InternetHomeAlliance

Digital Entertainment Migration Study
July 2004

July 30, 2004

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InternetHomeAlliance

Contents

InternetHomeAlliance

Contents

InternetHomeAlliance

Background

The entertainment ecosystem represents the area where the interests of primary and mass market consumers most often coincide. It is in this ecosystem where market entrants are likely to encounter the greatest short-term successes. According to the State of the Connected Home Market research conducted last year, about one-in-three consumers has a strong interest in media entertainment. Interestingly, primary market consumers are significantly more likely than their mass market counterparts to have a strong interest in all forms of media entertainment, indicating that an interest in media entertainment is a prime driver, or at least, highly correlated with early adopter behavior. If any consumer segment is likely to adopt devices geared to provide non-entertainment features or functionality around say, family ecosystem issues, it's consumers who have exhibited early adopter behavior in relation to digital entertainment. The results of this study, designed primarily to gauge the interests of digital entertainment (DE) enthusiasts in connected home functions outside entertainment, bolster this theory.

The main purpose of this study was to determine the degree to which digital entertainment enthusiasts have an interest in potential non-entertainment features or functions of the connected home. (Please note that the features evaluated were done so at a fairly high level, precluding specific product-driven market demand estimates.) The objectives of this study included the following:

- Identify the specific non-entertainment functionalities desired by heavy users of digital entertainment devices in the areas of personal, family and home safety; home systems and appliance management; household chore management; household communication; and content management.
- Gauge demand for meaningful clusters or bundles of non-entertainment functions for specific consumer segments;
- Profile specific digital entertainment consumer segments on the basis of wants/needs, likely profitability, demographics and other discriminating characteristics.

Background

For this study, we examined two DE segments suggested by earlier research to be prime targets for connected home features: digital entertainment consumers (DECs) and music enthusiasts (MEs). Demographically, the former were defined as married consumers aged 35 to 54-years-old with children at home and household incomes of at least $75,000. To qualify for the study as a member of this segment, participants had to express a strong interest in media entertainment in general; be self-reported 'innovators' or 'early adopters'; own a digital audio receiver/portable MP3 player/surround-sound speakers, a digital camera and a DVD player; and be at least moderately comfortable with the notion of a home PC as the hub of a media entertainment ecosystem.

Music enthusiasts, on the other hand, were defined as younger—aged 18 to 34-years-old—more likely to be single and with lower annual household incomes (starting at $50,000). While meeting the same general interest and technology ownership criteria as DECs, MEs also had to express a strong interest in digital music and engage in one or more digital music activities, such as burning music from the Internet to CD.

For all intents and purposes, these segments may be considered sub-sets of primary market consumers—the Alliance equivalent of 'early adopters' (based largely on their interest in the connected home concept). Among the 610 consumers surveyed as part of this research, all but 50 fell into the primary market consumer category. This means that the DEC and ME segments account for something less than the 42% of single-family homeowners that can be characterized as primary market consumers.

Contents

InternetHomeAlliance

Methodology

To best meet the objectives of this study, Internet Home Alliance commissioned Zanthus, an independent, market research-based consulting firm, to conduct a Web survey of 600 U.S. target consumers nationwide, split evenly between DECs and MEs. In the course of the project, 610 target consumers were surveyed (304 DECs and 306 MEs). A sample size of 610 yields results with a margin of error of +/- 4.0% at the 95% confidence level. This means that the results come within plus or minus 4% of the results that would have been obtained if a census of all qualified individuals were obtained. Please note that larger margins of error may be associated with particular questions.

The Web study was fielded from June 10th through June 24th, 2004. Nearly 10,000 potential participants were screened to achieve the desired sample size, indicating that the two DE segments of interest represent fairly small populations of U.S. consumers–even among households with Internet access.

InternetHomeAlliance

Contents

InternetHomeAlliance

Executive Summary

When asked to indicate their level of interest in improving five distinct areas of their lives, target consumers showed the greatest interest in bettering their ability to complete household tasks/chores. This finding is consistent with earlier Alliance-sponsored research which showed that primary market consumers were more interested in improving their ability to complete household tasks/chores efficiently than in enhancing their entertainment options or in improving their ability to work from home efficiently. About 56% of digital entertainment enthusiasts expressed a strong interest in completing household tasks/chores in a more timely fashion and with less effort.

Interest in improving this lifestyle domain was followed in popularity by interest in enhancing personal, family and home safety/security (52%), storing and accessing personal and household records (51%), family communication (49%), and managing home systems and appliances (42%). This loose rank-order largely held when target consumers were exposed to specific connected home features/functions designed to help in these areas. That is, the most popular features tended to fall into the top-ranked categories. The only exception to this general rule concerns the two personal and household record storage features. These potential functions fared poorly given the high rank accorded to the category as a whole.

In general, digital entertainment enthusiasts expressed the greatest interest in device features that addressed their concerns about safety/security and home systems & appliance management. Among the top-ten features tested, four fall into the personal and family safety category (numbers one, four, six and ten) and three fall into the area of home systems and appliance management (numbers two, three and five). There's a clear Maslow's Hierarchy of Needs-like dynamic at work here, with safety/security as the overarching theme. Two of the three features in the home systems and appliance management category, namely, remote access to lights and home appliance & systems monitoring, have direct safety/security applications. The two features that round out the top-ten—Caller ID on TV and grocery scanning—share a concern for efficiency. Utilizing these features, target consumers can conserve time and effort.

Executive Summary

A solid majority of digital entertainment enthusiasts (87%) felt the features tested as part of this study suggested one or more logical groupings or bundles; the self-selected bundles, however, varied dramatically in content. Among the target consumers who perceived a natural bundle of features, most saw three or more unique combinations (83%). A plurality came up with three bundles (47%).

The most frequently-mentioned bundle, consisting of Caller ID and in-home messaging via the television, is more likely to be cited by target consumers 25 to 44-years-old than older digital entertainment enthusiasts. This finding makes intuitive sense given that consumers in the 25 to 44-year-old age bracket are more likely than their older counterparts to have children living at home.

Curiously, DECs and MEs didn't create noticeably different bundles. Differences in bundle content occurred within groups rather than across them, which indicates that coming up with a single bundle that satisfies a sizeable portion of target consumers is highly unlikely.

The Home Automation Hub appealed much more strongly to digital entertainment enthusiasts than to consumers generally. As might be expected, the Home Automation Hub proved to interest significantly more digital entertainment enthusiasts than consumers generally (as measured by the separate, but related Home Automation Hub study). In the Home Automation Hub study, about 56% of primary market consumers (the Alliance equivalent of early adopters) considered the concept 'very appealing.' It's not surprising that the concept would do even better among DECs and MEs–consumer segments defined by even more aggressive technology adoption requirements.

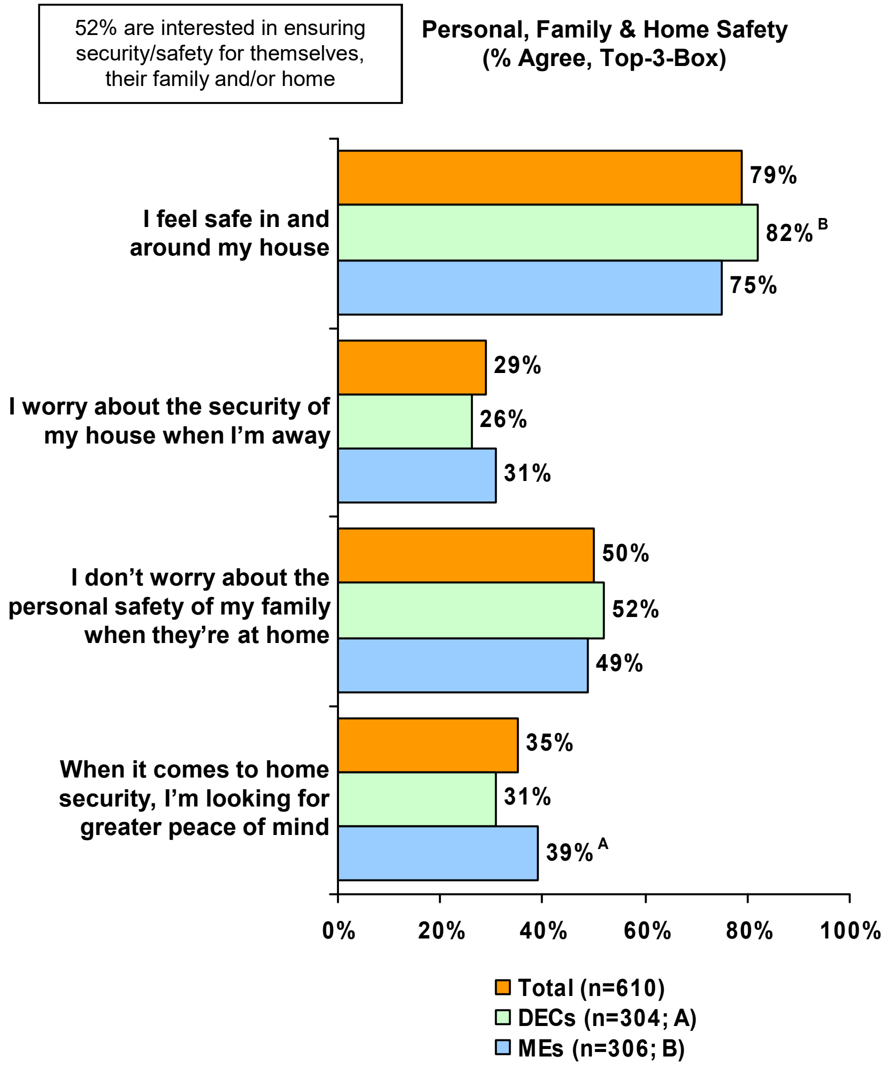
InternetHomeAlliance

Contents

InternetHomeAlliance

Needs Assessment

52% are interested in ensuring security/safety for themselves, their family and/or home



(Q2A-D, Q3A; *Letters denote statistically significant differences among segments.)*

About 52% of digital entertainment enthusiasts (or digeriati) are interested in ensuring security/safety for themselves, their family and/or home.

- DECs are significantly more likely than MEs to believe they're safe in and around their homes. Speculatively, this finding may be partly due to the fact that DECs are older than MEs and consequently, more affluent and likely to be living in more desirable neighborhoods. About 78% of DECs reported a household income of $100,000 or more compared to only 32% of MEs.
- While no other statistically significant differences emerged between the two segments in regards to personal, family and/or home security, DECs appear to be less concerned about security than their younger ME counterparts.
- Consumers who reported a strong interest in personal, family and/or home security in general are significantly more likely than those who indicated they had little or no interest in this issue to agree strongly with any of the specific statements noted here. In fact, consumers who reported a strong interest in any of the lifestyle domains we examined, including home systems, household tasks/chores, family communications and record keeping, are significantly more likely than those uninterested in these areas to cite security as an issue for them. This pattern indicates that a substantial portion of digital enthusiasts, ranging from about 33% to 45%, may be psychologically predisposed to be dissatisfied with current conditions and accordingly, constantly seek better solutions.

InternetHomeAlliance

Needs Assessment

Personal, Family & Home Safety

What is the main reason you have some interest in improving the security/safety of yourself, your family and/or your home?

Many, if not most, target consumers indicated that the world is becoming increasingly dangerous and consequently, they want additional assurances that their family and/or home are safe and secure.

"My family can never be too safe. Crimes happen in the best of neighborhoods."

"As a father, I think you should always be concerned about your family's safety, regardless of where you live because it's a much more dangerous world than in our parents' day."

"I have teenagers at home who I don't trust to be at home–alone–for a long period. I would like better monitoring [capabilities] so I could leave the house more frequently."

"We have had our home broken into before and now, we have a one-year-old son who I need to be sure is safe and sound–without worry. I have too many sleepless nights as it is…"

"Presently, we have a good security system. But I'm always looking to stay current."

"We live out in the country and need a way to improve safety and security when it comes to crime, bad weather and natural disasters."

"My house is old and I want to make sure it's safe and secure."

"Crime appears to be rising in the neighborhoods just outside of where we live."

"We are away from home for extended periods because we have a second, summer home."

"I don't live in a good neighborhood and have a new baby."

(Q4; n=610)

Needs Assessment

Personal, Family & Home Safety

Which specific aspects of the security/safety of yourself, your family and/or your home would you like to see improved?

Most participants cited the need for a new or better alarm system and a substantial portion raised the notion of interior cameras with remote access as well as improved outside lighting.

"I would like to improve my alarm system to include fire and forced entry alerts."

"I'm interested in better lighting; for example, lighting tied to motion sensors."

"Our current alarm system is through the phone lines. If our phone service should go down, so would our security system. There should be another system available."

"I've had a few false alarms with my current system because it's so sensitive. I'm pleased with the customer support I've received, but will always look for new developments to keep my family safe."

"My main concerns are unwanted ingress or egress to the home and the potential for fire and/or carbon monoxide issues. I currently use Brinks Home Security which is a wireless system for ingress and egress and provides for a warning for fire and/or carbon monoxide. The monthly service charge is reasonable, but the added costs for expanding the system into more rooms are substantial."

"I would like a way to easily monitor my home when I'm away, perhaps through the Internet. I would like to see GPS monitoring capabilities expanded for cell phones so in the case of an emergency, I could track family members."

"I have an ADT alarm system, but feel I need more motion detectors and a system that notifies me of intrusions when we're away."

"I wish there was a way for me to monitor things at home better when I'm asleep or away from the house."

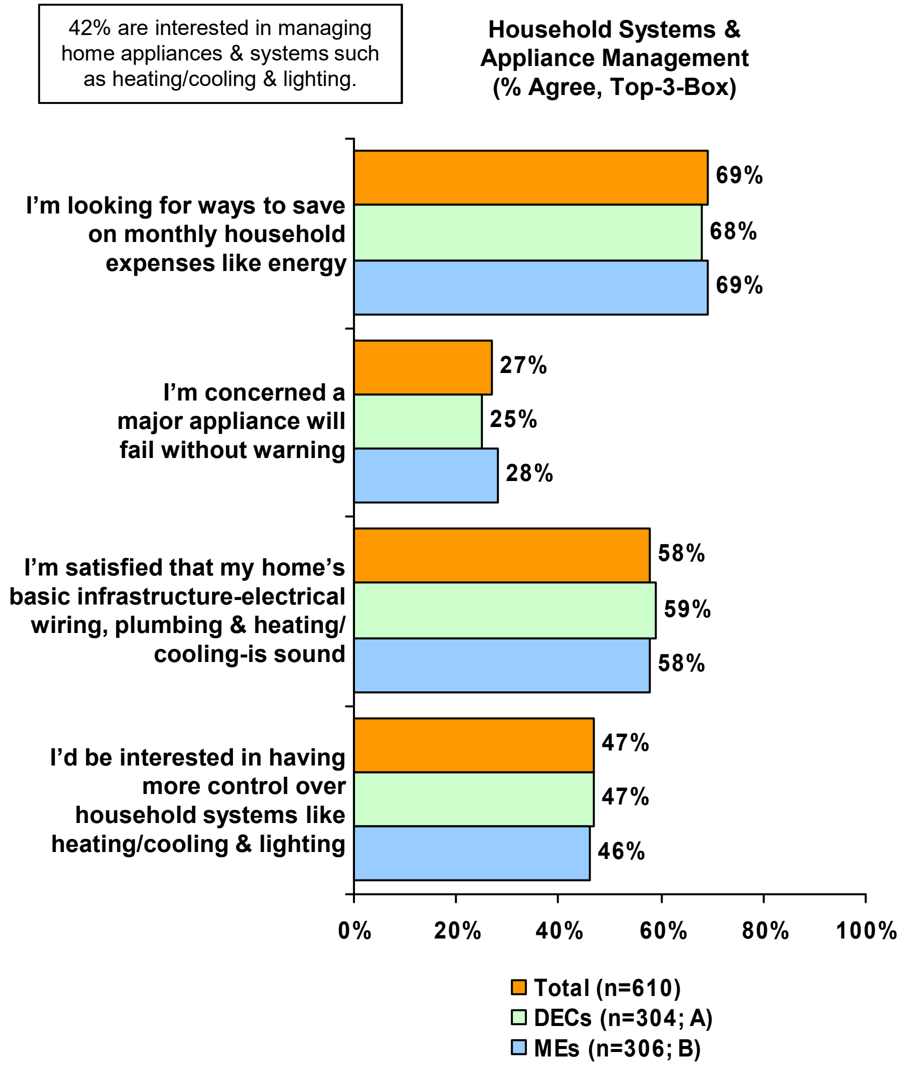
"I would like to see a way to monitor my home easily when I'm away, perhaps through the Internet. I would also like to see GPS capabilities for cellular phones expanded, so I can track down family members in case of emergency."

"I'd like better control of access points into the house. Our home is spread out and often, people come to one door and nobody's there to see who it is, much less let them in."

(Q5; n=610)

Needs Assessment

42% are interested in managing home appliances & systems such as heating/cooling & lighting.



(Q2E-H, Q3B; *Letters denote statistically significant differences among segments.)*

About 42% of digital entertainment enthusiasts are interested in managing home appliances & systems such as heating/cooling & lighting.

- Among the aspects of household systems and appliance management examined, digital entertainment enthusiasts expressed the greatest interest in new methods for saving on monthly household expenses like energy.
- Most digital entertainment enthusiasts are satisfied that their home's basic infrastructure is sound (58%) and few have strong concerns that a major appliance will fail without warning (27%).
- DECs and MEs have roughly the same level of concern with and interest in various aspects of household systems and appliance management.

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Needs Assessment

Household Systems & Appliance Management

What is the main reason you have some interest in improving your ability to manage home appliances and systems such as heating/cooling and lighting?

The vast majority of target consumers cited a desire for lower energy costs as the primary reason for having an interest in this functionality.

"I would like to lower my energy costs."

"My large lot needs better lighting for security reasons."

"I simply like the idea of a central location where I can control everything. I'm sure it would be more convenient [than what we have now]."

"I think a system that would let me control energy and lighting better would increase the value of my home."

"The idea is 'cool.' I like the idea of calling from the road to heat or cool the house before I get there."

"Our house is pretty large–3,000 square feet. It would be nice to manage the lights and HVAC from the room you are in at the time. I would also like to use timers so that some activities could take place at night while we're asleep like heating up the house."

"I would like to be able to program our lighting and HVAC system to account for seasonal changes and extended absences from the house, such as vacations."

"I think it would be a benefit to be able to turn lights on and off remotely to simulate someone being at home."

"We recently purchased a thermostat with four time/temperature settings. It would be nice to be able to control the lights too."

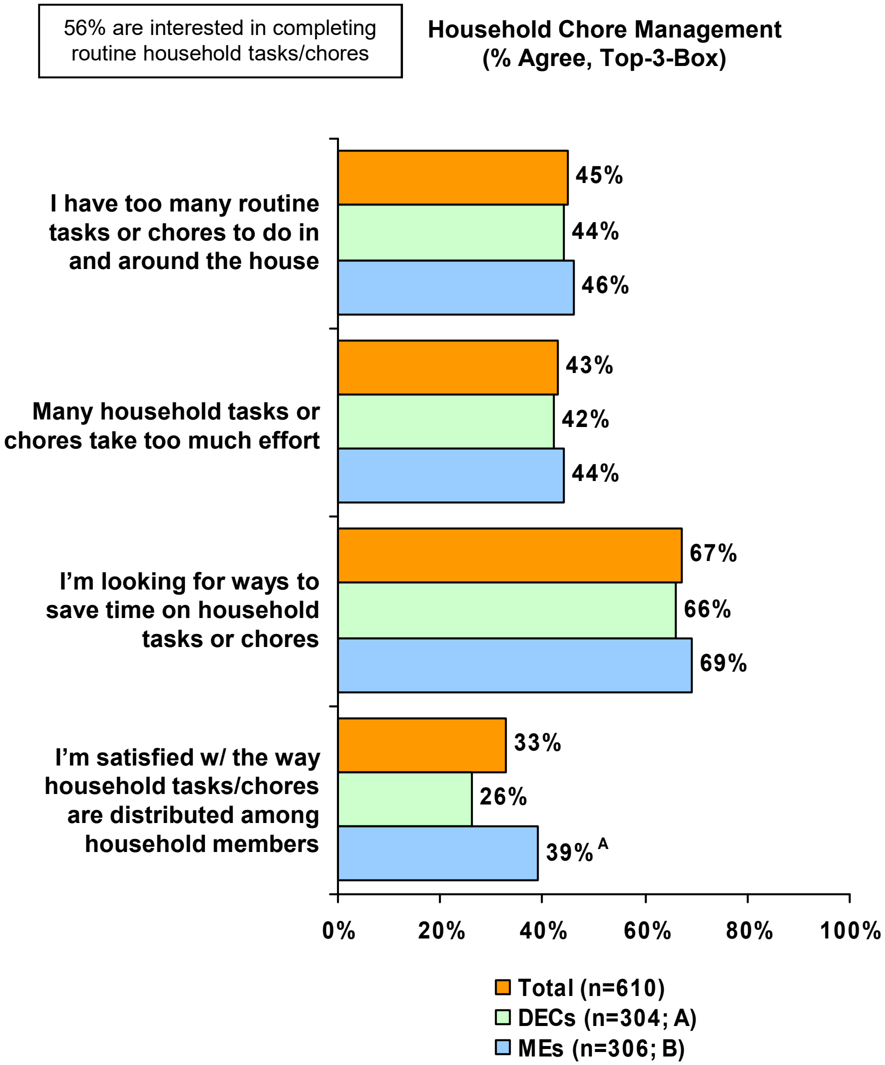
"It would be nice to know which appliances have the greatest impact on our energy costs. Right now, I don't know which appliances or systems are using the most energy and how to best manage them."

Which specific home appliances and systems would you like to have better control over and what type of control would you like to have?

Consistent with previous Alliance-sponsored studies, the most often-mentioned systems and appliances consisted of HVAC and lighting systems, followed by major appliances such as ovens/ranges, refrigerators and to a lesser extent, washing machines and dryers.

(Q7; n=610)

Needs Assessment



(Q2I-L, Q3C; *Letters denote statistically significant differences among segments.)*

About 56% of the digerati are interested in completing routine household tasks/chores. Of the lifestyle domains examined as part of this research, this one garnered the greatest interest among target consumers.

- Digerati expressed the greatest interest in saving time on household chores. This desire was followed in popularity by reducing the number of chores, minimizing the amount of effort required to complete chores and lastly, redistributing chores.
- Only one statistically significant difference emerged between DECs and MEs along the aspects of household chore management we examined. MEs are significantly more likely than DECs to be dissatisfied with the way household tasks are distributed. This finding is likely due to the fact that MEs are younger than DECs (18 to 34-year-old) and so, many live with their parents or have roommates.

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Needs Assessment

Household Chore Management

What is the main reason you have some interest in improving your ability to complete routine household tasks/chores?

Time-savings is the primary benefit target consumers are looking for from intelligent applications designed to help ease the burden of performing household chores.

"I can't get things done in a timely manner. I get little or no help from my family. This house is too big for one person to maintain."

"I hate spending so much time cleaning the house when I could be playing with my kids."

"Anything to speed up doing household chores would be great because the less time I spend doing this stuff, the more time I can spend with my family."

"Household chores are boring and take time away from other, more enjoyable activities."

"I simply want to be more organized."

"My time stress is huge. I work full-time and have a four-year-old. I would like to lighten my load so I can spend more time with her."

"I would like to be more efficient about completing household chores and perhaps, get on a schedule so tasks like cleaning are done before it becomes obvious they need to be done."

"I hate to do household chores! I don't have much of an organization system and am always looking for solutions that will save time and motivate me to complete tasks when they need to be done."

"Even though I'm a stay-at-home mom, I feel more like a maid than a mom, as I continually have to clean. I clean one room and the kids mess up the next."

"My physical condition hinders me from doing many chores."

"I want to spend more time doing things I want to do rather than what I have to do."

(Q10; n=610)

Needs Assessment

Household Chore Management

Which specific household tasks/chores would you like to see improved? Are there any particular aspects of these tasks/chores you'd like to see improved?

The most often-mentioned tasks target consumers would like help with are doing laundry, vacuuming, mopping, dusting and other general cleaning tasks. Other popular answers revolved around washing dishes and doing yardwork.

"It would be nice to have a machine that both washes and dries the clothes--saving me from moving the wet clothes to the dryer (and, so often, not getting to it in a timely manner). A nice monitor or alarm that reminds me that the clothes are finished in the washer and/or dryer, when I haven't removed them for hours/days at a time and a filter that either never needs changing, or tells me when it needs changing on the central air units [would also be nice]."

"Carpets: need a better carpet cleaner or service. Vacuuming: don't trust the cleaner. I want to get as much dust and dirt as possible."

"Vacuuming: no matter how expensive the vacuum is, it always ends up needing replacement within a year. Floor washing: need a more efficient mop to prevent scrubbing."

"Cleaning floors. I have tried many mop-type products on the market and none of them clean the floor as well as getting down on the floor and doing it by hand. If I found one, I'd by stock in it."

"Cleaning/dusting in general. I'd love a Roomba vacuum but one which can crawl all over the walls and furniture and dust too."

"Doing laundry takes forever. That is my main complaint. Keeping the house clean and tidy pretty much follows a set flow. Keeping organized and on top of things is a constant struggle. There's just too much stuff to do."

"Cleaning the floors and throwing out garbage....I really wish my family would share this stuff. I would like something like cleaning the floors to be done once or twice a week that is a routine instead of waiting for it to get so bad that it becomes a real hassle. I don't' like those Swiffer products much. It seems like they don't' really clean, they just move dirt around."

"Ironing, cleaning showers, stoves and sinks, as well as, dusting are big issues for me. There needs to be a way to create products that resist grease grime you can just wipe off and go. As for dusting, I'd be interested in an in-home filtration system."

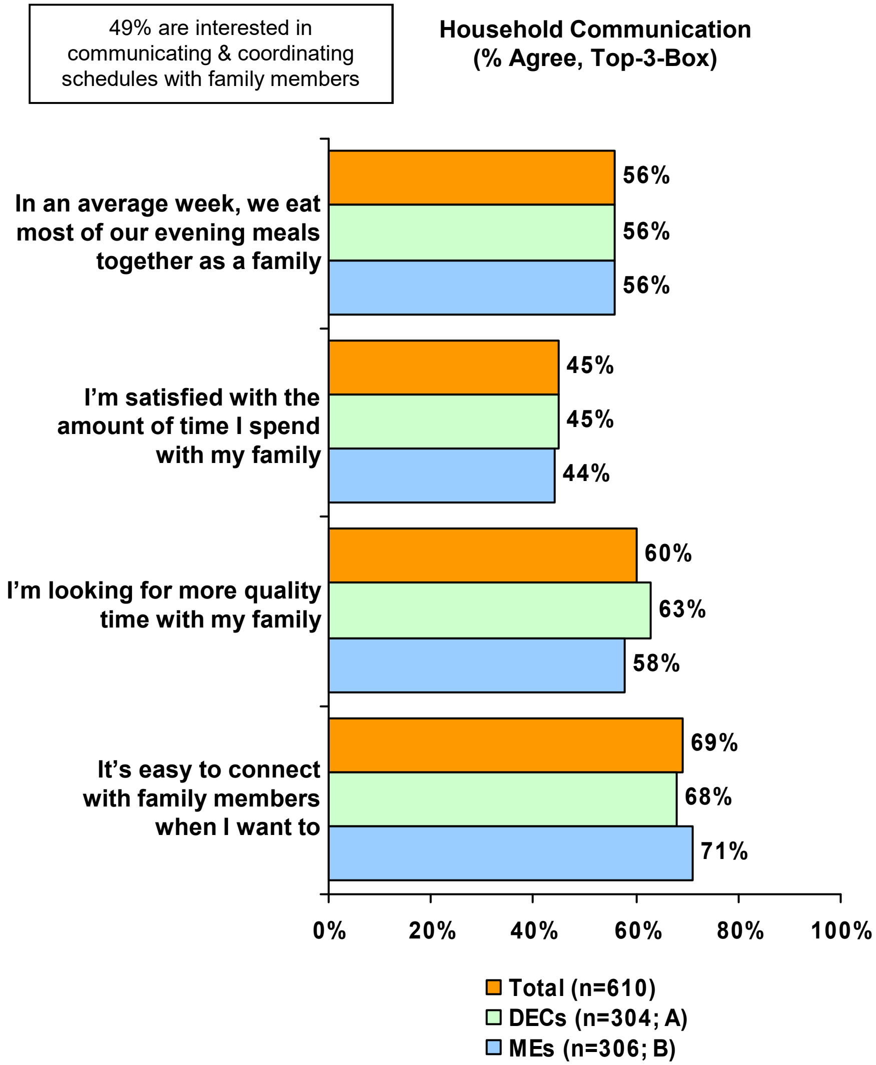
"I would like to see general cleaning improved, especially in the bathroom. It seems like there aren't any great products for keeping the shower/tub and toilet clean and fresh with minimal scrubbing."

"Carpet cleaning/shampooing at home should be easier. Current cleaning products don't seem to do the job easily."

(Q11; n=610)

Needs Assessment

49% are interested in communicating & coordinating schedules with family members



(Q2M-P, Q3D; *Letters denote statistically significant differences among segments.)*

About 49% of digital entertainment enthusiasts are interested in communicating & coordinating schedules with family members. Of the five lifestyle domains examined as part of this study, household communication in general ranked fourth in terms of interest among target consumers.

- Although a majority of digital entertainment enthusiasts indicate it's 'easy to connect with family members when they want to,' there's still a substantial interest in improved methods for communicating and coordinating schedules with family members.
- The data also show a definite desire on the part of target consumers to spend more and better quality time with their family. Fewer than half of all those surveyed (45%) reported being satisfied with the amount of time they currently spend with their family. This finding suggests that connected home products and services that free up time for visiting with family have a powerful value proposition.

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Needs Assessment

Household Communication

What is the main reason you have some interest in improving your ability to communicate and coordinate schedules with family members?

Most target consumers commented on the hectic nature of their lives and the consequent need to better coordinate schedules to enhance their peace of mind as well as free up more quality time with family.

"To facilitate opportunities to spend time with the other household members. If we know when we will be busy then we can plan accordingly."

"Both my husband and I have careers that require long hours and extensive travel. We have a teenager, a pre-teen, and a toddler. It is nearly impossible to coordinate everyone's schedule, especially when last minute changes occur that invariably affect everyone's schedules."

"Both of us work full time in jobs that require a lot of travel and specific appointments with clients. I would like to email/contact my husband so that he has a running schedule of what I am doing. He could do the same and it would be easier to spot times when we could spend quality time together."

"Everyone works long and different hours. It would be nice to have an easier way to coordinate schedules rather than the calendar on the fridge, and notes on the corkboard."

"We have three very active children. I am involved in school district issues/meetings, etc. as well as all of my children's events. My husband is involved in the city government and has many responsibilities, meetings, etc. He also coaches, and teaches various sports, so our schedules can get very frantic."

"My boyfriend has a hard time keeping track of when I'm busy or not, so half the time when schedule discrepancies happen, they could have been prevented."

"Our schedules often overlap and we do not know/remember where we are supposed to be and who is driving/picking up whom."

"Would love to have more quality time with my family."

"We have five children, some of whom have other parents (both my husband and I have kids from previous relationships and we have a child of our own), and they're involved in lots of activities (sports, academic team, odyssey of the mind, leadership programs, band, math team, dance classes, orthodontist appointments, dentists, doctors, etc.). Plus, I work full-time and travel for my job."

"My children will answer the phone for scheduled appointments and not relay the messages."

(Q13; n=610)

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Needs Assessment

Household Communication

What about communicating and coordinating schedules with family members would you like to see improved?

Among digital entertainment enthusiasts who described a specific solution as opposed to an objective like 'get family members to do a better job of communicating schedules,' most suggested an electronic family calendar with wireless phone or other mobile extensions.

"Calendaring across family units, given the parent/step-parent dynamics in our family–a way to coordinate the needs of all our children and their schedules when with us and with their other parents would be ideal."

"One central calendar that works and is easy to update. A computerized calendar would probably work best for us, but may be hard to keep updated."

"I'd like to see a system that included a home-based digital calendar and a cell phone that could be synced-up."

"I'd like a centralized communications system where we would all be able to input our work schedules, meetings, leisure activities, etc. for everyone else to view, maybe a central computer-type terminal connected to something like a PDA for each person."

"I would like to be able to share my calendar information with my husband at the click of a button instead of keeping a paper calendar."

"We had a white marker board in our kitchen, but the white part has gradually taken on the colors of the markers. It also wipes off easily, when you walk past it, and not when you are trying to remove it. There just has to be a better way!"

"It would be ideal if everyone could download the family schedule onto their respective cell phones for easy reference."

"I have a date book I use to record everyone's activities, but it's easy to forget to write something in it, and I'm the only one with access to it. With a system everyone could write to and read from, we'd all know where we're supposed to be."

" I would like to see everyone using a computerized family calendar where everyone can log on and enter their info and print when needed."

"I can think of a couple of related ideas: cell phones with text messaging and video for all family members; and a central calendar with instant message notification to all family members at a preset time before events."

(Q14; n=610)

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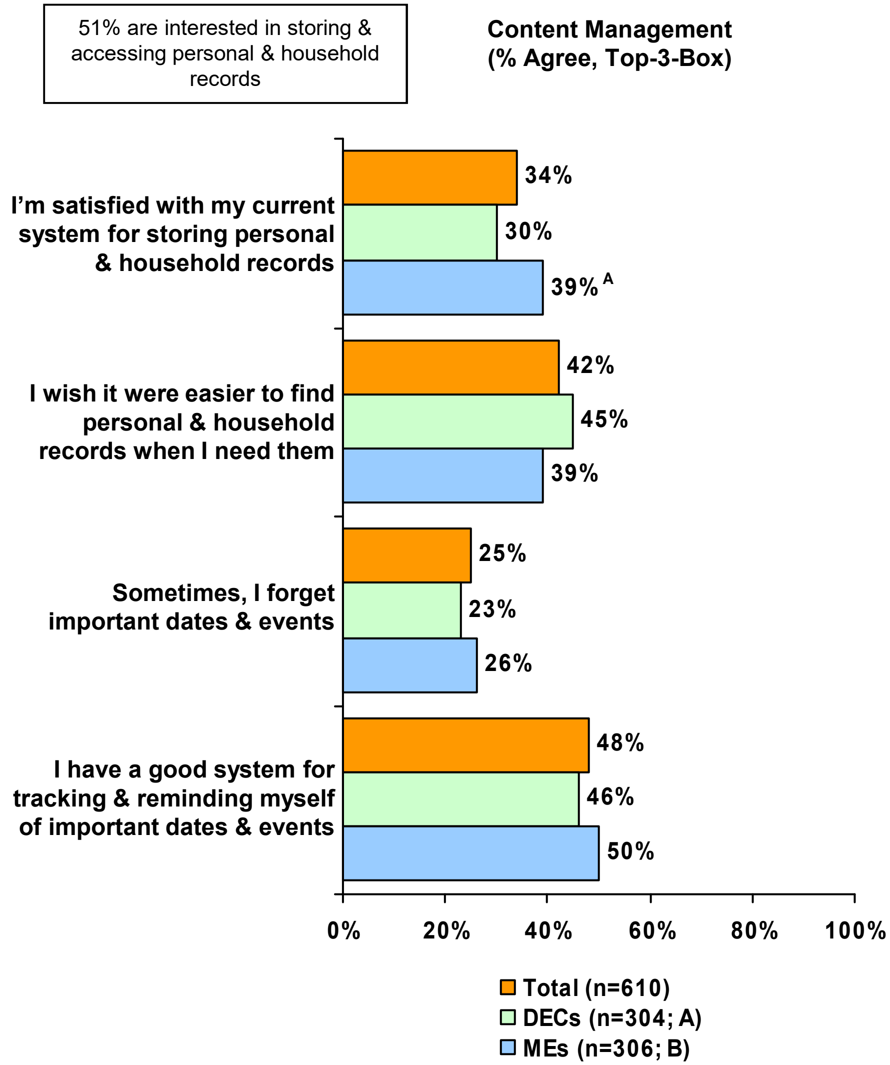
Needs Assessment

51% are interested in storing & accessing personal & household records



(Q2Q-T, Q3E; *Letters denote statistically significant differences among segments.)*

About 51% of digital entertainment enthusiasts are interested in storing and accessing personal and household records. This lifestyle domain ranked third among the five areas explored in this research.

- About half of those surveyed indicated an interest in storing and accessing personal and household records in general. Only about one-third (34%) appear to be highly satisfied with their current system for storing personal and household records.
- Perhaps because they are younger and hence, have fewer records to maintain than their DEC counterparts, MEs are significantly more likely than DECs to report being very satisfied with their current system for storing personal and household records. That said, this group of highly satisfied target consumers constitutes a minority opinion.

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Needs Assessment

Content Management

What is the main reason you have some interest in storing and accessing personal and household records?

Most target consumers who take an interest in this area opined that their current filing system isn't much of a system at all. Even those who professed to be well-organized complained that their current paper-based filing system was too complicated, consumed too much space and/or was tedious to maintain.

"I just have paper strewn throughout the house and need to be more organized. If everything was scanned and on the computer and easily located by keyword then that would be a bonus, but then it would probably take a lot of time to process/scan each document."

"I am fairly conscientious about keeping and maintaining all of the relevant records, including financial and health records. I currently keep all of them in a filing system, but it would be nice to have an automated record-keeping storehouse of some kind."

"If it isn't written, it doesn't exist and that necessitates a paper trail and/or an electronic storage issue. More efficient access to info when needed is the key."

"I like to be organized, yet don't like to store tons of papers. I would like to destroy as many hard copies as possible and keep my desk clean."

"I don't always organize things well, so it's hard to find them later."

"It's very hard and time consuming to find specific (paper) records in the filing system."

"Bills, receipts and instructions seem to pile up. Knowing what to do, and what to save is very difficult. They just seem to all end up in a pile that looks like junk and creates piles around the house."

"Storing records is important so that you can find something when you need it. But it's tedious and time consuming."

"Our records are a mess. No rhyme or reason to the filing system. I would like to see more of our records stored online."

"Right now we use a filing system and it is very cumbersome. Much of the information is not really needed, but we take up space with it anyway."

Which specific personal or household records do you have an interest in storing and/or accessing in a better way? Are there any particular aspects of storing and/or accessing these records you'd like to see improved?

The most-often mentioned type of records target consumers are interested in storing and accessing are financial documents, such has mortgage agreements, banking transactions, credit card records and the like. A number of other types of records were also mentioned, including the following: birth certificates, marriage certificates, family histories, medical data, financial records (including mortgage agreements and related documents), insurance paperwork, academic records (primarily for children), appliance warranties, instructions and maintenance records, passports, family photos, and magazine & other subscriptions.

(Q16; n=610)

InternetHomeAlliance

Contents

InternetHomeAlliance

Product Feature Evaluation

In general, digital entertainment enthusiasts expressed the greatest interest in device features that addressed their concerns about safety/security and home systems & appliance management.

- Among the top-ten features tested, four fall into the personal and family safety category (numbers one, four, six and ten) and three fall into the area of home systems and appliance management (numbers two, three and five). There's a clear Maslow's Hierarchy of Needs-like dynamic at work here, with safety/security as the overarching theme. Two of the three features in the home systems and appliance management category, namely, remote access to lights and home appliance & systems monitoring, have direct safety/security applications.
- The two features that round out the top-ten—Caller ID on TV and grocery scanning—share a concern for efficiency. Utilizing these features, target consumers can conserve time and effort.

The only statistically significant differences between DECs and MEs in terms of desired features and functions are based on life stage. The older DECs are significantly more likely than MEs to have a strong interest in home access notification and in-home messaging via television. The value of these features depends heavily on life stage. Without a family and children of the proper age, these features have little value. Because MEs are, by definition, between 18 and 34-years-old, they're less likely than the middle-aged DECs to be married with children of the requisite age. Consequently, they tend to find home access notification—valued primarily for tracking the observance of curfews—and in-home messaging on TV, which is best suited for households with two or more children of TV-watching age.

- The tables on the following page displays the results for all of the features tested by the two segments of interest, gender, household structure and annual household income.

(Q19-Q35)

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Product Feature Evaluation

Total Summary by Key Segments	Total (n=610)		DECs (n=304)		MEs (n=306)	
	Top-3-Box	Mean	Top-3-Box	Mean	Top-3-Box	Mean
			A	B	C	D
Alarm notification	70%	8.1	70%	8.0	70%	8.2
Remote access to lights	69%	8.1	70%	8.1	69%	8.1
Home appliance & systems monitoring	69%	8.1	71%	8.2	67%	8.1
Exterior sensing notification	68%	7.9	69%	8.1 D	66%	7.7
Energy consumption reporting	67%	8.0	65%	8.0	69%	8.1
Entry/exit point notification	65%	7.9	66%	7.9	63%	7.8
Caller ID on TV	65%	7.5	66%	7.7	64%	7.4
Remote grocery scanning	63%	7.6	62%	7.3	63%	7.8 B
Lighting scenario programming	60%	7.4	58%	7.3	63%	7.6
Home access notification	59%	7.3	63% C	7.7 D	55%	7.0
Event reminders	58%	7.4	59%	7.5	56%	7.3
Centralized electronic family calendar	57%	7.3	60%	7.5	54%	7.1
In-home messaging on TV	56%	7.1	60% C	7.3	52%	6.8
Water usage reporting	56%	7.4	56%	7.4	57%	7.4
Room & appliance access	54%	7.1	57%	7.1	52%	7.1
Remote monitoring	53%	7.0	54%	7.0	53%	7.0
Personal & household record vault	48%	6.6	47%	6.7	49%	6.5
Household finance management	46%	6.6	45%	6.5	47%	6.7

For the most part, DECs and MEs have roughly the same level of interest in the various features tested. The only exceptions are home access notification and in-home messaging on TV, which are significantly more likely to be of interest to DECs than MEs.

(Q19-Q35)

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Product Feature Evaluation

Top-Ten by Gender	Total (n=610)		Female (n=403)		Male (n=207)	
	Top-3-Box	Mean	Top-3-Box	Mean	Top-3-Box	Mean
			A	B	C	D
Alarm notification	70%	8.1	71%	8.0	68%	8.2
Remote access to lights	69%	8.1	69%	8.1	70%	8.2
Home appliance & systems monitoring	69%	8.1	70%	8.1	69%	8.1
Exterior sensing notification	68%	7.9	68%	7.9	67%	7.9
Energy consumption reporting	67%	8.0	65%	7.8	71%	8.3 B
Entry/exit point notification	65%	7.9	65%	7.8	65%	8.0
Caller ID on TV	65%	7.5	64%	7.5	67%	7.6
Remote grocery scanning	63%	7.6	66% C	7.7	56%	7.3
Lighting scenario programming	60%	7.4	60%	7.3	62%	7.6
Home access notification	59%	7.3	61%	7.3	57%	7.4

Males and females had about the same reactions to the various features tested.

- Males appear to be more likely than females to have a strong interest in energy consumption reporting.
- Females, on the other hand, seem to be more likely than males to have a high interest in remote grocery scanning.

(Q19-Q35)

InternetHomeAlliance

Product Feature Evaluation

Top-Ten by Household Composition	Total (n=610)		Married/Cohabiting with Children (n=463)		Married/Cohabiting without Children (n=94)	
	Top-3-Box	Mean	Top-3-Box	Mean	Top-3-Box	Mean
			A	B	C	D
Alarm notification	70%	8.1	70%	8.1	67%	7.8
Remote access to lights	69%	8.1	70%	8.1	66%	8.0
Home appliance & systems monitoring	69%	8.1	71%	8.2	66%	8.1
Exterior sensing notification	68%	7.9	69%	8.0	66%	7.6
Energy consumption reporting	67%	8.0	68%	8.1	65%	7.8
Entry/exit point notification	65%	7.9	66%	8.0	62%	7.5
Caller ID on TV	65%	7.5	66%	7.7	62%	7.0
Remote grocery scanning	63%	7.6	62%	7.5	69%	8.0
Lighting scenario programming	60%	7.4	59%	7.4	63%	7.2
Home access notification	59%	7.3	63% C	7.6 D	49%	6.5

In general, couples with and without children expressed similar levels of interest in the various features tested.

- The one exception to this rule concerns home access notification. Couples with children are significantly more likely than those without children to take a strong interest in this potential feature.

(Q19-Q35)

Product Feature Evaluation

Top-Ten by Household Income	Total (n=610)		Under $75K (n=106)		$75K or More (n=504)	
	Top-3-Box	Mean	Top-3-Box	Mean	Top-3-Box	Mean
			A	B	C	D
Alarm notification	70%	8.1	72%	8.3	70%	8.0
Remote access to lights	69%	8.1	64%	8.2	70%	8.1
Home appliance & systems monitoring	69%	8.1	67%	8.2	70%	8.1
Exterior sensing notification	68%	7.9	71%	7.9	67%	7.9
Energy consumption reporting	67%	8.0	69%	8.1	67%	8.0
Entry/exit point notification	65%	7.9	58%	7.7	66%	7.9
Caller ID on TV	65%	7.5	68%	7.3	65%	7.6
Remote grocery scanning	63%	7.6	68%	8.2 D	62%	7.4
Lighting scenario programming	60%	7.4	62%	7.4	60%	7.4
Home access notification	59%	7.3	54%	6.8	60%	7.4

In the main, digital entertainment enthusiasts with household incomes under and over $75K had the same reactions to the features they evaluated.

(Q19-Q35)

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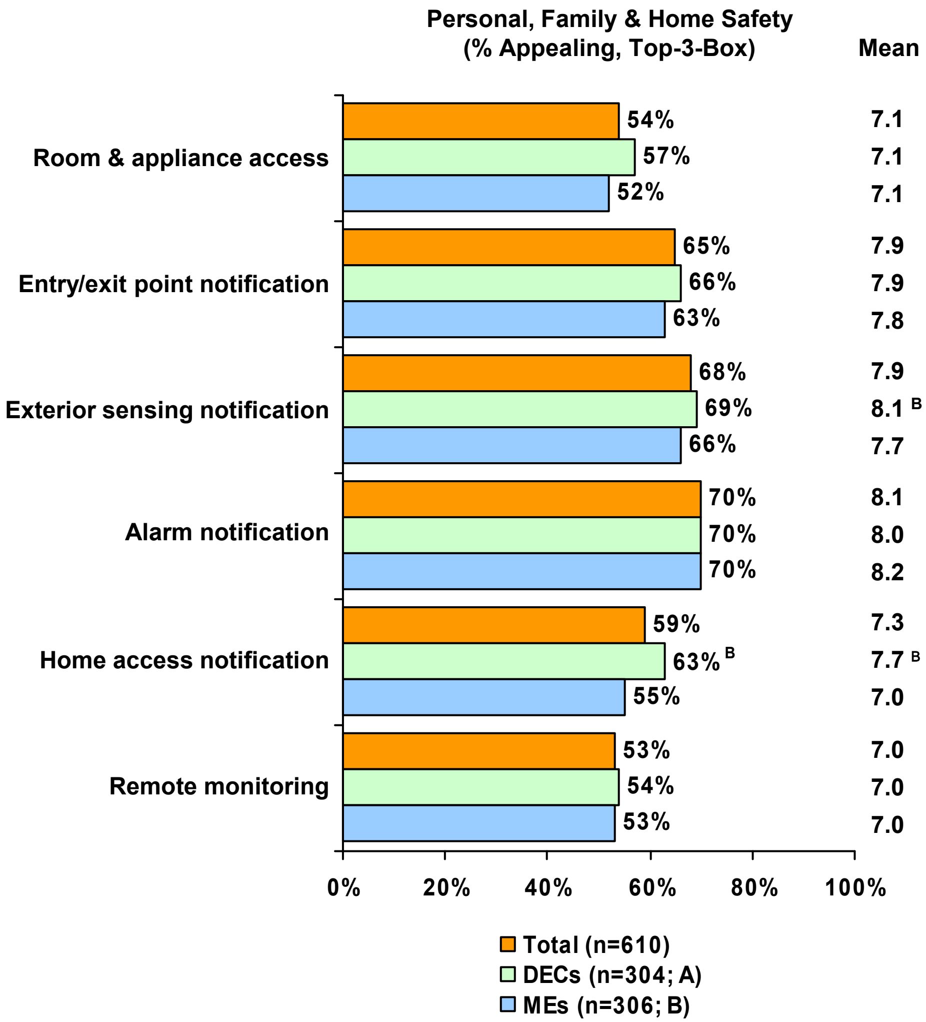
Product Feature Evaluation



(Q19-Q24; *Letters denote statistically significant differences among segments.)*

There was a strong positive response among both DECs and MEs to the safety and security features evaluated in this study.

- On average, alarm notification garnered the most enthusiastic response, followed by exterior sensing notification and entry/exit point notification.
- DECs are significantly more likely than MEs to consider home access notification 'very appealing' (63% vs. 55%, respectively). This finding can be attributed to the fact that DECs are older than MEs and so, have a greater need for safety and security features designed to help parents track home entry/exit times for teens and other household members. The use case that accompanied the feature description mentioned parents using the feature to determine if a teen broke curfew.
- Consumers in households with annual incomes of $75,000 or more are significantly more likely than those with lower household incomes to consider remote monitoring 'very appealing' (57% vs. 38%).
- Consumers aged 35 to 54-years-old seem to be more likely than their younger counterparts to strongly prefer a remote monitoring system to a standard home security system without a Webcam, again, because they're more likely to have more to lose in the event of a break-in or more immediate family members to worry about.
- Females are significantly more likely than males to consider three features 'very unappealing'–room and appliance access, entry/exit point notification and alarm notification.

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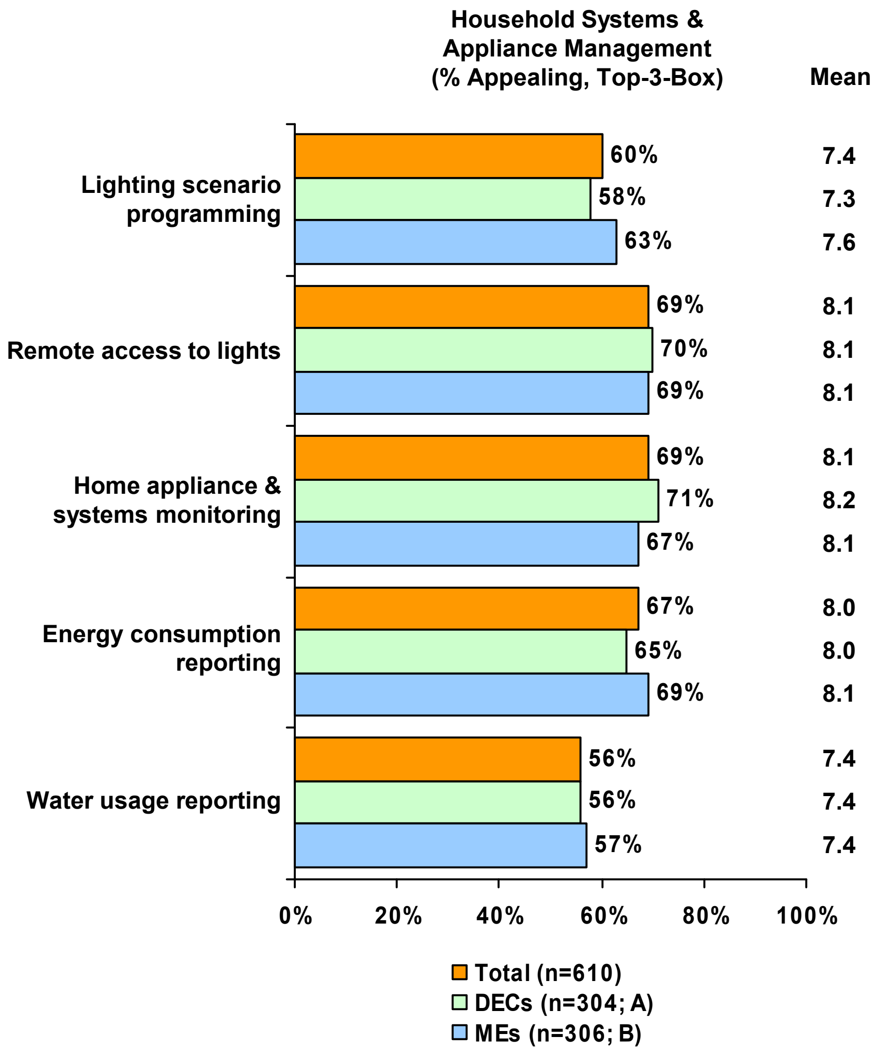
Product Feature Evaluation



(Q25-Q28A; *Letters denote statistically significant differences among segments.)*

Household systems and appliance management features scored equally well among both DECs and MEs.

- The most compelling features tested in this lifestyle domain are remote access to lights and home appliance & systems monitoring. The former was defined as the ability to control indoor and outdoor lights at a distance, while the latter was characterized as a feature that would alert you to potential dangers posed by home systems and appliances, such as furnace emissions.
- No statistically significant differences emerged between DECs and MEs when it comes to household systems and appliance management features. Unlike some other categories of features, the appeal of this one appears to be less dependent on life stage.
- Females are significantly more likely than males to find energy consumption and water usage reporting ‘very unappealing.’
- These findings are reminiscent of last year’s State of the Connected Home Market study, which found new energy management options and lighting controls to be highly appealing. This study represents the first time the home appliance and systems monitoring concept has been tested. Target consumers considered this option nearly as important as the top-rated safety features, perhaps because it can be considered a component of a home safety system.

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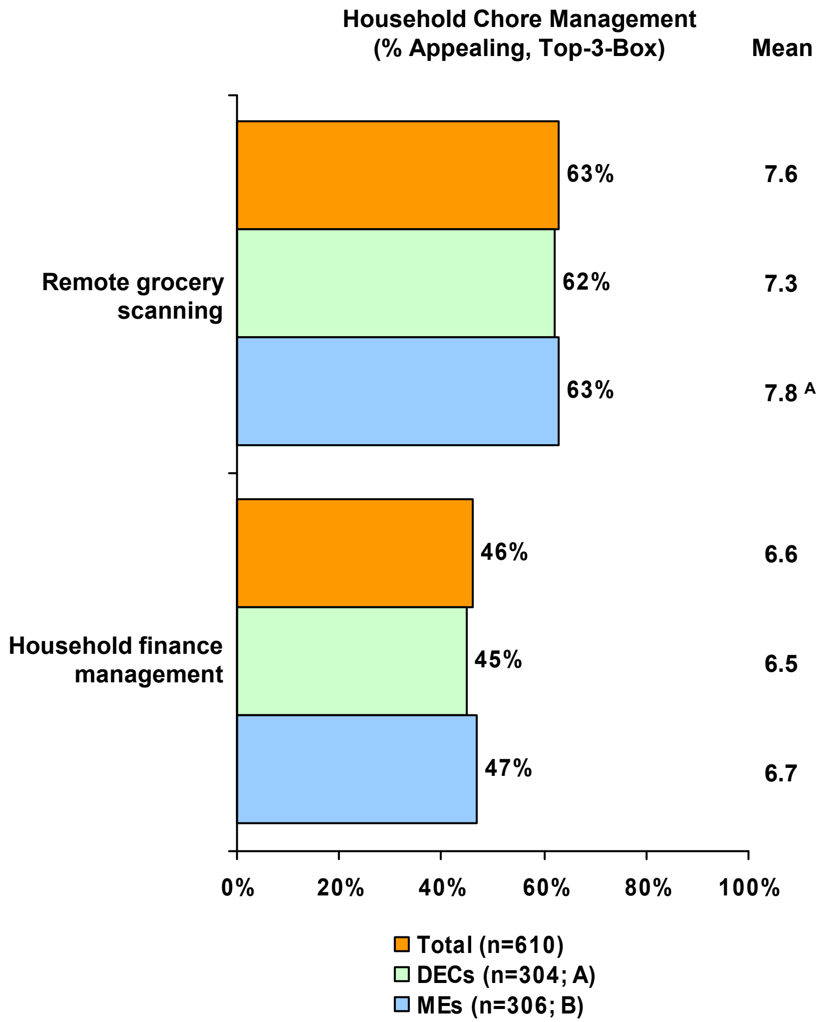
Product Feature Evaluation



(Q29-Q30; *Letters denote statistically significant differences among segments.)*

A substantial number of target consumers found the notion of remote grocery scanning 'very appealing,' while far fewer relished the opportunity to manage their household finances using software displayed on their television.

- On average, MEs are significantly more likely than DECs to give the remote grocery scanning feature high marks. This product feature would allow you to scan your kitchen cupboards, refrigerator and/or pantry to identify needed items and, if desired, automatically update your electronic grocery list.
- Females are significantly more likely than males to consider the remote grocery scanning feature 'very appealing' (66% vs. 56%, respectively).
- Married couples, particularly those with children, are significantly more likely than singles without children to show a strong interest in the remote grocery scanning feature.
- Among all the potential device features tested, the household financial management tool received the lowest scores.
- Target customers split when asked to indicate whether they preferred the household financial management tool or existing financial software. About 24% of target consumers reported that they would much prefer this tool over current financial software, while 25% had the opposite reaction. This finding indicates that the concept would be a compelling problem-solver for only one-in-four target consumers–an already small population.
- No statistically significant differences emerged among various demographic groups in regards to the household financial management concept.

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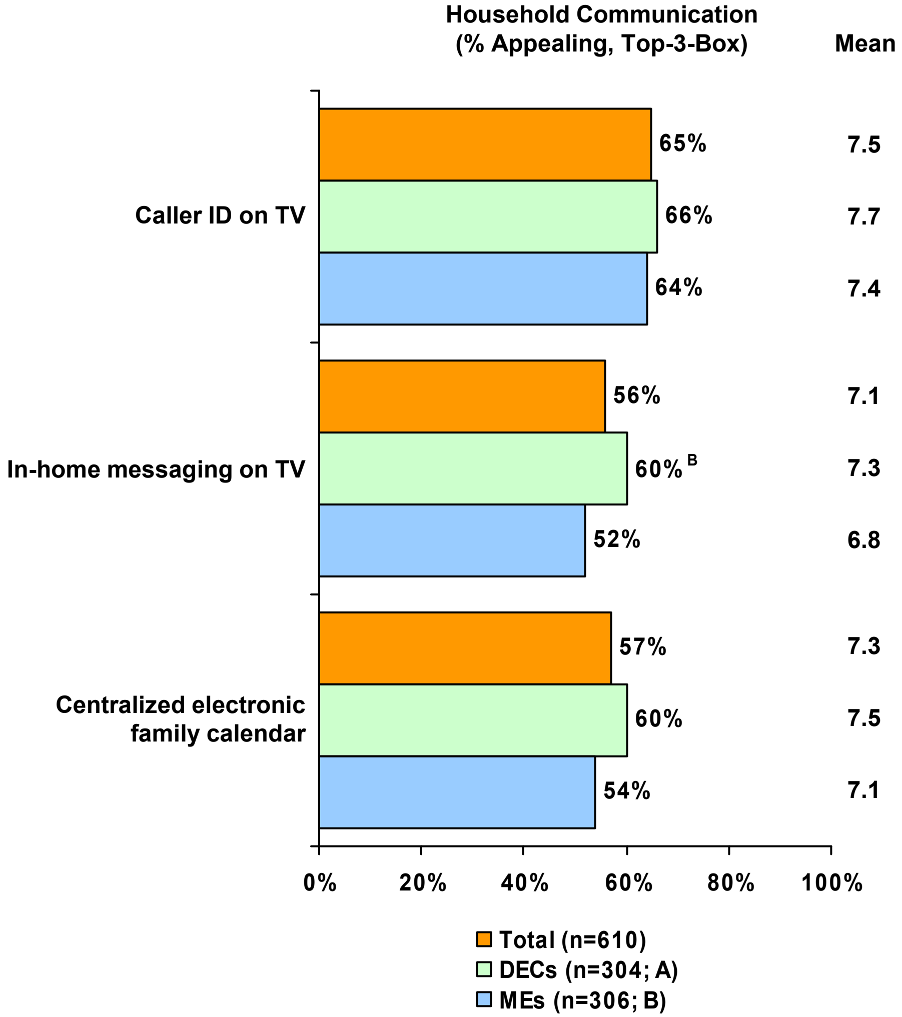
Product Feature Evaluation



(Q31-Q33; *Letters denote statistically significant differences among segments.)*

A majority of target consumers found the household communication features tested as part of this research 'very appealing.'

- Among the household communication features tested, the prospect of Caller ID displayed on their television proved to be the most popular concept. This feature is followed in popularity by a centralized electronic family calendar and finally, in-home messaging on television.
- In a head-to-head comparison with standard Caller ID, the television version performed well, with 39% preferring the new version and 21% preferring the standard version. DECs are significantly more likely than MEs to strongly prefer Caller ID on television over existing solutions (43% vs. 34%, respectively).
- Caller ID rose to the top, in part, because it's less life stage dependent than the other features tested. In order for the other features to be compelling, there must be multiple household members and, in the case of a centralized family calendar, at least one child must be old enough to have his/her own schedule of activities.
- DECs are significantly more likely than MEs to find the in-home televised messaging concept 'very appealing' primarily because they are older and so, more likely than their younger counterparts to have children with whom they could communicate using this tool. Couples with children are significantly more likely than couples without to consider this feature 'very appealing' (59% vs. 44%, respectively).
- Females are significantly more likely than males to rate in-home messaging on television 'very appealing' as well (66% vs. 57%, respectively).
- When asked to choose between a centralized electronic family calendar and their current calendaring system, about one-in-three strongly favored the former (35%) compared to about 20% for the latter.

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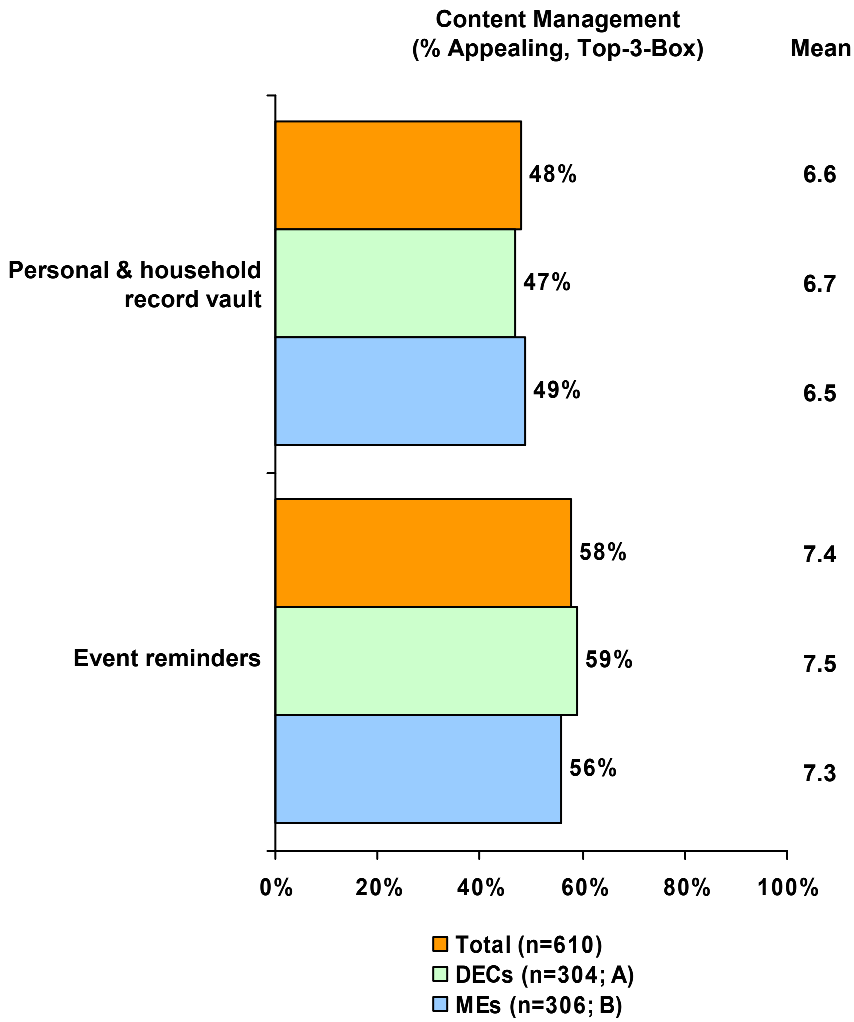
Product Feature Evaluation



(Q34-Q35; *Letters denote statistically significant differences among segments.)*

Target consumers had a mixed reaction to the content management features examined in this study, with event reminders garnering some adherents and the personal & household record vault receiving the second-lowest appeal scores among all of the concepts tested.

- The personal & household record vault was described as a way to store important records in an electronic format on a private, password-protected Web site. No statistically significant differences emerged among key demographic groups in regards to the personal & household record vault. In other words, various demographic groups liked (or disliked) the concept to the same degree.
- When asked to indicate to what extent they preferred their current system for storing and accessing records or the record vault feature, 29% strongly preferred the former, while 22% strongly preferred the latter.
- Defined as a feature that would notify you of upcoming dates or events you consider important, such as birthdays or medication schedules, event reminders appealed strongly to about three-in-five target consumers (58%).
- Females are significantly more likely than males to consider the event reminders feature 'very unappealing' (9% vs. 4%, respectively).
- In a head-to-head comparison with digital entertainment enthusiasts' current systems for reminding themselves of important events, the event reminder concept fared poorly, with 31% strongly preferring their current system compared to 17% who strongly preferred the alternative.

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Product Feature Evaluation

Top-Ten Consumer-created Bundles	Total (n=520)	DECs (n=263)	MEs (n=257)
Bundle 1			
- Caller ID on TV - In-home messaging on TV	8%	7%	8%
Bundle 2			
- Energy consumption reporting - Water usage reporting	6%	6%	7%
Bundle 3			
- Home appliance & systems monitoring - Energy consumption reporting - Water usage reporting	5%	7%	4%
Bundle 4			
- Entry/exit point notification - Exterior sensing notification - Alarm notification - Home access notification - Remote monitoring	5%	5%	4%
Bundle 5			
- Entry/exit point notification - Exterior sensing notification - Alarm notification - Home access notification	4%	3%	4%

A solid majority of digital entertainment enthusiasts (87%) felt the features tested as part of this study suggested one or more logical groupings or bundles; the self-selected bundles, however, varied dramatically in content.

- Among the target consumers who perceived a natural bundle of features, most saw three or more unique combinations (83%). A plurality came up with three bundles (47%).
- The most frequently-mentioned bundle, consisting of Caller ID and in-home messaging via the television, is more likely to be cited by target consumers 25 to 44-years-old than older digital entertainment enthusiasts. This finding makes intuitive sense given that consumers in the 25 to 44-year-old age bracket are more likely than their older counterparts to have children living at home.
- Curiously, DECs and MEs didn't create noticeably different bundles. Differences in bundle content occurred within groups rather than across them, which indicates that coming up with a single bundle that satisfies a sizeable portion of target consumers is highly unlikely.

(Q38)

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Product Feature Evaluation

Top-Ten Consumer-created Bundles	Total (n=520)	DECs (n=263)	MEs (n=257)
Bundle 6			
- Remote grocery scanning - Household finance management - Caller ID on TV - In-home messaging on TV - Centralized electronic family calendar - Personal & household record vault - Event reminders	3%	4%	3%
Bundle 7			
- Centralized electronic family calendar - Event reminders	3%	2%	4%
Bundle 8			
- Centralized electronic family calendar - Personal & household record vault - Event reminders	3%	3%	3%
Bundle 9			
- Lighting scenario programming - Remote access to lights	3%	3%	4%
Bundle 10			
- Entry/exit point notification - Exterior sensing notification - Alarm notification - Home access notification - Remote monitoring - Lighting scenario programming - Remote access to lights	3%	3%	2%

A solid majority of target consumers created bundles based on perceived topicality rather than alternative classifications such as locality (triggered inside or outside the house).

- The most popular topics consist of personal and home security, family communication and home systems & appliances.

(Q38)

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Contents

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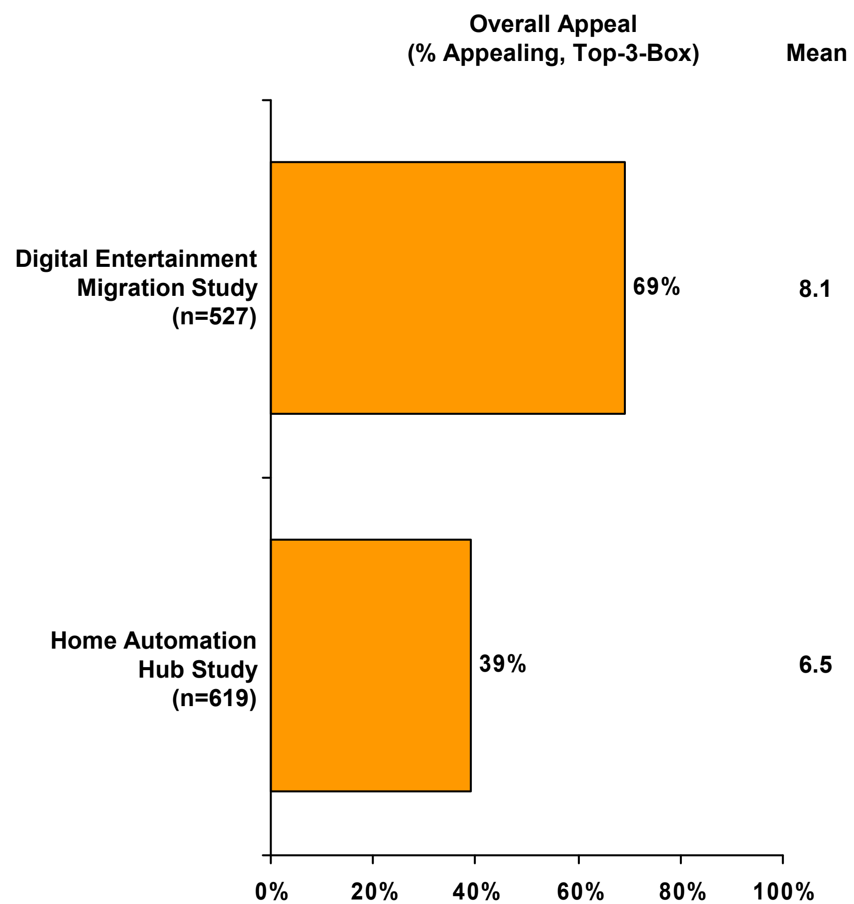
Home Automation Hub Evaluation



The Home Automation Hub appealed much more strongly to digital entertainment enthusiasts than to consumers generally.

- As might be expected, the Home Automation Hub proved to interest significantly more digital entertainment enthusiasts than consumers generally (as measured by the separate, but related Home Automation Hub study).
- No statistically significant differences emerged among key demographic groups in relation to the appeal of the Home Automation Hub concept. In other words, target consumers liked (or disliked) the idea to the same degree.
- In the Home Automation Hub study, about 56% of primary market consumers (the Alliance equivalent of early adopters) considered the concept ‘very appealing.’ It’s not surprising that the concept would do even better among DECs and MEs–consumer segments defined by even more aggressive technology adoption requirements.

(Q40, Digital Entertainment Migration; Q11, Home Automation Hub. *Letters denote statistically significant differences among segments.)*

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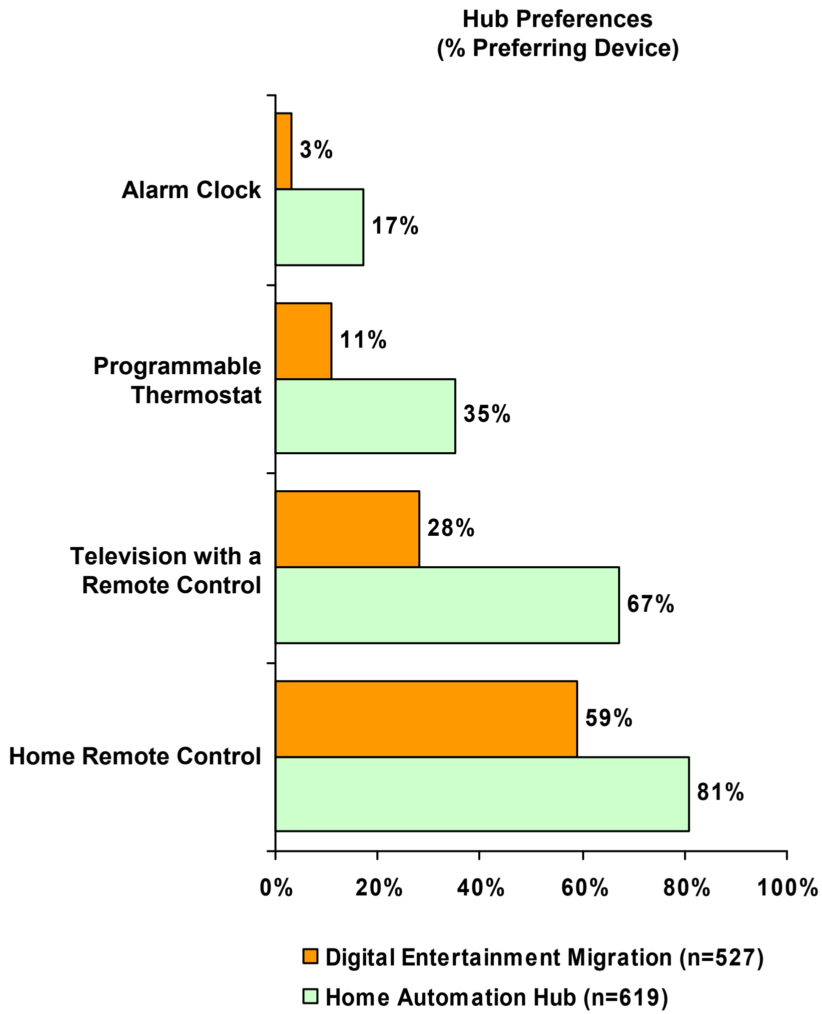
Home Automation Hub Evaluation

Digital Entertainment Migration Study

Q41A. Which **one** device would you most prefer to operate the Home Automation Hub?

Home Automation Hub Study

Q25. Which **two** devices would you most prefer to operate the Home Automation Hub?



When asked to identify the optimal control point for the Home Automation Hub, a majority of digital entertainment enthusiasts selected the home remote control.

- The results on this dimension mirrored those from the Home Automation Hub study, with the home remote control receiving the greatest number of votes, followed by the television with a remote control, the programmable thermostat and the alarm clock.
- Female digital entertainment enthusiasts are significantly more likely than their male counterparts to preference the home remote control (64% vs. 49%, respectively).
- Conversely, males are significantly more likely than females to favor the television with a remote control as the device for operating the Home Automation Hub (35% vs. 23%, respectively).

(Q41A, Digital Entertainment Migration; Q25, Home Automation Hub. *Letters denote statistically significant differences among segments.)*

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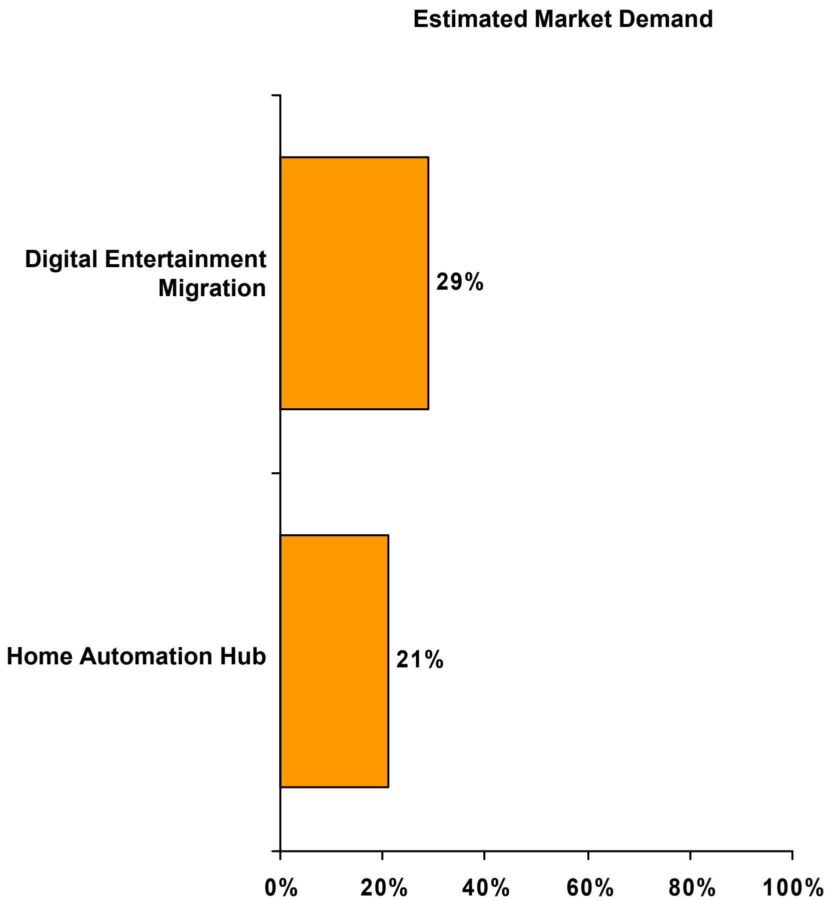
Home Automation Hub Evaluation



The estimated demand for the Home Automation Hub concept is higher among digital entertainment enthusiasts than among consumers generally.

- The total addressable market (TAM) for the Home Automation Hub among digital entertainment enthusiasts is about 29% where the TAM is defined as the maximum percentage of target consumers who would seriously consider purchasing the product if cost weren't an issue.
- Males are significantly more likely than females to be part of the TAM (35% vs. 28%, respectively). This finding is consistent with the results from previous Alliance-sponsored studies which show that males tend to have a greater interest than females in automated home systems and related concepts.

(Q41B, Digital Entertainment Migration; Q35, Home Automation Hub. *Letters denote statistically significant differences among segments.)*

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Contents

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Media Interests & Product Ownership

Media Entertainment Interests	Total (n=610)		DECs (n=304)		MEs (n=306)	
	Top-3-Box	Mean	Top-3-Box	Mean	Top-3-Box	Mean
			A	B	C	D
Broadcast television, meaning all network and cable/satellite television programming	82%	8.7	82%	8.7	81%	8.8
Recorded music	82%	8.6	73%	8.2	91% A	9.0 B
Broadcast TV shows/theatrical movies on DVD	80%	8.6	79%	8.6	82%	8.7
Personal of home photos	78%	8.5	78%	8.6	78%	8.5
Theatrical movies	73%	8.3	70%	8.1	76%	8.4
Personal or home video/movies	70%	8.0	70%	8.3	69%	7.8
Radio broadcast music	70%	8.1	62%	7.8	77% A	8.4 B
DVD/cartridge-based videogames	54%	7.0	48%	6.6	59% A	7.3 B
Radio broadcast talk	43%	6.3	43%	6.5	42%	6.2
Online videogames	43%	6.2	36%	5.7	50% A	6.7 B
Books on tape	32%	5.4	33%	5.6	30%	5.1

By definition, MEs are significantly more likely than DECs to have a strong interest in broadcast and recorded music. Largely because of the age difference between the two segments, MEs are also significantly more likely than DECs to have a strong interest in console and online videogames.

(QJ; *Letters denote statistically significant differences among segments.*)

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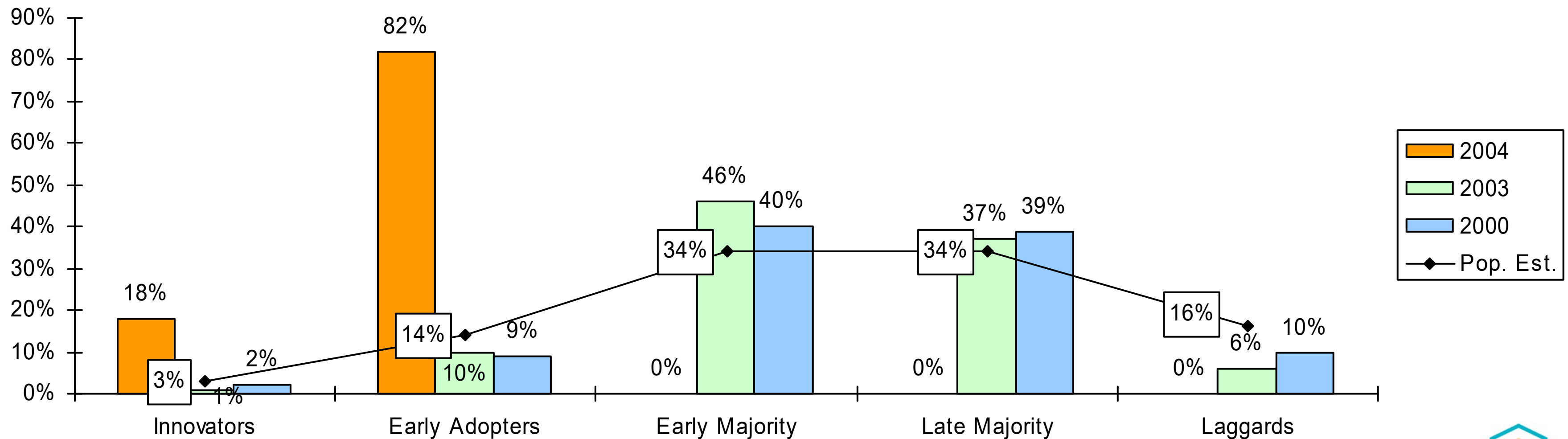
Media Interests & Product Ownership

Digital Technology Adoption

As might be expected given how DECs and MEs were defined, all of the participants in this study fell into the innovator and early adopter categories for home technology products/services. According to the literature on diffusion of innovations, innovators typically make up about 3% of the population and early adopters about 14% of the population. The 2003 and 2004 figures show the incidence of consumers in various technology adoption categories in previous Alliance studies as points of comparison.



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Media Interests & Product Ownership

Product Ownership	Total (n=610) Currently Own	Total (n=610) Plan to Purchase in Next 6 Months	DECs (n=304) Currently Own	DECs (n=304) Plan to Purchase in Next 6 Months	MEs (n=306) Currently Own	MEs (n=306) Plan to Purchase in Next 6 Months
			A	B	C	D
Computer Products						
Media center PC	79%	13%	80%	13%	79%	13%
Home network	63%	21%	66%	21%	61%	21%
Audio Products						
Component stereo system	94%	6%	96%	4%	92%	8% B
Digital audio receiver	86%	16%	86%	15%	86%	16%
Portable MP3 player	53%	28%	51%	30%	55%	26%
Surround-sound speakers	84%	13%	84%	12%	85%	14%
Personal Video Products						
Digital camera	90%	13%	92%	11%	88%	14%
Digital camcorder	52%	32%	57% C	28%	47%	36%
Broadcast Video Products						
Non-flat panel TV larger than 27-inches	73%	9%	76%	8%	71%	10%
Flat panel TV larger than 27-inches	33%	36%	31%	34%	35%	37%
DVD recorder (records as well as plays DVDs)	98%	4%	98%	4%	98%	4%
Digital or personal video recorder (DVR/PVR) like TiVo or Replay TV	46%	30%	49%	29%	43%	31%
Gaming Products						
Video game console	82%	9%	83%	9%	81%	9%
Handheld video game unit	68%	12%	77% C	9%	58%	15% B

(QL; *Letters denote statistically significant differences among segments.*)

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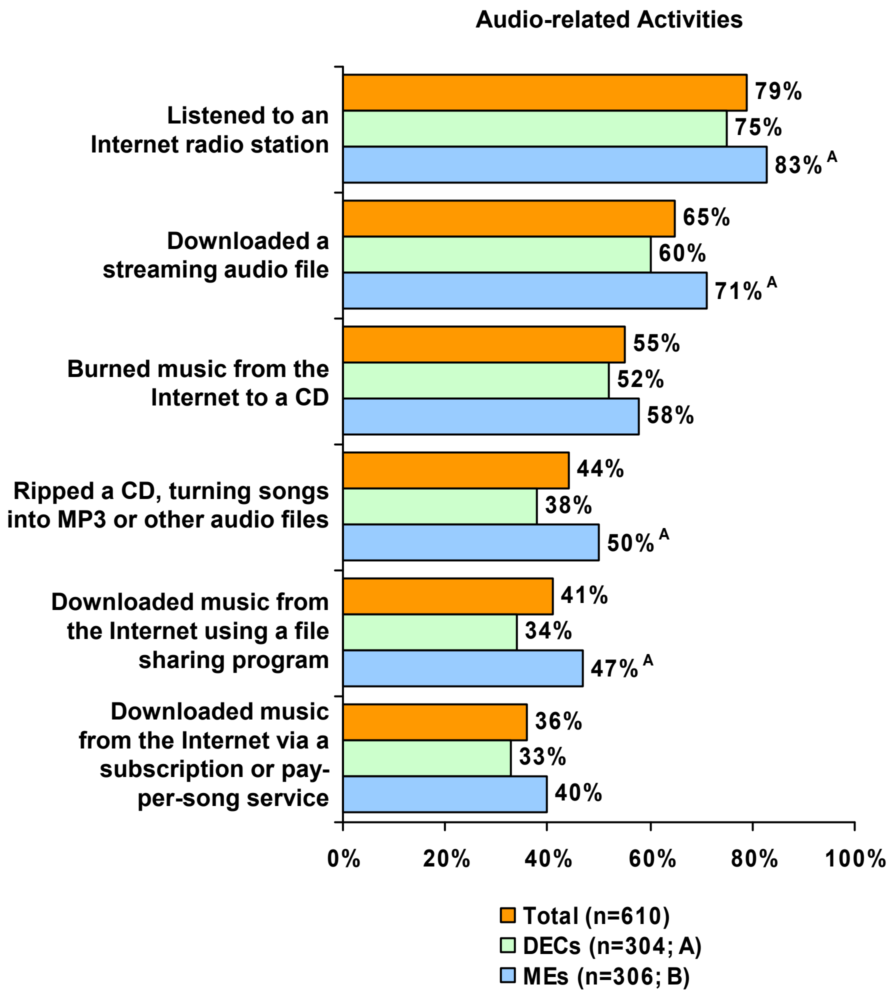
Media Interests & Product Ownership



(QM; *Letters denote statistically significant differences among segments.)*

By definition, MEs are significantly more likely than DECs to have engaged in a variety of digital audio-related activities, including listening to Internet radio, downloading streaming audio files, ripping CDs and downloading music from the Internet using a file-sharing program like Kazaa.

- Males are significantly more likely than females to engage in many digital audio-related activities, including listening to Internet radio (85% vs. 76%), downloading streaming audio files (77% vs. 60%), and burning music from the Internet to a CD (62% vs. 52%).
- Younger target consumers–those aged 18 to 34-years-old have a greater propensity than their older counterparts to engage in all of the digital audio-related activities examined. For instance, 61% of 18 to 24-year-olds reported downloading music from the Internet using a file-sharing program in the past six months compared to only 30% of 35 to 44-year-olds.

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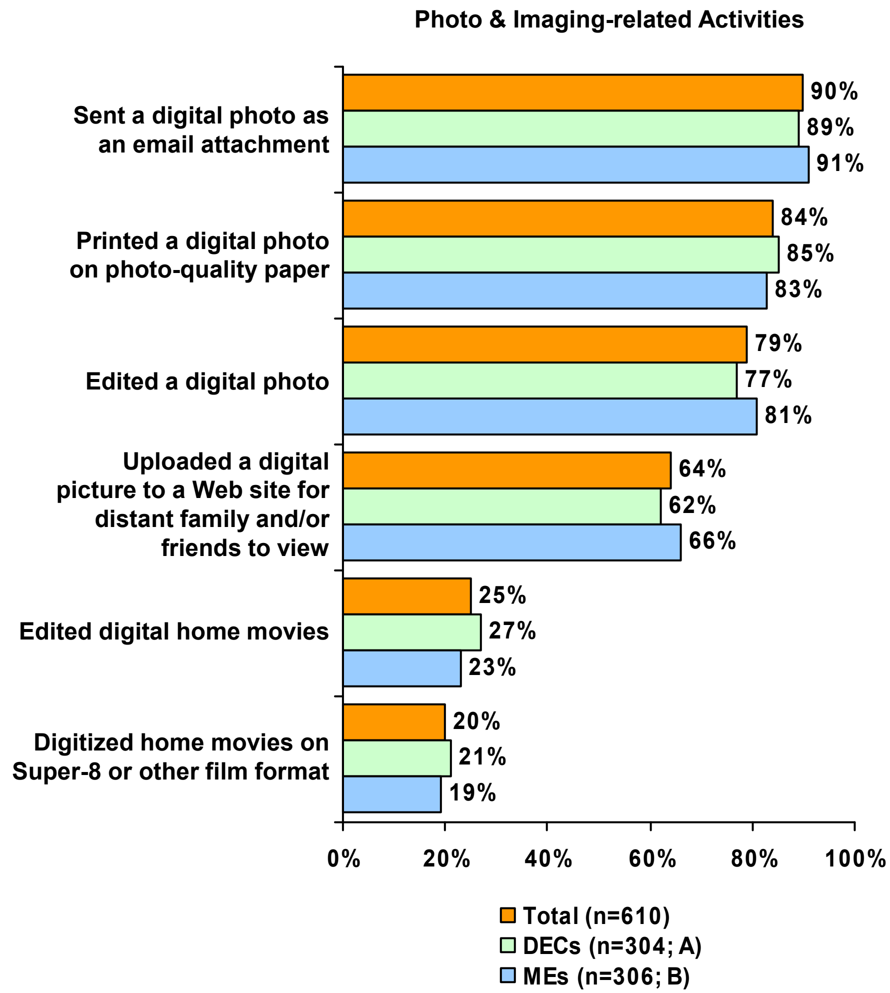
Media Interests & Product Ownership



(QN; *Letters denote statistically significant differences among segments.)*

The fact that no statistically significant differences emerged between DECs and MEs in terms of their propensity to use and manipulate digital photos and home movies attests to the universality of these activities among leading-edge consumers.

- Males are significantly more likely than females to engage in many digital photo and imaging-related activities, including uploading digital pictures to a Web site (70% vs. 61%), editing digital home movies (31% vs. 22%), and digitizing home movies originally recorded on Super-8 or another film format (29% vs. 16%).

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Media Interests & Product Ownership

Video & Gaming-related Activities	Total (n=610)	DECs (n=304)	MEs (n=306)
		A	B
Watched TV and surfed the Web at the same time	72%	68%	77% A
Played a movie on your home computer's DVD drive	70%	69%	71%
Checked Web links provided on a TV program either during or after the show	58%	56%	60%
Downloaded a streaming video file	58%	54%	62%
Digitally recorded a movie or TV show and saved a copy for you personal or household library	38%	35%	41%
Played a console video game over the Internet	31%	28%	35%
Participated 'virtually' in an interactive TV program like "Who Want to be a Millionaire?"	25%	22%	28%
Played a single or multi-player game over the Internet that requires a monthly subscription	23%	21%	26%
Downloaded a short or full-length movie from the Internet from a free source like Kazaa	22%	17%	26% A
Digitally recorded a movie or TV show and sent a copy to a friend or family member	16%	12%	21% A
Downloaded a shot or full-length movie from the Internet from a pay-to-play source like Movielink	13%	11%	16% A
None of these	5%	8% B	3%

To some extent, MEs appear to have integrated video and gaming into their lives more tightly than DECs.

- MEs are significantly more likely then DECs to engage in a number of video and gaming-related activities, including watching television and surfing the Web at the same time, downloading movies from the Internet and digitally recording movies or TV shows for a friend or family member.
- Males are significantly more likely than females to engage in several of these activities also, namely, playing movies on a PC's DVD drive (75% vs. 67%), downloading streaming video files (70% vs. 52%), playing console videogames over the Internet (38% vs. 28%), and downloading full-length movies from the Internet using a pay-to-play source like Movielink (19% vs. 10%).

(QO; *Letters denote statistically significant differences among segments.*)

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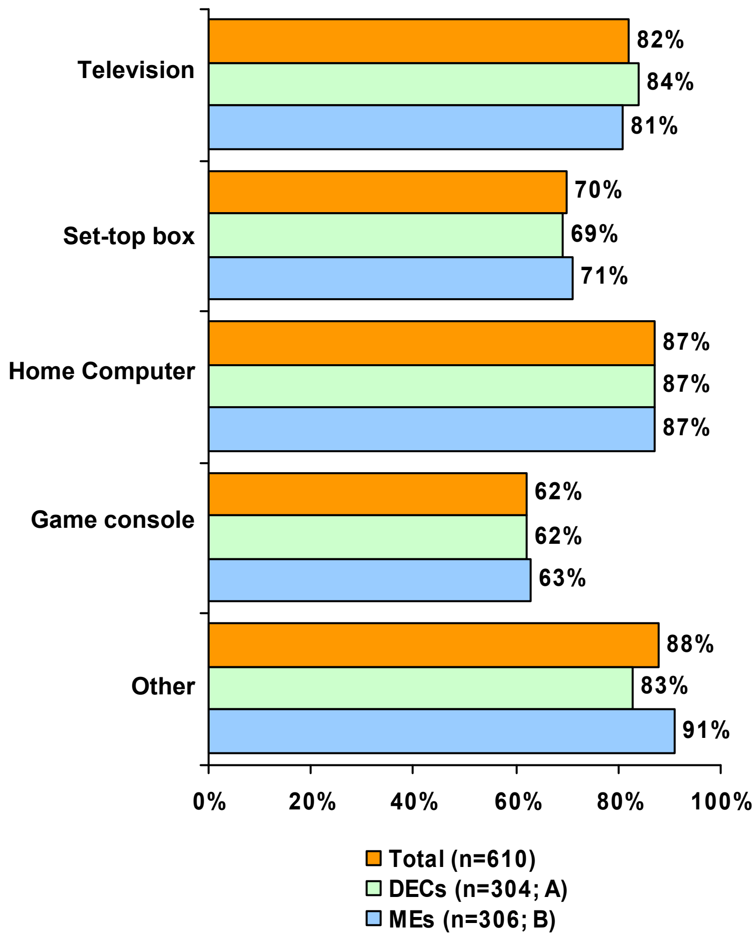
Media Interests & Product Ownership

Comfort-level with Media Hub Options (% Very Comfortable, Top-3-Box)



(QP; *Letters denote statistically significant differences among segments.)*

When asked about their comfort level with various media hub options, a majority of participants indicated they were 'very comfortable' with all of the devices tested.

- Please note that target consumers had to indicate at least a moderate comfort level (a '6' or higher on the 11-pt. scale) with a home computer (or media PC) as a central media control point in order to qualify for this study. Therefore, the results for this question indicate a much higher acceptance of the options evaluated than would have been revealed by a study of the general population.

InternetHomeAlliance

Connected Home

The following Home Automation Hub description was presented in the survey:

The Home Hub is a centralized controller for systems in the home. Your heating, lighting, home security system, smoke detectors, and garage door could all be linked to a central system. You could still control systems in your home that way you do now, but you could also control these systems using another device commonly found in the home, such as an alarm clock or a programmable thermostat.

With the Home Hub, you can take these actions from one control point:

- Check or change your home's temperature
- Check settings or change settings on a home security system, if you have one
- Turn lights on or off throughout the home
- Turn outdoor lights on and off
- Check that the garage door is closed

The Home Hub could be built into one of these devices commonly found in the home:

- Alarm clock. For example, you could push buttons on your alarm clock to change the temperature in your home.
- Programmable thermostat. For example, you could push buttons on your programmable thermostat to turn on all upstairs lights.
- Television. For example, with a control menu on your TV, you could push buttons on the remote control to lock your home's entry doors.
- The Home Hub could also be built into a new device, called the Home Remote Control. For example, you push buttons on the home remote control to turn on your porch light.
- The home automation hub could also display service information about your home's appliances. For example, if an appliance like your washing machine or air conditioning stops working properly, it could display information on what went wrong.

The Home Hub includes an antenna that picks up signals from the home systems it's monitoring. In other words, the home systems are on a 'network,' and the Home Hub controls the network.

The current systems in your home couldn't 'talk to' the Home Hub. But as you buy new systems or appliances, they would come equipped with antennas to 'talk to' the Home Hub.

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