, dishwashers, ovens, coffee makers, microwaves, range tops, etc.
- Consumer electronics refer to TV, radio, AV equipment, game console, etc.

Home energy management system

- The HEMS is designed to provide information and functions to both consumers and energy suppliers such that it can monitor energy consumption, reduce waste, manage budget, and schedule demand to avoid the peak, so that the need to build new power generation plants can be reduced
- HEMS includes a home energy controller (HEC) or a PC application for consumers and energy management software hosted services for utilities.
- HEMS products and systems existing in Europe can be divided into different categories according to the functions:
  - Display only – the system gets data from the energy meters and displays it either on a in-house display device or via the internet energy management platform
  - Display and control – same as display only with an addition of smart plugs, so that individual electrical appliances can be monitored and controlled.
  - Other value-added functions include energy consumption history, energy cost based on time of day, energy budget management, microgeneration monitoring.

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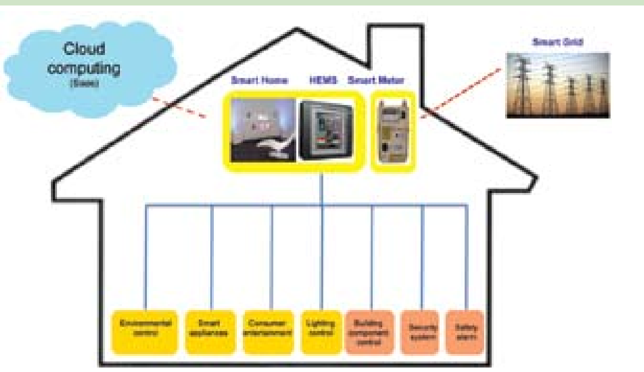
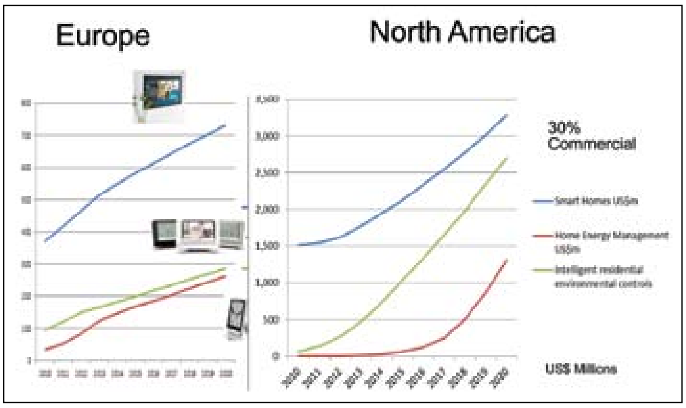


Smart home



Growth of smart homes 2010-2020

The smart home product market is dominated by German players, with a 65% share. American companies are only present in the very expensive solution segment. French companies are still focusing on France. In Spain, there are several small manufacturers developing their own systems. There are some Italian based companies which are quite active outside Italy.

To enable the smart home market to reach the mass market, the industry needs to lower costs by providing simpler and more standardized solutions. There is also a need more skilled installers.

HOME ENERGY MANAGEMENT SYSTEMS

Europe's HEMS market was valued at €30.5 million in 2010. Like the smart home market, Germany has the biggest share. There are also many activities in the UK, but HEMS is still very low profile in Switzerland, the Netherlands, Sweden and Norway.

The market is still at an early development stage. Most of the sales of HEMS products are for testing or pilot projects. In 2011, we started to see a market establishing in the UK and Germany. But even in countries like Italy, Sweden and Finland, where smart metering has been or is being fully implemented, a HEMS market still does not exist.

Energy suppliers play an important role in this market, although their strategy and direction are still unclear. At the moment, they are still running tests on products and looking for a proper business model.

The market also needs to wait for the rollout of smart metering to come on track. Currently, only about 10% of households in Europe have smart meters installed.

It is expected the market will remain at a developing stage until 2014/15. Thereafter the HEMS market should become established, with a well-defined supply chain and product standards.

There are several new HEMS products being developed by small scale start-up companies. Their main strategy is to partner with energy suppliers to supply the HEMS products. Many of these companies are developing their products based on ZigBee technology.

The forecast for the HEMS market is positive, with the expectation for it to reach €115.7 million in 2013.

INTELLIGENT RESIDENTIAL ENVIRONMENTAL CONTROLS

The product market was valued at €86.2 million in 2010. These include intelligent thermostats, automatic radiator valves, sensors, and electric heating control systems (energy managers). Surprisingly, the market for gas heating controls is heavily dominated by DIY products.

A large number of products are sold to consumers via retail and online channel directly. MI