



**CRE QUARTERLY MEETING
SEPTEMBER 10, 2015**



OPENING COMMENTS, CERIL SHAGRIN



**ANA MASTERS OF MEASUREMENT
CRE UPDATE: RICHARD ZACKON**

WHAT AN EXHILARATING TIME FOR AUDIENCE RESEARCH AND MEASUREMENT!

CRE MEMBERS

CRE MEMBER COMPANIES



CRE MISSION

- > To advance the knowledge and practice of methodological research on audience measurement
- > CRE conducts research on research
- > CRE was established in 2005 and is funded by Nielsen

CRE RESEARCH COMMITTEES

- > Data Quality
- > Media Consumption and Engagement
- > Digital
- > Social Media
- > ROI
- > Big Data
- > Audio
- > Education

CURRENT PROJECTS

DATA QUALITY

- > A White paper on Data Validation: RTI International

Question: How do we know when to accept a new data stream?

- > Audio-Video Dual Measurement: Nielsen

Question: Can we improve local measurement by collecting TV and Radio data from a single, larger sample?

- > Evaluating ROI Marketing Mix Models: Sequent Partners

Question: How good are local data inputs?

CURRENT PROJECTS

UNDERSTANDING VIEWING

> An Ethnography of Video Consumption: GfK

Question: How are media actually being consumed?

> Video Platform Evaluation: Hub Entertainment Research

Question: How does viewing and its impact compare across platforms?

> Concurrent Usage across Platforms: GfK

Question: How do viewers navigate across multiple screens?

CURRENT PROJECTS ADVANCED TECHNIQUES

- > Bayesian Statistics: Hebrew University/U of Rochester

Question: How much do social media drive viewing?

- > Machine Learning Applications: Columbia University

Question : How well do ratings from one market predict ratings in another market?

- > Neuroscience: TBD

Question: How can neuro- and biometrics inform audience measurement

THE PACE OF CHANGE IS MIND NUMBING

- > Consumer technology
- > Distribution models
- > Business models
- > Content and formats
- > Consumer demographics
- > Audience behavior
- > Measurement technology
- > Data streams
- > Analytic tools

SOME THOUGHTS ON KEEPING UP AS A MASTER OF MEASUREMENT

- > Mastery is a practice, not a status
- > Continuous Retooling is not an option as tools grow obsolete
- > New tools are often of untested quality and value
- > We need to acquire new skills to use the new tools
- > The problem is not legacy systems but legacy thinking
- > To expand thinking we need to ask new questions
- > Collaboration expands points of view and breeds innovation

ADVERTISERS AND THEIR AGENCIES NEED TO ENGAGE MEASUREMENT MORE ACTIVELY

- > Come visit the website www.researchexcellence.com
- > If you are a Nielsen client, come join a CRE committees or the CRE board. Membership is without charge.



WHAT DO OUR COMPANIES NEED FROM AUDIENCE MEASUREMENT



WHAT ARE THE QUESTIONS CRE SHOULD BE ASKING FOR 2016 AND BEYOND



HOW HAS RESEARCH IMPACTED NIELSEN PRACTICE? CHRISTINE PIERCE

The Nielsen logo consists of the word "nielsen" in a lowercase, sans-serif font. Below the letters "i", "e", and "n" are three small white dots each, arranged in a horizontal line.

nielsen

DATA SCIENCE UPDATE

Christine Pierce
CRE Quarterly Meeting
September 2015



INSIGHTS TO PRACTICE UPDATE

Nielsen's Actions From CRE Projects

Influenced Nielsen Recruitment/Statistical Procedures

- > Video Consumer Mapping Study
- > NonResponse Bias Study & Response Bias Revisited
- > Media Related Universe Estimates Study

Served as Education/Input into Research or Strategy Plans

- > Evolution of Set-Top Box
- > State of Set-Top Box Viewing Data
- > Big Data Primer
- > Diary Market Ratings Analysis



HOW MIGHT CRE BETTER ORGANIZE ITSELF FOR EFFECTIVE ACTION?



LUNCH BREAK





NEUROSCIENCE, BIOMETRICS AND AUDIENCE MEASUREMENT, CARL MARCI



RESPONSE AND DISCUSSION, HORST STIPP



**NIELSEN AND THIRD PARTY DATA, LYNDA
CLARIZIO AND SARA ERICHSON**

An abstract graphic on the left side of the slide. It features a series of concentric, curved lines in various colors (red, green, blue, yellow) that form a partial sphere or dome shape. Several colored dots (yellow, green, purple, red) are placed on these lines, with thin lines extending from them towards the right, suggesting data points or connections.

STATISTICAL EVALUATIONS OF THIRD PARTY DATA

STATISTICAL EVALUATIONS

Key Data Quality Evaluation Criteria



CONSISTENT

Are there data anomalies?



COMPLETE

Are there gaps in coverage?



CORRECT

Are the data accurate ?

Looking for Potential Sources of Bias.
Bias is a **systematic** deviation from the true value.

EVALUATING DATA ANOMALIES



Data Usability Tests

- Missing records
- Inconsistent Reference
- Machine Generated Events

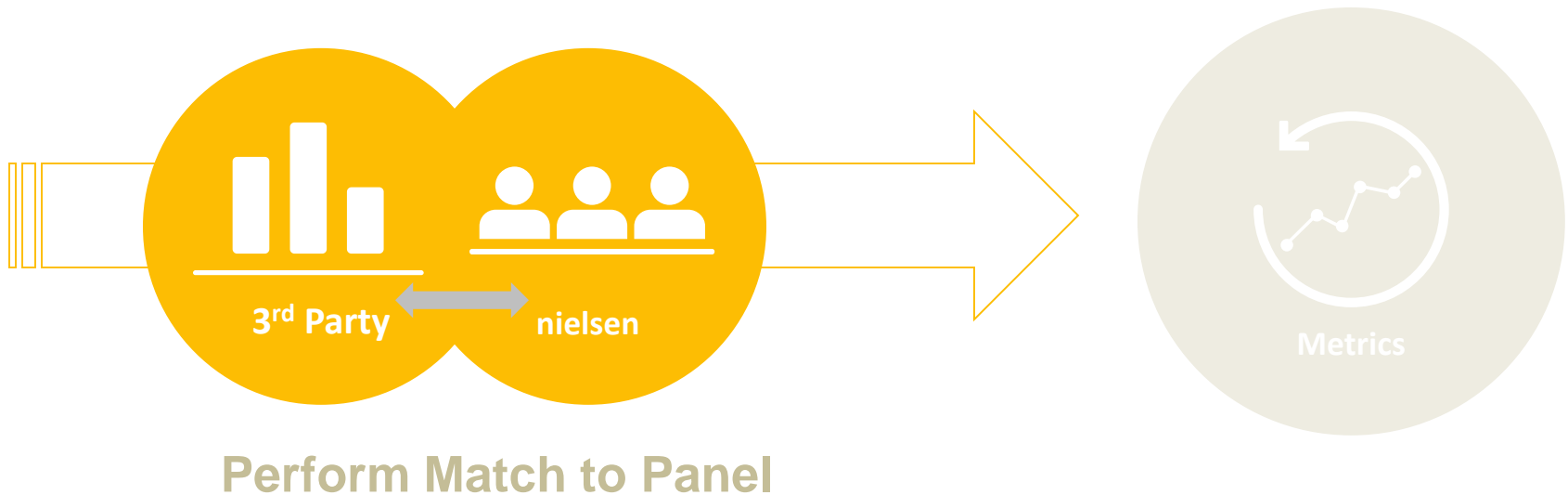


Data Processing Evaluation

- Reprocessing rules- what is reprocessed? When is it reprocessed?
- Late Data - what % of data is available?

EVALUATING DATA COVERAGE & ACCURACY

Validation Process Typically Compares the Data Set to a Source of “Truth” – which is often a Nielsen Panel



Secure & Anonymized Process

CONFUSION MATRIX

Main metrics for assessing quality are circled

		Condition (as determined by "Gold standard")		
		Condition positive	Condition negative	
Total population		Condition positive	Condition negative	Prevalence = $\frac{\Sigma \text{Condition positive}}{\Sigma \text{Total population}}$
Test outcome	Test outcome positive	True positive	False positive (Type I error)	Positive predictive value (PPV, Precision) = $\frac{\Sigma \text{True positive}}{\Sigma \text{Test outcome positive}}$
	Test outcome negative	False negative (Type II error)	True negative	False omission rate (FOR) = $\frac{\Sigma \text{False negative}}{\Sigma \text{Test outcome negative}}$
Positive likelihood ratio (LR+) = TPR/FPR		True positive rate (TPR, Sensitivity, Recall) = $\frac{\Sigma \text{True positive}}{\Sigma \text{Condition positive}}$	False positive rate (FPR, Fall-out) = $\frac{\Sigma \text{False positive}}{\Sigma \text{Condition negative}}$	Accuracy (ACC) = $\frac{\Sigma \text{True positive} + \Sigma \text{True negative}}{\Sigma \text{Total population}}$

CHARACTERISTIC QUALITY ASSESSMENT

Quality assessed by metrics from the confusion matrix

- **Sensitivity (True Positive Rate)** Of all records with a particular trait, what percentage did 3rd PARTY DATA SOURCE correctly capture?
- **Precision (Positive Predictive Value)** Of all records that the 3RD PARTY DATA SOURCE identified with a particular trait, what percentage are correct?

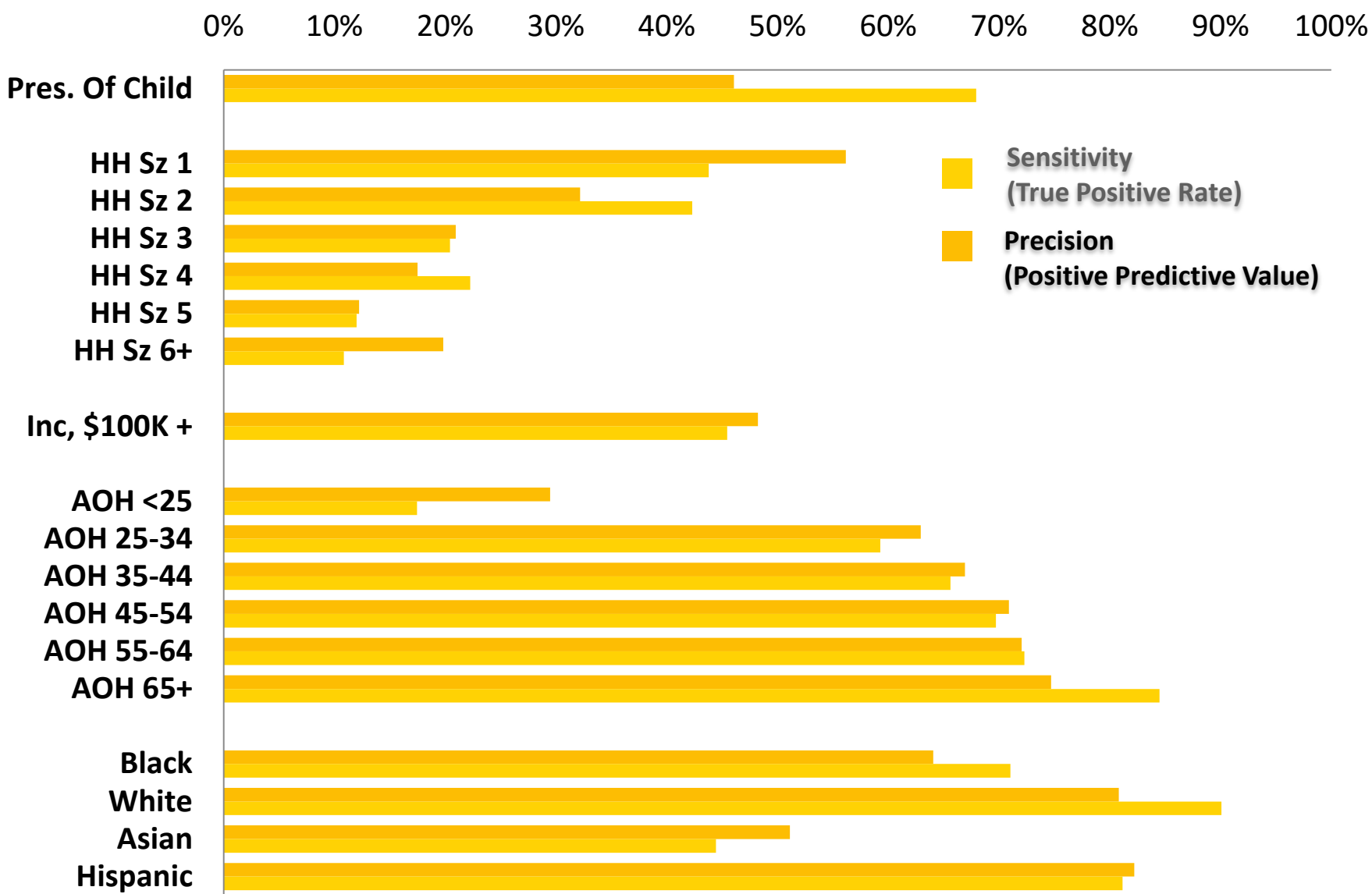
		TRUTH		
		YES	NO	
DATA SET	YES	90	20	110
	NO	10	100	110
		100	120	

$$\text{TPR} = 90/100 = 90\%$$

$$\text{PPV} = 90/110 = 82\%$$

$$\text{Total Accuracy} = 190 / 210 = 86\%$$

CHARACTERISTIC ASSESSMENT – EXAMPLE



Sensitivity & Precision Values are Computed Via a Match to the NPM Panel HHs where NPM is treated as "Truth"



STEERING COMMITTEE, PAT LIGUORI

Steering Committee

Third Quarter 2015 Update

> *RFPs to be posted on CRE website*

- Will remain until project is awarded
- Broadens exposure of RFPs
- Spotlighted on Home Page



> *Membership*

- **Tim Daly**, EVP Chief Information Officer, ITN Networks
 - > Prior service on CRE Committee
 - > Unanimous decision to submit name for membership
- **Mainak Mazumdar**, Chief Science Officer, Simulmedia
 - > Recommendation: engage with a CRE committee
- **Ann Casey**, Corporate Research Director, Weigel Broadcasting
 - > Prior service on CRE Committee; awaiting bio and statement
- **George Mafredas**, Partner, Director of Research, Group M
- **Bernie Shimkus**, VP Dir of Media Research & Consumer Insights, Harmelin Media



CRE FINANCES





NEW RESEARCH PROPOSALS

Data Quality: Validation White Paper, Ceril Shagrin

Data Quality: Multi-Device Bias, Ceril Shagrin

Local Measurement: Machine Learning II, Billy

McDowell



MACHINE LEARNING FOR PREDICTING LOCAL RATINGS: TAKE TWO, BILLY MCDOWELL

PROPOSAL

- > A follow-up to the initial Machine Learning local rating prediction, suggested in a Project Brief by Paul Donato
- > To train Machine Learning algorithms to compute market level ratings from RPD data with limited coverage in the market.
- > Focus on Central Time Zone markets where RPD data has the best coverage: Chicago, Dallas, Detroit, Houston, Minneapolis and St. Louis.
- > Compare predictions with actual People Meter estimates from within the market to assess the accuracy of the predictions.

RESEARCH TEAM

- > Richard Zackon, Audience Patterns LLC, Project Manager
- > Dr. Tony Jebara, Columbia University, Lead Data Scientist
- > Sandy Retsky, Database
- > Tim Dolson, Squad (TBD)

ANALYSIS

Data (to be provided by Nielsen)

- > People Meter data and Return Path data for all available Central Time Zone HH's for four 2014 sweep months.
- > Detailed level TV Program lineups by market
- > Universe Estimates

Test metric

Live demographic station ratings by QH.

DELIVERABLES

- > Machine Learning tutorial provided by Dr. Tony Jebara
- > Regular status review sessions of model development and testing
- > The CRE will be provided with a final report which will describe the analytic process including algorithms, validation statistics and recommendations for further R&D improvements (especially News and Sports) to be taken up by CRE or Nielsen.

PROJECT COSTS

- > Project cost is \$335,000, of which at least \$200,000 will be applied to 2015 CRE Funds



BREAK





RESEARCH COMMITTEE REPORTS

Audio, Buzz Knight
Digital Research, Brad Adgate
Platform Evaluation, Joe Abruzzo
Concurrent Platform Usage, Janet Gallent
Big Data, Stacey Schulman
Social Media, Beth Rockwood
ROI, Dave Poltrack



AUDIO COMMITTEE DUAL DIARY MEASUREMENT STUDY

Presented by
Buzz Knight
VP of Program Development
Greater Media, Inc

Study Objective

> *Evolve Nielsen Audio service in Small & Medium markets to better meet needs of local broadcasters*

- Provide radio clients localized shopping and purchase information
- Highlight local radio's strength of community and listener engagement
- Leverage separate radio, TV and qualitative samples for greater efficiency

Dual Diary Measurement Overview

Third Quarter 2015 Update



Markets

- Bakersfield, CA (Hispanic DST)
- Charlottesville, VA (Black DST)



Same set of respondents for TV and Radio (sequential design)



TV: personal diary instead of set-based diary. Redesigned to be similar to Radio diary



Radio: remains traditional diary



Field surveys one month apart

- **50/50 Split:**
 - > TV first/Radio second
 - > Radio first/TV second

REDESIGNED TV PERSON-LEVEL DIARY

THURSDAY										
	Start Time	Stop Time	Name of Program or Movie	Channel, Station, or Streaming Service	Viewing Type			DVR Only		<input checked="" type="checkbox"/> Out of Home
					<input checked="" type="checkbox"/> Live TV	<input checked="" type="checkbox"/> DVR TV	<input checked="" type="checkbox"/> All Other	Date Recorded	Recording Start Time	
Morning (from 5AM)	: : :	: : :						MM/DD	: : :	AM
	: : :	: : :						MM/DD	: : :	AM
	: : :	: : :						MM/DD	: : :	AM
	: : :	: : :						MM/DD	: : :	AM
	: : :	: : :						MM/DD	: : :	PM
	: : :	: : :						MM/DD	: : :	AM
	: : :	: : :						MM/DD	: : :	PM
Afternoon	: : :	: : :						MM/DD	: : :	AM
	: : :	: : :						MM/DD	: : :	PM
	: : :	: : :						MM/DD	: : :	AM

Study Questions

- *How will response rates of person-level diary compare to set-based?*
- *What proportion of respondents will complete second stage?*
- *Are second stage usage levels similar to first stage?*
- *How does set-based viewing compare to person-level?*
- *Are levels of traditional TV viewing similar to currency set-based diary?*
- *How much over the top and out of home viewing is reported in person-level diary?*
- *How do respondents identify TV viewing? What info do they include?*

Status/Timeline

- ***Friends and Family pretest completed***
 - Minor revision in TV diary
- ***Placement calls for first wave begin October***
- ***Placement calls for second wave begin November***

Qualitative Study

- *In addition to the Dual Diary Measurement test, conducting a test of sending a separate qualitative booklet to households who agreed to participate in the Radio Diary Ratings*
- *Booklet is a slightly shortened version of the Scarborough mid-tier qualitative booklet (removed the questions related to TV and Radio use)*
 - 20 pages of content
- *Market: Charlottesville*
- *Time Period: Sent 4-7 weeks after the radio diary keeping week using respondents recruited for the Fall 2015 currency survey*
- *Research questions: Will respondents fill out the booklet? What response rate would be expect from this approach?*



DIGITAL RESEARCH, BRAD ADGATE



**MEDIA CONSUMPTION AND ENGAGEMENT COMMITTEE
EVALUATION OF INDIVIDUAL PLATFORM VIEWING
STATUS UPDATE, JOE ABRUZZO**

Proposal from Hub Entertainment Research Approved at June 2015 Meeting

- *The survey will capture engagement, emotional reaction, retention/recall across platforms (TV, PC, Tablet, Smartphone)*
- *Subjects are recruited to view content on a platform that they have used to view full-length TV shows several times a month or more often*
- *They are exposed to one full-length program and naturally occurring advertising*
- *Following exposure to content/ads - they complete a survey*

Hub Online Survey

> Recruitment Survey 10-minute online survey:

- identify consumers who view ad-supported TV content several times a month or more often on a particular viewing platform (TV, computer, tablet, phone)

> Main Survey: 15 minute online survey:

- Focusing on the viewing experience
- Conducted shortly after participants have watched a TV show on the target device

> Sample: 2000 persons 16-54 representative mix by age, gender and region

Programs Selected for the Test

Show	Network	Episode Air Date
Big Bang Theory	CBS	9/21
Modern Family	ABC*	9/23
Law & Order: SVU	NBC	9/24
Bones	Fox	10/1
Family Feud	Syndication**	9/15
The Voice	NBC	9/22
<i>Competitive Reality TBD</i>	<i>TBD</i>	<i>TBD</i>
WWE	USA	TBD

* Permission granted by 20th Century Fox

** Permission granted by Debmar-Mercury

Timeline

- *Both Recruitment and Main Survey questionnaires have been approved*
- *Recruitment Survey in field during the week of September 14*
- *Main Survey in field September 21 thru October 11 2015*
- *Executive Summary expected mid-November 2015*
- *Full Report and Presentation expected early-December 2015*



**CONCURRENT PLATFORM USAGE
(CPU) COMMITTEE REPORT, JANET GALLENT**

Concurrent Platform Usage Committee

Our Research Questions

> Big Picture

- How much concurrent platform usage is taking place?
- What are the key demographic, geographic, and temporal patterns?
- What are the typical combinations of concurrent platforms?

> Individual Behaviors & Group Dynamics

- What are the different combinations of platforms being used and for how long?
- What are the dynamics at play in terms of concurrent platform usage when multiple individuals are in the same location?

> Impact on User Experience

- What effect does concurrent platform usage have on how consumers experience content and advertising?

Concurrent Platform Usage Committee

Our Research Approach

> ***Nationally representative large scale quantitative survey***

- 3,000 P13+ Gen Pop (Knowledge Panel)
- Hispanic Sample Augment (SSI Univision Hispanic Panel)
 - > Fielding 2nd week in September through End of the Month

> ***Passive digital metering***

- 300 P13+ from GfK Digital Panel
- 2 digital devices per respondent (Computer, Smartphone, Tablet)
 - > Fielding to coincide with quantitative study
 - > All respondents will take quantitative survey

> ***Qualitative Deep Dive***

- 75 P13+ who participated in quantitative study
 - > 60 HHs from 3-4 Markets (In Home Interviews)
 - > 15 HHs from passive digital metering component (Online Interviews)
- 2 digital devices per respondent (Computer, Smartphone, Tablet)
 - > Fielding in 4Q



BIG DATA, STACEY SCHULMAN





SOCIAL MEDIA, BETH ROCKWOOD





ROI, DAVE POLTRACK





OTHER COMMITTEE REPORTS

Communications Committee
Education Committee



**COMMUNICATIONS COMMITTEE, JOANNE
BURNS**

COMMUNICATIONS COMMITTEE

Activity Report

> *Nielsen 360 Follow-Up*

- Ira is inquiring whether ribbons can be worn on name tags to identify CRE members at future 360 Conferences.
- Ceril suggested the results from one or more CRE studies be considered for presentation at next year's conference.
 - > Ira is looking into this.
 - > Any studies reported on need to “tell a story” and “weave in industry relevance.”

> *CRE Member Bio's*

- Requested that membership to the CRE be included in professional bios when presenting at a conference / summit.

> *LinkedIn Postings*

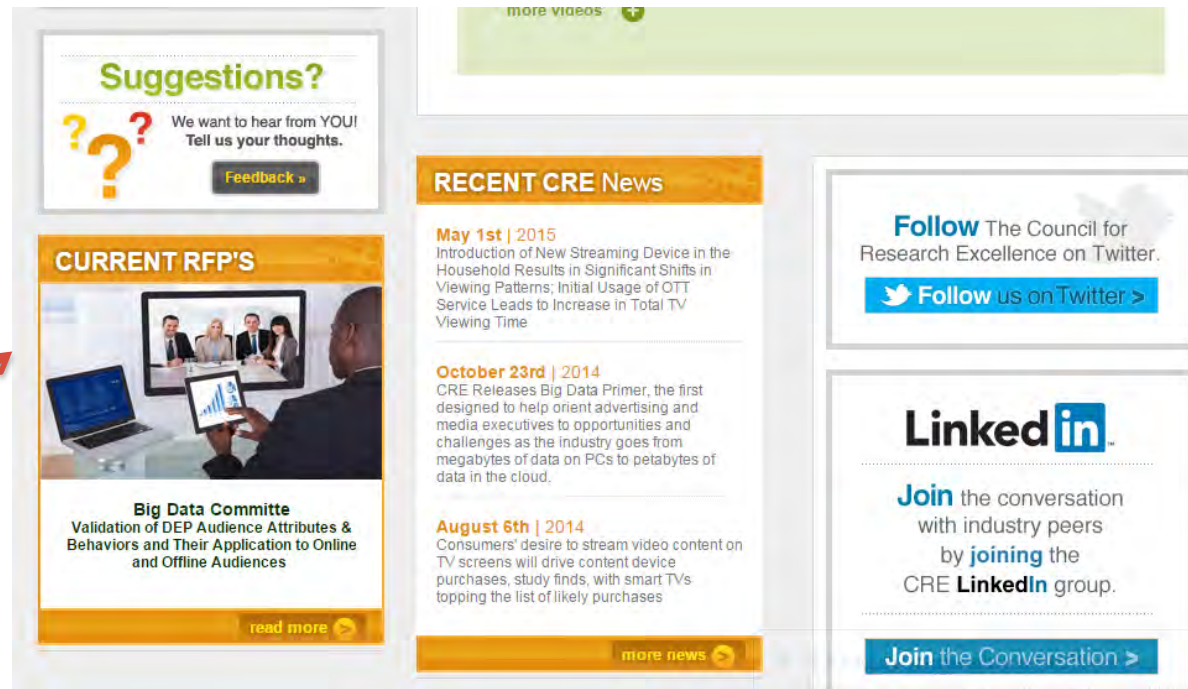
- The Communications Committee is working through how to address postings that come from non-CRE members through the CRE LinkedIn Group. Some postings are more “personal viewpoints” which need to be distinguished from those CRE-specific postings.

COMMUNICATIONS COMMITTEE REPORT

Activity Report

> RFP's Posted to the CRE Website

- RFP's will now be posted on the CRE website until the project is awarded.
 - > Currently the Big Data RFP is posted on the home page in the “spot light” section.



The screenshot displays the CRE website's home page layout. At the top left, there is a 'Suggestions?' section with a 'Feedback' button. Below it is the 'CURRENT RFP'S' section, which is highlighted by a red arrow. This section features a photo of a meeting and the title 'Big Data Committe Validation of DEP Audience Attributes & Behaviors and Their Application to Online and Offline Audiences', with a 'read more' button. To the right of the RFP section is a 'RECENT CRE News' section with three news items dated May 1st 2015, October 23rd 2014, and August 6th 2014. At the bottom right, there are social media sections for Twitter and LinkedIn, both with 'Join the Conversation' buttons. A 'more videos' link is visible at the top right of the page.

COMMUNICATIONS COMMITTEE REPORT

Publicity Report

> Recent & Forthcoming Press Activity

- Coverage in radio trades Inside Radio and All Access on launch of inaugural Audio Committee study
 - Azteca America citation of “Talking Social TV” in announcing social TV partnership
- Meeting at Wall Street Journal, R. Zackon and Nathalie Tadena, media industry reporter

COMMUNICATIONS COMMITTEE REPORT

Publicity Report



736 members



Subscribers

Newsletter	854
News Releases	706
Webinars	685
NewsWatch	298





EDUCATION COMMITTEE, JED MEYER





NEW BUSINESS





ADJOURN

