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**Review of the Literature
Regarding Critical Information Needs of the American Public¹**

submitted

to the Federal Communications Commission

by the

University of Southern California Annenberg School for Communication & Journalism

in collaboration with the University of Wisconsin - Madison

on behalf of

the Communication Policy Research Network (CPRN)

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Executive Summary:**Overview**

In response to the Federal Communications Commission's request (FCC12Q0009), the University of Southern California Annenberg School for Communication & Journalism in collaboration with the University of Wisconsin-Madison together with a national, non-partisan, multi-disciplinary network of social scientists, legal scholars, journalists, and communication experts, the *Communication Policy Research Network* (CPRN), presents a critical literature review and assessment of the provision of, and barriers to, critical information needs for all Americans in the contemporary media ecosystem. This report is prepared in the context of radical and far-reaching changes in the ways all Americans are able to meet their information needs, changes that are both worrisome and promising. [see FCC Report on Information Needs of Communities, July 2011]

The report presents a multidisciplinary overview of available data and literature from the past two decades covering a wide range of social science and communications research approaches that can complement existing FCC research on ownership, localism, and diversity, and inform stated FCC goals (as per Sec. 257) to 'identify and work to eliminate barriers to market entry,' to develop policies to advance the goals of diversity, to assess the need for government action and targeted policies to address existing gaps in media ecosystems' ability to serve and deliver critical information to the American public.

We address three core questions:

1. How do Americans meet critical information needs?
2. How does the media ecosystem operate to address critical information needs?
3. What barriers exist in providing content and services to address critical information needs?

The goal of the review specifically was to summarize research on the diversity of views available to local communities, on the diversity of sources in local markets, the definition of a range of critical information needs of the American public, how they are acquired as well as the barriers to acquisition. Having considered multiple frames of reference that take into account current conditions and trends, we identify existing knowledge and gaps in information. This research points to the importance of considering multiple dimensions and interactions within and across local communication ecologies rather than focusing on single platforms or categories of owners. The converging media environment together with demographic trends and evolving variations in communities of interests and culture among the American public require a more complex understanding of these dynamics as well as of the populations affected by them, in order to effectively identify and eliminate barriers to market entry and promote diversity.

The review therefore recommends the application of a wider set of analytic tools and performance metrics to measure the provision of and barriers to information in the public interest for all the pluralities of the American public, including but not limited to women

and marginalized or at-risk communities. We seek to elucidate changes in demographics and in media systems, and the relations between them.

Summary of Analytic Approach

Given a rapidly changing demographic landscape in the United States, it is essential to refine and extend our conceptions of diversity of ownership and participation in the production, distribution, and means of access to critical information. We need new definitions of participation that more accurately reflect the multidimensional pathways by which the American public engage with media and critical information. Barriers to market entry, participation, and access are not only ones of traditional econometric measures of ownership. Our review of the literature notes that, while still relevant, the concept of a binary “digital divide” does not adequately reflect the real impact on communities of inclusion or exclusion from increasingly complex information networks. Employment and decision-making processes and patterns within the media industry matter as well, as does the relative availability of public media and information sources.

Beginning in mid April 2012, Co-Principal Investigators Wilson (USC) and Friedland (UW-Madison) and Senior Consultants Napoli (Fordham) and Weil (USC) and a team of graduate researchers led by Katherine Ognyanova (USC) systematically examined literatures in the following disciplines for any possibly relevant scholarship: communication and journalism, economics, sociology, political science, geography, urban studies, urban planning, library and information science, health, transportation, environmental science, education, emergency and risk management. We solicited bibliographies from scholars from across the U.S., and compiled a master list of more than 1000 potentially relevant sources and abstracts. Senior scholars narrowed this literature to about 450 systematically reviewed and catalogued sources that make up the Annotated Bibliography.

From this exercise, as well as the preceding two years of discussions with national experts within the CPRN network and beyond, it became clear that an interdisciplinary framework such as the emerging communication ecological paradigm that analyzes the production and use of media and information holistically and that provides a more variegated, in-depth understanding of categories of diversity of voices and participation within and across communities, lends itself particularly well to the set of questions posed by the FCC. It incorporates elements from a wide range of disciplines cited above, including economics; captures the interactive nature and complexities of demographic and information trends across the entire media ecosystem; and allows for a translation from the local community level to the national aggregate levels of data necessary for policy making.

Key Findings

I. How Americans meet their critical information needs

Americans live in communities of place, despite the exponential penetration of new forms of digital technology into every corner of everyday life. Whether South Los

Angeles or rural South Carolina, our needs for information are shaped by the places that we live in, our blocks and neighborhoods, cities or suburbs, and the people we live with. (For example, the local zip code is the best predictor of one's health status.) The groups we are a part of also shape our information needs in many ways: by ethnicity, race or immigration; by religion; by occupation or income; by gender and family situation; our health or abilities. Every individual American's needs are built up from intersections of these memberships as well as individual tastes and preferences. The challenge in discussing how Americans meet their information needs is to capture this diversity while framing a social scientific approach that can generalize to inform policy for a rapidly changing America.

As we note in this report, America is changing so rapidly that it challenges our very definitions of diversity. Our traditional understandings are organized around the concepts of majorities and minorities and as long as significant barriers continue to exist to full participation in society, including the meeting of information needs of communities and groups, we will need to continue to identify and overcome these barriers. But we are moving toward an America of pluralities. By 2042 there will be no single majority group. Moreover, within every population group or community there exists considerable variation across socio-economic status, origin, religious and other beliefs and interests. In this report, we focus on the present –the specific, varied needs of groups in communities and the barriers to meeting them– but also the future, the information needs of the plural America that we are becoming. These changes pose immediate analytic challenges for policy makers and regulators.

Available data and research indicate that:

- 1) There is an identifiable set of basic information needs that individuals need met to navigate everyday life, and that communities need to have met in order to thrive. While fundamental in nature, these needs are not static but rather subject to redefinition by changing technologies, economic status and demographic shifts.
- 2) Low-income and some minority communities within metropolitan areas and metropolitan areas that are “lower-information” areas are likely to be systematically disadvantaged in both personal and community opportunities when information needs lag or go unmet.
- 3) Information goods are public goods; the failure to provide them is, in part, a market failure. But carefully crafted public policy can address gaps in information goods provision.

Defining Critical Information Needs

Critical information needs of local communities are those forms of information that are *necessary* for citizens and community members to live safe and healthy lives; have full access to educational, employment, and business opportunities; and to fully participate in the civic and democratic lives of their communities should they choose. To meet these needs, communities need access to the following eight categories of essential

information, in a timely manner, in an interpretable language, and via media that are reasonably accessible, including information about:

- emergencies and risks, both immediate and long term;
- health and welfare, including specifically local health information as well as group specific health information where it exists;
- education, including the quality of local schools and choices available to parents;
- transportation, including available alternatives, costs, and schedules;
- economic opportunities, including job information, job training, and small business assistance;
- the environment, including air and water quality and access to recreation;
- civic information, including the availability of civic institutions and opportunities to associate with others;
- political information, including information about candidates at all relevant levels of local governance, and about relevant public policy initiatives affecting communities and neighborhoods.

We have identified *two broad sets of critical information needs*: (1) those fundamental to individuals in everyday life, and (2) those that affect larger groups and communities. They take different forms across the eight core areas of need that we have identified. Among the most basic are needs for information about the myriad elective offices in even a small American community: without basic information about candidates and their positions Americans do not even have the opportunity for informed participation in democratic life. Similarly, as public policy decisions are made across the range of areas we have discussed, citizens need access to the policy choices that face them, notice about opportunities to participate, and information on decisions that will affect them.

Differentiation across communities

Neither information needs nor the way that they are met are distributed equally across communities. Literature from demography in sociology and policy studies shows that American communities vary widely by size (metropolitan [367], micropolitan [576], or rural); racial and ethnic composition; percentage of immigrants; rates of population growth or loss; density; and income distribution. The overall composition of a given community across these dimensions is a significant determinant of both its overall pattern of community information needs and of the degree to which these needs are likely to be met. *We identify two major axes of differentiation: within and between communities.*

For the purposes of this study, we define communities primarily in geo-spatial and demographic terms but recognize that communities also represent common sets of identity, cultures, and beliefs that contribute to significant variations within and across communities. Such in-group variations must be taken into account in assessing and responding to critical information needs.

Within a given region, low-income, minority (defined broadly), the disabled, and non-English speaking or other at-risk communities especially continue to be disadvantaged in the meeting of community information needs, although we stress, existing research

makes it difficult to demonstrate precise patterns of disadvantage and how they vary within and across communities. The literature points to several challenges in particular such as *reduced access to basic information infrastructure* (lower-rates of home computer ownership, reduced access to broadband and lower speed broadband, greater reliance on mobile phones but lower rates of smart-phone use, and poorly equipped libraries in low-income communities, despite heavy use); and *fewer opportunities for learning advanced computer skills*, even while these skills are growing in importance for job-seeking, health information, information on local schools, and other basic everyday needs.

There is evidence of fewer regional and local media, hyperlocal news websites, information blogs, and online sources of neighborhood news in low-income communities, although the evidence is not yet systematic. Although much has been made about the ability of new media to fill the gap left by the decline of traditional reporting, it seems likely that there will be significant gaps, or even “news deserts” in some low-income communities. This may be partly offset in some non-English speaking neighborhoods, although there is no robust general evidence that non-English news fills the local news gap.

As low-income communities become information islands, partly cut off from both surrounding neighborhoods and the larger community information system, this can have systematic consequences for larger resource systems (e.g.: negative *perceptions* of a neighborhood as stronger predictors of long-term poverty than actual poverty indices (Sampson 2012)). (For example, there is evidence of growing re-segregation of some local communities.) Community information needs are met through a mixture of private and public goods. But lower-income communities are particularly dependent on informational public goods, which are systematically under-produced. Limited case evidence demonstrates that where communities have systematically invested in the information needs of low-income communities, as in Seattle, gaps can be at least partially bridged (Friedland, 2013). Such findings may place a greater burden on public broadcasting platforms in less privileged neighborhoods.

We have argued that economic and social differentiation within communities yields differences in the information needs of sub-populations. But, in a nation as varied as the U.S. there are differences in information needs and how they are met *across* geographic or metropolitan areas as well. Increasingly, in an information society, those communities that thrive are those with a highly educated population and superior access to both information infrastructure and more developed local news ecologies. Metropolitan typologies (which include rural communities) developed in the past several years, ranging from the Brookings Institution (2012) to those of James Gimpel in *Patchwork Nation* (2004, 2010), while not agreeing completely on community typologies derived from factor analysis, demonstrate that there is an ordering of communities in the U.S. with information status operating as one of the most significant independent variables predicting economic growth. Those that thrive score high on multiple indicators of information access and robustness; those that struggle are low. Thus information inequalities within communities can have both short and medium term consequences for individuals’ access to basic opportunities, and potential long-term consequences for

community development. While causality is difficult to determine, many scholars argue that ready access to high-quality actionable information is an important determinant of economic and societal outcomes.

With regard to how Americans meet critical information needs, we thus find that:

- 1) While most of these needs are acknowledged in some form in the literatures we examined, if indirectly, there is a *severe shortage of research* that directly addresses whether and how they are being met, particularly in the area of health information, local educational communication and local political coverage, especially under emerging demographic and media conditions
- 2) This is particularly true for minority communities, non-English speakers, the disabled, and those of lower-income.
- 3) There is very little literature on how these information needs, taken together, are met at all levels of the local community information system: mass media, new online media, community and group networks, and interpersonal communication.
- 4) Finally, the correlation of lower performing metropolitan and rural areas with lower levels of education and higher percentages of non-English speakers and low-income residents suggests that meeting basic information needs may be one critical step towards raising the quality of life for those cities below the median. How these needs might be met is a matter for public policy, and increasingly salient as America continues to transition to an ever more information and knowledge-based society.

II. Critical information needs and the media-ecosystem

Availability and accessibility of relevant news and information across media platforms

The review examined whether and how different media are serving the critical information needs of communities (with an emphasis on “critical”). Our findings rest on the large and wide-ranging body of literature that has examined the performance of different media with regard to the provision of one or more types of information serving the critical information needs of communities. Most of the work in this area has involved the assessment of an individual media platform. Thus, for example, there is a large body of literature that has examined the provision of local news and public affairs programming by local television stations. Some of this work has focused on the analysis of large samples of media outlets; while other work in this area has involved detailed qualitative analyses of a select few outlets (a common approach for research focusing, for example, on community radio and public access cable). Importantly, we are beginning to see work that systematically examines new media platforms such as blogs, Twitter, and YouTube in an effort to assess if and how they are addressing communities’ critical information needs, but such research remains sparse at this point. Other elements of this literature have been very subject matter or issue specific. Thus, for instance, studies have addressed questions such as how print and online media have covered a particular issue affecting the Native American or Hispanic communities.

Based on this review, we note the following about availability and access of relevant news:

- 1) The traditional media outlets have failed to find a convincing business model and remain, and especially in the print industry, on a downward path.
- 2) Even in the midst of declines in the face of new media platforms, legacy media continue to provide the bulk of the news “inputs” that circulate through a local media ecosystem.
- 2) This pattern is changing substantially and quickly over time, which points to the need for continued research that seeks to map the production and flow of original news and information through the various platforms that serve a local community.
- 3) Different media platforms definitely appear to serve different social functions, in terms of how they are used by both producers and consumers of information in local communities; and these functions are also likely to change over time.

Participation of women and minorities in media content production and distribution industries

We examined the issue of the effects of women and minority participation (in terms of both ownership and employment) on how media outlets and platforms serve the critical information needs of local communities. Such issues have been a focal point of communications policymakers for decades, in contexts such as minority and female ownership policies, employment diversity policies, and spectrum allocation policies. A substantial body of literature has, consequently, developed around these issues, forming what one meta-analysis reviewed for this study termed the “minority ownership-employment-content triangle.” Once again, this literature can be characterized by a variety of methodological approaches, ranging from large-scale analyses of media ownership and content data (for example, in an analysis of the relationship between minority ownership and programming formats in radio), to in-depth qualitative analyses of minority-owned newspapers.

There are, however, some important gaps in the literature:

- 1) The operationalization of minority groups has focused quite heavily on groups such as Hispanics and African-Americans; whereas other minority groups, whether it be particular ethnic groups, or other potentially marginalized groups (such as people with disabilities), have been the focus of little, if any, research seeking to establish relationships between ownership, employment, and content. As communities continue to diversify across a range of criteria, research in this area needs to follow suit.
- 2) Much of this literature employs fairly superficial measures of the extent to which different communities’ critical information needs are being met. Future research should ideally build upon the more explicit delineations of the critical information needs outlined in Section 1 of this review to construct more robust assessments of the ownership-employment-content relationship.

3) It is also important to emphasize that research in this vein has -- as of yet -- moved quite slowly into the online arena. Our understanding of the dynamics of the ownership-employment-content relationship in the new media space continues to lag far behind our understanding of these relationships in the traditional media space.

III. Existing Barriers to Address Critical Information Needs

Barriers to Participation in Content Production, Distribution and/or Communication Technologies Adoption

A key theme within the literature discussed above on minority and female participation in various aspects of media content production and distribution is that, historically, a number of barriers have hindered such participation. Consequently, this analysis focused on the literature that explicitly addressed the range of barriers to participation, across multiple levels of analysis. Some of these barriers emerge from marketplace dynamics. They include issues of access to capital, as well as the dynamics of the advertising marketplace, which frequently appear to demonstrate the under-valuing of minority audiences -- and as a result under-provision of content addressing the critical information needs of minority communities. Organizational-level factors, such as media organization hiring practices, also frequently emerge in this literature as a barrier to full participation.

In an environment in which technology is presumably democratizing, to some extent, the opportunities to participate in the production and distribution of media content, it is increasingly important to look beyond the traditional market and organizational-level impediments and to consider also individual-level barriers to participation, such as access to infrastructures and hardware, as well as access to the training and education necessary to utilize these infrastructures and hardware effectively. From this standpoint, it is important to emphasize the recent trajectory of the substantial digital divide literature, in which such divides in access to technology and infrastructure are seen not just as impediments to accessing relevant news and information, but also impediments to *participation* in a wide range of dimensions of social and economic life. We insist that 'access' alone is a pre-digital formulation while 'participation' reflects more accurately the nature of the American public's engagement with the media ecosystem.

Regarding barriers to market entry and participation, this review suggests that:

- 1) The concept of the "information needs of communities", like minimal standards of telecommunications public service and the digital divide, is very much an evolving concept and a function of change in technologies, public expectations and other factors over time.
- 2) Technology access and diffusion are necessary but insufficient mechanisms for ensuring true diversity of participation in contemporary media ecosystems, as a growing body of literature compellingly illustrates.

3) Future research needs to develop explicit definitions of those aspects of participation in contemporary media content production and distribution that are presumed to have the greatest significance in relation to other aspects of participation in economic and political life and to rigorously explore those relationships. A core body of research has already developed in this area for future research to build upon.

IV. Performance Metrics and Methodologies for the Analysis of Critical Information Needs

The increasing complexity of local media ecosystems is leading to perhaps unprecedented challenges for the design and implementation of rigorous assessments that can meaningfully inform policymaking. In an effort to inform future research, this analysis examined the wide range of methodological approaches that have been employed in the assessment of media ecosystems. We operated from the basic premise that the increased complexity of local media ecosystems warrants the consideration of the full range of available analytical approaches to understanding how these ecosystems are structured and how they function.

We present a series of performance metrics and methods that we believe appropriate to further analyze these questions. They range from human ecology models, developed and tested for 90 years that incorporate econometric and organizational theoretical analyses, to descriptive studies; from demographic and economic methods to social network analysis.

The review of available metrics and methodologies leads us to assert that:

- 1) A number of potentially relevant analytical approaches have thus far been employed primarily at the national level; though these approaches often appear to have the potential to be adapted to the analysis of more localized communities.
- 2) The analyses producing the most in-depth information have often done so via methodological approaches that are quite narrowly focused in terms of the number of communities analyzed. This of course raises the question of if/how such analytical approaches might be calibrated to a sufficient scale to better inform policymaking, given limitations in available resources.
- 3) There are a number of existing data sources that have been compiled for other large-scale research projects that could prove useful in the design and implementation of future research examining the structure and functioning of local media ecosystems.

V. Recommendations

- 1) The proliferation of new media technologies, the relative market share decline of legacy media, turbulent economic changes and the acceleration of community diversification have created new barriers to Americans' abilities to fully meet their

information needs. We, therefore, recommend the FCC devote greater attention to these barriers and to opportunities as part of their statutory mission. Barriers range from insufficient broadband penetration, under-representation of some groups in media ownership and –equally important- employment, to insufficient media literacy by citizens in disadvantaged groups, among others.

- 2) Reference categories such as “minorities” no longer adequately reflect the pluralistic demographic and socio-economic shifts in the United States, nor does “one size fit all.” At the very least, policy researchers must take into account variations within communities and specific populations in identifying and designing responses to critical information needs.
- 3) Regulators should recognize that the costs of network exclusion are borne not only by the excluded, but also by the society at large, and increase exponentially with the continued growth and expansion of information and communication networks in society.
- 4) Policy-relevant research must capture the increasingly complex functioning of local media systems in ways that fully account for the role played by *all* relevant stakeholders, the interconnections and interdependencies that exist among media platforms that embed the analysis of media systems within the analysis of the ways different kinds of local communities actually function, and the extent to which local community information needs are being effectively served.
- 5) The traditional approach of large-N economic analyses of media competitiveness do not fully capture the extensive range of relevant factors in America’s emerging digital, distributed media ecosystem, and should be complemented by additional analytic models such as a communication ecological approach (see below).
- 6) Future research should develop and implement a multi-level analytical framework that could be employed in assessing local communities, and the extent to which barriers to participation are affecting the extent to which their critical information needs are being met. It should
 - a) seek to understand the emerging patterns of information production, distribution, and consumption that are developing both within and across media platforms (both traditional and new media platforms);
 - b) explore these patterns from both economic and non-economic perspectives (given the rise of many “informal” media economies and the increasing prominence of various forms of user generated content); and
 - c) supplement traditional large-scale quantitative approaches with policy-relevant, methodologically-integrated approaches that can drill down into the complexities surrounding the questions of if and how local community information needs are being served and whether any barriers exist to the fulfillment of these information needs.

7) A model of research rooted in the communication ecology approach can and should be developed, fully incorporating the relevant research problems and methods indicated by the other approaches reviewed. This model should be valid, replicable, and parsimonious, building on a foundation of existing demographic models and data, and incorporating a range of media measures, including surveys, content analysis, social network analysis, and qualitative research. It should unite the range of approaches as much as possible and avoid methods that are outmoded. This is true of both surveys that rely on polling rather than social scientific techniques, and outmoded models of content analysis.

7) Developing robust and testable indicators of performance will be essential, both for the purpose of internal evaluation, and in order to allow policymakers and communities to independently evaluate the overall effectiveness of approaches to meeting community information needs in order to improve community performance where indicated. Multi-leveling modeling survey research and social network analysis, and others that can yield a valid set of comparisons among communities.

VI. Conclusion

This review has demonstrated that there are clear and significant information needs of Americans at the individual and community level. A large body of research suggests that many of these needs are not being met, and that access to information and, equally, the tools and skills necessary to navigate it are essential to even a minimal definition of equal opportunity and civic and democratic participation. Further, both traditional and contemporary analyses have demonstrated access to information in multiple fora and disciplines to be essential to community economic wellbeing and democracy. Exclusion from the networked benefits of participation in an information society are not simply additive, but they may be exponential, with long term consequences for minorities, non-English speakers, those with low-income, and the disabled.

But beyond the problems generated by exclusion, full integration into the information economy offers unique opportunities to better inform and educate the nation of pluralities that we are rapidly becoming. The U.S. *is* becoming a more diverse society, inexorably, and the communication that allows groups to meet and express their everyday needs, both to those like ourselves and to those who are different is an essential component in binding a diverse nation together. In a federal democracy, the challenge of communication participation begins in local communities, and must stay rooted in local communities. Despite the vast amount of information, entertainment, and basic human connection that the Internet provides, it cannot by itself substitute for meeting the local information needs of American communities. We are blessed so that any one of us can log-on, either at home or the local library, and go to a CDC website and get health information that was locked in medical journals only a few short years ago. But, if we have a problem, if we are sick or need well-baby care, in the end, we are faced with finding a doctor in our own communities. Parents deciding whether to send their children to neighborhood school or a charter school across the city need information on their own local schools. Monster.com may have a wealth of jobs for engineers and managers, but a

lower-skilled worker, looking for steady employment, needs information about jobs within relatively easy reach.

This is not, of course, an either/or. The information needs of local communities are not at odds with the national or global community. But they are unique and specific. That is why we recommend that the FCC conduct serious, rigorous, research into whether and how these needs are being met. We have recommended that modeling community communication ecologies that can investigate whether and how local information needs are met is a critical first step to understanding how markets, government policies and individual and group actions can work together to meet the information needs of their communities.