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2 (a)
Industry
Forecast & Ratings









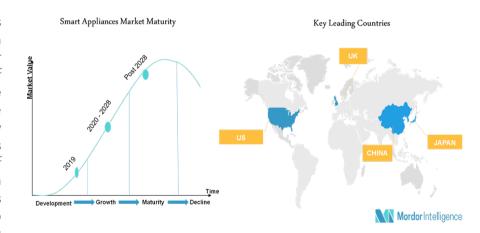
1. GENERAL INFORMATION

1.1 INDUSTRY DESCRIPTION

1.1.1 COMPETITIVE LANDSCAPE

According to Mordor Intelligence¹, the global home appliances market was measured in the amount of USD 174.07 billion in 2017, and is estimated in the amount of 2.6 percent CAGR for the 2018-2023 period to reach USD 203.37 billion by the end of 2023. In contrast to the medium-sized economy, global income patterns and competitive prices are constantly increasing in the global household appliances industry. Digitalization is highly influential, allowing for rapid changes and educating customers in gaining the necessary know-how to operate new designs of modern home appliances. In relation to their intelligent dimension and wider functionality, the number of household appliances has grown steadily since 2012. The advent of smart homes has also facilitated the widespread market acquisition of smart devices that can be connected to the smartphone of the end-user and controlled by remote control in IIoT.

Figure 1 | Smart Appliances Market, Mordor Intelligence. (2019). HOME APPLIANCES MARKET - GROWTH, TRENDS, AND FORECASTS (2020 - 2025)



1. Mordor Intelligence. (2019). Home Appliances Market Share, Size-Segmented by Product













Smart appliances are expected to expand increasingly in the Asia-Pacific region. The sales of smart devices, primarily due to the increased costs of energy and labor, high consumer purchasing power and a better understanding of smart cities and smart integrated appliances, are projected to grow in developing countries such as Japan, Singapore, Hong Kong and Indonesia. Traditional air conditioners find their global highest demand in volume in China, owing to government policies that promote energy efficient electricity, a rising property and hot weather markets.

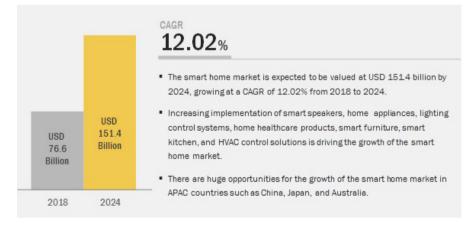
1.1.1.1 The Emerging Smart Home Concept

The smart home lights on the interface of energy efficiency, controllable appliances and real-time access to energy usage data. This integration of smart devices and smart grid enables customers to proactively manage energy use in ways that are convenient, cost effective, and good for the environment.²

Customers' mobile devices make it possible to monitor home appliances remotely, using the Internet. Homeowners can access detailed information about their energy usage in an interval of just a few minutes. Smart appliances are monitored and controlled

based on estimated energy costs per appliance and supported by a decentralized system providing an automated warning about the system's state change.

Figure 2 | Attractive Opportunities in Smart Home Market, Markets and Markets (2019) European Smart Home Market with COVID-19 Impact Analysis by Product.



2. Capgemini (2018), Smart Home: The Human Side of the Smart Grid





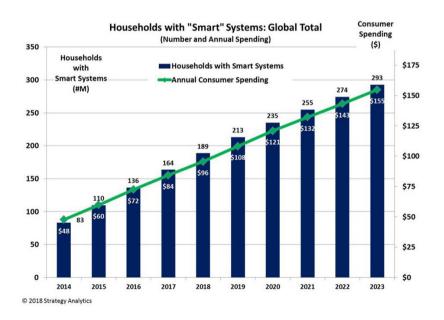








Figure 3 | Households with Smart Systems: Global Total, Strategy Analytics. (2019). Intelligent Home.



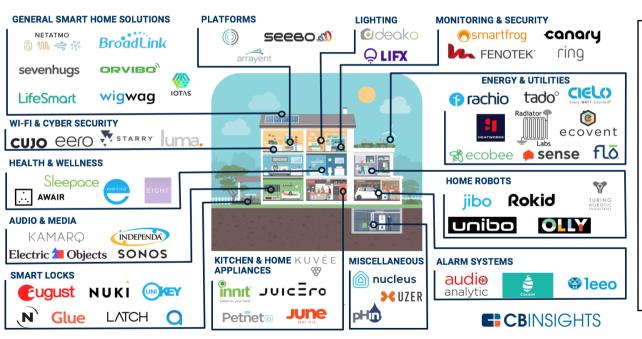
Display technologies enable customers to be aware of their energy consumption by providing updated information about it. These advanced energy usage analytics provide insights that enable users to manage energy consumption and costs. The smart home also offers customers the ability to determine if energy has been delivered from renewable resources, while giving them the opportunity to estimate their potential carbon footprint. Automated household appliances are very flexible, allowing users to program them according to their choices and preferences. Advanced intelligence features enable consumers to impose budget goals and managing their spending respectively. Smart homes would also be able to learn about the user's habits and use that information to contribute towards the enhanced autonomy of the system. Communication with the utility is made possible through messages sent via the customer portal. These messages could include energy saving suggestions and climaterelated issues, as well as live information feeds which could. for example, update users about when power outages will be restored. Smart homes have proven to be more efficient and costeffective in relation to demand response actions, for immediate action to energy-aware applications.





SMART HOME MARKET MAP: 60 COMPANIES MAKING THE HOME MORE INTELLIGENT

Figure 4 | Smart Home Market Map: 60 Companies Making the Home More Intelligent, CBInsights. (2017). Smart Home Market Map: 60 Startups In Home Automation, Smart Appliances.



As more and more home appliances are being connected to the Internet, the legislative framework for these products is also rapidly changing. Data ownership and privacy, as well as cybersecurity, are highly important topics for manufacturers, to ensure the highest degree of product safety and security and to facilitate a responsible and transparent handling of the data related to these products.





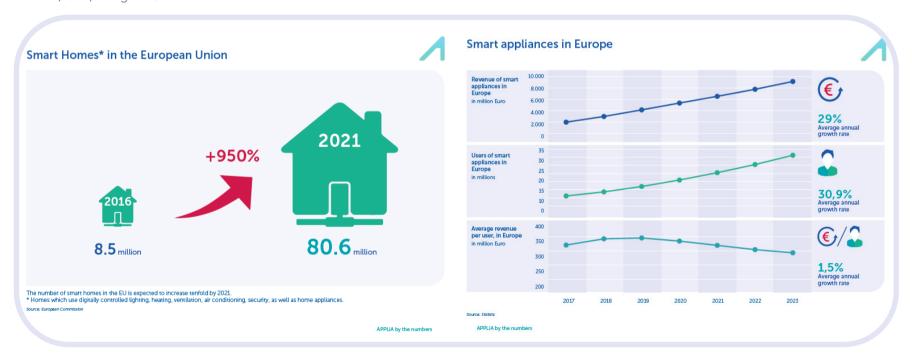








Figure 5 | Smart Homes in the European Union, APPLIA (2019) Living the Connected Home.

















How can the company invest in internet marketing?

Companies extensively use social media networks, television advertisements and specific marketing agreements with the intermediary's wholesalers and final appliance store chains.

5. Industry Indicators ⁶

The consumer price index for household appliances, an indicator of personal consumption expenditures regarding household appliances, is progressively increasing from 83.886 in 2017 to the current level of 87.060 in 2019.

- 6. FRED. (n.d.). Price Indexes for Personal Consumption Expenditures by Function: Annual.
- 7. Statista. (2018). Household Appliances.

6. Fast Facts

The Household Appliances market covers appliances that are usually used in private households. The retail sector also refers to kitchen appliances and washing machines as white goods and the rest of appliances as black goods. The market is divided into Major and Small Home Appliances. The largest manufacturers of home appliances are AEG, Bosch, Siemens, Miele, Bauknecht, KitchenAid, Whirlpool, Groupe SEB (Rowenta, Tefal, Krups, Moulinex), Samsung, LG, Panasonic, Philips etc. The home appliances market relies both on imports (mainly from China) as well as domestic production: especially Italy, Poland, and Germany are significant manufacturing countries. The major appliances industry has seen a sustained growth in revenue despite a stagnation of volume sales. This development is caused by a trend for consumers to purchase high-quality appliances that are both energy efficient and easy to control. Smart and connected appliances are becoming more and more popular. Consumer electronics, coffee machines, and microwave ovens are not included.7



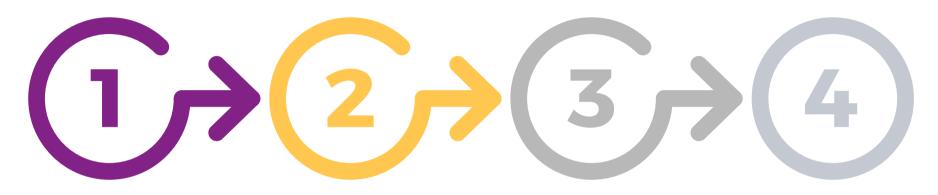












Companies in this industry currently make home appliances with an emphasis on their smart capabilities and potential. Appliances are a crucial

part of societal resource efficiency, saving time, money, energy, water and preventing waste. Major products include refrigerators, kitchen appliances, washing machines, televisions etc. Typical customers are wholesalers, global distributors, and retail appliance stores. Cash flow is generally steady in the most product categories.

The home appliance industry

contributes to circularity by providing secondary raw materials back into many manufacturing material flows. Materials recovered from the home appliance industry are used not only in producing some new home appliances, but also in other products, sectors









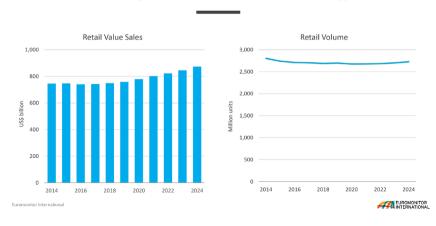




and industries. In striving for a circular economy, there needs to be a balanced approach; taking into account the balance of not only material efficiency but of improving energy efficiency, citizen welfare, consumer choice and affordability.⁸

igure 24a | Retail Value Sales & Volume of Black Goods, Euromonitor. (2019). Smart Insights into Connected Appliances for Manufacturers and Retailers.

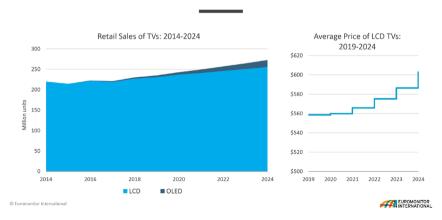
Consumers are buying more expensive products despite sluggish demand



Retail Value Sales & Volume of Black Goods

igure 24b | Retail Value Sales & Volume of Black Goods, Euromonitor. (2019). Smart Insights into Connected Appliances for Manufacturers and Retailers.

4K TVs are an easy sell to consumers



8. Applia. (2018). The home Appliance Industry in Europe.

