



Sleek, Streaming, and Smart – The Future of the Consumer Electronics Industry

The Connected Home and its Impact on Energy Efficiency

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Overview of the Connected Home

- Consumers demanding information anytime, anywhere
- Innovative device-to-device connectivity features and Home Energy Management Systems opening up a new era in convenience and energy efficiency
- Ability to control multiple devices through a smart TV, smartphone, tablet and/or computer



Impact of Sleek and Streaming on the Connected Home



Advancements in consumer electronics, as well as the movement towards streaming services, are helping to advance the concept of the connected home.

- **Consumers are increasingly purchasing and using Smart TVs**
 - Connected devices have been the fastest-growing consumer electronics category for the past three years. Today, more than 80% of new Smart TVs are connected to the Internet
- **As technology improves, consumers will be able to easily and conveniently access content on demand**
 - Consumers today wirelessly stream content from the Internet directly on Smart TVs without a PC, or wirelessly connect their smartphones and computers to the TV screen
 - Cable/satellite service is complemented with streaming video and apps from the Internet such as Netflix, Cinema Now, VUDU, Amazon, Pandora, ComedyCentral.com, Facebook, and Twitter



Impact of Sleek and Streaming on the Connected Home



Smart TV Grows as Portion of Total TV

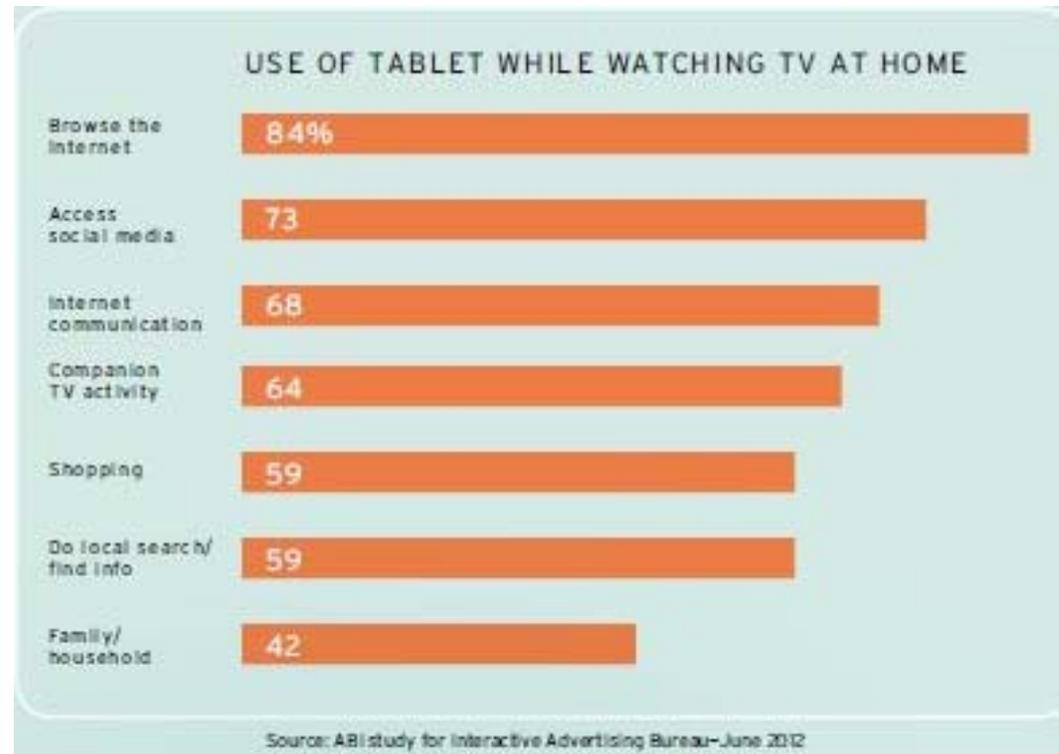


Source: Unit Basis - CEA, DS & Internal Analysis

Impact of Sleek and Streaming on the Connected Home



- **Second Screen phenomenon: consumers are increasingly using multiple screens while watching TV**
 - According to Nielsen, 45 percent of tablet owners multi-task on two-screens every day
 - Increasingly, viewers are looking at “companion applications” —both video and data—related to the TV shows they’re watching, according to CEA
- **Opportunity to develop integrated experiences and bridge multiple screens**



The Connected Home from an CE Perspective

Smart consumer electronics enable us to access content and entertainment on demand.



**ENERGY STAR
SMART TV**
Will become the
centerpiece of the
connected home

**SMART BLU-RAY DISC™ PLAYERS &
SMART HOME THEATER SYSTEMS**

BUILT-IN Wi-Fi® AND SMART SHARE



**TURN YOUR
SMARTPHONE INTO
A REMOTE CONTROL**



**MAGIC REMOTE
(LIKE AN AIR-MOUSE)**



Connected Home Challenges



TV Attribute Importance

	Excellent picture quality	Latest technology and features	Energy efficient	LED technology	Connects to other devices wirelessly	Connects to the internet (streaming services such as Netflix, YouTube, Pandora, etc)	Design that blends in with my home decor	Environmentally friendly	Stand-out design	Video quality certified by THX	Has 3D capability
TOTAL SAMPLE	4,476	4,476	4,476	4,476	4,476	4,476	4,476	4,476	4,476	4,476	4,476
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Very important (5.0)	88%	41%	44%	33%	28%	29%	23%	23%	16%	16%	10%
Fairly important (4.0)	11%	46%	42%	35%	36%	34%	40%	39%	35%	24%	16%
No opinion (3.0)	1%	9%	9%	25%	21%	17%	20%	23%	28%	25%	24%
Not important (2.0)	*	3%	4%	5%	12%	14%	13%	10%	17%	6%	28%
Not important at all (1.0)	*	1%	1%	1%	4%	5%	4%	5%	4%	2%	22%
Top 2	99%	88%	86%	68%	63%	63%	62%	62%	50%	40%	26%

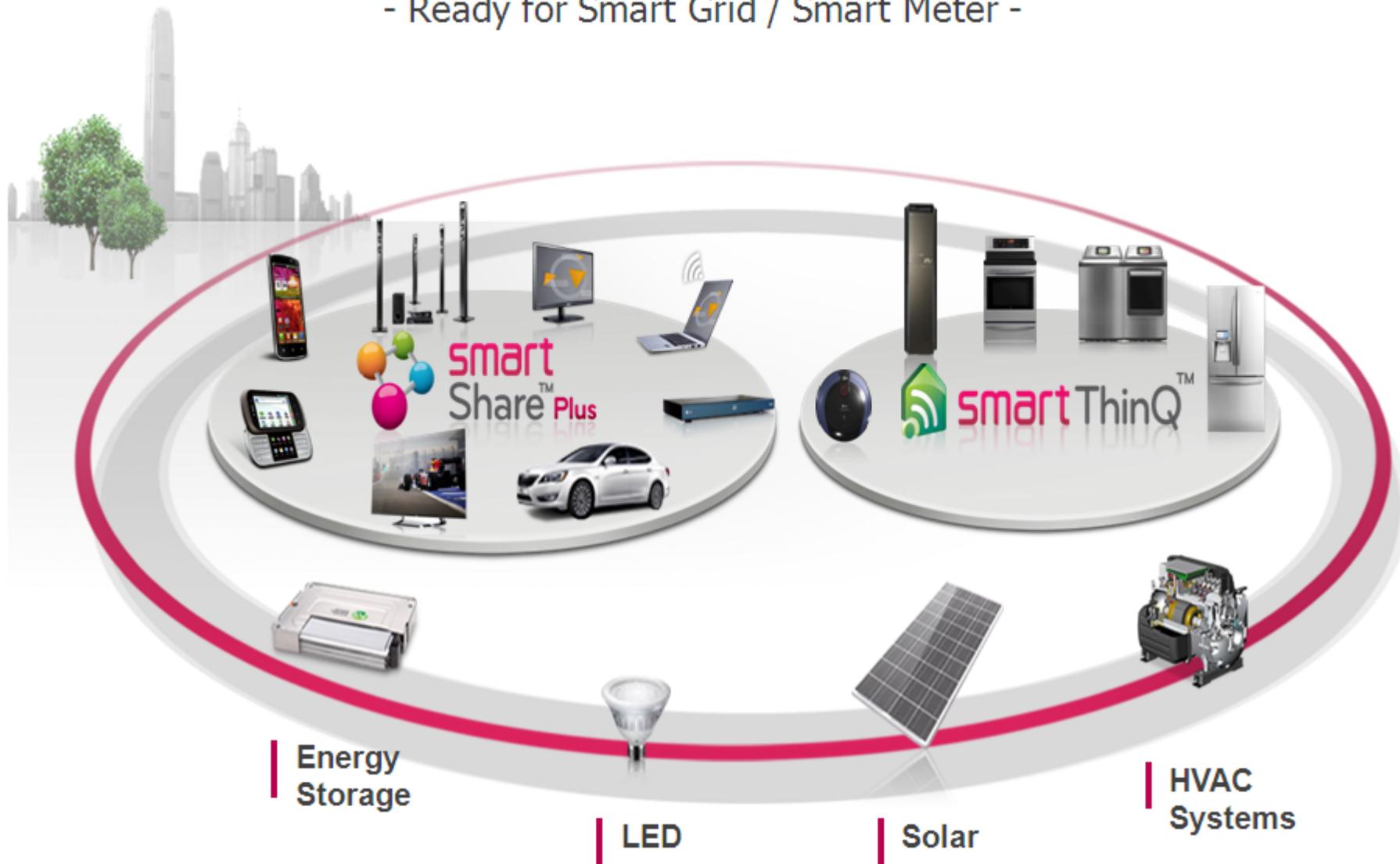
- The list of factors is not exhaustive. For instance, it does not include price, which we know is extremely important to consumers.
- While energy efficiency may be important to consumers, that does not necessarily indicate the role energy efficiency plays when making a TV purchase selection.

Connected Home Challenges

- **Standardization of communication protocols**
 - Industry needs to agree on platforms
 - Consumers will want unified, seamless, simple-to-use interfaces with interoperability across appliances and devices
 - Open industry standards (WiFi, Zigbee) are key
- **Lack of consumer awareness/willingness for connected home to date**
 - Connecting to other devices wirelessly and connecting to the Internet is rated 5th and 6th, respectively, in attributes consumers look for when purchasing a TV
 - Latest tech and features is rated 6th in attributes consumers look for when purchasing home appliances
- **Consumer research shows a low understanding of the Smart Grid**, specifically its huge future impact on consumer energy management
 - 8 in 10 Americans are unfamiliar with “Smart Grid”
 - Get consumers excited about other “smart” features to drive connected devices

Getting Consumers Excited About Smart Grid Potential

- Connectivity with smart devices, home energy management systems
- Ready for Smart Grid / Smart Meter -



Connected Home and Energy Efficiency Potential

Through smart appliances and electronics, consumers will have the tools and knowledge to easily monitor their home energy usage in real time and adjust their behavior so that they can save energy, time and money.

Short Term Implications for Energy Savings

As smart technology grows in popularity, consumers will replace their old devices with more energy efficient devices.

- Replacing old TVs saves energy. In fact, some older analog direct view TVs can **use as much electricity as a standard refrigerator**, roughly 500 kWh, every year!
- You can replace an old analog TV with a new flat panel digital TV that uses less energy. ENERGY STAR qualified televisions are on average, over **20 percent more energy efficient** than standard models.
- Consumer electronics products – including TVs, DVDs/VCRs home audio equipment, computers and power supply units – are responsible for **15 percent** of household electricity use.

Long-term implications for Energy Savings

Smart appliances can save significant amounts of money by shifting energy use to off-peak hours, and save significant amounts of energy by providing feedback to consumers on their energy use.

- ***No need to wait for the electricity bill:*** Consumers can monitor the electricity usage of each smart device by the hour, day, month or year; the overall energy consumption in a home; and the resulting costs.
 - The collected data can be viewed anytime, anywhere through PCs and smartphones.
- ***24/7 Smart Access:*** Device-to-device connectivity enables smart appliances and electronics to be monitored from an ENERGY STAR Smart TV or smartphone.
 - By making smart technology easy and convenient, LG predicts more users will take advantage of the energy saving capabilities.
- ***Automatic shut down of electronics when not in use:*** The majority of energy use occurs when no content is being watched. The ability for consumer electronic devices to automatically power off also will help deliver significant energy savings.

Opportunities for Consumer Education and Outreach



- **Continue to encourage consumers to recycle old products and update to ENERGY STAR qualified models**
 - Educate consumers about benefits of connected devices
- **Increase focus on reaching consumers online with energy efficiency messaging and benefits of Smart Electronics and Smart Appliances**
 - Approximately 90% of consumers research online before visiting a store to make a decision
- **Explore consumer incentives, rebates for Smart Electronics and Smart Appliances**
 - Focus on connectivity, energy management



Thank you!

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