

# ***Making Home Technology Profitable in a Retrofit Market***

*Presented by:*



*and*



---

NAHB Home  
Technology Alliance

CEDIA thanks the following individual(s) for serving as Subject Matter Expert(s) in the development of this course:

Ric Johnson

Slide 1



---

---

---

---

Slide 2



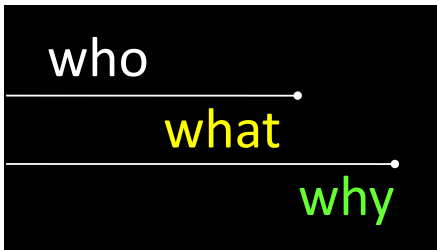
---

---

---

---

Slide 3




- CEDIA is an international trade association and education provider.
- ESCs plan, design, install, program, and service low-voltage electronic systems (ESCs are not electricians).
- The ROI program allows education and relationship-building at a grassroots level.

# Making Home Technology Profitable in a Retrofit Market

Slide 4


The **Home Technology Alliance** (HTA) is a partnership between **CEDIA** and **NAHB** that was formed to position the housing industry to effectively meet the growing consumer demand for home technology and provide maximum return on investment in the new home building and remodeling process.



- Provides resources.
- Provides solutions.
- Provides education.

Slide 5

**learning objectives**



- Define types of residential technology systems
- Discuss areas of growth in the remodeling industry
- Develop talking points for effective solutions related to:
  - Monitoring energy usage and reducing a home's carbon footprint
  - Addressing special desires and needs for the aging population
  - Providing entertainment options that meet the entire family's needs
- Recognize essential criteria for engaging an electronic systems professional in the design and build process

---

---

---

---

Slide 6



Defining home technology.

- Home technology includes multiple products and systems, such as:
  - ✓Entertainment systems
  - ✓Voice and data networks
  - ✓Lighting control
  - ✓Outdoor spaces

According to The Nielsen Company, 92% of U.S. households have internet access, and according to a Cleveland Ohio Business publication 60% have Broadband service.


[Sources: Cleveland Ohio Business news, [www.cleveland.com/business](http://www.cleveland.com/business), Articlet, [www.articlet.com](http://www.articlet.com)]

With features like daylight dimming, occupancy sensors and scheduled shut-offs, energy savings can be as high as 90% according to estimates by the EPA.

Slide 7

*growth areas*  
in remodeling

- Energy efficiency
- Aging population
- Home entertainment



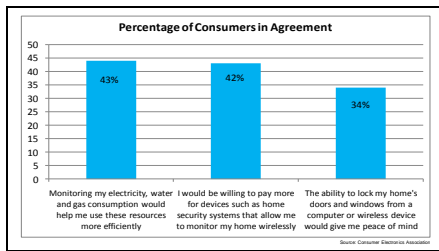
Growth areas in remodeling.

- Energy efficiency.
- Aging population.
- Home entertainment.

According to the most recent Joint Center for Housing Studies of Harvard University, two of the areas that hold the key to growth in the remodeling industry are the desire for energy efficient homes and the aging population.

[Source: Joint Center for Housing Studies of Harvard University]

Slide 8



Growth areas in remodeling.


- Consumers want to be able to monitor utility consumption.
- Consumers want options related to mobile monitoring of their home's systems.

43% consumers said being able to monitor utilities, such as electricity, water, and gas, would help them use these resources more efficiently. Additionally, being able to monitor and manipulate their homes' systems was of great interest to 42% and 34% of the respondents respectively.

[Source: Consumer Electronics Association]

Slide 9

*energy efficiency*



- U.S. homes consume between 22%-40% of total energy consumption
- Installation of energy efficient products:
  - Windows
  - Appliances
  - Lighting control
  - Integrated systems
- Electronic monitoring of energy consumption

Growth areas in remodeling: Energy efficiency.

- U.S. homes consume between 22%-40% of total energy consumption.
- Install energy-efficient products and systems.
- Monitor energy consumption.

Slide 10



selling the value: energy efficiency

- Cost savings
- Helping the environment
- Future product/ system compatibility
- Peace of mind

Energy efficiency: Selling the value, not the product.

- Cost savings.
- Altruism.
- Future product/ system compatibility.
- Peace of mind.


Sustainability quite simply is meeting the needs of the present, without compromising the ability of future generations to meet their own needs. Energy efficiency is one way to support sustainability, and cost savings can be a result of employing energy efficiency measures.

[Source: U.S. EPA, [www.epa.gov/sustainability](http://www.epa.gov/sustainability)]

Questions to ask related to energy efficiency would include "would you like to monitor energy usage and possibly decrease the cost associated with utilities?" or "do you have concerns over the long-term impact on the environment and future generations related to sustainability?"

Questions to ask related to systems integration would include "would you like to reduce your home's energy usage?", or "do you anticipate upgrading your appliances or electronics in the home in the future?"

Slide 11



aging population

- By 2015, 50+ = 45% of population
- 50+ have \$2.3 trillion in disposable income
- 27% more likely to embark on major home improvement or repair

Growth areas in remodeling: Aging population.

- By 2015, those aged 50 and over will represent 45% of the U.S. population.
- 78 million aged 50 and over controlled 67% of the country's wealth (as of 2001).
- Aged 50 and over have \$2.3 trillion in disposable income.
- 50% of baby boomers plan to buy a new home after retirement
- This generation is 27% more likely than other generations to embark on a major home improvement or repair in the next 6 months (as of January 2007).

By the year 2015, those aged 50 and over will represent 45% of the U.S. population, and they will have an estimated \$2.3 trillion in disposable income. Additionally, 78 million of those aged 50 and over controlled 67% of the country's wealth, as of 2001.

Some interesting information--50% of baby boomers plan to buy a new home after retirement, AND, as of January 2007, they are 27% more likely than any

other generation to embark on a major home improvement or repair in the next 6 months.  
[Source: "50 + Facts and Fiction",  
[www.immersionactive.com/lower.cfm?section=resources&page=facts\\_fiction](http://www.immersionactive.com/lower.cfm?section=resources&page=facts_fiction)]

Slide 12



Aging population: Selling the value, not the product.

- Compatible with grandchildren's technology.
- In-law suites.
- Universal design.
- Remote monitoring.
- Healthcare monitoring.
- Safety and security.

Questions to ask related to internet access and electronic network storage would include, "do you want to be able to network and store electronic data, such as movies and photos?"

Questions to ask related to universal design would include "do you anticipate children or grandchildren to be living in the home?", "do you have elderly parents or anticipate the need for older family members to move in?"

Questions to ask related to remote monitoring would include "how important is it to you and your family to be connected?", "do you have loved ones in another city that are elderly or in ill health?", or "do you have loved ones that have health problems and need routine monitoring?"

Questions to ask related to safety and security would include "have you ever had a fire or burglary in your home?", "do you worry about how you or your family members might escape in the event of a fire?", "does one or more of the home's residents travel?", or "would you value a home that has you and your family as its top priority?"

Slide 13



Growth areas in remodeling: Entertainment.

- Decline in movie ticket sales, increase in video rentals and recorded/ streamed movie content.
- 25% of gamers are 50+.
- 2007: Video game earnings were nearly \$18 billion.

In just 10 years time, the number of movie releases and the total dollars of gross sales have risen exponentially.

In 1996, there were 310 movies released with a combined gross of \$5.7 billion.

In 2006 there were 809 movies released with a combined gross of \$9.2 billion.

As of December 2008 the number of releases had climbed to 1,065, but gross sales fell from \$9.6 billion in 2007 to \$8.0 billion.

[Source: "The Numbers", [www.the-numbers.com/movies/index.php#YearIndex](http://www.the-numbers.com/movies/index.php#YearIndex)]

The gaming industry is only going to continue to grow. In 2006 it was reported that 25% of gamers were 50 years or older.

[Source: "ESA Stats: Average U.S. Gamer 33 Years Old", [www.gamasutra.com/php-bin/news\\_index.php?story=9342](http://www.gamasutra.com/php-bin/news_index.php?story=9342)]

In May 2004, reports indicate that the video game business tipped the scale at \$11 billion annually; topping movie box-office sales once again, and as of 2007, it is an \$18 billion/ year industry.

[Source: "2007 game earnings nearly \$18 billion, Halo 3 sells 4.82 million", [www.gamespot.com/news/6184847.html](http://www.gamespot.com/news/6184847.html)]

Interactivity, a term used to describe human interface with multimedia or gaming, is fast becoming a "standard" in American households today.

In 2004, the average age of game buyers was 36 and players were 29, males making up 59% of the playing audience.

[Source: "Survey: Video Gamers Getting Older, Heading Online", [www.usatoday.com/tech/news/2004-05-12-gamer-demographics\\_x.htm](http://www.usatoday.com/tech/news/2004-05-12-gamer-demographics_x.htm)]

In 2006, the average gamer was said to be 33 years old with 44% of gamers aged 18-49. 25% were 50 years or older.

[Source: "ESA Stats: Average U.S. Gamer 33 Years

Old", [www.gamasutra.com/php-bin/news\\_index.php?story=9342](http://www.gamasutra.com/php-bin/news_index.php?story=9342)]

In a New York Times article dated September 5, 2008, it was reported that the average age of gamers was 33 years of age, consistent with a few years ago.

[Source: "Creative Ferment in Worlds That Never Were", [www.nytimes.com/2008/09/07/arts/television/07schi.html?ref=arts](http://www.nytimes.com/2008/09/07/arts/television/07schi.html?ref=arts)]

Video game sales exceeded the movie industry's annual box office draw in 2001 by \$1 billion. [Source: "Video game college is 'boot camp' for designers", [www.usatoday.com/money/media/2002-12-03-video\\_x.htm](http://www.usatoday.com/money/media/2002-12-03-video_x.htm)]

Slide 14

selling the value: meeting entertainment needs



- Family connections
- Cost savings
- Control
- Physical and mental benefits

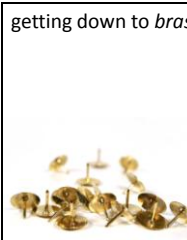
Entertainment: Selling the value, not the product.

- Connection with children and grandchildren.
- Cost savings.
- Control over what is consumed.
- Health and exercise benefit.
- Mental stimulation.

Questions to ask related to entertainment would include "does anyone in your family enjoy gaming, and if so, how often?", "do you want a family space for gaming?", or "do you want a dedicated space or would you prefer to utilize a common area for entertainment, such as television or movies?"

Slide 15

getting down to *brass tacks*



- Establish brand in market
- Establish pricing options
  - ✓ Cost +
  - ✓ % of total
- Establish package options

Profitability offering home technology options:

- Establish brand in your market.
- Establish pricing options.
- Establish package options.

Slide 16

establish pricing options

Cost +

- ✓ Budget
- ✓ Mark-up

% of total

- ✓ Budget
- ✓ Percentage of total

- Profitability offering home technology options:  
Establish pricing options.
- Cost +.
  - Percentage of total.

Slide 17

Basic packages

- Upgrade options
- Price points

establish package options

- Profitability offering home technology options:  
Establish package options.
- Basic packages.
  - Upgrade options with price points.

Slide 18

Service Program Install Design Plan

- ESCs plan, design, install, program, and service low-voltage residential systems.
- ESCs educate you, your staff, and clients about product options and technology solutions appropriate for the project.
- ESCs assume responsibility for system performance and client satisfaction.
- ESCs provide necessary information for subcontractor bids.

Slide 19



- Proper planning with an ESC:
  - ✓ Keeps electronics from looking like an afterthought
  - ✓ Ensures client's technology needs are being addressed
  - ✓ Provides the necessary infrastructure to support current and future electronics
- Engage the ESC early.
- Two-three months prior to completion of construction drawings.

Slide 20

summary of discussion

- Defined types of residential technology systems
- Discussed areas of growth in the remodeling industry
- Developed talking points for effective solutions related to:
  - Monitoring energy usage and reducing a home's carbon footprint
  - Addressing special desires and needs for the aging population
  - Providing entertainment options that meet the entire family's needs
- Discussed essential criteria for engaging an electronic systems professional in the design and build process

---

---

---

---

Slide 21

[CEDIA Web Site:](http://www.cedia.org)  
[www.cedia.org](http://www.cedia.org)

[Electronic Lifestyles® Finder Service:](http://www.cedia.org)  
[www.cedia.org](http://www.cedia.org)

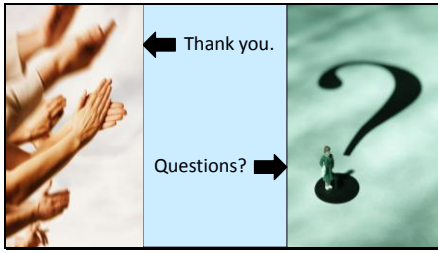
[CEDIA Crosspoint Web Portal:](http://www.cediacrosspoint.com)  
[www.cediacrosspoint.com](http://www.cediacrosspoint.com)

[Home Technology Alliance \(HTA\)](http://www.nahb.org/hta)  
[www.nahb.org/hta](http://www.nahb.org/hta)

A magnifying glass is positioned over an open dictionary. The lens is focused on the word "resource", which is highlighted. The surrounding text is slightly blurred.

[www.cedia.org](http://www.cedia.org)  
[www.nahb.org/hta](http://www.nahb.org/hta)

Slide 22



---

---

---

---

## Glossary of Terms

**Amplified Volume Control Systems:** An amplified volume control systems is a single-wire solution that delivers music to multiple rooms via a central control box. Some of these systems make use of CAT 5 cable to deliver the un-amplified audio signal to each room, where an in-wall amplifier and speakers reproduce the music.

**Analog:** In the consumer electronics world, analog technologies are those that use traditional methods of receiving, recording, and/ or reproducing content or communications. Examples of analog technologies include VHS VCRs and cassette tapes.

**Aspect Ratio:** The ratio of the width to the height of an image. Analog television uses a 4:3 or 1:1.33 ratio (slightly rectangular, being wider than it is tall), while digital television uses 16:9 or 1:1.78 (almost twice as wide as it is tall).

**Asymmetric Digital Subscriber Line (ADSL):** A form of DSL broadband service, it is called “asymmetric” because of its two-way bandwidth is devoted to the downstream direction, sending data to the user.

**Audio Distribution Amplifier:** These are amplifiers that distribute the input from a single audio component to multiple audio outputs or locations.

**Bridge:** A bridge is a device that connects two similar networks together to increase the distance or number of devices a given type of network can handle.

**Broadband:** Broadband refers to telecommunication that provides multiple channels of data over a single communications medium. Typical examples of consumer broadband services are high-speed internet delivered via cable, Digital Subscriber Line (DSL) or fiber-optic networks.

**Cable Modem:** A cable modem is a device that enables connection to the internet and sends/ receives data via a local cable TV provider.

**Category 3 Cable (CAT 3 Cable):** Used for medium-speed communications of up to 10 megabits over a distance of up to 100 meters. The FCC has specified that new homes use a minimum of CAT 3 wiring for telephones in new home construction.

**Category 5 Cable (CAT 5 Cable):** Network cabling that consists of four twisted pairs of copper wire terminated by RJ45 connectors and is capable of up to 100 Mbps over distance of up to 100 meters. Commonly used for data and telephone, it is now widely used for distribution of audio signals and is often used in new home construction.

**Category 5 Enhanced Cable (CAT 5(e) Cable):** Supports short-run 1000baseT (1,000 Mbps) networking by utilizing all four wire pairs. CAT 5(e) is backward-compatible with CAT 5 cabling.

**Cathode Ray Tube (CRT):** CRT refers to the traditional glass picture tubes that have been used in analog TVs since their inception. CRTs are also used in some rear-projection TVs.

**Cluster:** A hardware connection between two or more PCs that forms a closed network or internal network for sharing data and processing tasks among connected PCs.

**Coaxial Cable:** Coaxial (coax) wiring is often used to distribute video signals but can also be used for other types of communications. There are several varieties of coax cable used in homes such as RG59 and RG6, the latter of which is recommended for all new wiring for cable and satellite TV.

**Cogeneration** (Also known as combined heat and power, CHP): CHP is the use of a heat engine or a power station to simultaneously generate both electricity and useful heat. It is one of the most common forms of energy recycling.

**Color saturation**: A term to describe how vivid and intense colors in the display appear, independent of brightness. If the color saturation is too low, colors appear washed out, but if the color saturation is too high, colors may appear too vivid.

**Contrast**: The relationship between the lightest and the darkest areas on a display device or picture. A small difference means low contrast and a large difference means high contrast.

**Dedicated Wire**: Wiring that is installed specifically for communications. It includes twisted pair wiring used for Ethernet networks and coax wiring used for cable TV, etc.

**Digital**: Digital describes electronic technology that generates, stores, and processes data in terms of two states: positive and non-positive. Positive is expressed or represented by the number 1 and non-positive by the number 0. Thus, data transmitted or stored with digital technology is expressed as a string of 0's and 1's.

**Digital Video Recorder (DVR)**: A video component (set-top box) with an integrated hard drive for recording and time-shifting television programming. DVRs may contain an integrated tuner for receiving cable, over-the-air, satellite and/ or HDTV broadcasts. The most popular example of a DVR is a TiVo. DVR functionality can also be integrated into other devices such as a home computer or television.

**Ethernet**: Ethernet is the most widely-installed local area network (LAN) technology, which uses coaxial cable or special grades of twisted pair of wires.

**Firewall**: Security measures (hardware and/ or software) that blocks unauthorized users from gaining access to a computer or network.

**Graphic User Interface (GUI)**: A technology for interfacing with computer software by pointing (mouse) to graphic images (windows, icons, menus) instead of typing text. Apple's Mac Operating System and Microsoft's Windows are the two most popular computer GUIs. On consumer electronics products, GUIs are commonly used to program VCRs and setup video displays via their on-screen menu.

**High Definition Multimedia Interface (HDMI)**: A single high-bandwidth cable that can carry both digital audio and video signals from an HDTV receiver, DVD player, etc., to a video display and/ or multi-channel audio receiver/ processor.

**Home automation**: Systems that provide convenient centralized access, usually via keypad or PC, to various controls and appliances within a home. Home automation systems allow for the remote control of such items as lighting, thermostats, locks, pet care, pools and spas, landscape watering, blinds and window treatments, multi-media systems, etc.

**Home Network**: A home network interconnects electronic products and systems, enabling remote access to, and control of, those products and systems, as well as any other available content such as music, video, or data.

**Hush Box**: A hush box is an enclosure around a projector that muffles the noise and typically has an exhaust fan that acts to pull out the heat from the projector to avoid overheating.

**In-ceiling, In-wall, On-wall Speakers**: Speakers can be installed in ceilings, walls, and floors as necessary to blend subtly with room décor. Today's in-wall and in-ceiling speakers are capable of the kind of performance associated with free standing speakers except that they can be flush-mounted or hidden almost anywhere.

**LCD**: A video display technology that uses a liquid crystal display, rather than the traditional picture tube, to display video images. Many of today's flat panel TVs and monitors use LCD technology to achieve a super-thin cabinet design.

**Local Area Network (LAN):** A network of personal computers and peripheral devices configured to share information over a short distance, usually within one home or building.

**Media Server:** A device that stores, organizes, and distributes digital content (audio, video, etc.) to other electronic devices.

**Modem:** Short for modulate/ demodulate, a modem modulates outgoing digital signals from a computer or other digital device to analog signals for a conventional copper twisted pair telephone line and demodulates the incoming analog signal and converts it to a digital signal for the digital device.

**Multi-room audio Distribution:** Multi-room audio refers to any audio system that can distribute sound to speakers in multiple listening areas. In its most basic form, a multi-room audio setup contains a source component, like a CD player or an amplifier and is connected to speakers in at least two different rooms.

**Phantom Load:** Refers to the electric power consumed by electronic appliances while they are switched off or in a standby mode.

**Plasma TV:** A type of flat-panel video display that uses a special gas sandwiched between layers of glass. When the gas is electrically charged, the gas moves into a “plasma” state and illuminates phosphors, which produce a picture.

**Radio Frequency (RF):** RF waves can be transmitted and received through walls and other physical barriers and differs from IR (infrared) technology, which requires a clear line-of-sight between transmitter and receiver.

**Residential Gateway:** A device that allows customers’ premise equipment which is connected to in-home networks to access and use services from any external network regardless of media.

**Router:** A device used to connect two networks, and most commonly used in residential applications to connect a home network to the internet.

**Standby Mode:** Refers to a low power mode for electronic devices such as computers, televisions, and remote controlled devices. These modes save significant electrical consumption compared to leaving a device fully on and idle and allow the user to avoid having to reset programming codes or wait for a machine to reboot.

**Sub-system:** Any system in a whole-house system that accepts commands from another system and/ or gives feedback to that system.

**Structured Wiring:** A system of low-voltage wires (not power line) designed to carry electronic signals throughout the home.

**Systems Integrator or Installer:** This specialist works with all the trades in the design and build process to plan, design, program, install, and service low-voltage electronic systems and equipment in the residential market.

**Twisted Pair cabling:** Cable constructed of two braided wires, each with its own dielectric insulation twisted together to form a single cable. The twisting allows the cable to carry higher frequency signals than the cable could otherwise. Most twisted pair cables used in the home such as CAT 3, 4, and 5 include four of these pairs of wires within an outer insulating sheathing. There are two basic types of twisted pair cables: shielded and unshielded. Most applications in the home use unshielded four-pair cable.

**User Interface:** Devices such as volume controls, keypads, and LCD touchscreens that allow control (to varying degrees) of a home’s electronic systems. There are a wide variety of user interfaces available and most can be mounted in the wall or are designed for the table-top or counter.

Voice Over IP: Voice telephone service delivered via the internet. A major advantage of VoIP and internet telephony is that it avoids the tolls charged by ordinary telephone service.

Whole-house Network: A whole-house network involves multiple types of cluster networks connected to each other through devices called gateways. This type of network is the most complex but it also provides the most functionality.

Widescreen: Any video software or hardware with an aspect ratio wider than 4:3; usually 16:9, which is the optimum ratio for viewing anamorphic DVDs and HDTV broadcasts.