STUDY OF USER EXPERIENCE ("UX") ON MULTIPLE VIDEO SCREENS AND FORMATS

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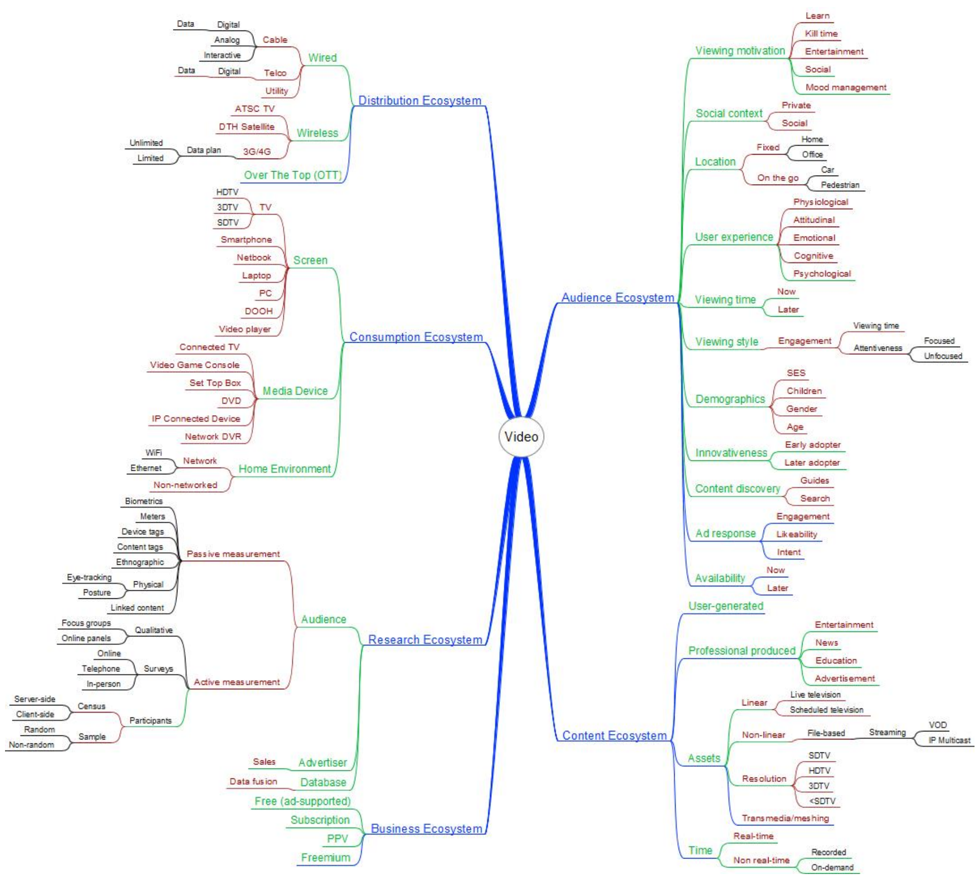
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Executive Summary

The Council for Research Excellence (CRE) commissioned this study to investigate five research questions by surveying both industry and academic studies of audiences and video media. Part of our process was to identify a group of experts to review our set of research questions and help us identify key studies to include in our review. Our goal was to seek broad and diversified peer review of the core set of research questions to help ensure the relevance and applicability of this project. Our experts came from different segments of the video media ecosystem ranging from media and research companies, to agencies, technology companies, trade associations and academia.

The objective of this study is to enable the CRE to design and commission comprehensive new research into the latest and evolving formats of video, including live viewing; screen-size impact; HDTV; DVRs; streaming; mobile; game consoles; 3-D TV; tablet PCs; and others.

The five research questions we studied were:

1. What drives the choice of screen for the consumer? This could be a function of viewing context; content type; viewing location; best screen available; peer influence; social setting; time utility (e.g., pay now versus watch free later), etc.
2. How does viewing vary with chosen screen? Audience demographics and audience size differences; viewer engagement and call to action response differentials; viewer satisfaction; and other factors.
3. Vocabulary/methodology for understanding viewing styles. We build a master glossary of key terms.
4. What is the context of use across various screens – is use complementary, additive or zero-sum? We will summarize available data.
5. What methodologies are best to get at these uses? We will provide our own assessments and seek external validation with the CRE Committee; by going back to some of the executives interviewed as part of Phases 1, 2; and/or seeking other relevant feedback.

In addition to developing answers to these five research questions, we also suggest future directions for video media research.

Summary of Findings by Research Question

RQ1 – What drives screen choice?

- Our conclusion is that the research supports two sets of factors driving the choice or choices of screens by consumers: **Best *screen* available and Best *function* available.**

RQ2: How does viewing vary across screens?

- The “best screen” is not just a technology choice but a multidimensional choice. In other words, if two screens are physically available – a large, HDTV, flat panel screen and a small smartphone

screen with the same content available at the same time, the bigger screen is not necessarily the "best" screen.

- TV gets the lion's share of time across all groups. While different screens do attract viewing, as a baseline we note that a tremendous body of research supports the simple conclusion that TV is king.
- We reiterate Ericsson ConsumerLab's finding that, "TV/video viewing is fragmented and complex; few established consumption patterns; trial and error market with lots of curiosity around." Indeed, we believe that whatever we think we know about multiscreen behavior is bound to change.

RQ3: What vocabulary and methodology is needed for understanding viewing styles?

- The discovery and study of viewing styles requires **multivariate** and **multi-method** approaches to understanding both main effects and interactions.
- We comment further on this in Parts 4 (Taxonomy) and Future Directions (multi-trait/multi-method matrix). We also offer our collection of terms from our review of the research in our "Appendix: Selected Terms."
- Different researchers come up with different labels for viewing styles and demographic groupings. Here's brief set of illustrations.

    - **Mobile Moms** – on the go viewing integrated with other scheduling, social networking and communication functionalities.
    - **Live TV**- event-driven viewing organized around viewing of specific, real-time, scheduled events, e.g., *American Idol* in its first run or the Super Bowl.
    - **Personal Viewing** – smaller screens, different content, different motivations and gratifications and different expectations for screens and related functionality exist for audience members viewing alone versus in groups of two or more.
    - **Social Viewing** – mobile video is less suited to social viewing than larger screens.
    - **Engaged Viewing** is defined variously, or as one of our academic interviewees commented, "There are at least 25 definitions of engagement." Most often the "engaged" viewing style is defined as a matter of length of viewing. Longer time spent viewing is more engaged viewing. In other cases, the engaged viewing style is evidenced by user behaviors such as selecting specific content; making specific responses to content; exhibiting different levels of attentiveness or biometric responses.
    - **Engaged Viewing** can also be expressed as cognitive involvement, active participation and emotional connectedness. As a function of content, it is often related to specific elements of narratives. The literature emphasizes the centrality of characters in building this form of connectedness. The concept has often been measured as time spent with media, although psychological or physiological measures are also incorporated in some research studies.
    - **Availability** is a determinant of viewing style. This construct of "availability" has several dimensions - including time, location and content - and can be considered from the

perspective of the viewer or the technology. Viewers' "availability" depends on other demands in their lives, and is generally described as time they could spend with a medium of entertainment and/or information.

- **Behavioral Styles** of media consumption can also be variously described as ritualistic v. instrumental or habitual v. intentional. Viewers who consume media by habit are generally more medium-oriented. Instrumental viewers, on the other hand, are content-oriented. Viewers seek out the content they want or need, and will use whichever medium gives them access to that content.

RQ4: What is the context of use across various screens – is it complementary, additive or zero-sum?

- The overwhelming consensus we observe in the research reviewed is that as more video media screens and options are offered to audiences, they "just say yes."
- Multi-screen use is complementary not cannibalistic.
- Heavy users of one medium (e.g., TV) are heavy users of other media (e.g., Internet, gaming).
- Different types of user experiences and forms of engagement encourage multiscreen use versus picking one screen over another.
- Even single screen use adds to time spent and frequency of use for both traditional media and new media.

RQ5: What methodologies are best at getting at these uses?

Researching cross-platform video media requires multiple methodologies depending on the nature of the inquiry and questions to be answered. In the summary table below (Table 4), we present the various research methodologies that tend to be used in relation to the time of media exposure. This could be useful as different research objectives are developed for different points in time relative to media exposure.

Table 1. Research Methodologies for Cross-Platform Video Media Research

User Experience "UX"	Measures	Methods
Pre UX	• Intended media use • Awareness of options • Emotions • Uses and gratifications sought (Expectations) • Perception of medium	• Online panels • Surveys • Focus groups • In-depth Interviews
During UX	• Time spent • Frequency of use • Engagement • Cross-platform use • Emotions	• Digital census (devices) • Online surveys • Neuroscience/biometrics • Ethnography/in-depth interviews and observation
Post UX	• Purchase intent • Recall • Recognition • Memorability • Favorability • Satisfaction of Expectations • Complementary use of additional screen to connect with others or delve deeper into narrative elements	• Focus groups • Online panels • Surveys • Single source surveys • Data fusion

Future Directions

In light of our work here to review and summarize a body of academic and industry research, we make the following set of seven recommendations:

- Recommendation 1: Build from a taxonomy to an information architecture.
- Recommendation 2: Cross-platform media use cases require cross-platform metrics.
- Recommendation 3: Multi-trait-multi-method matrix approach needed.
- Recommendation 4: "Linked Content" research needed to better understand the evolution of video and social media.
- Recommendation 5: Business models need to be better informed by research.
- Recommendation 6: Search, discovery and selection – finding useful interfaces.
- Recommendation 7: We need to think about research on an "Internet scale"

These findings and recommendations contain insights that may be useful in both similar and unique ways for media executives, researchers and advertisers. The major research challenge is understanding the User Experience cross-platform, which means identifying consumption and engagement outcomes related to individual platforms as well as further interactive effects of the user experience across these platforms. Whether simultaneous or sequential; cross-platform media use opens up opportunities to reach audiences in new ways and, ideally, with greater impact. As we suggest here, more research and new types of research will be necessary to better understand the cross-platform user experience as technology and business models continue to change the options available to consumers. A complete picture of adoption and use patterns will require, as this study shows, qualitative as well quantitative methods.

Introduction and Scope of Work

Introduction

The Council for Research Excellence (CRE), a diverse group of senior research professionals from throughout the media and advertising industries dedicated to advancing the knowledge and practice of audience measurement methodology funded this study as a comprehensive effort to review research that is currently available about the user experience on multiple video platforms. The CRE operates independently but was formed and is funded by The Nielsen Company.

The objective of this study is to enable the CRE to design and commission comprehensive new research into the latest and evolving formats of video, including live viewing; screen-size impact; HDTV; DVRs; streaming; mobile; game consoles; 3DTV; tablet PCs; and others.

Scope of Work

Our project was divided into four phases, each with its own set of deliverables as summarized in Table 2.

Table 2. Scope of Work and Deliverables

Phase	Deliverables
1 – Are we asking the right questions?	• Conduct and summarize executive interviews (to be performed by phone, email, in-person as appropriate). • Review, analyze and summarize relevant research. • Develop sharable electronic archive of relevant citations and, when possible, complete documents. • Produce written report to document our findings regarding industry needs and requirements versus existing research, methodologies, metrics and analytics. • Develop and document media consumption and engagement research taxonomy in written report.
2 – Review and analysis of available research	• Conduct and summarize executive interviews (to be performed by phone, email, in-person as appropriate). • Review, analyze and summarize relevant research. • Develop sharable electronic archive of relevant citations and, when possible, complete documents. • Produce written report summarizing review and analysis of media consumption and engagement research based on our taxonomy.
3 – Answering the key questions	• Produce written report presenting our findings organized by the CRE Committee on Media Consumption and Engagement's core set of research questions.
4 – Future directions	• Written report presenting our conclusions, recommendations and suggestions for where current practices may suffice and where innovation is needed.

Part 1: Asking the Right Questions

Initial Research Questions

The Council for Research Excellence proposed five research questions to be addressed in its Request for Proposals. Part of our process was to identify a group of experts from different segments of the video media ecosystem ranging from media and research companies, to agencies, technology companies, trade associations and academia. Our goal was to seek broad and diversified peer review of the core set of research questions to help ensure the relevance and applicability of this project.

The original research questions as set forth in the CRE's Request for Proposals were:

1. What drives the choice of screen for the consumer? This could be a function of viewing context; content type; viewing location; best screen available; peer influence; social setting; time utility (e.g., pay now versus watch free later), etc.
2. How does viewing vary with chosen screen? Audience demographics and audience size differences; viewer engagement and call to action response differentials; viewer satisfaction; and other factors.
3. What is the vocabulary/methodology for understanding viewing styles? We build a master glossary of key terms.
4. What is the context of use across various screen – is use complementary, additive or zero sum? We will summarize available data.
5. What methodologies are best to get at these uses? We will provide our own assessments and seek external validation with the CRE Committee; by going back to some of the executives interviewed as part of Phases 1, 2; and/or seeking other relevant feedback.

Reassessing the Research Questions with Expert Interviews

Prior to and during our search for studies related to consumers' choice of screens, we conducted outreach to over one hundred experts in the media and related industries as well as academics. This included broadcast and cable networks; trade associations, government; technology companies; research companies; ad agencies; brand managers; research consultants; and others.

One purpose of this process was to cast a broad net to help ensure our roster and operationalization of research questions was relevant, clear, and comprehensive. The second purpose was to collect responses to these questions from people most familiar with audience behavior in the changing media environment. This assisted us in identifying key studies for inclusion in our review and analysis.

Interviews were conducted in person, by phone or via email. Following is a summary analysis of these interviews. Respondents, who were promised anonymity, are identified by company type only.

Overall, respondents thought the questions were appropriate to the project and appropriately worded to elicit useful responses from experts in media and academe. Their answers contributed to the

direction of our search for studies, but they also suggested important concepts for future primary research on the question of screen choice.

Although some ideas expressed in these interviews were outside the specific topic of this review, they are included here because they contribute useful concepts and questions about the future directions of audience research. This is the case, for example, with RQ3: respondents used terms in the context of "non-screen choice" subjects that could be applied to screen choice research.

Experts from the following companies contributed to our interviews:

- Advertising Research Foundation
- comScore
- Cable & Telecommunications Association for Marketing (CTAM)
- Discovery Communications
- Independent Research Consultants
- IPG Media Lab
- Ipsos OTX MediaCT
- Korean Broadcasting System
- Microsoft
- MTV
- National Association of Broadcasters (NAB)
- NBC-Universal
- Neurofocus
- Nielsen
- Northwestern University
- Qualvu
- SES World Skies
- Turner Networks
- UMWW
- Villanova
- Warner Brothers

Here is a summary of our interviews, organized thematically under each of the five Research Questions.

RQ1: What drives the choice of screen for the consumer?

Demographics

- *Ad Agency*: The group that is most involved with emerging technologies is teens. We need to make sure that teens are part of any research on screen choice – research on 18+ is useful, but we miss an important target in 13-17 year olds.
- *Research Provider*: Paying for media content a la carte is fine for young people, they are used to it. But will they be okay with bundling/subscription going forward? They want to consume "on the go" whatever content they want.

Economics

- *Research Consulting*: Are people dropping satellite or cable and watching television programs by other means?
- *Research Provider*: So far people have looked at "picture" and "timeliness" questions regarding screen choice. We need to ask whether this will be a subscription cable model or something different – perhaps a pay per use thing like iTunes?
- *Trade Association*: Do business models matter?
- *Research Provider*: Will people pay separately to access the same content on different screens? From a consumer perspective, this doesn't make sense – if I pay for content then I should be able to watch it on whatever screen I want. But the business wants additional payments. We need insight into consumer views on content access.
- *Research Provider*: Is there a difference between what the consumer is thinking and what the industry is thinking?
- *Studio:* Younger viewers usually have lower income – especially college students – so they can't buy cable. Instead they will watch on a PC to get content for free.

Picture Quality

- *Broadcast Network:* We found that consumers will pay for a VOD service if the picture quality is significantly better than what they can get for free.
- *Research Consulting:* Will 3DTV make a difference to screen choice?

Technology

- *Broadcast Network:* Network bandwidth/speed and battery life.
- *Trade Association:* Does distribution platform matter? Over The Air versus Over The Top?
- *Trade Association:* Another interesting research question might be, given that large flat panel TVs are within economic reach for many consumers, whether compressed HDTV as delivered over cable, satellite and over-the-air is good enough for a large screen consumer experience or are viewers becoming more discerning about video quality over time?

- *Technology Provider:* Check out FCC Docket 10-235 on spectrum innovation. Lots of interesting comments. Broadcasters have no good ideas.

No Choice is a Choice

- *Research Company:* It strikes me, "what drives the choice of screen?" Maybe it is not a choice but a default or passive background. Need to differentiate selection of screen versus just being there by default.

Anytime/Anyplace

- *Broadcast Network*: Easy to access without limitation of time and place.
- *Academic*: Availability of technology that lets viewers watch what they want at the time. Structural resources are often ignored in research on viewing, but they are very important.
- *Academic:* Quality and convenience.
- *Studio:* It's a matter of convenience and control. Many people aren't home to watch on their TV.
- *Research Provider:* Location determines screen choice.

Content is King

- *Research Company:* There are two different questions here – what screen do people choose? What screen is best for the content? In other words, one question addresses consumer behavior, the other is a content distribution question.
- *Broadcast Network*: The number and diversity of content that a service provides.
- *Research Company*: From a programming perspective, what are the "screen dynamics"? For instance, if it's a first run "live" type of event (such as *American Idol*) – will they take whatever screen is available to make sure they see the broadcast as it happens versus a type of programming that may be recorded or PPV. Does screen orientation play a part there?

TV is King

- *Research Provider*: Most viewing is still live; people watch on TV – live, linear or DVR.

Mindset

- *Research Provider:* How they are feeling, what they are doing, what they are thinking.

Best Screen Available

- *Research Provider*: Largest and most convenient screen, especially if they paid a thousand dollars for it!
- *Academic:* The conventional wisdom is that people opt for "Best Screen Available" but what research is this based on?

- *Research Provider*: People use smaller screens for commuting or when getting to the television is inconvenient.
- *Academic*: Your HD flat panel is a display screen – when does a viewer use it for one thing vs. another?

Social Viewing

- *Academic:* If you decide to record a program with another person, are you less likely to watch that program alone? You'll wait until you can watch it together. This isn't the same as "live" viewing, where it doesn't matter.

RQ2: How does viewing vary with chosen screen?

Attention

- *Research Consulting*: This is one of the most important concepts going forward. This is a nuanced measurement, not "flat." MRI used to ask whether you are paying "full" or "some" attention – we need to go farther than that in a fragmented media world. Has anybody looked at whether attention varies by screen?
- *Research Consulting*: Attention is difficult to measure, but are there any studies that could be used to compare the ways attention has changed?
- *Research Consulting*: How does commercial flow affect attention?
- *Research Consulting*: What makes a person stop to watch an advertisement when they are skipping through the ads?

Active v. Passive Viewing

- *Academic:* What is the role of active choice? Do platforms that require more action on the part of users exhibit different viewing patterns than more passive technologies?
- *Research Provider:* I had a sample of 48 people, we watched them as they consumed TV and online video. Everyone had a totally different style of consumption and avoidance. One guy zipped around among fifteen web pages and never saw and ad. Another guy brought in his bass guitar and was jamming with the ads.

Live versus Video-On-Demand (VOD)

- *Research Company*: There is likely a difference in screen choice depending on whether consumers want to watch something live vs. VOD.

Content Type

- *Research Provider:* People generally watch shorter content on smaller devices – not much interest in watching a 2-hour movie on a small screen.

- *Research Provider:* Type (genre) of content can also drive screen choice (getting weather reports or news headlines on mobile apps is easier than turning on TV to get them).
- *Trade Association:* You might want to try to answer whether certain types of programming are better appreciated/consumed on different types of screens. For instance, data on viewing media on small cellphone screens has been all over the map – from suitable only for media snacking and short subjects to being more immersive than large screen viewing due to the personal viewing context and use of headphones that isolates the experience. With tablets as the new kid on the block, are certain types of programming optimum for that new platform?

Engagement

- *Academic:* There are 25 different definitions of engagement; it's a huge quagmire "that sucks up energy and gets you nowhere." You can't measure it if you can't define it, and even if you could define it, you might not be able to measure it.

On The Go

- *Studio:* Most people prefer the comfort of their own home, their own couch. But if they are "on the go" they will use whatever technology they are carrying. iPAD is a game-changer, quickly becoming the screen of choice for content viewing. The problem is that Nielsen can't measure Tablets yet.

Synched Content

- *Cable Network*: "Synched content" is a growing deal whereby the user experience for a particular program, e.g., *Grey's Anatomy*, is extended across platforms such as iPad/iPhone and the TV stet.

Screen Size

- *Research Provider:* Typically, the smaller the screen (e.g., mobile device screen) the shorter the viewing duration.

Habit Lifecycle

- *Network:* Does viewing on mobile, tablets, etc. trail off, increase or stay the same over time?
- *Research Company:* How has viewing changed in the past five years and can understanding those dynamics help us to divine the future direction (e.g., five years out)? What are the key drivers of this shift – programming, technology, cost/price point, something else?

RQ3: What is the vocabulary/methodology for understanding viewing styles.

Ethnography

- *Ad Agency*: CRE's previous ethnographic work was a compelling breakthrough.
- *Ad Agency*: Although it is more difficult to conduct ethnographic studies with teens, we need to do this. Otherwise, significant uses such as texting are missed.
- *Research Company*: Ethnographic, video. Screen tracking software. Blog type environment.

Fragmentation

- *Research Company:* We aren't just studying fragmentation of media, but fragmentation of peoples' lives.

Qualitative Research

- *Research Consulting*: "This is the way to get at the vocabulary – how do people talk about things, and what do they mean by those words?

Effectiveness

- *Research Consulting*: Is there research on the effectiveness of ads?

Measurement Vocabulary

- *Research Provider:* We used to have the "ratings," "demo" vocabulary, but now there are too many metrics and we can't translate them all. Mobile has one vocabulary, television has another. We need help figuring this out.
- *Academic:* Do we need consistent metrics across screens? What if the ad loads (and the actual ads) differ across screens? What are the metrics of interest (exposure, loyalty, engagement, attention, action, e.g., clicking)?
- *Academic:* Industry has to settle on a few things – overwhelming data. So planners can buy and sell media across platforms using straightforward and consistent measures. There's a difference between what you can use as an academic and the metrics industry needs.
- *Studio: "*Streaming" from a website like ABC.com versus "Downloading" from a website like iTunes.
- *Studio:* "Binge-ing," i.e., renting or downloading or streaming multiple episodes and watching them all at once. This is very popular with college students because they don't have time throughout the semester.

Multiscreen

- *Network*: We are doing an "N-Screen" study to figure out what is happening with viewers.
- *Network*: Perhaps there is a new classification for the multi-screen environment.

- *Network*: There are several ways to differentiate screens: device size (TV, PC, iPAD, Phone); receiving environment (Fixed, Mobile); Use Patterns (Social screen, Personal screen, Mobile screen). What will be the most suitable classification for the new viewing environment?

RQ4: What is the context of use across various screens – is use complementary, additive or zero sum?

Multitasking

- *Ad Agency:* "Media Meshing" is an emerging area that needs to be covered.
- *Research Company:* Multi-tasking or simultaneous behavior occurring. People are texting or on the phone while watching TV; surfing the web while watching TV or listening to the radio, or their iPod. Any study of media must include a deep dive into the location of consumption and the other activities (eating dinner, socializing, or whatever) that accompany that consumption.
- *Research Consulting:* What are the types of multi-tasking? The amount and intensity of multitasking? Has the co-location of PC and TV etc. changed in any significant way? We shouldn't think of today as the "Zero point" – there was multi-tasking with media use 50 years ago! Are there studies that suggest how multi-tasking has changed?
- *Research Company:* Time imposes a physical limitation on media use, but new technologies allow people to stretch a "media day." But can people really process all these messages?
- *Academic:* How does one use affect the other? For example, Twitter chat from/about Charlie Sheen drove up ratings for the show.
- *Research Company:* What does the term "interactive television" mean now? Is the program guide that exists now "interactive television"?

Consumption Styles by Screen Type

- *Research Company:* What are the patterns of consumption across screens? We know there is more going on than we are capturing now.
- *Academic:* What about simultaneous use of other media while viewing? How does this differ across screens? Most likely, social media and search.
- *Research Company:* Most of the research we have is pre-iPad. We need research on that now. iPad doesn't fit neatly into any category.
- *Agency:* Personal investment in online viewing versus TV viewing (passive).
- *Network:* Does viewing on mobile, tablets, etc. trail off, increase or stay the same over time?
- *Research Company:* One big emerging area I would like to see covered is "media meshing."

Additive

- *Network:* One question to ask is whether putting content online affects a show's rating. If you discontinue online content, does the television rating go up?

- *Studio*: When it allows you to watch something you missed on television – so you can actually see more episodes of a program over a 12-week period than you would if you didn't have that access through a non-television device.

RQ5: What methodologies are best to get at these uses?

Age

- *Research Company:* Include teens in the research, not done often enough.

Qualitative

- *Research Consulting*: To identify vocabulary.
- *Studio:* Focus Groups, online studies or tapping into panels. Problem is they are all self-report.

Quantitative

- *Studio: Nielsen Home Technology Report* and other studies could shed light on actual usage if you can get access.
- *Research Company:* To get at patterns of consumption – what are people doing if they have more than one screen open? Researching characters? Shopping? Paying bills? Eventually we need quantitative measurements to make the knowledge transactional.
- *Research Company:* Technology is changing at an increasing pace. We only know what is happening for a moment unless we do longitudinal studies with re-contact.
- *Agency:* Panel data may be best.

Digital Census Measures

- *Research Company*: Qualitative measures are directional; but ultimately we will need information that is transactional. Most likely this will be meters.
- *Agency*: Server-side approach, measure of effectiveness is clickstream.

Ethnographic

- *Research Company*: New technology has a "gee wiz" factor – and people don't use it all the time even though they say they do on a survey. Observational methods are necessary to find out what is going on.
- *Studio:* Expensive and tedious, but you can follow a respondent for a 2-4 week time period.

Fusion

- *Research Company:* Need fusion of attitudinal and behavioral data with viewership of television.

Single Source

- *Research Company:* Single source passive measurement across all screens and distribution platforms. This does not exist at the moment.
- *Research Company:* Single source 24-hour diary-based measurement across all screens and distribution platforms. This does exist at this point.

Multi-Method/Multi-Trait/Multi-Dimensional

- *Academic:* Three streams of research in tandem: focus groups stratified by age to ask about choices and motivations; single location ethnographic studies; survey informed by the focus group and ethnographic data. Can re-create the same type of study after time passes to assess change.

Part 2: Discovery and Review of Available Research

We identified appropriate both academic and industry studies in two ways: asking academics and professionals for their recommendations, and conducting an extensive online search of the scholarly and industry research literature. The four subject areas that yielded the most relevant publications were: 1) mass communication, 2) business and marketing, 3) sociology and 4) general social science. The most useful individual databases within these subjects were Proquest, JSTOR, Academic Search Premier and ABI Inform. Successful search terms included various combinations of "audience" or "viewers" with measurement/new technologies/Internet/media effects/television/ratings

Through this process, we obtained and evaluated several hundred articles related to emerging technologies and their effects on audiences for traditional media. To be included in this review, an article had to meet one or both of the following criteria: 1) deal directly with the question of screen choice, or 2) contribute useful concepts, ideas, research methodologies, or ways of thinking about audiences that could inform our understanding of screen choice.

We discovered that viewer access to multiple screens with similar content was a phenomenon so recent it did not appear too often in published academic work. Publication in scholarly journals generally takes between 3 months (considered very fast) and a year, so most research on "new" media references a time before mobile video options – and even before television programs were made available via the Internet. In contrast, industry studies are conducted and made available while the newest technologies (and their newest uses) are still cutting edge.

As a consequence, industry research is generally the best resource for up-to-date trends, statistics and measurement of immediate effects. The contribution of academic studies to the question of screen choice is heavily weighted toward "useful concepts, ideas, research methodologies, or ways of thinking about audiences."

Part 3: Addressing the Five Research Questions

In this section we highlight and summarize some of the data, interpretations, conclusions and recommendation for future research we discovered in our review of both academic and industry oriented cross-platform, multi-screen video research. We organize our presentation here by summarizing first the industry, then the academic research under each of the five Research Questions. In each of these sections, we begin with a high level summary of both types of research. Citations refer to the studies listed in the Appendix ("Studies in Project Database").

RQ1: Screen Choice

For purposes of our research review, our initially intended operationalization of "screen choice" placed the locus of the "choice" in the hands of the "demand side" or consumer. However, in the course of our work, it became clear that it made sense to expand this strategy to incorporate the "supply side" or the content creation and distribution elements of the video ecosystem as well. As the video industry ecosystem makes the "choice" to go cross-platform with its content offerings, this creates the necessary precondition for consumers to have this multiscreen choice available. Therefore, it was important to incorporate both the supply and demand sides of "choice."

Industry Research Findings

Alacatel-Lucent (2010)

- As demand for cross screen services grows – and as the telecommunications business becomes a content delivery business – service providers will have new opportunities to leverage their service delivery platforms and collaborate with content providers to develop converged multi-screen offerings.
- By offering compelling free and premium content, simple payment mechanisms and efficient multi-screen viewing options, service providers can boost multimedia revenue, reduce churn and become key players in the evolving multimedia value chain.
- Broadcasters, content providers and service providers are attempting to capitalize on new viewing trends by extending live, time-shifted and VOD content to new platforms.
- In the U.S., cable operators Time Warner and Comcast are selling premium TV content to broadband and mobile subscribers through their TV Everywhere initiative. Google is bringing TVs, mobile phone and the Web together with Google TV.
- In the United Kingdom, the pioneering BBC iPlayer service reaches millions of users and a wide variety of connected devices with live, catch-up and VOD content.
- KPN, the Dutch incumbent, plans to extend its IPTV service to multiple screens, offering catch-up, VOD and live pausing capabilities.
- Early 2010 Alcatel-Lucent survey of Western European consumers shows they are well-equipped for multimedia consumption having access to two or more home computers on average. Two-thirds use a WiFi network. Users surveyed declared they spent more time in front of their PC (3h 40m) than in front of their TV (2h 30m). Multitasking is high: 81% of Europeans have sent

messages, checked online email, surfed the Web or watched videos on other devices while watching TV.

- Watching TV is the most popular Internet-based activity for broadband-connected Europeans; 80% of consumers watch short video clips o Web sites like YouTube and Dailymotion. TV is fourth on the list with 55% of consumers using the Internet to watch live and time-shifted TV content.
- Nearly 90% of consumers use PCs, laptops or netbooks to watch video content.
- A quarter of all surveyed consumers watch mobile video content; 27% showed strong interest.
- Overall 50% of respondents expressed an interest in a converged service that could extend their current paid TV service to PCs and mobile devices. The proposed service would provide subscribers seamless access to the same TV and video content, content management features and QoE [Quality of Experience] anywhere, anytime, on any device.
- In survey of youth (13-26) consumers across Asia, Europe, North and South America 64% of respondents like the converged service plan; 71% would use it and 65% would be willing to pay for it.
- Over 30% of all young consumers would pay a premium on their current subscriptions to have access across platforms.

Ball State University/Center for Media Design (2009)

- New HDTV ownership (1st or 2nd screen) led to higher TV exposure, though some of this increase may be temporary.

Berman, S., et al. (2009)

- Today, the distinctions between advertising and marketing have blurred, as new forms of communication combine the ROI-characteristics of direct marketing with the brand characteristics of traditional advertising.
- With digital consumers increasingly in control of their media experience and advertisers shifting their spend to more interactive, measurable formats, companies must move beyond traditional advertising to combine granularity of targeting and measurement with cross-platform integration.
- To adapt and succeed – especially in the current economic environment – content owners, media distributors and agencies need to build a new set of capabilities now: cross-platform innovation, greater insights, open collaboration and digital processes.
- Four primary trends: (1) Consumer adoption of new distribution format; (2) Shift in advertising spending; (3) Digital migration of platforms; and (4) Emergence of new capabilities.
- Screen choice and consumer segmentation:
    - *Massive passives* (65% of overall population): most interested in maintaining their existing content experiences; skew older.
    - *Gadgetiers*: (15% of general population); early adopters of multimedia devices (video PDAs, Slingboxes; quick to embrace digital content.

- *Kool Kids*: (20% of general population, under 24 years old): want latest gadgets, devices and content services.

Braverman, S. (2011)

- Marketers are increasingly spending time, money and creativity to reach their audiences in non-traditional ways.
- A recent 24/7 Wall Street Journal/Harris Poll on Social Media and Television set out to see if these efforts are paying off. It found that many Americans are participating in this type of interactions. Among online U.S. adults, two in five say they have gone online or utilized social media to comment, post, watch or read something about a television show or program (43%). Among these 80-some million people, a third say they have done so after watching a TV show or program (33%) and fewer say they have done so either before watching (18%) or while watching (17%) a TV show or program.
- Younger online adults are much more likely to take part in these activities than are older people— six in ten of those 18-34 say they have engaged with TV programs in this way (59%), compared to fewer adults aged 35-44 (40%), 45-54 (36%) and 55 and older (28%) who say the same.
- When adults are doing these things also varies by age.
- Three in ten of those 18-34 years (31%) say they have gone online to do these activities while watching a TV program, compared to very few adults 55 and older who have done the same (5%).
- Adults 55 and older, on the other hand, are most likely to go online after seeing a TV program (22%) if they are going to go online at all.
- Half of adults who engage with TV shows or programs online (53%) do so in an individual forum such as by posting on their own or a friend's Facebook page, Twitter account or blog.
- 44% do so on a website or page created by the TV content provider such as a TV network's Facebook page or website, and a third (33%) do so on a separate media outlet's site, such as an entertainment or news site.
- Women are more likely than men to engage in an individual forum (57% vs. 50%), while men are more likely than women to do so on a separate media outlet's site (38% vs. 27%).
- Younger adults are more likely than those older to engage individually while older adults are somewhat more likely to do so on a site or page created by the content provider; -Two in five online adults are a fan or a follower of a TV network, program or show on Facebook or Twitter (39%) while the same number are not (41%).
- One in five does not use Facebook or Twitter (20%).
- Three-quarters of adults who engage with TV programs or shows online say that it provides more information, which is an important reason why they do it (76%), two thirds say the analysis or summary is important to them (68%) or it's a source of additional entertainment, which is important (67%).
- Half say that it's important that they engage with other viewers (51%).

- All age groups are equally likely to place importance on finding additional information online (between 75% and 77%), but younger adults are more likely to place importance on engaging with other viewers (54% of those 18-34 and 56% of those 35-44 compared to 40% of those 55 and older).
- Among the online adults who do not comment, post, watch, view or read anything about TV programs or shows online, six in ten say it's because they don't want or need to (60%), a third say they don't think about it (34%), one in five say they don't have the time (20%) and fewer list privacy (12%) or other reasons (7%).

Brightcove (2010)

- Brightcove and TubeMogul have teamed up to develop an online video index and quarterly research report which will help identify industry trends and answer questions about the state of the industry. This report presents year in review data, as well as specific patterns from Q4 2010.
- Broadcasters led in total minutes streamed in 2010. Broadcasters also regained their top position in total minutes streamed, beating out newspapers, who peaked last quarter.
- Engagement rates trended upward quarter over quarter across all media categories. Audiences watched longer on average than in previous months, which is a good indication of the increasing consumer adoption and comfort with watching online video. Brands saw a massive 98% jump in engagement this quarter, reaching 2:03 minutes on average compared to 1:03 minutes watched the prior quarter.
- This suggests that brands are improving the quality of their content and connecting with receptive audiences. Completion rates trended upward across the board, which is not surprising given that minutes viewed also trended upwards. As a referral source, Facebook and Twitter accounted for the highest engagement rates across all media categories.
- Brands saw highest video engagement when referred by Yahoo!, which may point to the success of syndication efforts of such content. Broadcast content viewers from the United States had the highest minutes watched per view (3:53) with European viewers close behind (3:34).

Buchwalter, C. (2009)

- Despite online video's persistent positive buzz, actual usage is averaging around six minutes per day in the U.S.
- The audience growth and engagement quotient of online video is forcing marketers to positively re-assess the value of the online experience.
- When all is said and done, brands see tremendous opportunity to increasingly exploit the digital environment to maximize brand-favorable media impressions, but they are starting to look at the mix more holistically.
- Consumer-generated content has gained inclusion into the "earned media" club of marketing preferences, and the big question going forward will be how paid and earned media share the marketing expenditure pie.
- In one fell swoop, YouTube has enabled the Videos/Movies sub-category to leap to the head of the class.

- Accessing videos online has gone mainstream at an extraordinary pace. Are there any demographic groups that are more likely to consume online video than others? The answer is no.

Bughin, J. (2006)

- The effect of availability of content on users' behavior, for example, may be larger than commonly supposed.
- The survey found that, in general, mobile-TV viewers want to watch the same programs on their phones that they enjoy on TV at home.
- Indeed, news and children's programs, whether broadcast live to handsets or from archives, are the highest rated shows in many current mobile-TV pilots. But most of these pilots don't offer enough free-to-air programming for faster adoption.
- Consumers turned off by high handset prices might forego mobile-TV broadcasts altogether and continue downloading video programs from the Internet.
- 62% of potential mobile-TV users prefer a flat rate subscription.
- Power imitation effects (as consumers see others using the technology and desire it for themselves) (p. 2). But dearth of available handsets could stunt development of mobile TV.

Coffey, S. and Stipp, H. (1997)

- The discussion about the impact of the new digital media and the use of the traditional mass media has been dominated by predictions of a rapid decline in television viewing as a result of the increased popularity of the Internet and other computer-based activities.
- New data do not support such predictions, not even among regular PC users.
  Instead of replacement, the data show interactions between the media in which television often impacts PC activity and Internet use.
- The research suggests that speculations about the disappearance of television should be dismissed and that content providers and advertisers should further explore the evolving interactions between the media.
- Among those persons residing in PC owning households, males are more likely than females to actually use the PC in the course of a month. Eighty-five percent of males 18 to 54 were observed actually using the PC at least once in September '96 versus 78 percent of women in the same age group. Usage probability dropped markedly for women over the age of 55 (to 48 percent), but not nearly as dramatically for men over 55 (to 76 percent). Most teens, aged 12 to 17 inclusive, used the PC at least once (84 percent) with almost no differentiation between males and females. PC usage for children aged 2 to 11 was significantly lower, with 66 percent of boys and 62 percent of girls using the PC at least once during the month.
- The largest amount of PC use is devoted to activities which do not have anything to do with TV watching. Having to conduct business at home or balance one's checkbook may reduce the amount of leisure time available for TV, but not because they are done on the computer.
- In fact, if the computer saves time, this kind of computer activity could actually increase available TV time.

- Similarly, E-mail, another popular computer activity, fulfills very different functions than TV viewing.
- Playing games, entertainment services, and surfing the Web are more likely to compete with television, but the amount devoted to these activities is not large.
- Children and teens are not the major users of the new technologies. Their home use is so low that it is mathematically impossible to impact children's average TV usage significantly, even if most of their PC use did replace TV viewing.

Copp, J. (2011)

- Mobile media is a large and growing market. Many opportunities for all working in mobile data.
- Trends and lessons can be learned from other regions–Look to Japan, US and Europe for indications.
- 72% of EU5 mobile owners have not used an application.
- A similar proportion has not browsed the mobile Internet.
- Think carefully how to reach your target audience. More than 93% of EU5 mobile phone users do not have an iPhone. Few mobile consumers live in an Apple world.
- Consider the market carefully–The reality as revealed by measurement is often different from intuition.
- In Dec 2010, 50.8% of newly acquired devices were smartphones; Nov 2010 was the first time that smartphones made up the majority of newly acquired devices (p. 7).
- Pre-paid or Pay-as-You-Go payment plans are a much more significant proportion of the European market (46.1%) than in the US (15.5%) or Japan (0.8%). This impacts the likelihood of consumers to use mobile media.
- Mobile social networking attracts a younger, more female user base.

Copp, J. (2010)

- The market for mobile media in Europe continues to grow. More mobile media users browsing and using app. More smartphone owners with flat data rate subscriptions.
- We can look to US & Japan for growth trends we can expect.
- Market landscape differs by region–Understand the handset, audience & usage characteristics for your target–Local variations within European countries also.
- Mobile Media Users (mobile browsers, application users and content downloader's) in Europe grew 28% Year on Year
- 18.5 million additional users in November 2010 compared to November 2009 (p. 3).-Japanese mobile web users are four times more likely than Americans or Europeans to watch TV and/or video on their phones.
- Market enablers are smartphones, 3G devices, and unlimited data plans.

Covey, N. (2010)

- To get a better sense for how the world is consuming video today, Nielsen recently completed a survey of more than 27,000 online consumers in 55 countries, asking simple questions about how they watch video.
- Looked at in the context of Nielsen's more detailed, syndicated measurement of video consumption across many markets, the result is a baseline understanding of the state of cross-platform video consumption amongst global online consumers.
- Television: is a universally important platform for video consumption, with consumers in many markets now spending 4+ hours per day watching television.
- HDTV (High-Definition TV): is improving the TV viewing experience for as many as 30% of global online consumers. Adoption is highest among older consumers and in North America, where HD content has proliferated.
- Mobile Video: is already used by 11% of global online consumers: penetration is highest in Asia-Pacific and among consumers in their late 20s.
- Tablet PCs: are expanding the definition of mobile video. Globally, 11% of online consumers already own or plan to purchase a tablet PC (such as an iPad) in the next year.
- 3DTV (Three-Dimensional TV): will have a small but important audience: 12% of global online consumers own or have definite intent to purchase a 3DTV in the next year.
- "Over the Top" TV: televisions with Internet connections are gaining interest. About one in five (22%) global online consumers owns or has definite interest in buying a television with Internet connection in the next year.

Cruz, B. and McKenna, J. (2011)

- Smartphones are a growing part of the shopping experience.
- Over half of smartphone owners use them while shopping –usage is highest among owners under 35 years old (67%).
- iPhones have the highest usage during shopping: Over 70% of iPhone owners use their device while shopping, highest among the smartphone manufacturers.
- Smartphones are making price more transparent: Nearly two-thirds of people using it while shopping rely on the smartphone for comparing prices.
- Shoppers get the benefit of peace-of-mind: Consumers like the convenience of "on-the-spot" price comparisons and shopping with the confidence that they didn't pay too much.
- Most common transaction made by mobile smartphones is entertainment (music, movies or TV shows).
- 46% of respondents (47% of females; 45% of males).
- 31% of females; 34% of males say, "I am more concerned with my personal privacy when using smartphone 'apps'."

Dennen, S. (2011)

- 89 million people in the U.S. watch 1.2 billion videos per day.

- 85% of Internet users viewed at least one video in December 2010.
- Average user viewed 13 hours per month.
- Top reasons to watch video online are missed episode on TV (69%); like to see past episodes (66%) and convenience (57%).
- The most important enabler, unlimited data plan subscribers, grew 39% year over year to 28.7% penetration. This is a very positive sign for the future growth of the market.
- The mobile Internet is as much about connecting with friends and family as it is about viewing news and info.

Edison/Arbitron (2011)

- The Internet and digital platforms are practically ubiquitous. Nearly 90% of U.S. households have access to the Internet and most via broadband connections.
- Multi-computer households are growing rapidly.
- Two-thirds of homes with Internet access have Wi-Fi network.
- Smartphone ownership has tripled in two years.
- Broadband, cell phones, TV and radio have the largest number of passionate users.
- 38% persons 12+ "have watched online video last week" in 2011 vs 12% in 2006.
- Self-reported weekly time spent with online video: 2:20 hrs/2008; 2:20 hrs/2009; 2:53 hrs/2010; and 3:26 hours in2011.
- 31% watched YouTube in last week; 41% in last month.
- 8% of smartphone users watch video on a mobile phone several times per day or more.

eMarketer (2007)

- Is online video viewed on TV still online video? With PCs, iPods and mobile phones, video viewing has become completely untethered from the TV, right? Not quite.
- Among adults who stream and download video, only 11% of their video is viewed on a PC, while three-quarters is viewed on a TV, according to Ipsos Insight's "MOTION" study conducted in December 2006 and January 2007.
- To be clear, Ipsos used all video viewing (including TV) in its definition, not just Internet video. Regardless, the study underlines TV's dominance as the viewing device of choice, even among online video users.
- Even 12-24 year olds watched over 60% of their video on a TV.
- "It's clear that consumers are inclined to experiencing video, particularly longer form content, within their living rooms. And given the growing investment many are making to upgrade their current technology at home, the TV appears to be well positioned to remain the dominant screen for most video enthusiasts."
- The largest impediment to the consumption of longer-form digital video content is the viewing medium; most consumers would simply rather watch their favorite TV shows and movies on a large screen, not on their PC or mobile device.

eMarketer (2011)

- The three-screen media scenario—TV, computer and mobile—is giving way to a multiscreen media reality for consumers.
- Television screens and programming still command the lion's share of Americans' media day. But the Internet is having a profound effect on consumers' viewing habits and the proliferation of devices is altering their viewing behavior.
- eMarketer estimates that in 2011, 68.2% of US Internet users, or 158.1 million people, will be watching video content online each month. By 2015, that figure will increase to 76% of Internet users, or 195.5 million people.
- In the same period, online video advertising spending will surge from $1.97 billion to $5.71billion.
- Television is still the dominant screen for US viewers, but newer technologies make it easy to time-shift shows to suit consumers' schedules—even while watching on a TV set. Gaming consoles, present in a majority of households, also facilitate streaming.

Enoch, G. and Johnson K. (2010)

- Media users are using different media platforms at different times and in different places for different purposes — the best available screen for their location.

Ericsson ConsumerLab (2011)

- Exposure to media is fundamental to modern life. Keeping up to date with the latest news, music and movies makes it possible for people to have an opinion and be listened to.
- Many daily conversations center on what "was on TV last night."
- Media consumption is therefore an important part of people's lives, and TV consumption is perhaps the most important of all.
- Live TV in particular will continue to have a strong position, due to the importance of seeing events live (as they happen) and the collective aspect (being able to take part in discussions).
- However, consumers won't accept just any TV/video offering. Instead, they actively seek and select solutions, such as alternative technologies and distribution channels that best match their behavior, needs and expectations. IPTV, mobile TV, computers, file-sharing and new technologies are giving consumers access to new capabilities, services and other options.
- Consumers are requesting a personalized, easy-to-use, high quality, on-demand service without commercial breaks as their next TV service.
- At present, however, no single service or interface offers all the options or gives consumers the full control they need.

Erlandsson, A. et al. (2010)

- People are today spending up to 35% of their leisure time on watching content.
- 93% still watch traditional broadcast TV every week.

- More than 70% are time-shifting broadcast TV every week.
- More than 50% are using Internet based on demand TV/video every week.
- More than 50% would like to connect their PC with the TV just so that the can watch online TV content together with others.
- On demand has only 40% share of wallet but 60% share of time.
- 40% think immediate access to TV content is very important.
- More than 50% think simplicity is important.
- 37% are very interested in a touch screen tablet connected to their TV.
- What's on versus what do I feel like watching?
- No single screen has it all.
- Drivers for connecting PC to TV
    - experience and social aspects are heavy triggers
    - get a larger screen
    - watch "PC content more comfortable"
    - watch PC content with others
- Barriers for connecting TV and PC
- too complicated to hook up, view, navigate
- Top 5 features selected for future TV solution
  (1) standard quality
  (2) excellent quality
  (3) free from ads/commercials
  (4) time shift "my" content, anytime
  (5) usability, super simple interfaces.

Extreme Reach (2011)

- On the surface, Q4 did not appear to be a quarter for growth in the adoption of High Definition (HD) advertising by television advertisers and broadcast media.
- However, an analysis of specific advertising verticals reveals that a significantly higher number of retail and automotive marketers adopted HD in Q4 (compared to Q3).
- At the same time, it also shows that marketers in those same verticals used a higher percentage of SD than HD as the fourth quarter progressed.
- As the TV advertising industry becomes more sophisticated in its approach to HD advertising, marketers and broadcasters are addressing issues to improve the viewers' experience with HD advertising.

Goski, B. (2010)

- Online video is growing strongly with significant growth potential.
- October 2010-179 million U.S. video viewers-84% of Internet users viewed at least one video-77% of video viewers viewed at least one ad video-36.6 billion total viewed videos.

- 22% in year over year growth in video views-204 videos per viewer-15 hours (Oct 2010) viewing time per viewer.
- Males are more engaged online video viewers than females.
- Time spent streaming jumps as long-form content floods the web.

Gosschalk, M. (2011)

- Over 15 million people in the U.K. are going to watch 200 million videos today.
- Over 35 million people are going to watch an average of 17 hours of online video each this month.
- Site visitation from video advertising 2-3x more than non-video ads control group.

Harris Interactive (2011)

- Consumers perceive Mobile DTV as a discrete content source of local programming similar to what they can see at home.
- It will be important for the Mobile DTV application to be tightly integrated with other content delivery services, including 3G, 4G and Wi-Fi streaming and video-on-demand, as well as with media storage capabilities on the device (DVR and downloaded).
- One of the key differentiators of Mobile DTV is that it enables local news and "must-see" entertainment and sports programming to be included in the media "library" on the local device without congesting wireless networks or bankrupting consumers' data plans.
- Cell phone users were more likely to watch outside of the home, especially at work, during their commute, while running errands, and as a way to entertain their kids.
- Netbook participants used the device primarily in the home as an alternative/backup TV or to provide a TV in other rooms.
- All devices generated significant interest from parents as another device to entertain children at home, in the car or during idle time waiting.

Lowe-Bernie, B. (2010)

- Persons of all ages still grasping onto their traditional media...online.
- Canada is the most penetrated country, views the most content and spends the most time (online music, newspapers, TV, radio).
- Technology is changing audiences: social media, online video, multi-screening.
- Media usage habits are changing and there are more mediums than ever per target group.

Madden, M. (2009)

- The share of online adults who watch videos on video-sharing sites has nearly doubled since 2006.
- The audience for online video sharing sites like YouTube and Google Video continues to grow swiftly across all demographic groups, far outpacing the adoption rates of many other Internet activities.

- Fully 62% of adult Internet users have watched a video on these sites, up from just 33% who reported this in December 2006.
- Online video watching among young adults is near-universal; nine in ten (89%) Internet users ages 18-29 now say they watch content on video sharing sites, and 36% do so on a typical day.
- Over time, online video has become more deeply integrated into daily life, and has started move into the spaces that are typically reserved for traditional television viewing. Overall, 19% of Internet users say they use video sharing sites on a typical day.
- In comparison, just 8% of Internet users reported use of the sites on a typical day in 2006.
- Broadband connectivity has helped to set the stage for high-quality viewing experiences and broaden the appeal of online video content. Fully 63% of American adults now have high speed connections running to their homes.
- Among broadband users, 69% watch video on sharing sites, and 23% do so on a typical day.
- As Internet users become accustomed to regular on-demand video viewing online, many are choosing to watch from the comfort of their couch.
- Among those who watch TV shows or movies online, 23% say they have connected their computer to a television screen so they could view video from the Internet on their TV. That amounts to roughly 8% of all Internet users.
- Young adults continue to lead the adoption curve in online video viewing. Nine in ten Internet users ages 18-29 use video sharing sites, up from 72% one year ago.
- On a typical day in 2009, 36% of young adult Internet users watched video on these sites, compared with just 30% in 2008.
- Online adults ages 30-49 also showed big gains over the past year; 67% now use video sharing sites, up from 57% in 2008.
- Online video viewing is still far from being the norm among Internet users ages 50 and older, however, this segment of the Internet audience continues to grow each year.
- Among Internet users ages 50-64, 41% now say they watch video on sites like YouTube, which is up from 34% in 2008.
- Likewise, 27% of wired seniors ages 65 and older now access video on these sites, compared with just 19% who were doing so at this time last year.
- Wireless connectivity has emerged as a strong predictor of online video viewing. Fully 71% of those with wireless connectivity watch videos on video sharing sites compared with just 38% of those who do not access the Internet wirelessly.
- Cell phone manufacturers have recognized the consumer demand for both mobile video viewing and video recording. In one recent example, the latest version of the iPhone comes with video recording capability and a feature that allows users to upload those videos toYouTube through a simple voice command.
- Those who have canceled or cut back on cable and TV services are more likely to have "rerouted" their online video viewing to their television screen. Among this economizing group of online video viewers, 32% have connected their computer to their TV screen to watch Internet video.

- While some video viewers are moving to bigger screens, there is also growing interest in mobile video viewing. Our latest data shows that 14% of cell phone users have watched video on their devices, slightly up from the 10% we found in 2007.
- Cell phone users are more likely to record video on their cell phones than they are to watch it; 19% of cell phone users now say they have recorded video with their phone.

Microsoft Advertising (2010)

- Rapid adoption of digital technologies and devices is driving convergence as consumers use several screens to perform the same activities.
- And yet, we also see that each screen serves its own purpose—but that all of the screens consumers use work together to form a cohesive experience.
- The purchase funnel as we know it has changed. Multi-Screen media consumption means that purchase decisions take different paths, and each screen plays a critical role.
- Multi-Screen Consumers value connected experiences across the screens they use, and they have high expectations for the future of media and advertising experiences.
- Through multi-screen campaigns, marketers have the unique opportunity to engage their audiences with the right tone and message in the right environment—ensuring greater relevance and results.
- Microsoft Advertising study surveyed more than 1,200 "Multi-Screen Consumers" to better understand their media behaviors and attitudes.
- A Multi-Screen Consumer is defined as an adult between the ages of 18 and 64 who has and uses a TV, computer, and smartphone, and who also accesses the Internet at least 2–3 times each week using both their computer and smartphone.
- An estimated 33 million Americans with Internet access are considered Multi-Screen Consumers.
- Multi-Screen Consumers, who used to turn to specific screens for specific activities, are increasingly engaging in activities across multiple screens.
- Convergence occurs as the functional benefits of each screen come together.
- Individual activities, from social networking to playing games to watching news highlights, are no longer restricted to a single screen.

Microsoft Advertising (2010; Marketing at Crossroads)

- Moms move markets, and for marketers, they're a critical target audience. But keeping top-of-mind among Moms has become increasingly challenging, as consumers take charge of their media experiences at home, work, and everywhere in between.
- Understanding Moms' media behaviors and attitudes can help marketers see the opportunity in a dynamic media landscape. This study reveals the media usage, attitudes, and expectations of "Multi-screen Moms."
- Moms are leaders in screen convergence, extending media activities across multiple screens, especially mobile media. Moms are more receptive to marketing messages on every screen

compared to other audiences. Moms highly value consistent, connected, cross-screen media experiences.

Microsoft Advertising (2009)

- Microsoft's Project Tiffany's Research Objectives were to:
    - Better understand differences in media consumption between Online broadband video vs. traditional linear Television.
    - Identify similarities and differences between TV and Online video viewing and commercial impact.
    - Explore the relative effectiveness of extending TV creative, in the broadband video environment, utilizing either repurposed or custom content.
- Eleven households in ethnographic study had 2 weeks of no TV; "if you want to watch something, you'll have to find it on the Internet."

Network Strategy Partners (2010)

- Internet video is a big success. The Nielsen Company reports that 70% of global Internet users watch Internet video. Internet video takes many forms.
    - The simplest form is a low resolution small format image that is commonplace on almost all websites today.
    - The next step up is video streaming or downloading sites offered by a wide range of media outlets with content ranging from user generated content at low resolution—YouTube—to TV and movie clips, previews and trailers at somewhat higher resolution.
- Cloud-based Over-the-Top video streaming has become a popular service for delivery of feature-length movies, e.g., Netflix.
- At the high-end consumer electronics companies offer a wide range of devices that permit viewing of feature length movies in HDTV on large screen TVs.
- The success of Internet video, however, can be a mixed blessing for broadband service providers (BSP). Most use a flat rate pricing model with no cap on monthly usage. Increased use of Internet video threatens to drive up Internet traffic and operations cost but do nothing for revenue.
- New more sophisticated pricing and business models are needed for profitable delivery of web video services. One element of this is the two-sided telecoms business model that promotes the creation of open platforms that helps other service providers (enterprises, SMEs and government) interact with subscribers in more efficient ways than they can today.
  The business model is called two-sided because the BSP delivers value to and generates revenue from retail service providers as well as from subscribers.
- All five scenarios tested had high ROI and rapid payback.
    - Scenarios 3 and 4 which employ the two-sided business model—payments are made to the BSP from subscribers and other service providers such as over the top video services—have the highest ROI.

- Scenarios 2 and 5 have the lowest ROI. These scenarios require a pay per-view fee from the subscriber. Market researchers such as the Nielsen Company have found that Internet users dislike these fees because the market has taught them that Internet services are free beyond the monthly access fee.
- Scenario 1 in which no additional charges are made to subscribers to improve the quality of video service delivery has higher ROI than Scenario 2 where the subscriber is assessed a fee for the delivery of each video with enhanced QoS. Scenario 1's comparably higher ROI is achieved through increased penetration of HSI service and the reduction of churn through improved customer satisfaction ratings. This shows that it pays to —give away quality.

Nielsen (2011)

- In November 2010, African-Americans used their TVs an average of 7 hours 12 minutes each day–far above the total U.S. average of 5 hours 11 minutes.
- Asians used their TVs the least, just 3 hours and 14 minutes on average. African-Americans also used DVD players and video game consoles more than average. Another fact to note: the VCR has virtually disappeared for all groups.
- More than one-third (38%) of American homes had a DVR in November 2010.
- White homes had more than average (40%) and the highest usage while Hispanics had the fewest (30%).
- Across all households, White households' primetime usage increased by 5.0 rating points with DVR playback, more than any other group. Asian homes had usage growth of 3.1 rating points, while African-American and Hispanic households increased their usage by more than 2 rating points with the additional DVR playback.
- These increases more than double when cut back to DVR households.

Nielsen (February, 2010)

- 79% of global consumers would no longer use a website that charges them, presuming they can find the same information at no cost.
- Better than three out of every four survey participants (78%) believe if they already subscribe to a newspaper, magazine, radio or television service they should be able to use its online content for free.
- At the same time, 71% of global consumers say online content of any kind will have to be considerably better than what is currently free before they will pay for it.
- For the 47% of respondents who are willing to accept more advertising to subsidize free content, that may be tolerable.
- Yet it will probably not sit well with the 64% who believe that if they must pay for content online, there should be no ads

Nielsen (February 2010; Fourth Screen)

- Nielsen's "Fourth Screen Network Audience Report" grows out of the rapid proliferation of video networks in non-traditional spots such as movie theaters, bars and restaurants, gas stations, health clubs, and other place-based venues.
- This is the first time that any measurement company has provided a comprehensive, standardized audience reporting that allows advertisers to easily compare data from these networks with measurements from the other three screens: TV, Internet, and Mobile.
- The report finds that 54% of the 237 million monthly exposures to persons 18+ were displayed to male audiences, with 46% exposed to females. An estimated 50% of all the monthly exposures to adults were displayed to men and women in the key 18-34 demographic.

Nielsen (February 2010; Changing Face of Sports Media)

- The data reveal that we are living in an incredible time for sports consumption. There were over 43,700 hours of live sporting events on broadcast and cable television in 2009. And the continued growth of high definition and satellite TV – now in 33% and 29% of US homes, respectively – made it even easier for fans to follow their favorite teams in amazing clarity no matter where they might be located across the country.
- The DVR-proof nature of sports continued to entice commercial advertisers who, despite a down economy, spent $7.6 billion on sports programming in the past year.
- Sports are also perfectly suited for the current three-screen media age.
    - On average 81 million people in the US visited sports w ebsites each month to keep tabs on their fantasy teams or follow any one of the captivating stories this year.
    - Leagues have used websites, social networks, and smart phones to create a virtual sports bar for fan dialogue to help the buzz surrounding major televised sporting events.
    - That's why, even in an age with unlimited entertainment options, sports fans still tuned in record numbers for the big games. 2009 saw the most watched Super Bowl (98.7 million viewers) ever, the most watched Stanley Cup in 7 years (4.5 million), and the most watched World Series in 5 years (19.1 million).

Nielsen (2009)

- Twelve million U.S. teens, or about two thirds of those online, watched online video in May 2009. It's clear that online video is becoming an important part of the overall teen viewing experience. Year over year, the audience grew 10% and the average number of minutes increased a stunning 79%: to three hours and six minutes per month. Torrid growth, yes, but the average teen still lags behind viewing of adults 18–24, adults 25–32 and adults 35–44.
- In the first quarter of 2009, 18% of U.S. teens 13–17 with mobile phones watched some form of video content on their phone. The experience has been much more popular with teen males, who make up 73% of the teen mobile video audience. Teens who watch mobile video do so more than the average user—watching six hours and 30 minutes a month compared to just three hours and 37 minutes for the typical user.

- Even with all the in-home and portable video options available, teens still love the Big Screen. Offered a range of in- and out-of-home viewing options, teens said they prefer seeing movies in the theater. Thirty-two percent of U.S. teens ages 12–17 said they prefer the movie theater above DVDs (24%), renting online (7%) and Movies On Demand (5%).
- Overall, U.S. teens watched an average of 31.4 movies in 2008 via all means (compared to 25.3 for all consumers). Of those, the typical teen saw 10.8 movies in the theater—the highest average theatrical viewing of any age group. Put differently, teens made up 14% of the theatrical movie going audience in 2008 and 20% of the critical "heavy" movie going segment that saw more than 10 theatrical films in 2008.

Piech, D. (2010)

- Every month there are 180 million viewers, 85% of Internet audience, watching 36 billion videos or 200 videos and 13 hours per person.
- Duration moves upwards as long-form TV content moves online.
- 16% of videos viewed are ads.
- Reasons to watch original TV shows online:
    - 69%-missed episode on TV
    - 56%-like to see past episodes
    - 57%-convenience
    - 42%-less ads
    - 29%-can discover new shows easily
    - 13%-prefer the online experience
    - 9%-don't subscribe to cable/don't have a TV

Radwanick, S. (2011; Digital Year in Review)

- The world of online video has seen a continued increase in adoption of viewing originally scripted TV content.
- While Hulu continues to drive a large portion of this online TV viewing activity, other major broadcast TV sites are playing an increasing role.
- In Q4 2010, Hulu accounted for 19.4 billion minutes (323 million hours) of online TV viewing, up 17 percent from the previous year.
- The five major broadcast TV sites (ABC, CBS, NBC, Fox and the CW) combined to account for 9.7 billion minutes (162 million hours), which equates to half of the total time spent viewing video on Hulu, but grew at approximately five times the rate at 82 percent.
- The total combined time spent viewing online TV on Hulu and the five network sites grew 33 percent over the past year.
- This strongly growing market represents one of the most significant opportunities for advertisers with this attractive advertising channel generating both high engagement from viewers and high CPMs for publishers.

- Video ad networks also performed strongly in 2010 due to the continued proliferation of video advertising, with video ads now reaching 7 out of 10 Americans online and nearly 1 out of 2 Americans nationwide each month.
- In December 2010, video ad networks served 5.9 billion ads, averaging 40 ads per viewer and 0.4 minutes per ad.
- Tremor Media Video Network took the top spot among video ad networks in December, delivering 1.0 billion ads to reach 40.8 percent of online video viewers, an average of 12 ads per viewer.
- BrightRoll Video Network reached 31.8 percent of online viewers, while Adap.tv reached fewer viewers (27.1 percent) but delivered a higher number of video ad streams (681.5 million).

Radanwick, S. (2011; Mobile Year in Review)

- In December 2010, nearly 47 percent of mobile subscribers in the U.S. were mobile media users (browsed the mobile web, accessed applications, downloaded content or accessed the mobile Internet via SMS) up 7.6 percentage points from the previous year.
- The growth in mobile media usage is largely attributable to the growth in smartphone adoption, 3G/4G device ownership and the increasing ubiquity of unlimited data plans, all of which facilitate the consumption of mobile media.
- From December 2009 to December 2010, the percentage of mobile phone subscribers with unlimited data plans increased from 21.3 percent to 29.0 percent, with more phones now requiring an unlimited data plan subscription at the time of purchase.
- During the same period, smartphone ownership increased from 16.8 percent to 27.0 percent, while 3G/4G phone ownership reached 51 percent in December 2010.
- Key difference between U.S and European markets in terms of media consumption is that nearly 1/3 of U.S. mobile users have unlimited data plans versus just 8% of mobile users in Europe.

Rose, B. and Webster, T. (2011)

- Consumers are making more time for media.
- Daily time spent with radio, TV and the Internet combined has increased by 20% in the last 10 years with self-reported usage now at 8 hours, 11 minutes compare to 6 hours, 50 minutes in 2001.

Scherf, K. (2010)

- As the number of content sources to the television screen grows (broadcast, video-on-demand, online, network storage, etc.), the challenge consumers have in locating, evaluating, and selecting content of interest becomes an important issue—and one providers must address.
- While the electronic program guide (EPG) helps by organizing available content and relevant metadata for review, systems with enhanced search functionality and content recommendations allow consumers greater control over the discovery and evaluation process and thus play a significant role in promoting content and maintaining customer satisfaction.

- While these search-and-recommendation methods differ among solution providers, each system relies on a combination of information sources.

SES/Hiwire (2011)

- After a one month, Phase 1, initial test with 25 participants, a total of 184 cell phone users were recruited to participate in a Phase 2, three-month trial of a new broadcast TV/video service. Participants accessed this service on a new cell phone they were given to use during the trial.
- One quarter of participants report daily usage; 72% weekly usage.
- Actual viewing data verifies high weekly usage.
- 80% of participants use the service weekly.
- On average, viewing of each program lasts about 8 minutes.
- Women, young people and ethnic (particularly Asian) audiences higher cumulative and average usage.
- Service reported to be used at home (75% frequently/occasionally) as well as outside the home. -participants tend to watch more of the channels they also watch on regular TV, but also watch new channels (over half of participants).
- 26% used it frequently to keep their children entertained.

Shimmel, H. and Idell, C. (2009)

- Streaming Video Consumption Update
    - Evaluating Streaming Video Relative to Linear TV
    - Interaction Between Streaming Video and Linear TV
- For A18-34, Streaming accounts for nearly 3% of total video consumption.

Thompson, K. (2011)

- The buzz around tablet PCs hasn't been this big since…2002.
- Unlike back then, when Microsoft led an early flurry of interest before it faded away, this time the chatter is based on far more solid ground. Apple is forecasting 40m iPads to be shipped in 2011 and there are more new tablets slated for release in the next few months than you can count on the fingers of both hands.
- We thought it was a good time to pause and ask: What does the rise of the tablet mean for the market – and what might it mean for the 'traditional' PC/ laptop?
- We've been looking at the US tablet market since the early days of the iPad in Spring 2010, tracking its rise and how it is being used by the earliest adopters.
- We've also recently run an exclusive piece of research to look at the new players in the market and how they are currently thought of by consumers.
- There are big differences between expectation, knowledge and reality in the market. This is both when it comes to brands, where there's a lack of knowledge about anything other than the market leader, and in the sector as a whole. A lot of consumers don't know much about the new

tablets on the market and they don't always know what they would do with a tablet if they got one.

- This got us thinking: Are we going to take to the tablet?
- Despite, or maybe even because of, being seen as a luxury, there's a huge demand for tablets just over one third of all Internet users would like get their hands on one.
- Even if only a proportion of these follow through on their interest then this will clearly start to bring the profile of owners more in line with the general population.
- The age profile of tablets will still be skewed towards 18–34s but the gender and income profiles will move closer to the population average.
- At that point the tablet will truly have become mass-market and we can start to wonder what that will mean for users' lifestyles and for other competing devices.
- So, just over one third of Internet users are interested in owning a tablet. One third of these – 12% of the Internet-using population – tell us that the iPad is the one that they will buy.
- So strong is Apple's position that three-quarters of intenders either want only an iPad, have it on their shortlist or would at least find out more about the iPad when they come to actually buy a tablet.
- Just one in ten in the tablet market say that they will specifically not get an iPad and a similar number lack enough knowledge to make any sort of decision at present.

Uyenco, B. and Kaplan, D. (2010)

- Online Video Audience and Time Spent Is Growing .There are now 144 million online video viewers, or 72% of all Internet users.

Wakshlag, J. (2010)

- Video viewing across all major media platforms continues to be fueled by the adoption of technologies.
- Sports viewing is migrating to HD faster than overall viewing.
- HD news is slightly higher than entertainment; about 1 in 7 news viewers are watching in HD.- Competitive youth networks have only a fraction of viewing in HD.

Academic Research Findings

Abelman, R., et al. (1997)

- Two types of media consumption behavior: ritualized (habit) and instrumental (goal-oriented)
- Some viewers are medium-oriented (n.b., the context of this study is viewing to networks, stations or the medium of television – but the concept of medium-oriented users could be useful for screen choice observation)
- Medium-oriented viewers generally consume media by habit

- Instrumental viewers generally have more awareness of programming source (could be a useful observation when considering Hulu, Netflix etc.)

Carey, J. (2005)

- Depends on a person's daily activities.
- E.g., if a person has an unpredictable schedule, then television doesn't fit, but Internet might.
- Television is a "scheduled" medium; Internet is a "schedule-free medium."

Cooper, R. & Tang, T. (2009)

- Exposure to television can be partially explained by a combination of individual level and structural level factors.
- Is the same true of screen choice?
- How much of the choice is based on habit? And how much is based on deliberation?
- In a television-only world, availability could be estimated by the PUT. But now there are too many choices – availability doesn't imply using the medium.
- Internet use is typically conceptualized as more goal-directed and mindful (even when used for entertainment and play)
- Internet requires greater attention and involvement from the user
- Internet use is less suited to rest and relaxation than television is – but is this still the case?

Costello, V. & Moore, B. (2007)

- Certain programs tend naturally to impel viewers to the Internet for supplemental enjoyment of the program narrative.

Dutta-Bergma, M. (2004)

- Look at the characteristics of the content, the context and the receiver.
- People choose the medium that has the content they seek.
- What is the availability of media that will allow a person to consume the specific content they want?
- Individuals are loyal to content types, not to a medium.

Dimmick, J. (2010)

- Consumers increasingly want and expect constant access to entertainment and news content regardless of their position in time or space.
- Choice of medium will depend on the characteristics of that medium.

Godlewski, L. & Perse, E. (2010)

- Social utility (related to content)
- Ritual (habit)

Hutchins, B. & Mikosza, J. (2010)

- Content determines – if content is held back from distribution on a specific platform, then the audience is forced to the only screen(s) that have this content available.

Jenkins, H. (2003)

- Each medium has a different role to play in the telling of a story – each contributes what it does best.
- Transmedia storytelling works if each "franchise entry" is self-contained enough to enable autonomous consumption…
- …but someone would get something different out of each medium's content if they followed the story through different media.
- Redundancy between media burns up fan interest and causes franchises to fail.
- Consumer loyalty can be sustained by offering new levels of insight and experience on different "screens."
- Multilayered (i.e. multimedia) storytelling enables more complex, sophisticated and rewarding mode of narrative within the constraints of commercial entertainment.

La Ferle, C. et al (2000)

- Teens' selection of a medium was a function of the limitations of each medium and the gratifications sought by adolescents. At the time, content was heavily associated with specific technologies, so they looked for entertainment on television and they used the Internet for research.

Lin, C. (2004)

- Do users consider technologies substitutes for each other?
- E.g., those who consider Internet a substitute for newspapers and radio are more likely to be interested in "webcasting" (i.e., broadcast video streaming).
- How do "new" media affect time spent with traditional media?
- E.g., people who decreased time spent with television and magazines as a result of being online were more interested in "webcasting."
- It's not just the medium, but the type of content that influences choice.

McDonald, S. (2008)

- People don't consciously "choose" a screen – they really don't care what platform they are using.

Nightingale, V. & Dwyer, T. (2006)

- A television viewer will use other technologies to participate in, for example, game shows – by voting.

Palser, B. (2008)

- During the Olympics, television was by far the favorite screen, but there were still 75.5 million downloads of Olympic content.
- Content drives screen choice.

- For something like the Olympics, the content lends itself to the big screen.
- Small screen better for shorter videos.
- And mobile video is useful for things like seeing the finish of a race.

Press, A. & Livingstone, S. (2006)

- Is there a "digital generation gap"?

RQ2: Viewing Variance by Screen Type

Industry Research Findings

Alacatel-Lucent (2010)

- Advanced TV and video features generated significant interest; several drew support from over two-thirds of respondents. Multiscreen viewing, time-shifting, program guide, PVR and bookmarking were the most popular features.

Ball State University/Center for Media Design (2009)

- Although the composition of consumers' screen media time varied across age groups, their total screen time was strikingly similar, except among those 45-54 whose screen time was highest.
- The degree of concurrent screen media exposure (also referred to as media multitasking) was equivalent for all age groups under 55.
- The study confirmed that more than 99% of Nielsen's three-screen time is TV. Even among those 18-24, TV represented more than 98%.
- Live TV led all video time by a large margin, followed by DVDs, with DVRs third.
- A higher percentage of TV time was spent as sole medium compared to computers.
- DVR playback time was even more likely than live TV to be as sole medium.

Berman, S. et al. (2009)

- Kool Kids are cash poor/time rich and are more likely to accept ad-funded models (free content).
- Privacy: Massive Passives (51%); Kool Kids (65%) and Gadgetiers (65%) open to trading information for a reward.
- Preference for consistent, integrated messaging across devices: Massive Passives-17%; Kool Kids-24%; Gadetiers-36%.

Bughin, J. (2006)

- In general, mobile-TV subscribers want to watch the same programs on their phones that they enjoy on TV at home.

Coffey, S. and Stipp, H. (1997)

- As stated, we do not have good behavioral data that measure TV and PC use among the same individuals (or even households). However, the detailed data on home PC use that PC Meter provides, allow some important inferences.
- Compared to TV, the average amount of computer use is not very large. During Prime Time, about 32 percent of adults (18-54) with a college education—a group with high PC-computer ownership—use their TV during the average minute. Only 7 percent of PC users with the same

demographic characteristic uses the computer during that time. This clearly limits the possible impact of PC use on TV viewing even among PC users.
- Contrary to anecdotes about young children who surf the Web with amazing skills, PC meter data show that almost half of the 2 to 11 year olds in computer homes do not use the computer at all; less than 10 percent access the Web.

Covey, N. (2010)

- Online Video: approximately 70% of global online consumers watch online video; but North Americans and Europeans lag in adoption.
- More than half of global online consumers watch online video in the workplace.

Edison/Arbitron (2011)

- "Suppose you could never watch television again OR you could never use your Apple/iPhone again. Which would you be more willing to eliminate from your life?" iPhone owners: 58% would eliminate TV; 36% would eliminate iPhone.
- Heavy usage of one medium is NOT necessarily associated with less time with other media.

eMarketer (2011)

- eMarketer expects that this year, 69.4 million adults will watch TV shows at least once a month through some type of Internet connection, meaning the show could be watched on a TV set, computer screen or mobile device.
- By 2015, nearly 100 million adults, or 48% of all adult Internet users, will do the same.
- “There is no one-size-fits-all approach to advertising around video content, given the myriad devices and demographics that are intersecting.”

Enoch, G. and Johnson, K. (2010)

- At ESPN "best-available-screen" means that cross-media behavior isn't about convergence – it's about the opportunity to follow the sports consumer throughout the day, fulfilling specific needs and building touch points.

Erlandsson, A. et al. (2010)

- TV/video consumption is fragmented and complex. Few established consumption patterns. A trial and error market with lots of curiosity around.
- There is a distribution channel effect on TV viewing style, depending on whether viewing is focused versus unfocused and unplanned versus planned:
    - DVD/Blu-ray/VHS: unplanned and planned but focused
    - Streaming: focused and planned
    - Downloading: focused and mostly unplanned
    - Video on demand: focused and mostly unplanned
    - Traditional broadcast TV: focused and unfocused; unplanned and planned

    - Future of broadcast TV: Live is focused and planned; Non-live is unfocused and both planned/unplanned
- There also are differential viewing styles by screen type:
    - TV: relaxing, sharing the experience, fighting loneliness
    - Computer: active consumption, multipurpose screen, multitasking, private consumption, in-home portable, during travel (laptop)
    - Mobile: in-transit screen, while waiting, entertaining the kids when away from home.

Extreme Reach (2011)

- "Adoption" for broadcast and cable media is simply defined by whether or not they accept HD advertising content for their broadcasts.
- Although many broadcast and cable TV organizations have not yet adopted HD, recent studies show that the transition to HD operations continues to be one of the top three most important initiatives among broadcasters since 2009.
- In Q4, those initiatives were most evident in Local Broadcast. The HD adoption rate of local TV stations bumped from 32% to 34%.
- For the first time, more than one third of the local broadcast stations across the US and Canada accept HD advertising. HD adoption in the other three segments remained flat.

Gibbs, J. (2009)

- One pattern is consistent: Internet video impressions on this full-length TV episode Web site are materially stronger than their on-air TV counterparts in terms of core brand impact.
- Like any emerging form of advertising, the novelty of online video impressions likely adds to their effectiveness, along with a variety of factors including the inability to easily skip online video ad units, considerably reduced ad clutter, content sponsorships, as well as greater engagement levels from viewers seeking content online.
- The degree to which this platform can continue to deliver this level of performance remains to be seen, but it's likely that it will sustain its relative effectiveness for some time to come.

Gosschalk, B. (2011)

- Shift towards longer formats set for key role in shaping future.
- Composition of time spent watching ads videos is 0.7% online time.

Harris Interactive (2011)

- Participants in the online community found themselves tuning into their battery-powered Mobile DTV devices when storms knocked out power to their home TVs or when breaking news unfolded while they were on-the-go.
- Local news provided depth and coverage beyond what could be found online.
- Participants appreciate the access to this information resource at a time when they wouldn't otherwise have had it available.

Madden, M. (2009)

- Television and movie watching are now an online experience for a third of Internet users.
- While much of the content on video sharing sites is user-generated, there is also a growing archive of professional content available through YouTube and newer network sponsored video portals like Hulu.
- Efforts to lure viewers to these portals appear to be paying off, as more than a third of Internet users (35%) now say they have viewed a television show or movie online.
- In comparison, just 16% of Internet users said they had watched or downloaded movies or TV shows when asked a similar question in 2007.
- Among those who have watched television shows and movies online, 23% have taken the next step to connect their computer to their TV screen to watch online video from the comfort of their couch.
- Online men are almost twice as likely to rearrange the living room in this regard; 29% of male viewers who watch TV and movies online have connected their computer to the television screen, compared with just 16% of online women.

Microsoft Advertising (2010)

- Despite convergence, the activities Consumers most associate with individual devices indicate that they are considered to retain primary uses in their minds.
- The role of TV is generally limited to entertainment. It is typically seen as a lean-back screen, rather than an interactive one. It is important to note that half of Consumers use a DVR/TiVo and over one-fourth watch content on-demand, indicating that they prefer control in this environment as well.
- The computer is the device with the most utility. While it is still used for productivity tasks, it is also used for entertainment, socializing, and making purchases.
- Users rely on the phone to stay in touch, not only through talk and text, but nearly half of Consumers also use it to connect with social networking sites. A full 70 percent use it to search for information on the go, indicating it is also seen as a primary resource for information, much like the computer.
- The gaming console is primarily used for entertainment. But 23 percent of Online Gamers also use it to watch video. Thirty-nine percent of Online Gamers also use their consoles to socialize, demonstrating that the console can be a communication device, not just a gaming device.
- Multi-Screen Media Are A Key Component Of Young Consumers' Lives. Younger Multi-Screen Consumers devote more time to using media devices to perform specific activities, from sending email to gaming to communicating with others.
- Consider this: Consumers 35 years or older spend approximately 49 hours per week using media devices to complete activities. In contrast, 18–24 year-olds spend 60 hours, and 25–34 year-olds rack up an impressive 67 hours per week.
- Older Consumer = Passive Viewer. Older Multi-Screen Consumers are more likely than younger Consumers to use media to watch TV shows, movies, news, or sporting events, or simply read

the news online. They are more likely than younger users to have mostly passive interactions with media.

- Younger Consumer = Active Viewer. Conversely, younger Multi-Screen Consumers enjoy more interactive experiences with media. For instance, 18–34 year-olds are more likely to use media for interactive activities, such as shopping online, communicating with others through social networks, playing games, and sending instant messages.
- Computer: An Entertaining Way To Get Things Done.
    - The computer is still seen as an 'informative' (67 percent) and 'productive' (65 percent) engine, but it has lost its purely pragmatic and functional stigma. Instead, it is associated with a wide range of attributes outside the realm of efficiency, including being 'entertaining' (58 percent) and 'fun' (58 percent).
    - It is even more 'fun' than TV (58 percent vs. 48 percent).
    - The computer is about more than getting things done, and Consumers want to be engaged as they interact.
- Smartphone: Trendy, Smart, Sophisticated.
    - The smartphone is largely viewed as being 'cool' (61 percent), 'stylish' (59 percent), and 'trendsetting' (59 percent).
    - Also, Multi-Screen Consumers see the smartphone as being as 'intelligent' (56 percent) as the computer, and the most 'sophisticated' (54 percent) of all of the devices.
    - Multi-Screen Consumers believe it has evolved with the times to stay relevant to their needs and, consequently, expect their interactions with content on this device to be equally progressive.
- Gaming Console: The Fun Way To Connect.
    - Among Online Gamers, the gaming console is viewed as being 'fun' (71 percent), 'entertaining' (65 percent), and 'engaging' (50 percent), and is the most 'fun' and 'engaging' of all the devices.
    - While it is slightly less 'entertaining' than TV, it is unique in that it is a more interactive and engaging form of entertainment. It also differs from TV because it is a 'sociable' (42 percent) device that allows Consumers to feel connected to others.
- TV: The Lean-Back Medium
    - TV is most associated with entertainment (69 percent). Yet unlike the gaming console, it is not seen as a 'fun' device and is actually the least engaging media device. Only 38 percent of Multi-Screen Consumers consider it to be 'engaging.'
- Multi-Screen Consumers crave a connected experience across devices and believe that it provides numerous benefits, including making the content more useful (69 percent) and their media experience more relevant and informative (69 percent).
- Younger Multi-Screen Consumers are most likely to value consistency across screens, believing that it greatly improves their media experience. Seventy-five percent of 18–24 year-olds believe having the ability to access content across multiple screens makes content much more useful.
- More Consistent Experiences Improve Opinions Of Media Providers.

  - Multi-Screen Consumers think more favorably of content providers that deliver similar content across multiple media devices, with 62 percent of Multi-Screen Consumers and nearly 75 percent of Younger Consumers saying that a consistent experience generates positive feelings about the provider.

Microsoft Advertising (2010; Marketing at Crossroads)

- Mom's use of computer and smartphone has fully converged; Moms use these devices interchangeably for media activities.
- Strike the right note: each screen retains a core function an distinct personality: smartphone: cutting edge and trendy, smart, sophisticated; mom's expect interactions to be progressive and intuitive computer: fun, productivity, entertainment.
- TV: lazy, lean-back entertainment, only 38% call it engaging.
- Gaming console: fun way to connect, most fun and engaging; also a social outlet.

Microsoft (2009)

- Linear TV "filling time"; Online TV "on my own time"
  - Linear is ambient, little to no emotional involvement; online has emotional attachment to content clips, potential to attach to shows.
- Focused viewing online represents the highest level of emotional involvement.

Nielsen (February 2010)

- Consumers are far more united (62%) in their conviction that once they purchase content, it should be theirs to copy or share with whomever they want.

Nielsen (February 2010; Fourth Screen)

- Nielsen’s "Fourth Screen Network Audience Report" enables direct comparisons between digital place-based video networks and other video networks, including TV and Internet.
- For example, the C3 average audience for a primetime broadcast TV commercial was three million viewers age 18+ in October 2009.
- During that same period, video ad exposures to NCM’s and Screenvision’s movie theater networks combined for an average 61.7 million, meaning that it took about 20 primetime ads to reach the same audience as a typical month-long advertising flight on both movie theater networks.

Nielsen (2009))

- Teens watch less online video than most adults, but the ads are highly engaging to them: Teens spend 35% less time watching online video than adults 25–34, but recall ads better when watching TV shows online than they do on television. Teens who recall TV ads are 44% more likely to say they liked the ad.

- Teens play video games, but are as excited about play-along music games and car-racing games as they are about violent ones: Just two of their top five most-anticipated games since 2005 are rated "Mature."
- Teens' favorite TV shows, top websites and genre preferences across media are mostly the same as those of their parents: For U.S. teens, American Idol was the top show in 2008, Google the top website and general dramas are a preferred TV genre for teens around the world.
- Social networks play an increasingly important role (about half of U.S. teens use Facebook) and now many teens access the Web over their phones (37% in the U.S.)
- Teens time-shift video with DVRs and they place-shift on their video MP3 players. Yet teens are not unique in this media revolution. The media experience has evolved and cross-platform engagement will be critical to reaching all consumers, not just teens. Media innovations have impacted everyone's experience—not just the *High School Musical* set.
- Popular opinion is that teen media consumers are constantly surrounded by multiple media, but the image of the "typical" teen listening to an iPod, watching TV, texting and browsing the Internet all at the same time, it turns out, is grossly misrepresentative. In 2007, Ball State University's Center for Media Design conducted an observational study of teen media use, "High School Media Too," (2007). In the study, researchers found that 23% of the media time among observed teens was concurrent media exposure, where two or more media were in simultaneous use. Put differently, 77% of the time observed, teens were consuming media they were using just one at a time.

Piech, D. (2010)

- "How would you rate the commercials you see when watching original TV shows on Online vs TV?"
    - Commercials make me think favorably about the brand: 31.2% online/18.7% TV
    - Commercials are relevant to me: 29.8% online/18.6% TV
    - Commercials are memorable: 30.1% online/21.8% TV
    - I enjoy watching the commercials: 32.0% online/19.5% TV-commercials are interesting: 35.8% online/22.% TV
- What are the reasons you visited an advertiser's website while watch a show online? Descending order:
    - Video commercial played during show
    - Product you noticed in program
    - Video commercial played before show
    - Text or image-based commercial surrounding the video player
- Video is social, interactive, lean forward-
    - 1 in 3 video viewers comment
    - 2 in 5 upload video
    - more than 1 in 2 view online videos with others
    - Among 18-34s more than 2 in 3 view with others.

Rose, B. and Edison, T. (2011)

- Homes Are Fully Digital and Fully Networked.
- The rapidly expanding use of three enabling technologies (broadband, multiple computers, Wi-Fi) in American households means new opportunities and rising expectations for interaction and interconnectivity.
- Mobile and in-car are the next frontiers, but it is crucial to have a winning digital strategy for the home today.
- While the "convergence device" may be the mobile phone, content providers must not overlook the fact that over half of American households have multiple computers and nearly two-thirds of domestic Internet is accessible over wireless networks. A mobile strategy is important, but rich experiences in home are still a very attractive aspiration for media properties.

Scherf, K. (2010)

- The user interface is especially important for networked consumer electronics because the interface must be able to guide users across different devices and grant access to different types of files.

Treutler, T. and Levine B. (2010)

- At the highest level, results of the study showed television advertising outperforming all other mediums on emotional engagement and, directionally, on cognition/memory as well.
- Comparison of Television & Online Video:
    - Television had 1.8 times more Total Emotional Engagement than online video.
    - Television also had 1.4 times more next day recall than online video.
- Comparison of Television & Online Display:
    - The Total Emotional Engagement of television and online display could not be compared as the online display ads generated less than 1% visual attention.
    - Television had five times greater next day recall than online display.
    - Basic online display ads (those that are of a standard size and contain minimal animation) generated recall at very close to the background noise level (the level of false attributions).

Uyneco, B. and Kaplan, D. (2010)

- More U.S. viewers watch web video than watch recorded TV on DVRs (and often skip the ads), according to Nielsen Online.
- TV Ads Are Significantly More Effective Among Viewers Who Were Previously Exposed to the Brand's In-stream Ads.
- Even When Controlling for Frequency, the Combination of TV + Premium Video Provides Superior Advertising Impact Than TV Alone.
- Why the Variation in Impact?
    - Higher Engagement with Content

- Greater attentiveness to content because user has to click to download content
- Novelty of online video
- Inability to easily skip units
- Considerably reduced ad clutter
- Content sponsorships
- Persistent companion ad presence

Academic Research Findings

Carey, J. (2005)

- Wireless networks mean that media consumption can take place in any room in a home.
- Media consumption is no longer in a shared space, necessarily.
- People talk about "watching" television; but they talk about "going to" a website.
- Young people talk about "hanging out" on a website.
- The place-based metaphor could give a clue about how people perceive the different technologies.

Chesnes & Zhe-Jin, (2011)

- Television viewing of advertisements can drive viewers to the Internet to search for more information.

Costello, V. & Moore, B. (2007)

- Social and cultural factors influence media use.
- We have to look at the context of the viewing experience in ordinary lives and in common settings.
- Online fans show a preference for more intellectually stimulating fare.
- Online use enhances personal gratifications of television viewing.

Dimmick, J. (2010)

- Do the emerging media differentiate themselves from other media with regard to the resources they provide (content, space, time?)
- They found differences in use of specific media by time of day and location (they could not look at differences in content because they were only looking at news/information)

Jenkins, H. (2003)

- Audiences want something different from different "screens" (if they are following the same story).

- They want new insights into characters and new experiences of a fictional world.

Livingstone, S. (2004)

- The social context in front of the screen frames the nature of the engagement with what is shown on the screen.
- People are active in shaping their media culture.

RQ3: Viewing Style Vocabulary

In addition to the summary of research findings presented in this section, we also refer the reader to "Part 4: Towards a Video Ecosystem Research Taxonomy."

Industry Research Findings

Berman, S. et al. (2009)

- Digital content interaction with online video.
- "Passive experiencer" watched online video; "Engaged" regularly watch online video; "Influencers" rated video online; "Authors" uploaded videos"; Massive Passives"; "Kool Kids"; "Gadgtiers."

Extreme Reach (2011)

- This study includes an in-depth analysis of two key HD advertising trends among television advertisers: adoption and distribution.
- Adoption focuses on the percentage of advertisers who have distributed at least one HD commercial, while Distribution focuses on the percentage of overall ad delivery units that are HD vs. SD.
- This report looks at TV advertisers in general and analyzes two specific verticals: retail and automotive. These two verticals are specifically highlighted because their HD adoption and usage patterns were different than most other advertisers and more pronounced than their usual patterns during the fourth quarter of 2010.

Braverman, Samantha (2011)

- Many TV networks, programs and shows are investing in websites, online programming and social media outreach to further capture and engage their audiences, and, most online adults are aware of these efforts.
- Almost six in ten say that when watching a program on television they are aware of additional material available online (57%).

Brightcove (2010)

- Audience engagement levels across all of the media verticals are trending upward, particularly in the last quarter.
- Brands and online media both saw significant jumps in engagement from previous quarters.
- Brands went from 1:03 to 2:03 average minutes viewed quarter over quarter.
- Along with minutes viewed, completion rates are also trending upward across the board.
- "Completion rates" refers to videos that were watched from start to finish. This is the first time we've seen any category surpass a 50% completion rate, which online media and broadcasters both achieved this quarter.

- As of last quarter, Facebook surpassed Yahoo! as the referral source second only to Google in driving traffic to online video content for media companies and brands. Facebook now accounts for 11.8% of all referred video traffic to media companies.

Buchwalter, C. (2009)

- Website subcategories: short, mid, long tail brands.
- "Engagement quotient.
- "High intensity" media consumer.

Edison/Arbitron (2011)

- "Passionate Users" of digital platforms/devices – % of users % who "love it" = number of passionate users.
- Passionate users: TV-26%; Broadband Internet-32%; Cell phone-27%; DVR-17%; YouTube-12 %; Online video-10%.

Erlandsson, A. et al. (2010)

- Distribution channel and effect on TV viewing style: focus/unfocused; unplanned/planned
  (1) DVD/Blu-ray/VHS: unplanned and planned but focused
  (2) Streaming: focused and planned
  (3) Downloading: focused and mostly unplanned
  (4) Video on demand: focused and mostly unplanned
  (5) Traditional broadcast TV: focused and unfocused; unplanned and planned
  (6) Future of broadcast TV: Live is focused and planned; Non-live is unfocused and both planned/unplanned
- Usage by screen type
  TV: relaxing, sharing the experience, fighting loneliness
  Computer: active consumption, multipurpose screen, multi-tasking, private consumption, in-home portable, during travel (laptop)
  Mobile: in-transit screen, while waiting, entertaining the kids when away from home.

Goski, B. (2011)

- Google continues to dominate in terms of audience size, fueled by YouTube's 146.1 million UVs.
- 99.7% of Google video users are watching content, dwarfing the percentage of viewers watching their ads (29%).
- However, depending on who a marketer wants to target, they might be well advised to focus their efforts accordingly since this poll makes clear that different groups sign online in different ways, and at different times.

Nielsen (2009)

- As teens around the world continue to adopt mobile phones, mobile media and messaging, marketers will be paying attention.
- Mobile marketing offers the most personal and direct form of engagement for an audience that, as this paper demonstrates, is spread broadly across the media ecosystem.
- Moreover, teens seem to be particularly open to the idea of mobile advertising.
- A 2008 study by Nielsen found that teen mobile media users were roughly three times as receptive to mobile advertising as the total subscriber population: just over half of teen mobile media users considered themselves open to mobile advertising.

Roy, D. (2011)

- "Linked" and "Unlinked" audience responses. Click-streams are a kind of linked audience response data. They are linked in the sense that each data point (usually a click) is unambiguously connected to its target media. The banner producer knows exactly which banner received a thousand clicks.
- New forms of linked response data are emerging, from Facebook's "like" feature to a variety of check-in services. Figure 2 [in original research document] sketches the growth trend of linked audience response data over the past decade. The upward curve suggests that as more opportunities to respond to media emerge and more people get online, the amount and value of linked audience response data grows.
- Social media conversations introduce a new basic data type: unlinked audience responses. These are responses about a piece of media but directed to other people rather than explicitly linked to the media itself. Nonetheless, these responses certainly are an indication of audience engagement.
- In fact, in some ways, these responses are more "pure" in that they are unsolicited responses elicited in natural social contexts. When someone tweets out to their friends about a line they just heard on TV or posts an update about an ad they just saw, they have generated an unlinked response.

Scherf, K. (2010)

- Recent data also indicate that the program guide itself serves an important function in helping consumers discover TV shows and movies.
- Social networking sites are also an important aspect of the content discovery process.
- As guides become more interactive, we can expect to see convergence between social networking communities and guide delivered recommendations.

SES/Hiwire (2011)

- In terms of actual usage of mobile television, as opposed to incidence, viewing data are higher in the evening, early morning/late afternoon.

- Service reported to be used while waiting, to entertain/show other people, and at home when people are watching something else on TV.
- The video service is used by more than just the cell phone users; 30% frequently let other people in the car use the service while the participant is driving (66% frequently/occasionally).

Thompson, K. (2011)

- "What do you use your iPad for? Spring 2010 vs Fall 2010
    - play video game: 15%, 18%-watch movies: 21%; 17%
    - watch full TV program: 17%, 16%
    - watch amateur video: 16%, 14%
    - watch professional video: 20%, 14%
    - watch live event: 8%; 8%.
- If the iPhone dragged phones closer to computers, the iPad appears to be dragging computers closer to phones.
- It is also taking the computer further away from the world of the workplace and making it a more fun, personal, consuming and connecting device.
- This could be one key element of the tablet's appeal – an owner is able to use their entertainment and socializing device without any reminder of the office to darken the mood.

Uyenco, B. and Kaplan, D. (2010)

- Online video performed better than TV across every brand metric and for every vertical.
- A campaign combining online video and TV ads improved recall and likeability for all verticals.
- Overall, repurposed TV ads are at least as effective as original online video ads.

Weisler, C. (2010)

- Set-Top Box data collection, aggregation and measurement are currently in its formative stages with several companies offering media measurement applications for the data via sophisticated user interfaces. Every day, many new terms and new metrics are being created as a result of their efforts.
- The need for a comprehensive lexicon of Set-Top Box data terms has become apparent. Until now, there was no single source that offered a full reference list of these metrics and their definitions.
- This CIMM project is an important step in expanding the understanding and ultimate adoption of Set-Top Box data as an accepted industry measurement.
- This is an effort to create a common language so that the standardization and adoption of Set-Top Box data as a media measurement can proceed smoothly and efficiently across the industry.

Academic Research Findings

Bore, I. (2009)

- "Engagement" can describe the way viewers interact with specific types of content.
- Whether they see a program as "comedy" or "documentary" changes the type of engagement they experience (emotional v. cognitive engagement).

Byfield, S. (2000)

- Technology use and adoption stem from the social context, rather than vice versa.

Carey, J. (2005)

- Websites are more "available" than television because television is scheduled.
- Portable and mobile media are "all day" media.
- When multi-tasking, a person can have one screen in the foreground and one in the background.

Cooper, R. & Tang, T. (2009)

- In order to understand viewing style and choice, we need to integrate different theoretical perspectives.
- "Availability" is no longer tied to a technology because you can use the Internet for different functions than watching entertainment or news programming.
- Television/Internet is not an either/or behavior but an "and/because" behavior.
- There is a positive correlation between Internet and television use.

Costello, V. & Moore, B. (2007)

- Viewing may be private, but fandom is public.
- What does an active viewer do – choose programs? Accomplish goals through viewing? Pay attention to content? Analyze content? Avoid being easily influenced? Feel strong emotions?
- What role can the Internet play in creating and maintaining an active audience?
- (How to define interactivity?) is engaging producers etc. via the Internet to affect program content "interactive"?

Dutta-Bergma, M. (2004)

- Involvement – the extent to which individuals are motivated to gather, process and evaluate information on a specific subject.

Dennis, E. (2003)

- There are different types of convergence: industry convergence (firms); organizational convergence (combining divisions within firms); content convergence (across platforms).
- Terminology – "multi-screen convergence."

Evans, E.J. (2008)

- Engagement with drama is driven by good characters, not by plot.
- Character is a possible point of engagement when the television drama is extended away from the TV set and onto the Internet.
- Characters are recognizable and familiar, and therefore help orient the audience within the narrative.

Godlewski, L. & Perse, E. (2010)

- "interactivity" in this article refers to viewers participating through another medium (watching television and participating via Internet) – "2-screen interactivity"
- "involvement" indicates personal engagement with the content
- "multidimensional" audience activity means that individuals are variably active along several dimensions and at different times in the media use process.
- Involvement: "the degree to which an audience member perceives a connection between him or herself and mass media content" and "the degree to which the individual interacts psychologically with a medium or its messages."
- "cognitive involvement" is thinking about message content.
- "emotional involvement" can be on a range of emotions from satisfaction and happiness to frustration and anger.

Lee, D. & LaRose, R. (2007)

- The concept of "flow" – based on psychology, it's that point "characterized as concentration and intrinsic enjoyment." The more this happens the more habit forming is the media use (it's like being "in the zone.")

Lin, C. (2002)

- Do consumers consider different screens "functional equivalents"?

Lin, C. (2004)

- "fluidity" is a characteristic of a medium that allows for different processes at the same time (e.g., checking email while watching a webcast)

Lin, C. (2006)

- At the time of this study, there was still a "novelty seeking" attraction to watching television on the Internet.

- Audience perception of television is "an entertainment medium that also delivers news and information"

Livingstone, S. (2004)

- "Fandom" is becoming more important as audiences fragment and diversify.
- People follow content across media.

Lu, X. & Lo, H. (2007)

- "Connectedness" is a level of intensity of the relationship(s) that a viewer develops with the characters and contextual settings of a program in the parasocial television environment.

Nightingale, V. & Dwyer, T. (2006)

- "Program enhancement" is the effort to make monetizable program-related content available through non-television technologies.

Press, A. & Livingstone, S. (2006)

- Media use is now "embedded" in all aspects of daily life. It is no longer necessarily an event by itself.
- "Social analysis" is studying the context of media use.

RQ4: Context of Use – Complementary, Additive, Both

Industry Research Findings

Buchwalter, C. (2009)

- Exhibit 12, derived from recent Nielsen TV and Online fusion studies, compares a day of primetime network television audience for each of the major broadcasters. Based on this analysis, as well as other fusion studies, a few points around cross-media video usage become clear.
- First, the duplication levels for TV programs and their corresponding online video streams tends to be relatively low, with Internet adding approximately 2% additional reach in a given month.

Coffey, S. and Stipp, H. (1997)

- We think that these data provide *a* first, detailed look at how consumer behavior regarding the use of electronic media is evolving. The data indicate that there is no compelling evidence suggesting PC users will give up or drastically curtail TV usage in the near future.
  The discussion about the impact of the new digital media and the use of the traditional mass media has been dominated by predictions of a rapid decline in television viewing as a result of the increased popularity of the Internet and other computer-based activities. New data do not support such predictions, not even among regular PC users. Instead of replacement, the data show interactions between the media in which television often impacts PC activity and Internet use.
- The research suggests that speculations about the disappearance of television should be dismissed and that content providers and advertisers should further explore the evolving interactions between the media.
- Therefore, while none of these findings allow us to predict how people will spend their time in 10 or 20 years, they strongly suggest that, at this time, and for the foreseeable future, PC-based activities will not have a strong impact on TV viewing.

Covey, N. (2010)

- The history of video consumption has been additive. Consumers globally have proven their insatiable appetite for video-delivery of information and entertainment, and new means and screens have proliferated.
- Whether it be the standard TV, on the computer or on a mobile phone, viewership continues to grow, and will likely do so as new technologies enhance the experience and convenience.

eMarketer (2007)

- As eMarketer has noted before, the rise of Internet usage, including Internet video, has not cut into TV consumption.
- Instead, video viewing of all sorts continues to increase.

Enoch, G and Johnson, K. (2010)

- The data show that the additional media use had no effect on the amount of TV viewing or Internet usage. Rather, additional media use was incremental, and the more platforms a group consumed, the greater their total amount of media use.
- Two principles are that (1) a heavy user of one medium is a heavy user of all media; (2) cross-media usage is not zero sum.
- Also there is no evidence that the Internet is cannibalizing TV use. In fact, Nielsen studies have shown that high consumers of TV are also high consumers of the Internet: high-intensity media consumers regardless of type.
- Regarding engagement, Nielsen IAG data indicate that the advertising impact of the Internet can add 15 points of lift above TV in terms of brand recall and 18 points of lift in message recall.
- So, not only is Internet adding incremental reach to a TV media buy, but it is also creating significant additional effectiveness.

Gibbs, J. (2009)

- Before we start a deep discussion around multi-platform media measurement, we need to get a base-level understanding of three screens—TV, Internet and mobile—usage across the board.
- American video consumption continues to rise, and in fact, during Q2 '09, online and mobile video consumption were up considerably year-over-year in terms of time spent and audience size.
- The mobile video audience increased 70% and time spent watching online video increased 46% from a year prior. While the role of online and mobile is increasing in the U.S., traditional TV consumption remains at a seasonal all-time high (141 hours a month in Q2 '09). U.S. consumers appear to be adding video consumption platforms—not replacing them—and media multitasking is part of the equation.
- Today, more than half of Americans (57%) who have Internet access at home use television and the Internet simultaneously at least once a month—spending on average 2 hours and 39 minutes at each sitting.
- The average consumer's online experience at home is in front of the television almost a third of the time—28% of consumer's time using the Internet at home is also spent simultaneously watching TV, while only 3% of consumer's time watching TV at home is spent simultaneously using the Internet. This simultaneous activity is one reason we see continued growth of both Internet and TV consumption in the U.S.

Gosschalk, B. (2011)

- Video advertising is reaching a mass audience. Over 527 million video ads were served across the web to 23 million people an average of 23 times each. UK: 64% of online video users watch online advertising; U.S.: 82%.
- Ad composition of total videos viewed online: 0.7% of online time with ads versus ~20% TV time.
- Online video is the most social, interactive, engaging medium (p. 17)- 1 in 3 video viewers comment-2 in 5 upload videos- 1 in 2 regularly share videos- 600,000 shared NIke's "Write the Future" ad.

Harris Interactive (2011)

- Viewership data gathered and analyzed by Rentrak revealed that the highest level of Mobile DTV viewing occurred during the weekday afternoon.
- Harris Interactive feedback from the community suggests this viewing is additive and complementary to traditional TV.
- Mobile DTV expands the number of viewing occasions by allowing consumers to watch TV at locations and times where they would have otherwise consumed different media, such as Internet, radio or newspapers.
- A significant number of trial participants (38%)said their overall TV consumption increased while using Mobile DTV; 94% said it increased or stayed the same.

Microsoft Advertising (2010)

- Convergence has not led to cannibalization among media devices because no two devices fully meet the same set of needs and provide identical benefits. Rather all screens work together to complement each other and create a more robust experience.

Nielsen (2009)

- Teens are NOT abandoning TV for new media. In fact, they watch more TV than ever, up 6% over the past five years in the U.S. Teens love the Internet…but spend far less time browsing than adults. Teens spend 11 hours and 32 minutes per month online—far below the average of 29 hours and 15 minutes.
- Beyond the television set, teens are increasingly watching video on the “second” and “third” screens of online and mobile, a growth of the video experience that will drive greater reach and frequency for marketers while expanding the teen engagement opportunity.

Rose, B. and Edison, T. (2011)

- The proliferation of digital platforms means people are finding more time in their day to consume media, and they are finding new places do so.
- While all digital platforms are on the rise, their growth makes the media landscape increasingly complex for advertisers, content providers and consumers.

- Ease of use and clarity of purpose become paramount in a world of practically infinite choices.

SES/Hiwire (2011)

- Participants tend to watch more of the channels they also watch on regular TV, but also watch new channels (over half of participants).

Shimmel, H. and Idell, C. (2009)

- For A18-49, Streaming adds .4 points to linear TV PUT.

Thompson, K. (2011)

- Does owning an iPad change behavior on a laptop?
- iPad creates more occasions of: watch TV programs, movies and amateur videos; playing video games.
- iPad steals occasions of: visiting social networks, searching for info, reading online content, listening to/downloading music, watching music videos and professional videos, playing casual games, emailing.

Academic Research Findings

Boyaji, K. & Thorson, E. (2007)

- Depends on the purposes for which people use each medium.
- E.g., with news, people see television and Internet as complementary.

Carey, J. (2005)

- Observed complementary use of media; and in some cases additive in this study.

Costello, V. & Moore, B. (2007)

- A new technology can interact with a more traditional one in ways created by the audience for its own enjoyment – example is contacting producers through the Internet.

Goodman, E. (2004)

- What happens when viewers are watching more than one screen? What is the effect of "attention scarcity"?

Havick, J. (2000)

- The Internet will share with other media the hours of the day the public devotes to communication.

Jenkins, H. (2003)

- New media does not cancel out traditional media.
- Owners of new media consume more traditional media than does the general population.
- A transmedia franchise can attract a wider audience by pitching the content differently in the different media.

RQ 5: Appropriate Research Methodologies

Industry Research Findings

Ball State University/Center for Media Design (2009)

- Computer-assisted observation with ethnographic observation.
- Serious caution needs to be applied in interpreting self-report data for media use.
- TV was substantially under-reported while online video and mobile video usage were over-reported.

Buchwalter, C. (2009)

- Nielsen TV data
- Nielsen Online Fusion data

Copp, Jeremy (2011)

- Complexity and fragmentation of mobile market requires an array of data sources and methodologies for a 360°viewAd: online survey + network log analysis + mobile web, app and AdNet tagging [refers to comScore's proprietary solution; the author is a comScore employee].

Dorai-Raj, S. et al. (2011)

- The availability of precise data on TV ad consumption fundamentally changes this advertising medium, and allows many techniques developed for analyzing online ads to be adapted for TV.
- Using Set Top Box data to measure niche programming applies analytical techniques pioneered in online advertising. Panel-based audience measurement is at times unable to measure the increasing fragmented TV audience.
- Several companies have started using data from STBs to measure TV audiences. In addition to Google, TNS, CANOE, Rentrak, Tivo, and The Nielsen Company itself are using STB data.

Breheney, B. and Morrow, H. (2010)

- Minorities currently comprise a little over a third of the U.S. population and are expected to exceed half of the population by 2050.
- The proliferation of digital TV channels allows ethnic groups to have their own networks.
- "Minority audiences" are behaviorally defined as viewers of specific foreign-language channels.
- Measuring minorities has long posed challenges for (recruited) sample-centric services.
- Return Path Data (RPD) offers a superior approach to measuring long-tail networks.
- Advantages of using Return Path Data for measuring minority audiences include:
    - Households can be selected anonymously for inclusion, eliminating non-response bias.
    - Totally passive, observation-based research eliminates respondent fatigue.
    - No need for enumeration surveys or bilingual interviewers/materials,

    - Much larger in-tab sample sizes allow for greater precision.
    - Ability to integrate Return Path Data with other data sources, allowing for deeper analyses.
- Issues include:
    - Limited availability of Return Path Data in the U.S.
    - The need for set on/set off editing guidelines.
    - RPD provides household viewing data, not persons data.
    - The need for RPD standards across multiple data providers.

comScore (February 2011)

- Culmination of experience, client feedback led to Unified Digital Measurement (UDM) and it required pushing boundaries of technology and methodology for solutions to unique digital challenges.
- Purpose-built, comprehensive, scalable and expandable digital audience measurement system.
- Online recruitment designed to cast a wide net on the online population, while passive data collection is achieved through innovative technology.
- Census level measurement is added to panel based measurement to create a 'best of breed' solution.
- Census measurement permits census calibration to overcome recruitment bias, and increases the accuracy and granularity of digital measurement.
- While this non-probability approach may be unfamiliar, it does not compromise quality, rigor or innovation and is designed to optimize digital measurement.

Enoch, G. and Johnson, K. (2010)

- "Single source" and "data fusion" are two ways of researching cross-media behavior.
- ESPN believes that both are necessary to illuminate the complex field of cross-media research.
- Single source data are used for insight on specific behaviors as they measure real cross-media usage by each respondent.
- But the business requirements of implementing year-round measurement of all media and connecting media behavior to product consumption across multiple categories can be accomplished only with fusion techniques.

Harris Interactive (2011)

- Online community and focus group research combined with digital device measurements.

Microsoft (2009)

- Five viewing styles:
    - Ambient Viewing: background noise enabling multitasking
    - Decompression: diversion for relaxing and passing time
    - Focused: keeping up with scheduled shows

    - Punch Line: short clips, shared among social networks
    - Sampling: exploring content related to interests
- Linear versus Online TV Experience
    - Linear: entice, browse, watch, break, finish
    - Online: entice, set-up environment, search for website, find video content, activate, view/monitor, stop/finish, extend.

Musante, G. (2009)

- For years marketers have been measuring what people say through self-reported measurements and survey data. The digital age bore witness to what people actually do through behavioral measures and metrics reports.
- Today, insight can be gained into how people feel using biosensory measures of cognitive and emotional responses.
- By combining survey data and behavioral data with biosensory measures, the team found a compelling way to compare engagement cross media. Researchers set out to compare ads encountered on Xbox LIVE to traditional :30 and :60 second spots. They did this for two major brands ¡V Hyundai and Kia.
- While both types of advertising showed positive impact, consumers in the study spent more time, demonstrated greater recall and exhibited higher levels of emotional and cognitive response in association with the interactive Xbox LIVE campaigns.
- Even more compelling than the result is the approach used in this study, because it may hold the key to cracking the code on code on cross media measurement. Test subjects were recruited to a lab where they were exposed to various media and various campaigns while wearing a special sensor laden headset. The data collected focused on five things we believe every marketer should measure: Memorability; Favorability; Purchase Consideration; Time Spent; Cognitive and Emotional Response. The first four are not new. What is unique about this study is that they were measured in a consistent manner across media types.

Roy, D. (2011)

- At scale, organizations become blind to the semantic links that bind conversations to their source. This semantic barrier forces organizations to treat mass media and social media in silos.
- As the volume of social media conversations grow exponentially, so does the scale of the semantic barrier. Audiences, of course, don't contain themselves to any such silos.
- This disconnect poses a threat to the very heart of how organizations will in the future effectively, efficiently, and responsively communicate with their audiences.
- Can language grounding be automated? My research at MIT over the past 15 years has focused on just this question. My lab [www.media.mit.edu/cogmac] has spearheaded a research program to create machines that learn to link language to context by observing and modeling human communication strategies.
- This research in language grounding has been driven by two ideas.
    - The first is deep machine learning – algorithms that learn to find connections across different modalities of data such as video and speech in order to capture deep semantic

structure. Using this idea, our lab created some of the first robots that learn grounded language from show-and-tell interactions with humans.

- The second idea is to observe human communication dynamics in naturalistic settings ("in the wild"), and use algorithmic analysis to shed light on various aspects of language development and use. This idea culminated in the Speechome project, where my lab amassed over 230,000 hours of home video and audio recordings as a basis for understanding my son's language development process in the first years of his life at home.

Sharp, B. and Wind, Y. (2010)

- Need to develop appropriate methods to build toward scientific laws.
- A scientific law requires multiple sets of data.
  - must be about the real world not just a logical statement
  - must have been observed a number of times
  - should have been observed across a wide variety of conditions

Unyenco, B. and Kaplan, D. (2010)

- How IAG Survey Work:
  - Premium Online Video publisher adds dynamic IAG OpenTag to show and ad content delivered via player, and provides IAG a preview of ads with corresponding Creative IDs for survey creation.
  - IAG panelist visits Site and watches full episodes (through natural behavior) and we are "pinged" with info.
  - Panelist visits RewardTV.com
  - We recognize that panelist has been exposed to full episodes/ads
  - Panelist has option to take surveys for any of the online programs they viewed (including questions about in-stream ads/product placements).

Academic Research Findings

Brennan, D (2000)

- Media clinics are one way to get rich information – qualitative and quantitative from the same respondents.
- Respondents can use the interactive technologies.
- Actual use of technology allows respondents to speak more knowledgeably about their reactions to the experience and about how they might use it in the context of their daily lives.

Byfield, S. (2000)

- Attitudinal measures – lifestyle segmentation to predict usage of new technologies.

Carey, J. (2005)

- In-depth interviews and observation of behavior in the natural settings where people use different screens.

Cooper, R. & Tang, T. (2009)

- Instrumental v. ritual viewing (active v. passive) – always in combination.

Costello, V. & Moore, B. (2007)

- To understand the context of viewing, we need to use qualitative methods like ethnographies.

Danaher, P. & Lawrie, J. (1998)

- Can some measure of time spent with a specific program (or technology) serve as a proxy for engagement? They use two measures: PVM (percentage of minutes viewed) and proportion of audience that watched 80% or more of the program

Dimmick, J. (2010)

- "Interstices" are those times between other activities when consumers will use their mobile technologies to access content – especially news and information.
- "Resource niche dimensions" are content, space (location) and time (convenience/accessibility).
- "Niche" is that area within the resource space where one media form outcompetes or is superior to other media forms.
- Mobile technologies could offer "new opportunities for news consumption in the interstices of our lives, and use in these interstices may become normative cultural patterns."

Holmes, M. & Bloxham, M. (2007)

- Time use diaries are efficient and affordable, but…
- Shadowing gives a more complete picture of the "lived day"
- Electronic time diary maintained by trained observer.

Ksiazek, T. (2011 in press)

- Network analysis could be used to find out whether there is a high degree of overlap in the use of various screens.

Lee, D. & LaRose, R. (2007)

- Self-reports of attitudes toward game play helped them get at "why" people play video games longer than they intended. It's a way of studying decision processes. Analysis is done with structural equation modeling.

McDonald, S. (2008)

- As consumer behavior moves down the "long tail" distribution, random sampling methods will no longer be economically viable.
- We will need hybrid systems – random sampling for larger "events" and non-random-sample measurement for the smaller ones.
- E.g., circulation numbers for newspapers are not done with random sampling.

Press, A. & Livingstone, S. (2006)

- The tradition of ethnography can be useful in designing screen studies.

Webster, J. (2005)

- Intensity of use. He developed a measure of intensity – the % of a viewer's media time spent with an individual channel.
- Time spent viewing also measures intensity.

Part 4: Towards a Video Ecosystem Research Taxonomy

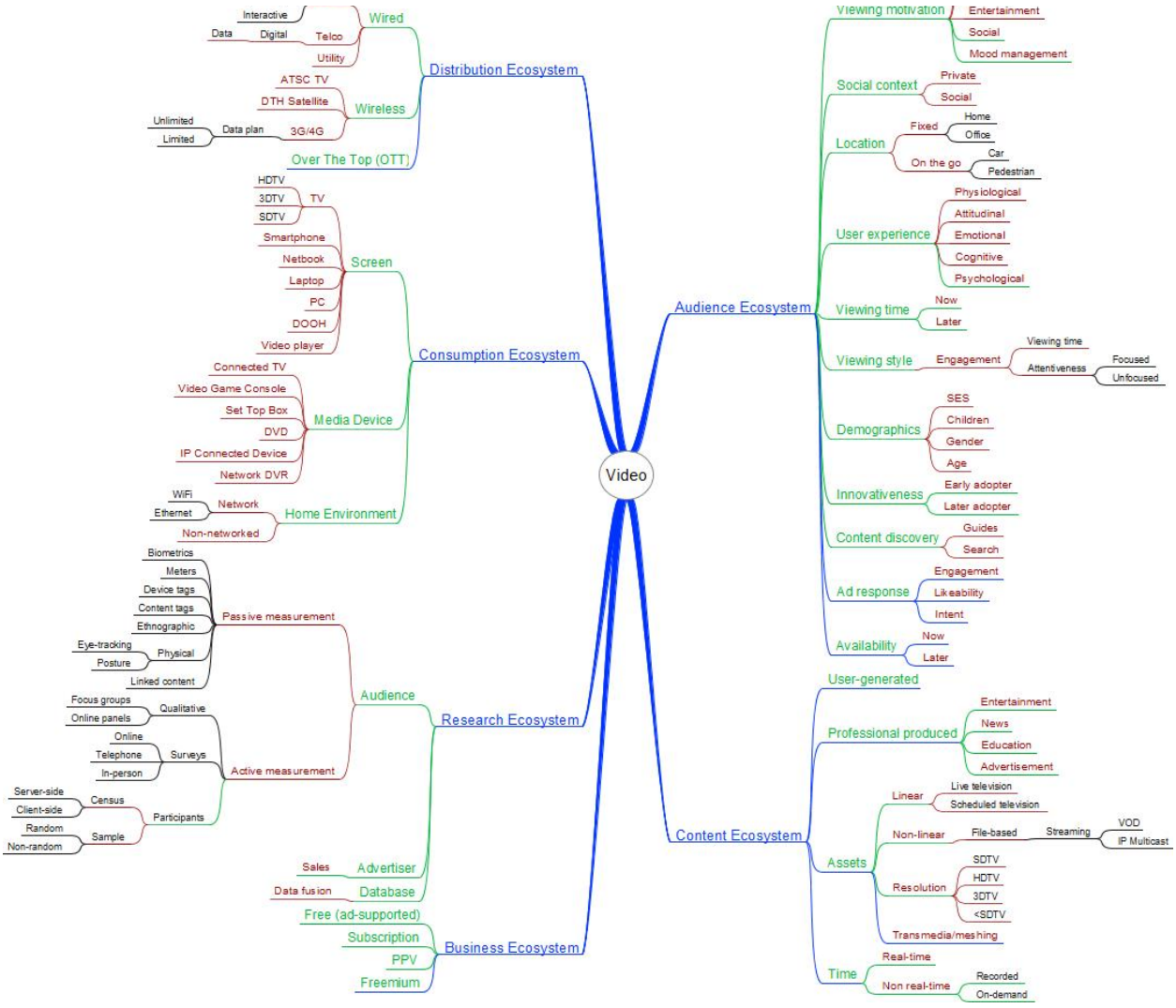
There are over 25,000 words and images in this document which seeks to answer five research questions about the video ecosystem. We distilled key words, images, concepts and findings from millions of words representing the discursive space of semantic meanings and distinctions found in the complexity our domain of inquiry – human interaction with video media. The cloud of words used in this document, hopefully, have some shared meaning with the reader. Some words may be clearer than others, such as "video" but even that can be unintentionally ambiguous. Is a video image in pause mode a video or a still? Other words such as "engagement" intentionally have different meanings based on their operationalization in research designs. For example, "engagement" can be measured as a function of how long a video is viewed in minutes. Or "engagement" might be measured by user responsiveness to interactive stimuli.

If we were to be so bold as to suggest that one picture could be worth 25,000 words, we would refer you to the image Figure 1. This image was produced by Wordle (www.wordle.net) a tool that generates word clouds from text. Words appearing more frequently are scaled to a larger size. Some might argue that indeed, they would be better off simply looking at this single picture rather than struggling through our granular word cloud.

Figure 1. Word Cloud of this Document

"Video" is a critical concept. As we have shown in our summary of academic and industry research, it is a very complicated phenomenon to study. If we may borrow some biological constructs, we view "video" as the keystone species of a set of interrelated ecosystems. We can use a set of specific words, a taxonomy, that have logic, order and interrelationships to describe the video ecosystems and the constituent ecosystems it comprises. We depict this taxonomy graphically in Figure 2. This taxonomy is developed from our review of the research summarized here and from the collection of terms we pulled out of this review in Appendix: Selected Terms.

Figure 2. Video Ecosystem Taxonomy



In this Video ecosystem taxonomy, we place "Video" at the center and depict six constituent sub-ecosystems we observed in the academic and industry research: Distribution; Consumption; Research; Business; Audience and Content ecosystems. The studies we have analyzed in this report involve variables from one of more of these video ecosystems. We certainly do not hold this taxonomy out as a comprehensive representation of the matter – that would be a project in and of itself. Our purpose here

is to reduce the complexity of a body of research to a logical structure that can be viewed conveniently to assess relationships, distinctions and logical ordering. What we present here is just a first step.

Information architects and taxonomists are finding employment in the increasingly complex data environments of major organizations seeking to order their data, metadata and digital assets.[1] This too could be a productive endeavor for video researchers seeking to develop a structure for their inquiry and to share findings in meaningfully related ways.

We did not find much prior work in video ecosystem research related to taxonomy creation. Guillory (2006)[2] argued that,

> Current mass media and communications studies are diligently analyzing the "new media" trend of "convergence" – that is studying how print media are interacting with broadcast media, and how both are attempting to integrate themselves ion the "new media" world of online electronic media. Before analyzing the trend of "convergent" media, we need to first establish a common vocabulary of the components of media. Without this common and defined vocabulary, we cannot accurately point to any type of media and describe it as cooperative, convergent or confusing (p. 3).

Guillory developed his typology as represented in Table 3 to consist of four dimensions: Content; Temporality; Iterations; and Customization.

Table 3. Guillory's Converged Media Typology

CONTENT		TEMPORALITY	
Words (W)	**Visuals (V)**	**Static (S)**	**Moving (M)**
Text, either written or spoken; includes music (either sheet or aural)	*Still or moving images in artistic, iconic, or photorealistic form*	*Fixed in time/space; use of the media does not require it to change*	*Motion through time/space is necessary for the understanding & usage of the media*
ITERATIONS		**CUSTOMIZATION**	
Live (L)	**Recorded (R)**	**Interactive (I)**	**Directed (D)**
Media is created concurrent with its usage	*Recreation of previous event that can be re-used as a later time*	*User may change the experience and customize it to suit own interests/ paths/ choices*	*User feedback is negligible or non-existent*

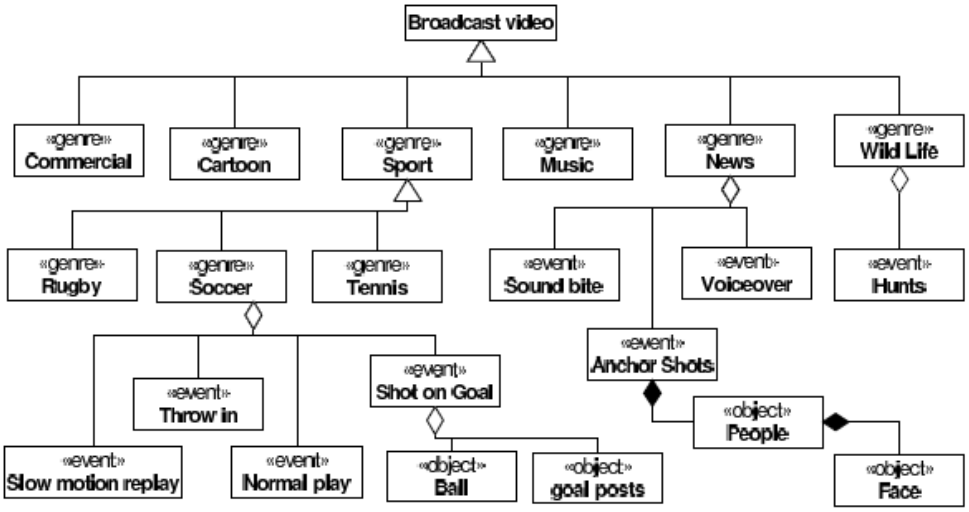
Source: Guillory (2006), p. 12.

Rao's work[3] focused on developing a typology of television programs based on viewing time and a number of audience variables in a factor analysis to come up with ten dimensions of program types: ABC; CBS; Movie; Adult Entertainment; Western; Family Entertainment; Adventure; Unrealistic; Sin.

[1] See for example, Bock, Geoffrey, E., (2004), "Mapping Words for an Enterprise Taxonomy: How Wordmap Manages the Terminology of an Organization," Wordmap, Limited.
[2] Guillory, B. (2006). Media typology and its use in defining convergence. *Conference Papers: International Communication Association.*

Other attempts to develop taxa related to video ecosystems include work by Roach et al. (2002)[4] and Rao (1975). Roach focused on the video assets themselves in their schema as shown in Figure 3.

Figure 3, Roach et al. Video Taxonomy (2002)



While these other attempts to develop a conceptual schema and taxonomy for adding structure, logic and consistency to mapping words and relationships, we see that there is more work to be done both to combine these kinds of efforts and to evolve them.

What larger solution would be an appropriate goal for this type of effort? Here we refer the reader to Figure 4 which depicts one view of overall information architecture.[5] As you can see, the "taxonomy" is a core component of information architecture but this requires several other elements.

- Within the taxonomy module, we need to include specific vocabulary with operational meanings. In the report, we highlighted a number of key terms (see: Appendix: Selected Terms) we see as recurring in the research literature. Additionally, there have been some excellent industry efforts to develop glossaries with key terms and common definitions.
- One example of a formal lexicon is the work by the Coalition for Innovative Media Measurement (CIMM, 2010) to create a common language to facilitate the adoption and application of Set Top Box data across the industry.
- Another core module is the notion of "Standards and Guidelines." Two examples of work in the area are:

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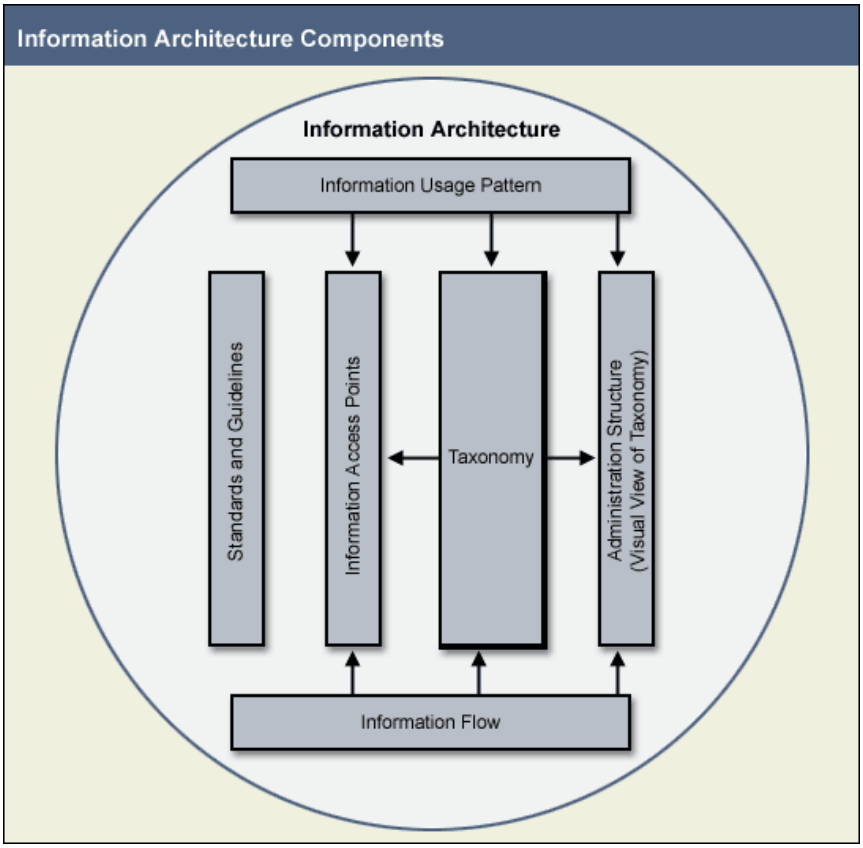
[3] Rao, V. (1975). Taxonomy of television programs based on viewing behavior. *Journal of Advertising Research, 12(3)*.

[4] Roach, M., Mason, J., Xu, L, & Stentiford, F. (2002). Recent trends in video analysis: A taxonomy of video classification problems. *Proceedings of the International Conference on Internet and Multimedia Systems and Applications.*

[5] Guest Contributor, (2003), "Understanding Information Taxonomy Helps Build Better Apps," *TechRepublic*, June 25, 2003, http://www.techrepublic.com/article/understanding-information-taxonomy-helps-build-better-apps/5055268, viewed May 8, 2011.

- Council for Research Excellence: "Methods for Measuring the Digital Audience"[6] is a project designed to examine how various digital publishers capture and maintain user data and to understand the role this data can play in supplementing research panel data to augment audience measurement.
- Interactive Advertising Bureau: "Audience Reach Measurement Guidelines[7] designed to, "achieve transparency in audience counts and to revise out-of-date methodologies."

Figure 4. Information Architecture Components



Other key aspects of information architecture include the "information usage pattern"; "information access points"; "information flow" and the administrative structure of a visual view of the taxonomy (for example, see our Figure 4.

[6] See: http://researchexcellence.com/news/021011_RFPdigital.php, viewed May 8, 2011.
[7] See http://www.iab.net/iab_products_and_industry_services/508676/guidelines/audiencemeasurement, viewed May 8, 2011.

Part 5: Summary of Findings

Having taken our tour through a large body of academic and industry research, how well have we fared in developing answers to our five Research Questions? Here we will attempt a high level summary of what we think we know. In the next section, we will consider what we do not know.

Our efforts in this report to review and summarize the state of knowledge regarding the relationship of the audience to video media in its various forms spanned both industry and academic research. We focused on more recent industry research as even findings from as recently as several years ago are not very useful as the cross-platform media ecosystem drastically changes as functions of technology adoption and use by both consumers and industry.

RQ1: What drives the choice of screen for the consumer?

Our conclusion is that the research supports two sets of factors driving the choice or choices of screens by consumers: **Best *screen* available and Best *function* available.**

Best Screen Available

The "best screen" is not just a technology choice but a multidimensional choice. In other words, if two screens are physically available – a large, HDTV, flat panel screen and a small smartphone screen with the same content available at the same time, the bigger screen is not necessarily the "best" screen.

Some of the "best screen" factors in determining consumer choice of screen include:

- Device technology – battery life, bandwidth, signal availability are limiting or enabling factors.
- Picture quality – for some uses "fair" is good enough. For others, users will seek the highest quality screen.
- Physical location – in some contexts a smaller screen may be preferred to a larger screen. For example we saw in the Harris Interactive (2011) research that in the workplace some consumers preferred the smaller screens on their mobile phones for watching content in "stealth mode" whereas a bigger PC or other screen might have attracted the boss' or co-workers negative attentions.
- Social circumstance – a person may be socially obliged to co-view with, e.g., a family member or friend but actually prefer to watch something else which they could do on a mobile or portable viewing device to support co-viewing experiences.
- Multiscreen content experience – sometimes the choice of best screen involves choosing more than one screen.
- Content availability – sitting in the family room with a huge 3DTV which offers a compelling viewing experience may be passed over in favor of content only accessible via Amazon or Netflix which require a connected device that may offer the "best screen" because it is the one that content can be viewed on.

- Viewers are generally loyal to content rather than to medium. Perhaps the iPad will change this in some way, but content will remain a significant factor in screen choice.

- What is the role, if any, of social utility in user choice? Viewers may choose content that gives them something to talk about with friends or co-workers. This social utility could play out in face-to-face interactions or in online interactions.

- Economics (e.g., data plan) – Different screens have different business models associated with them. In a tough economy and for other reasons, the trend of "cord cutting" or cancelling cable and satellite subscriptions in favor of cheaper "over the top" and "over the air" video services may dictate certain screen choices.

- User experiences and expectations – is one technology perceived as better than another for specific uses? Does audience perception match industry perception?

Best *Function* Available

- What's on versus what do I feel like watching. Choosing between two or more screens may be dictated by what the consumer feels like watching and how that drive can be satisfied by the comparative ecosystems around each screen. For example, on a connected device access to a powerful video search engine with Boolean, sentiment filtering and semantic analysis tools may provide consumer utilities in finding the content they feel like watching rather than doing laborious electronic guide search for what's on.

- Is the viewer passively "defaulting" to whatever screen is most convenient; or is the viewer actively seeking out a particular experience?

- Users are drawn to multiple screens across platforms because screens and devices are not totally fungible in terms of functionality, ease of use, access to and control of content. Some content, e.g., sports and games, may prove most engaging by using multiple screens and devices in a cross-platform user experience.

- Different use cases drive different screen use. Research on a very interesting demographic group that Microsoft tagged "Mobile Moms" showcases a leading edge set of innovative behaviors around the adoption of multiple screens and services. As this group shifts across "use cases" ranging from "entertaining the kids" to scheduling events and communicating in social networks, the appropriate screens are more function-driven than size-driven. Even with the same content, a compelling use case is the ability to follow the same content across platforms and screens in a lifestyle-driven function. A user may start their morning routine with their local television station to get the news, traffic and weather. Rather than losing this in the transition to commuting to work, users may be able to continue that content engagement in the car with a different set of technologies and screens. Once at work, the experience can again be extended using yet another set of technologies and screens. We expect to see more of this.

RQ2: How does viewing vary with chosen screen?

Viewing does vary by screen. Here are some of the generalizations we have developed.

- TV gets the lion's share of time across all groups. While different screens do attract viewing, as a baseline we note that a tremendous body of research supports the simple conclusion that TV is king.
- We reiterate Ericsson ConsumerLab's finding that, "TV/video viewing is fragmented and complex; few established consumption patterns; trial and error market with lots of curiosity around." Indeed, we believe that whatever we think we know about multiscreen behavior is bound to change.
- Focus vs. unfocused viewing is associated with different screens to some extent. Video gaming is highly focused and requires a screen connected to a game application and probably a connected device (i.e., connected to the Internet).
- Planned vs. unplanned viewing is a predictor of screen choice in viewing. Home TVs predominantly are used for planned viewing use cases such as relaxing at home after work, dinner and perhaps kids are put to bed. Viewing news, traffic or just killing time while waiting in line is more associated with mobile screens. Exposure to digital out of home screens also is an unplanned viewing activity.
- When users have more than one screen open at a time, whether on the same device or cross-platform, they are likely to pay more attention to one of them than to the other(s).
- Live vs. on-demand viewing distributes differently across screen types. Large, high-resolution screens are preferred for live viewing, i.e., viewing "live" television content, including news, sports, entertainment.
- Cross-platform content experiences, by their nature, are predictive of choosing multiple screens.
- Long-form vs. short form clip viewing can be associated with different screen choices. Until recently, smaller and mobile screens were more predictive of short form viewing (e.g., user generated video clips on YouTube or produced content in the form of movie trailers, etc.). However, this distinction is eroding over time.
- Engaged vs. relaxed viewing is where we still see some distinctions in viewing and screen choice. We see this to some extent as an artifact of the technology capabilities of Internet connected versus unconnected devices and associated screens. Connected devices and screens support more engaged functionality but tend to be smaller screens at this point.
- There is a tendency for viewers to watch the same programs across screens. So, for example, users will catch up on missed episodes online. This means they might watch more episodes of a series than they would if the series were only available on the big screen. Viewers appreciate content providers who make their content available across screens.

- The phrases people use can express their perception of a viewing experience. They "watch" television," but they "go to" websites. Younger people talk about "hanging out" at websites.

RQ3: What vocabulary and methodology is needed for understanding viewing style?

The discovery and study of viewing styles requires **multivariate** and **multi-method** approaches to understanding both main effects and interactions. We comment further on this in "RQ4: Context of Use – Complementary, Additive, Both" and" Part 6: Future Directions." In particular we discuss the multi-trait/multi-method matrix. We also offer our collection of terms from our review of the research in our, "Appendix: Selected Terms."

Different researchers come up with different labels for viewing styles and demographic groupings. Here's brief set of illustrations.

Viewing Style Examples:

- **Mobile Moms** – on the go viewing integrated with other scheduling, social networking and communication functionalities.
- **Live TV**- event-driven viewing organized around viewing of specific, real-time, scheduled events, e.g., *American Idol* in its first run or the Super Bowl.
- **Personal Viewing** – smaller screens, different content, different motivations and gratifications and different expectations for screens and related functionality exist for audience members viewing alone versus in groups of two or more.
- **Social Viewing** – mobile video is less suited to social viewing than larger screens. As technology evolves the notion of "social viewing" is something we believe will extend to virtual networked viewing, much like networked game players engage in the same content. Networked social viewing use cases might include a live television network program viewed while collaborating with other viewers via a social network platform such as Facebook.
- **Engaged Viewing** is defined variously, or as one of our academic interviewees commented, "There are at least 25 definitions of engagement." Most often the "engaged" viewing style is defined as a matter of length of viewing. Longer time spent viewing is more engaged viewing. In other cases, the engaged viewing style is evidenced by user behaviors such as selecting specific content; making specific responses to content; exhibiting different levels of attentiveness or biometric responses.
- **Engaged Viewing** can also be expressed as cognitive involvement, active participation and emotional connectedness. As a function of content, it is often related to specific elements of narratives. The literature emphasizes the centrality of characters in building this form of

connectedness. The concept has often been measured as time spent with media, although psychological or physiological measures are also incorporated in some research studies.

- **Availability** is a determinant of viewing style. This construct of "availability" has several dimensions - including time, location and content - and can be considered from the perspective of the viewer or the technology. Viewers' "availability" depends on other demands in their lives, and is generally described as time they could spend with a medium of entertainment and/or information. For most of television's history, viewer location has been an assumed dimension of availability because televisions were only present in certain spaces. With the spread of mobile technologies, however, location becomes less and less significant as a dimension of audience availability. Instead, the focus shifts to the presence or absence of the right technology at the right time. The potential viewer can be physically located practically anywhere. Along with this shift comes the question of content availability – can this viewer, with the time and inclination to seek media content – access what s/he wants from the available technology?

- **Behavioral styles** of media consumption can also be variously described as ritualistic versus instrumental or habitual v. intentional. Viewers who consume media by habit are generally more medium-oriented. They will use whichever technology they can access. Instrumental viewers, on the other hand, are content-oriented. They will seek out the content they want or need, and will use whichever medium gives them access to that content.

- **Active/Passive** viewing styles may seem easy to define, but they are complicated by a multi-screen environment. Is an active viewer one who processes the messages of video content? Interacts with other fans online? Actively seeks out specific content? Uses multiple platforms to access preferred programs?

- Connectedness is a function of video content, especially compelling characters in a narrative. Viewers will follow these characters across platforms to learn more about them and to experience entertainment through parasocial interaction.

RQ4: What is the context of use across various screens – is it complementary, additive or zero-sum?

- The overwhelming consensus we observe in the research reviewed is that as more video media screens and options are offered to audiences, they "just say yes."

- Multi-screen use is complementary not cannibalistic.

- Heavy users of one medium (e.g., TV) are heavy users of other media (e.g., Internet, gaming).

- Different types of user experiences, forms of engagement encourage multiscreen use versus choosing one screen over another.

- Even single screen use adds to time spent and frequency of use for both traditional media and new media.

- The persistent expectation among many in industry that audiences necessarily must make trade-offs among media is not a phenomenon supported by strong evidence.

- In fact, the notion of "time" is far more elastic than we tend to allow when it comes to media consumption. Time, while finite in a linear sense, becomes more fungible in practice when we consider "media time."

- To use a bit of poetic license, we conclude that unlike the world of quantum physics[8] where two bodies cannot occupy the same space at the same time in the same state; in the world of media, two screens can occupy the same space at the same time, at least in the viewing experience. The quality of attention given to each screen, however, is a matter for future research.

- Video media usage is *complementary and additive and neither zero-sum nor subtractive*. In other words, usage is not "either/or," it is "because/and."

- Audiences extend their "media day" in both *linear* (adding real-time consumption by spending more hours of the day with media) and in a *non-linear* (multi-tasking by viewing more than one screen simultaneously) dimensions.

- The evidence supports the conclusion offered by Enoch and Johnson (2010) in their summary of research finding that, "additional media use had no effect on the amount of TV viewing or Internet usage. Rather, additional media use was incremental, and the more platforms a group consumed, the greater their total amount of media use."

- At the moment, as Enoch and Johnson (2010) observe, it becomes challenging to offer global statements about "the video media audience" as this audience fragments into specific cells of media by content, by screen, by viewing context, by motivation, etc. These cell sizes are individually small but vital in the aggregate. To understand where the industry is headed, we need to understand both the nature of the individual cell break-outs and their trajectory in the marketplace.

[8] Here we make reference to the "Pauli Exclusion Principle" which basically states that, "that no two fermions may exist in the same quantum state" (see e.g., http://adsabs.harvard.edu/abs/2000eaa..bookE4896., viewed May 8, 2011). This has become popularized to as the axiom that "two bodies cannot occupy the same space at the same time."

- Media use is embedded in the complexities of everyday life. No two video devices have exactly the same benefits or satisfy exactly the same needs.

RQ5: What methodologies are best at getting at these uses?

Researching cross-platform video media requires multiple methodologies depending on the nature of the inquiry and questions to be answered. In the summary table below (Table 4), we present the various research methodologies that tend to be used in relation to the time of media exposure. This could be useful as different research objectives are developed for different points in time relative to media exposure.

Table 4. Research Methodologies for Cross-Platform Video Media Research

User Experience (UX)	Measures	Methods
Pre UX	• Intended media use • Awareness of options • Emotions • Uses and gratifications sought (Expectations) • Perception of medium	• Online panels • Surveys • Focus groups • In-depth Interviews
During UX	• Time spent • Frequency of use • Engagement • Cross-platform use • Emotions	• Digital census (devices) • Online surveys • Neuroscience/biometrics • Ethnography/in-depth interviews and observation
Post UX	• Purchase intent • Recall • Recognition • Memorability • Favorability • Satisfaction of Expectations • Complementary use of additional screen to connect with others or delve deeper into narrative elements	• Focus groups • Online panels • Surveys • Single source surveys • Data fusion

Part 6: Future Directions

In light of expert interviews, review of the academic and industry literature and our own further thinking and analyses, we offer these seven recommendations to the Council for Research Excellence. We believe these recommendations will drive towards and support the CRE's continued effort to improve audience research.

Recommendation 1: Build from taxonomy to an information architecture

We presented our efforts to build a taxonomy representative of the various ecosystem nodes and constituent components (see: Part 4: Towards a Video Ecosystem Research Taxonomy). However a video research taxonomy is only part of what is required to be of most use to industry and academia. Fully developed information architecture is an information technology solution combining a database, user interface, taxonomy and a logical structure that is represented in a software application that reflects the business processes and workflow inherent to user requirements and functional specifications. We believe the industry needs to build an information architecture.

This is an initiative that would be wonderful for the Council for Research Excellence to undertake on behalf of the research industry. There are a number of excellent but disparate industry initiatives, documents, committees and solutions available or in development which generally relate to information architecture. In our opinion, information architecture should be developed for video screen and cross-platform research and made available in a cloud-based solution that would be available on an open community and collaborative basis. This resource, if properly designed, developed and maintained would have tremendous value for both industry and academic researchers.

Recommendation 2: Cross-platform media use cases require cross-platform metrics

For the marketplace to evolve successfully, we need consensus on the cross-platform metrics the industry requires and will use to understand cross-platform media use, engagement and effectiveness.

Enoch and Johnson (2010) argue that as complicated as the interfaces of technology, content , audiences and business models become; it all really boils down to several conceptually simple research requirements. They argue we just need three key cross-platform metrics: (1) *how many* people engage in the behavior; (2) *how often* do they engage in the behavior; and (3) *how long* do they spend with the behavior? Uyenco and Kaplan (2010) extend Enoch and Johnson's propositions by adding the critical element of advertising *effectiveness.* As they put it, "a major stumbling block for web video is the inability of the biggest TV advertisers to make a direct comparison between the effectiveness of TV and the effectiveness of an equivalent buy online." Gosschalk (2011) concluded that, "online video is the most engaging way to reach a mass audience. But industry players seem tentative to make the most of the opportunity online video presents. Visibility and transparency in the marketplace are needed to breed confidence."

There are many ways to operationalize engagement and effectiveness and appropriately so as different problems are being addressed in the research. However, an industry repository of core terms, methods, and operationalizations of cross-media and cross-platform metrics will advance industry efforts to compare and contrast cross-platform media use, engagement (to the extent "engagement" measures are distinct from "use" measures) and effectiveness.

Recommendation 3: Multi-trait-multi-method matrix approach needed

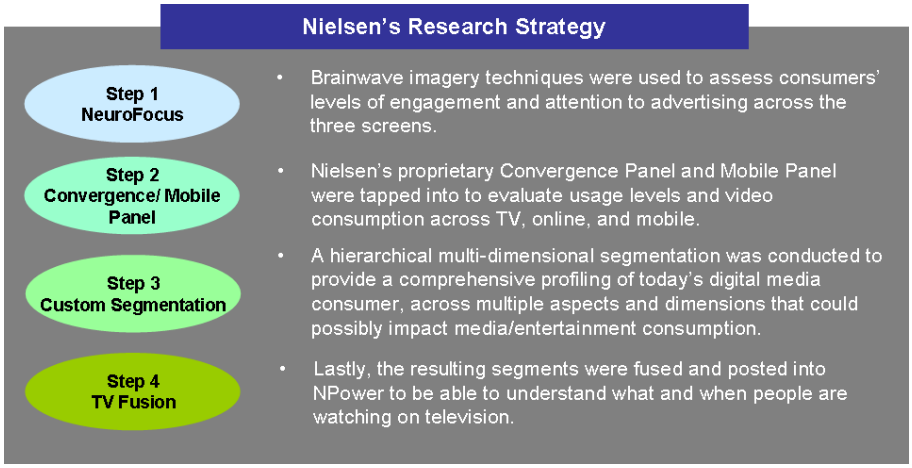
The relationships among audiences, media and advertising are enormously complex and multidimensional. No one research methodology can be expected to fully capture the richness and texture of human interaction with information media technologies. This actually is a classic research problem discussed in some detail by Campbell and Fiske[9] who essentially say, it is best to measure things different ways (i.e., different methodologies, different constructs and operational definitions of variables) to feel confident that researchers are developing reliable and valid conclusions.

Without a multi-trait/multi-method matrix approach in our research, we are at risk of compromising validity in our understanding of people and video media. To paraphrase Stephen Jay Gould, there is a "glorious strangeness" about the way people interact with video media and this is difficult to capture in single method research designs. In his book, *Wonderful Life*[10] Gould talks about the challenge of understanding what prehistoric life forms must have looked and acted like based only on fossil evidence from the Burgess Shale. He cited the work of researchers who developed, "a most important and painstaking procedure for reconstructing a three-dimensional animal from the invisibly thin layers crushed together in a two-dimensional fossil. And for the first time, they really ''see'' these creatures in all their glorious strangeness."

At the moment, the closest we can come to a multi-trait/multi-method matrix probably is single source data and/or data fusion. Frankly, one of the most interesting embodiments of a multi-trait/multi-method approach was the type of work described in CTAM (2009), "A hierarchical multi-dimensional segmentation model was also conducted during this phase to more comprehensively explore the distribution of digital media consumers within the 'three screen' marketplace'" (p. 23). The CTAM approach using Nielsen's research strategy is summarized below in Figure 5 (CTAM, 2009, p. 23).

[9] Campbell, D. and Fiske, D (1959), "Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix,: *Psychological Bulletin*, 56(2)..
[10] Gould, S. (1989), *Wonderful Life: The Burgess Shale and the Nature of History*.

Figure 5. Example of Multi-Trait/Multi-Method Matrix Research by Nielsen



Recommendation 4: "Linked Content" research needed to better understand the evolution of video and social media

Rather than each media platform being treated as a separate bucket in a marketer's media mix strategy, increasingly the more complex problem to be solved is how a creative execution can be designed, implemented and measured cross-platform. Rather than just a consideration of whether campaign media exposure is additive; the essential issue now is how these campaigns *are interactive and amplified cross-media*. Roy (2011) really get to this in his work. As he says:

> At scale, organizations become blind to the semantic links that bind conversations to their source. This semantic barrier forces organizations to treat mass media and social media in silos. As the volume of social media conversations grow exponentially, so does the scale of the semantic barrier. Audiences, of course, don't contain themselves to any such silos. This disconnect poses a threat to the very heart of how organizations will in the future effectively, efficiently, and responsively communicate with their audiences.

As media become "social" and collaborative from the users' perspectives, this adds an important new dimension to the audience engagement and to the assessment of the effectiveness of media cross-platform. We need to understand this better.

Recommendation 5: Business models need to be better informed by research

In retrospect, we would have added a sixth Research Question to our study and recommend this be pursued in future work.

We would have phrased Research Question 6 along these lines: *What is the interaction of use cases, audience behavior and business models cross-platform?*

Network Strategy Partners (2010) phrased this well, "New more sophisticated pricing and business models are needed for profitable delivery of web video services. One element of this is the two-sided

telecoms business model that promotes the creation of open platforms that helps other service providers (enterprises, SMEs and government) interact with subscribers in more efficient ways than they can today." This is an important industry need that research can help inform.

Recommendation 6: Search, discovery and selection – finding useful interfaces

As the video media environment evolves, users expect the inherent complexity of finding content, using technology to experience the content when and where they want, and doing this on devices and platforms that are simple and effective. To date, there is no such implementation for empowering users with effective content curation and navigation. Google's well publicized attempt to present such a cross-platform and cross-media unified user solution did not meet with initial success.[11]

The "ultimate user guide" may not be a single implementation but generally a guide needs to amplify audience abilities to search, discover and select content wherever it is and however it is presented to them. Understanding how to best do this is an open ticket for industry and academic researchers. How to actually design and implement this solution is yet another challenge as Google has discovered. Relating to our earlier point about "linked content," we also commend to content guide researchers the point that Scherf (2010) makes, "as guides become more interactive, we can expect to see convergence between social networking communities and guide delivered recommendations."

Recommendation 7: We need to think about research on an "Internet scale"

We need to rethink what is possible in research. The kind of thinking Roy (2011) brings to the media research party really opens up new possibilities for media research and commerce for that matter.

Sample survey research whether cross-sectional or longitudinal is a very useful methodology for investigating some aspects of the video media experience. The limits of research designs, respondent participation, random and non-random error sources and sampling error around statistical projections to the populations from which samples are drawn are constraining.

The availability of census data on devices; content and behavior (e.g., Set Top Box return path data; server-side data on streams served; content tags, credit card transactions, etc.) and the ability to process these data in a relevant time frame provides an overwhelming opportunity to develop an integrated view of the relationship existing among audiences, advertisers and cross-platform media.

We must build toward the day when the "Internet of things" is a practical reality and figure out ways to leverage all these data into useful forms for supporting media industry decision making. The world is becoming populated with devices, sensors, tags, objects, assets and other things that both have an Internet address and generate data. We need to figure out how to use these data efficiently and productively. This ties back to our call for an overall information architecture in video media research.

[11] See e.g., Sandoval, G., (2011) "More bad news for Google TV," *cnet News*, http://news.cnet.com/8301-31001_3-20058570-261.html?tag=topStories3, viewed May 8, 2011.

McKinsey & Company[12] summarizes the notion and implications of the "Internet of things: nicely:

> But the predictable pathways of information are changing: the physical world itself is becoming a type of information system. In what's called the Internet of Things, sensors and actuators embedded in physical objects—from roadways to pacemakers—are linked through wired and wireless networks, often using the same Internet Protocol (IP) that connects the Internet. These networks churn out huge volumes of data that flow to computers for analysis. When objects can both sense the environment and communicate, they become tools for understanding complexity and responding to it swiftly. What's revolutionary in all this is that these physical information systems are now beginning to be deployed, and some of them even work largely without human intervention.

Final thoughts

These findings and recommendations contain insights that may be useful in both similar and unique ways for media executives, researchers and advertisers. The major research challenge is understanding the User Experience cross-platform, which means identifying consumption and engagement outcomes related to individual platforms as well as further interactive effects of the user experience across these platforms. Whether simultaneous or sequential; cross-platform media use opens up opportunities to reach audiences in new ways and, ideally, with greater impact. As we suggest here, more research and new types of research will be necessary to better understand the cross-platform user experience as technology and business models continue to change the options available to consumers. A complete picture of adoption and use patterns will require, as this study shows, qualitative as well quantitative methods.

[12] Chui, M. Löffler, M. and Roberts, R. (2010), "The Internet of Things," *McKinsey Quarterly*, http://www.mckinseyquarterly.com/The_Internet_of_Things_2538, viewed May 8, 2011.

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Appendix: Selected Terms

Term	Descriptions and Examples
Ad quality	• Measure of ad relevance. • Measure of how relevant the keyword is to the ad text and to a user's search query.
Analytics	• Data analysis
App phone	• Mobile or cellular phone that supports an operating system that can run software applications including web browsers.
Audio signature	• Acoustic waveform characteristic, e.g., of the sound track from a program segment.
Behavioral ad effectiveness	• Measured relative change in brand awareness, favorability, intention to purchase.
Best available screen	• Term of art implying that when given a choice of two or more screens, consumers will default to picking the "best" screen; usually considered the be the biggest and highest resolution display.
Biometrics	• Innerscope's biometrics o Heart response – approach/avoid o Skin conductance – arousal/excitement o Respiration – boredom, tension, humor o Movement – orientation o Eye tracking – attention & processing • Skin conductivity (a measure of pure emotional arousal) • Respiratory response (breathing rate, • changes in patterns of breathing) • Heart rate and heart rate variability • Motion (changes in body posture)
Bookmark	• User-definable tag on a web page or guide interface.
Browse	• Search strategy that relies on paging through content listings rather than seeking specific content.
Cannibalize	• Adding viewing to one source and reducing viewing to another source.
Catch-up TV	• Viewers who miss part or all of live TV programming can use DVR or

Term	Descriptions and Examples
	VOD technology to watch missed programs or segments.
Census	• Server-side data collected from all devices, pages viewed, resources requested.
Click-through	• User selection using a hyperlink.
Clickstream	• Sequence of user clicks through one or more websites.
Cloud	• Computer software, applications, infrastructure, storage and services provided on a virtual basis through the Internet.
Completion rate	• Videos watched from start to finish
Convergence	• Simultaneous use of media
Cord-cutter	• Multichannel video service subscribers who cancel their premium and/or basic services and receive programming via the Internet.
Cross media GRP	• Gross Rating Points measuring combined audience viewing of specific content across platforms.
Cross-screen media experience	• Also referred to as "transmedia" and "synched content" this occurs when viewers consume related content simultaneously on different screens.
Data fusion	• Linking two databases to develop an augmented view of the audience. For example, linking a credit card transactions database with audience viewing using common fields such as zip code, age or gender.
Distribution platform	• Access network delivering content to end user such as direct-to-home satellite; cable; telco, over-the-air; Internet.
Downloading	• User requested files transferred from remote server to local device.
Dwell time	• Number of seconds a person is exposed to an ad during a flight.
E-commerce	• Buying movies, TV programs or other products and services online.
Effectiveness	• Lift (sales, recall)
Emotional engagement	• Biometric or self-reported measures of program or commercial content of user levels of involvement.
Engagement	• Minutes watched per viewing

Term	Descriptions and Examples
Engagement Quotient	• Measure of viewer involvement with program or commercial content.
Feature phone	• Mobile or cellular phone that does not have an operating system that runs software applications or Internet browsers.
Focused/unfocused viewing	• Biometric (e.g., eye tracking); self-reported; clickstream or observed behavior of viewer's interaction with content.
Fusion data	• Individual surveys statistically combined into one dataset. Examples: Nielsen Connect Fusion; Nielsen TV + Nielsen Online; Nielsen Mobile; MRI, CPG (Nielsen HomeScan).
High-intensity media consumer	• Engagement, focus, etc.
Highly flexible content	• Requires the need to already be established. The content or advertising then supports this need. Examples include the Internet, smart phones, headline news, and Amazon.com. The outcome of flexible content is to enable us to experience ourselves and satisfy need states that already exist.
Highly immersive content	• Substitutes the viewers' emotional state with the emotional lives of the onscreen characters. If those characters need a product, the viewer feels that same need. Examples include television, movies, IMAX, dramas, and events like the Olympics. The outcome of immersive content is to enable us to experience others and generate need states that previously did not exist.
Imitation effects	• Users see others using technology and want it for themselves
Initial Audience Retained	• IAR=audience that viewed whole ad/audience at beginning of ad
Internet scale	• Online tracking metrics
IPTV	• Internet Protocol Television
ITV	• Interactive Television
Lean back	• Relaxed viewing style associated with large screens and linear content.
Lean forward	• Involved viewing associated with smaller screens such as PCs and interactive content such as video games.
Linked/Unlinked Responses	• Linked responses include data and metadata which are joined at the user level (e.g., user selects a particular VOD movie). Unlinked responses refer to e.g., user viewing data and separately user

Term	Descriptions and Examples
	posting on blogs or social networks which are not joined back to the viewing data.
Lift	• Differential measures of brand or message recall; sales increase in comparing ad messages or campaigns.
Live pausing	• Using DVR-like functionality to record a program in progress and then restart the program viewing after a brief delay (e.g., getting a drink from the kitchen and returning to viewing).
Longitudinal	• Time series or repeated measures research design.
Long tail	• Relative popularity of content; highly popular content is the left side of a frequency distribution curve plotting, e.g., number of times particular content is requested or viewed. The right side of curve extends out on the X-axis but its magnitude approaches zero as the content popularity decreases.
Media meshing	• Extending content experiences cross-platform.
Neuroscience	• Biometric and physical measurement science.
On-demand	• User selected content when they want to view it rather than at prescheduled times.
Online	• User session on the Internet.
OTT	• Over The Top – video service provided "over the top" of another providers broadband data facilities; e.g., watching Netflix movies over a broadband data connection from a cable provider.
Page tags	• HTML metadata codes, tags and label in web resources such as HTML pages, images, videos.
Passive measurement	• Does not requires active participation from the audience members; e.g., use of meters, clickstream data or other such data collection system.
Passive TV	• Does not require user interactivity.
Platform agnostic	• User preferred content which can be viewed on any convenient or available distribution platform.
Podcast	• Downloadable video program file.
Quality of Experience (QoE)	• User rated dimensions of programming service and associated

Term	Descriptions and Examples
	interfaces.
Referred video traffic	• Using search engine to discover content; find content referred to on another source.
Return Path Data	• Set top box data collected from the device located in the home and polled and aggregated on the server-side.
Self-report	• User answers to diary, survey or interview questions.
Short tail	• More popular content. See "long tail"
Single source data	• One panel or survey measuring all data. Examples: Multimedia Mentor (Knowledge Networks); Nielsen Convergence Panel; IMMI; Media Behavior Institute (Ball State/Sequent Partners).
Smartphones	Mobile or cellular phones that support an operating system capable or running software applications and web browsers such as the iPhone.
Snacking	• Short form program clips or short viewing duration
Social media	• User collaboration platforms for sharing posts, videos such as Facebook.
Streaming video	• Video content served in real-time (as opposed to a file downloaded to be played out in non real-time).
Synched content	• Cross-platform content designed to be viewed at the same time.
Tablet PC	• lightweight, very portable and operated with a touch screen
Time shifted	• Recording real-time programming to be viewed at a later time.
Time Spent Streaming	• Measure of streaming consumption
Unique Views	• Aggregated number of times a content resource (e.g, video, web page) is viewed in one user session. One user may view the same content three times in one session which equals three views of the content but only on unique view.
Unify	• Census + panel data
User Generated Content	• Content created by the user, e.g, videos posted to YouTube.
Video-sharing	• YouTube, other video sharing sites

Term	Descriptions and Examples
Viewing styles	• Examples include: o Ambient Viewing: background noise enabling multitasking o Decompression: diversion for relaxing and passing time o Focused: keeping up with scheduled shows o Punch Line: short clips, shared among social networks o Sampling: exploring content related to interests