

Catching the Smart Home Opportunity

Room for Growth for Telecom Operators



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Introduction

Smart Home services are poised for strong growth and represent an attractive opportunity for telecom operators to expand their services and revenue streams. Telcos have several competitive advantages, including their internet gateways, strong customer relationships, and sales and support networks. However, partnerships are essential and timing is critical.

In this report, Arthur D. Little reviews the key trends driving the potential for Smart Home solutions, presents an overview of four main segments and provides recommendations for telecom operators in the launch of Smart Home services.

A Smart Home is a home or building that is equipped with a special connected platform enabling its occupants to remotely control and program an array of automated home electronic devices. The Smart Home becomes “intelligent” as it offers a wide array of new applications from home automation (home security, comfort and entertainment), home cloud (management of content, productivity, sensors data used or produced at home), and e-Health services.

Major electronics and software companies have offered Smart Home products since the first home automation products in the 1980s. These were followed by integrated media systems, such as Microsoft’s Home Media Center in the 1990s, and then with the first connected appliances, such as the Electrolux Screenfridge, in the 2000s. These solutions initially met with limited success, so why is the Smart Home a hot topic again today? And how should telecom operators position themselves in this growing market?

Key Trends are Creating Opportunities for Smart Home Services

Homes, and the way we live and behave in them, have changed dramatically in the past ten years. Today, fundamental trends have emerged to drive the take-up of Smart Homes:

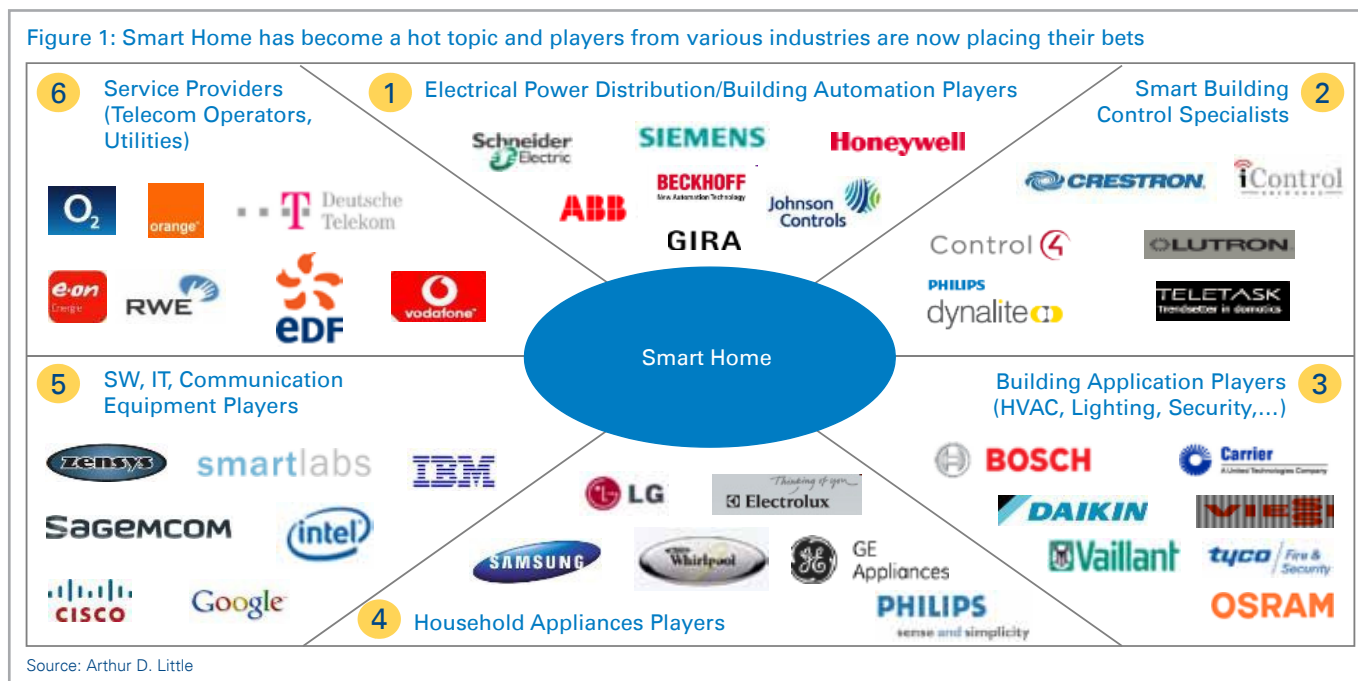
- **Societal trends** – Society is ageing; in 2020, a fifth of the European population will be over 65 years old and single parent families are expected to represent 21 percent of total families, increasing demand for new services in the home.
- **Digital addiction** – Forecasts predict there will be on average 3.6 screens per person in Europe in 2015 (including smartphones and tablets) versus 1.7 in 2000. This development is a strong enabler for Smart Home applications as portable devices are the perfect counterparts (as controllers) for smart applications in the home.
- **Strong push by large players positioning homes at the center of the digital ecosystem** – A wide range of leading players are entering the Smart Home market, including Over-the-top players (such as Google and Microsoft) offering applications and operating systems, telecom and utility service providers (such as Telefonica, E.ON and GDF Suez) managing the customer relationship, and appliance manufacturers (such as Philips, and LG with the LG Homnet) providing Smart Home devices (see Figure 1).

There is a window of opportunity today, as these trends are developed enough to make Smart Home a potential business. Based on various projects, Arthur D. Little estimates that Smart Home revenues will grow by 12 percent a year until 2020 in Europe. This revenue sizing includes both direct revenues, such as home automation services/products, and indirect revenues, such as the maintenance of the new devices/services.

It should be recognized that Smart Home markets are still in an embryonic phase and many players are entering the market. Telcos are one of them, and should act now in order to capitalize on the opportunity.

The Smart Home market is composed of four major segments, which we will explore in the following sections:

- Home automation/security
- Home assistance
- Home cloud
- e-Health



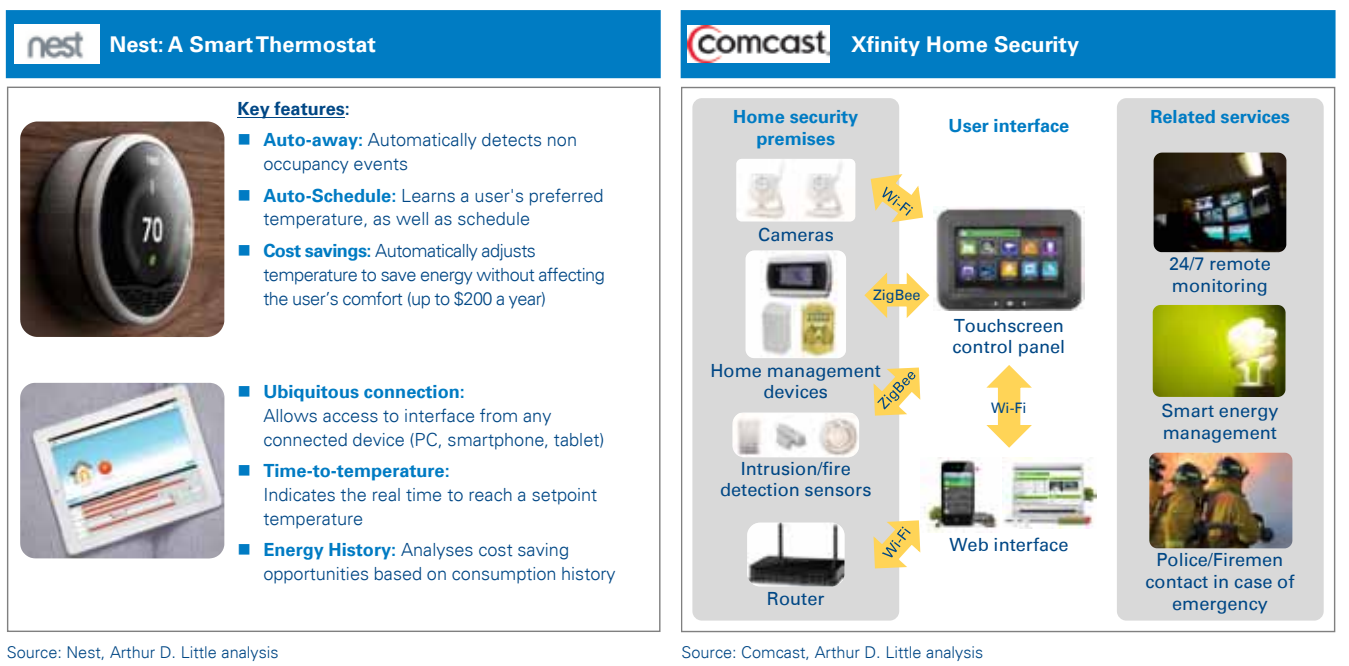
Home Automation – When the House Becomes Smarter

Home automation refers to the centralization on a unique user interface of five main home systems: home security, home energy and utility management (smart meters), home motorization (remote control of devices such as alarm systems or thermostats), lighting and entertainment.

The main drivers of this segment are comfort, modularity and peace of mind, especially when it comes to security, while energy management emphasizes cost savings. Security and energy management are the more advanced systems in terms of integration, while home automation is still at the early stages of development. Arthur D. Little forecasts a 6 percent annual growth rate for these services to 2020.

The primary challenge for home automation is the existing disparity of technologies (e.g. power line versus wireless networks, diversity of protocols and platforms). Players are developing alliances and partnerships along the value chain to promote and develop their platform. Telecom operators' main entry points are their primary assets, namely the home network (broadband access, set-top boxes, cloud storage and other connectivity layers) and related services, such as field service staff and network management capabilities (i.e. field staff capable of supporting a home network). They could also extend to home security and alerting, often with the objective of developing a presence in home control and automation (see Figure 2).

Figure 2: Home automation will be driven by security and energy solutions, and will remain highly competitive



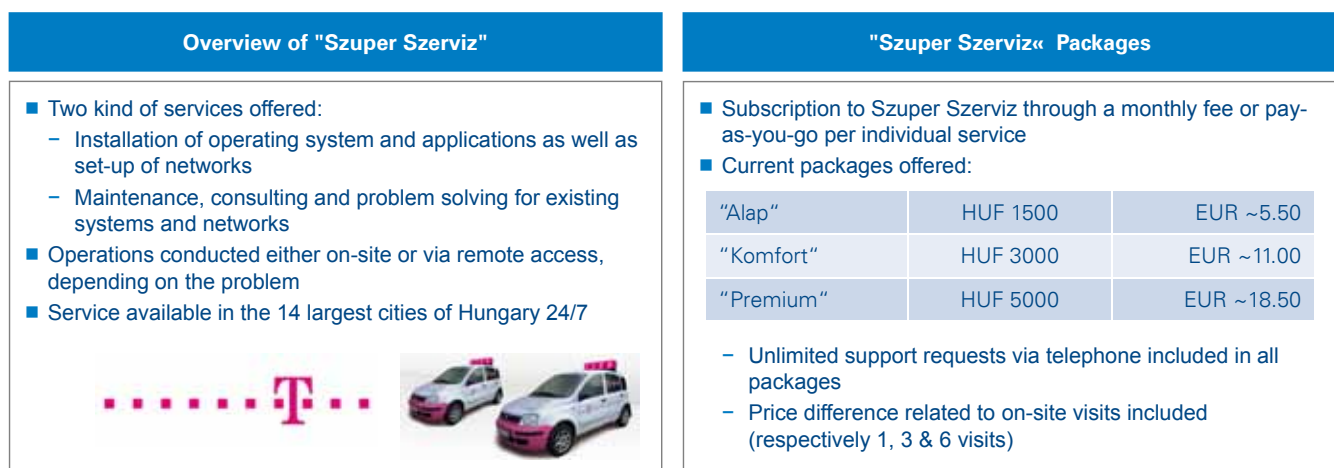
Smart Home Assistance – Required by the Increasing Complexity of the Ecosystem

Home assistance refers to configuration, maintenance, repair and support services available for digital home devices, such as PCs, TVs, audio sets, video players, game consoles and networks. Home assistance can be divided into two sub-segments: in-home assistance, through the physical presence of support staff, and remote assistance, which is managed through the remote control of the device by a off-site technician. This market is expected to grow at a pace of 5 percent per year to 2020. Despite strong market drivers, such as home digitization, teleworking and “home shoring” (home-based employees), there are still barriers to further development, such as privacy concerns, poor offers and few successful business models (Figure 3).

The Home assistance ecosystem is very fragmented with a wealth of solutions offered. Successful players are primarily making partnerships, with each one focusing on specific aspects of the value chain, such as personnel qualification, sales, service delivery, billing and CRM. For example, in the United States, OnForce works as a technician network aggregator and open marketplace. In North America and Europe, the Geek Squad generates more than \$1.5 billion in revenues, and other players are emerging such as iYogi or Virgin Digital Help.

The main success factor in the Smart Home Assistance market is the legitimacy perceived by customers, mainly retained today by manufacturers, but telecom operators are also well positioned among trusted companies for technical support.

Figure 3: MagyarTelekom offers a range of on-site and remote services for both residential and business customers under the “Szuper Szerviz” brand



Source: Magyar Telekom, Arthur D. Little analysis

Home Cloud – High Growth Perspectives

Home cloud covers three main types of digital data: content (video, music, and pictures), productivity (email, documents and contacts) and sensors (data collected through Smart Home devices, such as smart meters and e-Health devices) (Figure 4).

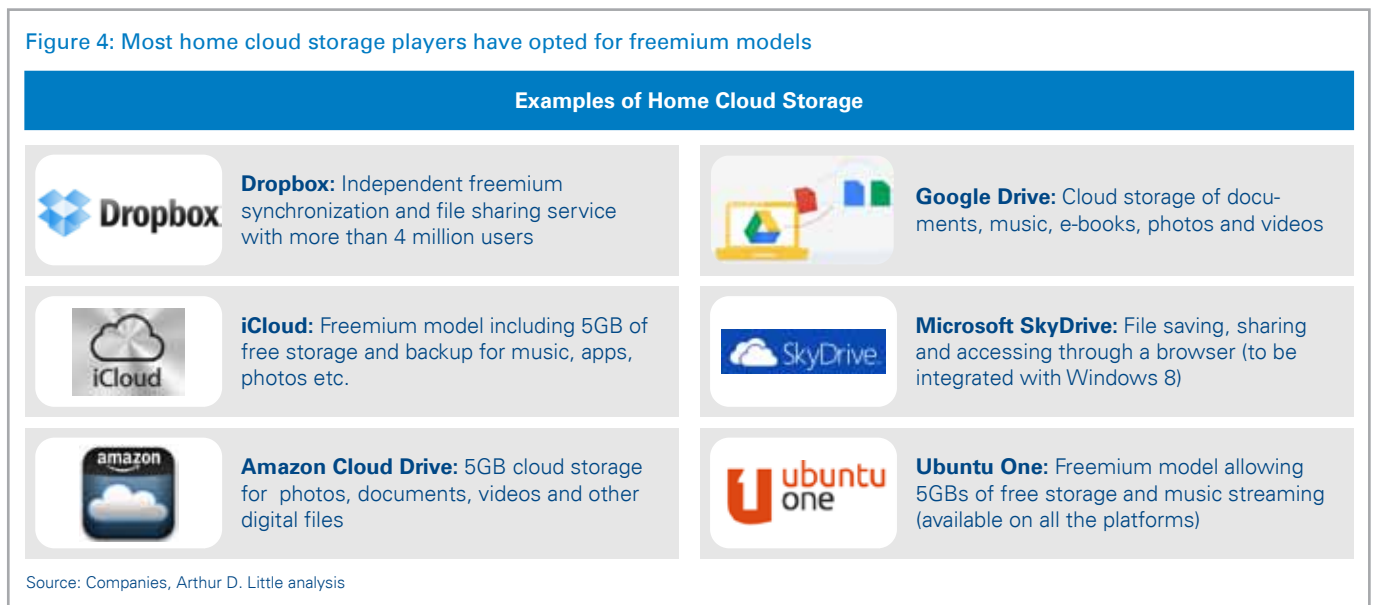
Home cloud solutions allow new ubiquitous and collaborative usages, but raise concerns about the management of data. This market is driven by the increasing amount of data, mainly video, leading to a strong demand for remote storage and access. Despite some inhibitors, such as privacy and trust, the market is expected to grow at a strong pace of 50 percent per year.

There is a vast array of offers pushing interactivity, service personalization and multi-screen usage, such as Hulu Plus and Spotify, which up-sell their viewers to multi-screen services for a

monthly fee, or Boxee, which is integrating all kinds of locally-stored and online content, such as video, music, and photos, and allowing users to share their preferences and content with friends using social network integration. Over-The-Top players, such as Apple or Google, also offer multi-device, cloud-based solutions for Personal Information Management.

In this business, telecom operators are able to leverage their customer trust, as well as their reliability and existing infrastructures.

Figure 4: Most home cloud storage players have opted for freemium models



e-Health – Long-term Opportunity for Telecom Operators

Health expenditures of most developed countries are growing steadily due to the aging of societies and developments in medical technology. e-Health, the application of telecommunication technologies in the health sector, offers a unique cost control lever for health stakeholders by dematerializing some healthcare components. Switzerland, for example, launched the e-Health Strategy Switzerland program, with potential cost savings of 5 percent of total expenditures, thanks to telemedicine. New companies are also emerging, with innovative e-Health solutions, such as Cardiocom, which provides a complete solution for telemedicine, including connected sensors.

While market players are entering e-Health according to their natural position in the consumer electronics or medical device industry, several telecom operators are addressing both (Figure 5). However, the value sharing mechanism among actors is uncertain, as it is highly dependent on standardization scenarios, making the market potential for telecom operators uncertain.

A wide variety of actors, such as telecom operators, device manufacturers and big pharmaceutical companies, are playing in the e-Health market with two market strategies: a mass market approach, such as Wii Fit or Withings – a WiFi body scale, addressing mainly B2C markets, and a niche market strategy, such as electronic patient records and patient remote monitoring, as a B2B (or B2B2C) market.

Figure 5: While most market players enter the e-Health market depending on their natural position between medical devices and consumer electronics, telcos are addressing the whole sector



Source: Companies, Arthur D. Little analysis

Telecom Operators Have Key Assets to Capture a Significant Part of the Smart Home Value...

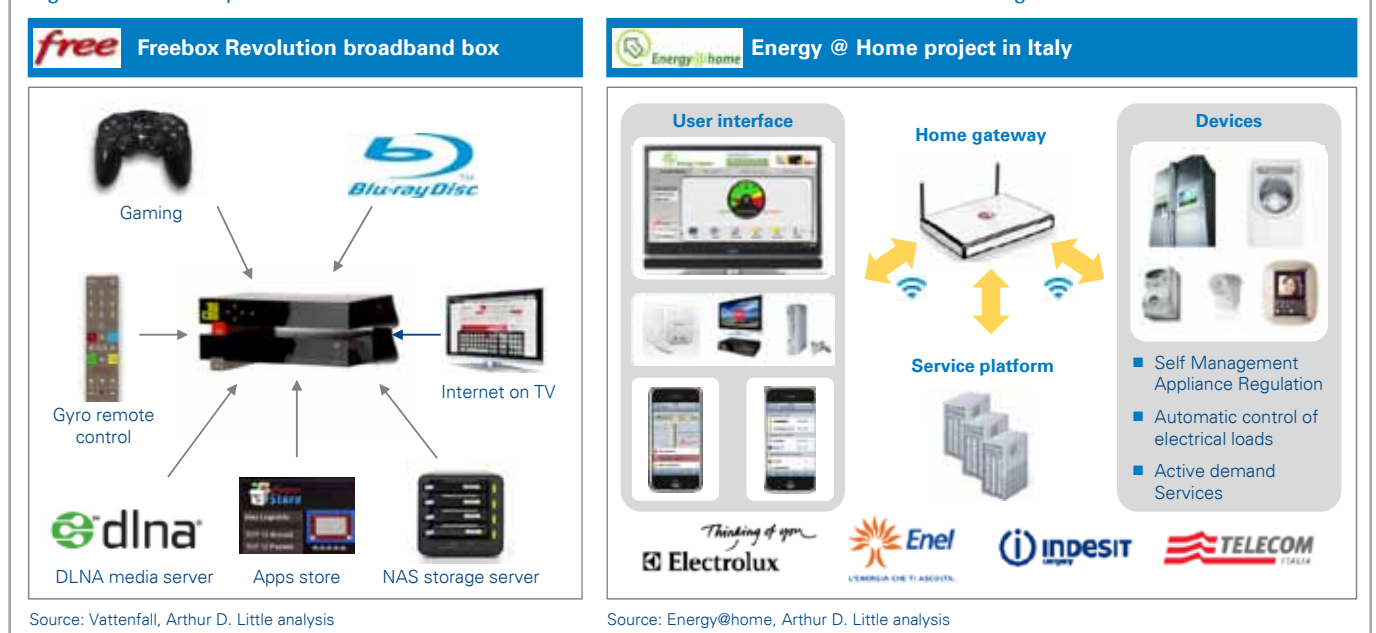
Thanks to their broadband Internet gateways, telecom operators are the leading players by several hundred percentage points in terms of penetration of households with Smart Home solutions. The broadband box has evolved from a mere internet connection device to a highly innovative platform connecting various devices. As shown on Figure 5, the Freebox Revolution broadband box or the Bbox Sensation by Bouygues Telecom offers a wide range of multi-media applications, such as Internet, TV, music and gaming, combined with innovative remote storage services.

In addition, telecom operators offer interoperable solutions based on open models that can allow heterogeneous Smart Home solutions to interconnect, contrary to closed OTT ecosystems. Good examples are the "beywatch.eu" and "Energy@home" initiatives, the home automation alliances of Telefonica and Telecom Italia, respectively, with a large number of partners, such as utilities or household appliance manufacturers. However, this openness could also be seen as a threat since it allows other players to bypass operators (Figure 6).

Another significant asset of telecom operators in the Smart Home environment is the central role they play in the customer relationship. Unlike home appliance manufacturers or some OTT players, operators are continuously in contact with their customers, and can thus capture great value by promoting, distributing and managing future Smart Home services. They also have a secure, regular billing relationship with customers that can be leveraged.

Other key assets that telcos could leverage include their sales force, shop networks and support capacity, as well as network management capabilities. In any case, telecom operators will need a strong emphasis on staff training in order to correctly address Smart Home's specific needs.

Figure 6: Telecom operators are active in the Smart Home field with initiatives around CPE or large alliances



... and Need to Place Their Bets Now and Promote Open Platforms

As the Smart Home market is still emerging, players need to consider and prepare for various scenarios. Arthur D. Little anticipates two possible market configurations:

Market configuration 1: The Smart Home market is captured and aggregated into large ecosystems driven by global players

This model is clearly favored by OTT players, which have already developed solutions that can bypass the operators. For example, Google has explored various solutions, such as Google Health, Google Powermeter and Google docs, some of which have nevertheless been discontinued.

Dedicated Smart Home players have also emerged, such as Control4 or iControl, in the United States. With a revenue growth of more than 45 percent a year, Control4 is building an ecosystem with leading vendors, such as Black & Decker or LG Electronics, to ensure the interoperability of its platform with the largest number of home devices.

In this concentrated model, telecom operators will face the risk of being circumvented as in the case of smartphone application store. Operators are actually amplifying this risk, as most still favor proprietary solutions in order to capture a maximum share of revenues, but with limited success so far. Indeed such models imply long development cycles and a limited number of applications, as operators fail to find developers to build the ecosystem on verticals.

On the contrary, Arthur D. Little believes that to mitigate this risk telecom operators should participate in alliances when available and should also promote hybrid Smart Home platforms with applications close to their core business but also other services offered by external providers. An example is PCCW in Hong Kong, which has built its digital home solutions around open models enabling a whole range of innovative functions from other players, such as MOOV, Android, etc.

Market configuration 2: The Smart Home market grows strongly, but with a patchwork of solutions and standards

In this second scenario with a patchwork of standards, the ecosystem will remain highly fragmented with numerous heterogeneous competitors trying to capture value from the Smart Home market. In this case, which we see actually as an opportunity, operators will be in a position to leverage not only their assets to offer their own solutions, but also to integrate external solutions and facilitate the digital life of their customers. By doing so, they would generate new revenue streams and also improve the stickiness of customers to their existing services.

Conclusion

The Smart Home is a significant growth opportunity for many players including telecom operators, thanks to favorable societal trends, growing demand and the acceleration of the innovation.

Thanks to strategic assets, such as the internet gateway, control of the customer relationship, and sales and support capability, telecom operators are well positioned to capture value from Smart Home services. Despite the fact that payback will materialize in the medium term, they should act now and establish footholds or they will face a similar fate as what happened in the smartphone application market.

To benefit from this coming growth, telecom operators should promote hybrid platforms where they can offer their own solutions as well as a myriad of external solutions and position themselves as digital life facilitators.

Finally, the future Smart Home needs also to be seen in a broader context than just within the home space. Platforms will also connect the home to various other locations, such as school, office, shopping malls or cars. This will broaden the type of actors in the ecosystem, and will give the opportunity to telecom operators to strengthen their central position as the integrator of Smart Home services. It will be up to them to define to what extent.



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