

**EXCERPT FROM**  
**DEFINING DIVERSITY IN THE 21<sup>ST</sup> CENTURY PUBLIC SPHERE**  
**Applying Lessons from the Social and Biological Sciences to the Media Sector**  
**Mark Cooper, 2012**

**I. INTRODUCTION**

**A. Rebooting Diversity as a Concept in Media Sector Analysis**

FCC Chairman Michael Powell’s effort to create a Diversity Index to guide media ownership policy was roundly criticized by public interest advocates<sup>1</sup> and, to put it bluntly, trashed by the Third Circuit appeals court.<sup>2</sup> Kevin Martin’s less “rigorous” approach to the ownership limits did not elicit a much more friendly reaction from the advocates, although the Court’s reception remains to be seen.

This paper argues that the problem is not with the idea of diversity as a critically important characteristics of the media sector, or even the idea of a Diversity Index, but in its implementation (a problem that stemmed in large part from the fact that Powell and Martin had made up their minds in advance, so the whole exercise was results driven rather than analytical).<sup>3</sup> This paper revisits the idea of a diversity index by building an intellectual platform that supports the principle of diversity first and the development of a metric second. We must know what diversity is and why we want it before we can successfully measure it or design policies to promote it

There are four widely agreed upon mechanisms through which diversity is seen to improve system performance, as identified in Exhibit I-1. Diversity creates value, enhances innovativeness, promotes resilience, and supports pluralism.<sup>4</sup> Only Pluralism is a political value, one which has long been at the focal point of media policy and cultural policy.<sup>5</sup> While it can be argued that pluralism supports the other values, it is primarily an end in itself, rather than a means to the end of improved system performances. Judging from the critique of 20<sup>th</sup> century media, pluralism has not been a very successful base from which to launch the campaign to promote diversity. The other values are generic and systemic. This paper focuses on the third value – resilience.

**EXHIBIT I-1: DEFINING AND MEASURING DIVERSITY AS A PROPERTY OF A SYSTEM**

Performance: of the system	Value: Innovation: Resilience: Pluralism:	Competition, rigorous selection, comparative advantage Mobility, creativity, the avoidance of lock-in Durability, robustness, flexibility Multiple points of view, choice.
Nature of media elements Action	Output: Function:	Monitorial (“Fourth Estate”), Mobilization (“Fifth Estate”) Discovery, Announcement, Discussion, Collective
Dimensions of diversity	Variety: Balance: Disparity:	Number of elements Prevalence (market share) of the elements Difference between the elements
Aspects of interconnection	Audience Autonomy Organization	Size, Private v. Public Mediated v. Unmediated Unorganized v. Organized

As a concept and a public policy goal diversity is not unique to the media space.<sup>6</sup> Diversity is an intensively studied characteristic of many sociological, biological and ecologic systems, so much so that there are two International Conventions on diversity – one on culture and one on biodiversity.<sup>7</sup> Diversity is an organizational property that improves the performance of a system, which is defined as a set of interconnected elements. The contemporary study of diversity has changed the old proverb “Don’t put all your eggs in one basket” into a more complex recommendation **“Put lots of different eggs in lots of different baskets.”** Yet, the study of diversity in these disciplines has not contributed much to the analysis of diversity in the media space. This is ironic, since the most fundamental justification offered for the pursuit of diversity in the media, in so far as it relates to its role as the “press,” fits well within the widely recognized function of diversity in the social and biological sciences.

The definitional exercise is more critically necessary at the start of the 21<sup>st</sup> century than in the past because the growth of digital media is making the media environment much more complex. Digital media are mass media, in the sense that they involve large numbers of people, but they have a very different feel than what was called “mass media” in the 20<sup>th</sup> century. By definition, the media environment will be more diverse in the 21<sup>st</sup> century, but there is considerable debate about whether it can fulfill the function for which diversity was pursued in the 20<sup>th</sup> century. The vexing problem critics of the media sector face is that they do not believe the 20<sup>th</sup> century media did its job very well, nor are they convince that the new media can fulfill those functions, while the defenders of the 20<sup>th</sup> century model,

## II. THE ROLE OF MEDIA IN DEMOCRACY

### A. The Press, Democracy and the Public Sphere

Democracy theorists and institution builders have believed for a quarter of a millennium, that the press plays a central role in democracy by fulfilling two functions. The most prominent in their thinking was the role of the fourth estate to monitor and report on the other estates in society.<sup>8</sup> However, in their prolific production of pamphlets they practiced the fifth estate function of mobilizing the populace to political action.<sup>9</sup>

For the purposes of this discussion, the function of the media is best framed in terms of the role of the public sphere in democratic society. This is familiar to media scholars, so I will not go into great detail. The one aspect that I want to emphasize is the dual role of the media.

Here I paraphrase the formulation offered in Wikipedia.<sup>10</sup> Wikipedia is a perfect example of how the public sphere has expanded through the creation of new forms of mass media. The public sphere mediates between the private sphere (which comprises civil society in the narrower sense, the realm of commodity exchange and of social labor) and the Sphere of Public Authority, which deals with the State. The public sphere crosses over both these realms. Through the vehicle of public opinion it puts the state in touch with the needs of society. This area is a site for the production and circulation of discourses, which can be critical of the state. These distinctions between state apparatuses, economic markets, and democratic associations are essential to democratic theory. The study of the public sphere centers on the idea of participatory democracy, and how public opinion becomes political action.

The quintessential institution of the pre-digital public sphere was journalism – the fourth

estate. It was not part of the sphere of political authority, nor was it originally deeply embedded in the economy – being a space for noncommercial pamphleteers. Its role was to monitor and oversee the other estates in society. It always had a participatory function, but one that was not highly developed in recent years especially as journalism became part of the commercial mass media.

C. Edwin Baker’s framing of the role of the media in complex democracy captures the dual functions, as described in Exhibit II-1.

“Complex democracy seeks a political process that promotes both fair partisan bargaining and discourses aimed at agreement. The press should be pluralist, providing individuals and organized groups with information that indicates when their interests are at stake and help mobilize people to participate and promote their divergent interests, making policymakers aware of the content and strength of people’s demands. The press should promote agreement on a society-wide common good, by being inclusive and promoting thoughtful discourse, not merely being factually informative, and supporting reflection and value or policy choice. The press should promote self-reflection, informing the public about itself, so that those who disagree with the dominant opinion can contest it and provide criteria to measure government responsiveness.<sup>11</sup>

**EXHIBIT II-1: JOURNALISM AS NON-GOVERNMENTAL OVERSIGHT**

<b>Role</b>	<b>Relationship to the Public</b>	<b>Function</b>	<b>Complex Democracy’s Ideal Media</b>
<b>Fourth Estate</b>	Mediated	Monitorial	The Checking function Independent of both government and private economic power Grounded in the pluralism of the life world Nurture non-market structures to capture positive externalities
<b>Fifth Estate</b>	Direct	Participatory	Participatory Democracy’s Ideal Media Pluralist: Distribute politically and culturally salient media in an egalitarian manner Supports interest group formation Mobilize interests Convey public opinion to policymakers Communal: promote agreement on common good Inclusive Thoughtfully discursive Self-Reflective Inform public about itself Contest dominant opinion Criterion to measure government responsiveness

The critique of 20<sup>th</sup> century journalism stems in large measure from the fact that its functions became obscured by its transformation into a commercial mass media enterprise. C. Edwin Baker’s formulation of the concept of complex democracy embodies this critique.

Complex democracy fears that the watchdog will be muzzled, whether by government or private power.... Monopolization or corrupted segmentation will suppress or disfigure media pluralism,” because “Market-determined segmentation predictably disfavors, for example, media focusing on political ideology, non-market-

valued ethnic and cultural divisions, economically poor groups.” “When properly performing its various democratic functions, the media generates significant positive externalities... benefits to people other than the immediate consumer of the product. The economic meaning is that... free markets will under-produce these quality products.<sup>12</sup>

## **B. The Expansion of the Public Sphere in the Digital Age**

The expansion of the public sphere in the digital age is clear. Whatever one thinks about the impact of the collapse of the commercial media on the fourth estate function of journalism, there is no doubt that the Fifth Estate function has expanded dramatically in the digital age. The commercial mass media has not shrunk in absolute terms, but they have shriveled relative to the autonomous speech and discourse taking place in the public sphere.

Exhibit II-2 suggests a map of the media in the public sphere has become much more complex and the make-up of the media much more diverse. The Figure is drawn to emphasize the fact that the growth has been in those areas of the media that are best suited to Fifth Estate functions. The legitimate, lingering question is whether the Fourth Estate functions can be provided. Public interest advocates have been highly critical of the Fourth Estate performance of the commercial mass media and, if the sector is deemed to have been performing poorly in the 20<sup>th</sup> century, their continuing concern is justified if the mapping in Figure II-2 is correct.

## **III. THE FRAMEWORK ANALYZING MEDIA DIVERSITY**

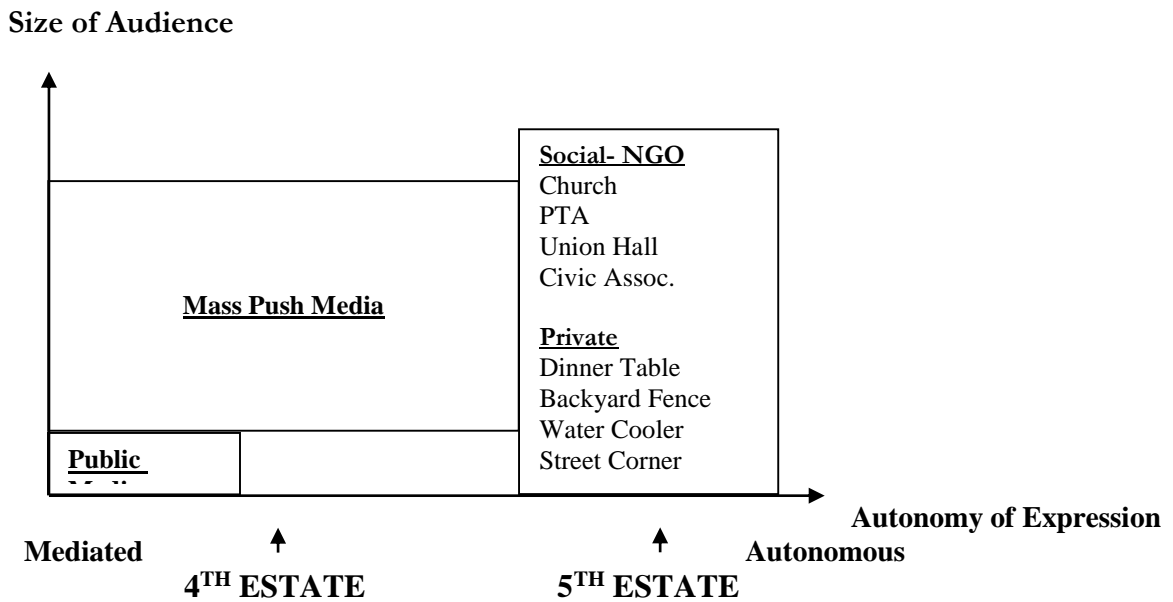
### **A. Mapping the Terrain of Knowledge**

At the outset, I stress a distinction with respect to diversity as a largely emergent<sup>13</sup> characteristic in biology and ecology and its more “constructed” character in social sciences.<sup>14</sup> Species and ecologies evolve structures through millennia of nature selection that prove to be better able to thrive and survive when they are more diverse. Social systems tend to be both emergent and “built” or constructed in the sense that structure is embodied in institutions.<sup>15</sup> Social structures that are more diverse prove to be better able to survive and thrive because, in part, institution builders may recognize that diversity is a useful attribute of a system so they are engineered to be so and continuously adapted to respond to changes in the environment. Depending on the nature of the institution, the extent of the perturbation in the environment and the skill of the institution builder, the reaction will be more or less successful. The state is such an institution, as is the structure of the public sphere.

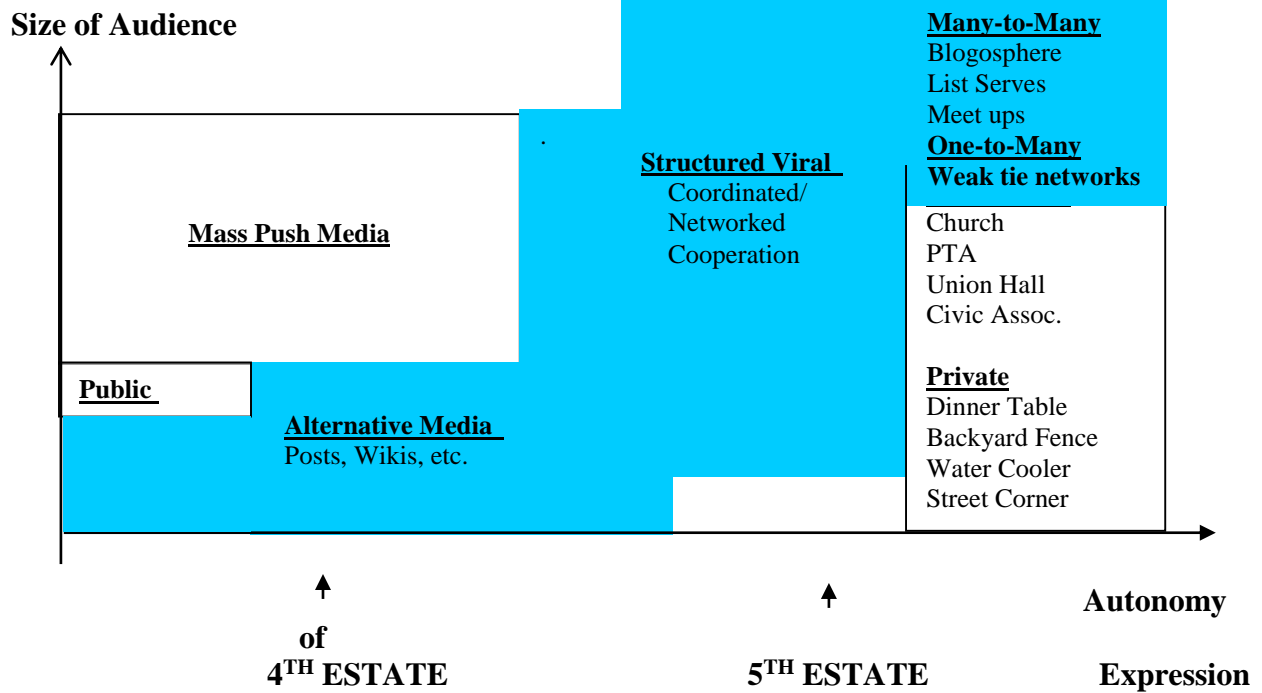
Linking the challenge of diversity in social systems to institution building opens the way to theories that link knowledge to policies to affect the functioning of the system (in this case the media and its role in democratic performance). The premise on which I lay the foundation of diversity analysis is that assessing our knowledge about social phenomena is critically important to building systems that can survive and thrive.

EXHIBIT II-2: INCREASING DIVERSITY IN THE EXPANDING DIGITAL PUBLIC SPHERE

20<sup>th</sup> Century Public Sphere



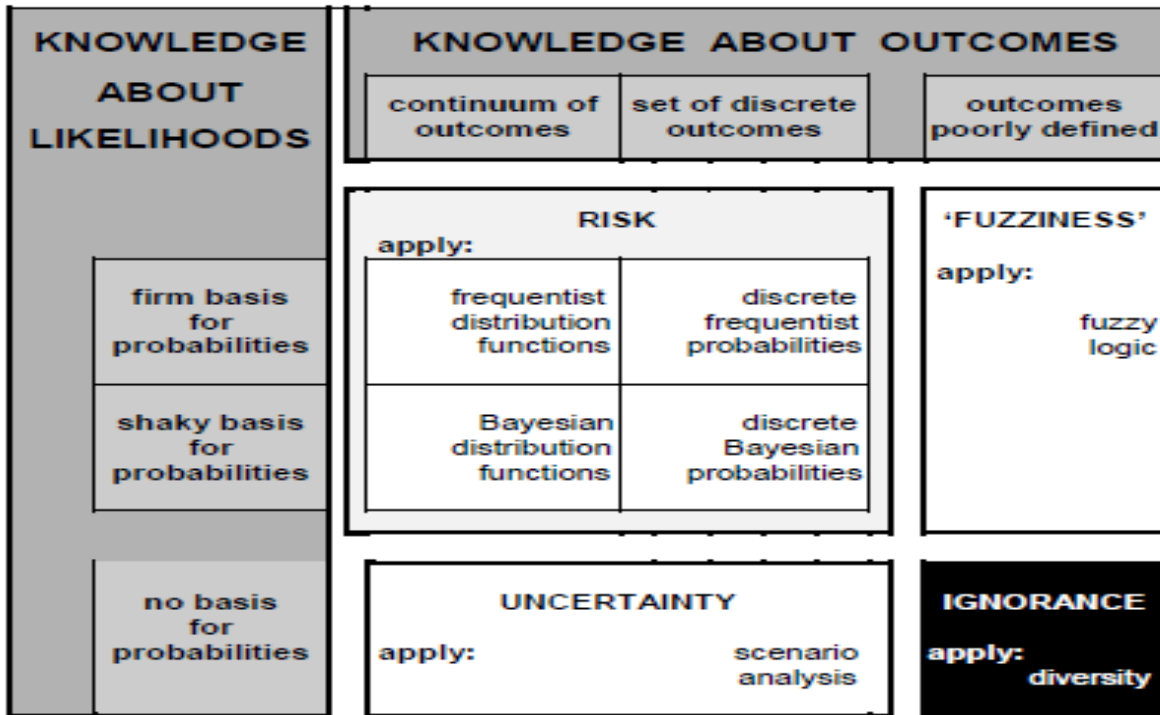
21<sup>st</sup> Century Public Sphere



In short, humans are confronted with ambiguity in their decision making environment because their knowledge of the world around them is far from complete. As shown in Exhibit III-1, knowledge is incomplete along two dimensions: knowledge about the nature of outcomes and knowledge about the likelihood of outcomes. Ignorance reigns where both outcomes and probabilities are not well defined. Diversity is the “best” response in the region where our knowledge is worst, the region of “ignorance.” Technology Risk Management Analysis locates diversity at a critical place in a map of knowledge, as shown in Exhibit III-1.

**EXHIBIT III-1: MAPPING THE TERRAIN OF KNOWLEDGE**

**Technology Risk Management Analysis**



Sources: Andrew Stirling, *On Science and Precaution in the Management of Technological Risk* (European Science and Technology Observatory, May 1999), p. 17; Nassim Nicholas Taleb, *The Black Swan* (New York: Random House, 2010), p.365.

The four regions on the map of knowledge are defined by Technology Risk Management Analysis as follows:

Risk is conventionally regarded to comprise the two basic elements of probabilities and magnitudes... Risk is a condition under which it is possible both to define a comprehensive set of all possible outcomes *and* to resolve a discrete set of probabilities (or a density function) across this array of outcome.

The condition of ‘fuzziness,’ under which the various possible outcomes do not admit of discrete definition.

The strict sense of the term *uncertainty*, by contrast, applies to a condition under which there is confidence in the completeness of the set of outcome, but where

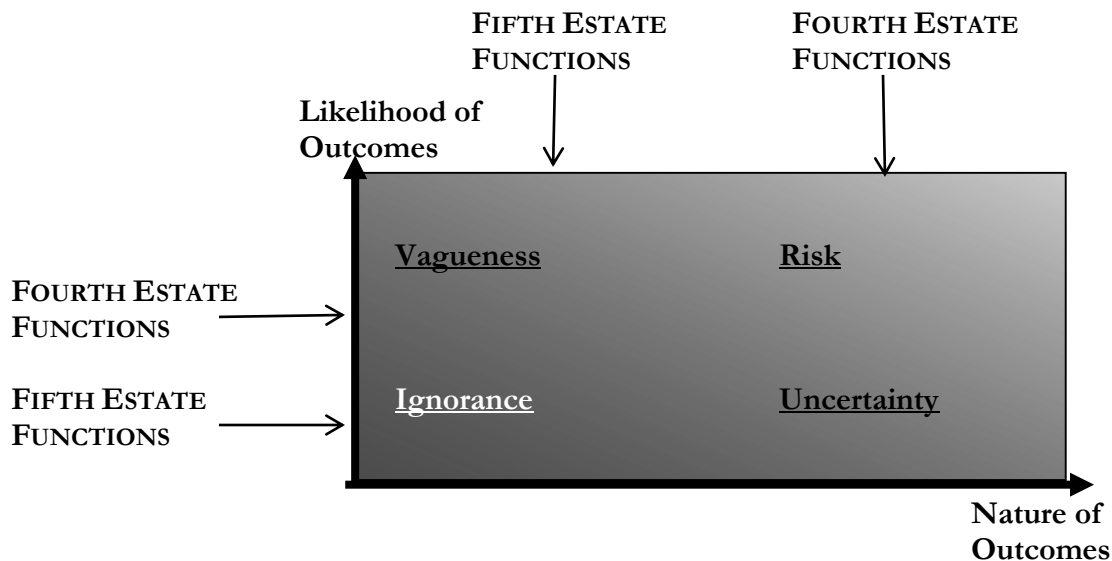
there is acknowledged to exist no valid theoretical or empirical basis for the assigning of probabilities to these outcomes...

Finally, there is the condition of *ignorance*. This applies in circumstances where there not only exists no basis for the assigning of probabilities (as under uncertainty), but where the definition of a complete set of outcome is also problematic. <sup>16</sup>

## B. Tools for Charting the Topography of Knowledge

In Exhibit III-2, I have reversed the polarities in which the original arguments were presented. That is, I depict knowledge as increasing along two dimensions, knowledge about outcomes and knowledge about the likelihood of outcomes. Both approaches are focused on the area (quadrant) closest to the origin, where knowledge is the most sparse.

### EXHIBIT III-2: AMBIGUITY AND THE REGIONS OF KNOWLEDGE THE MEDIA SECTOR



- The application of inappropriate statistical models to predict improperly defined outcomes increases the exposure to rare events (surprise) because model builders “don’t know what they don’t know” and therefore they do not take the proper precautions against rare events.
- More broadly, the narrow optimization approach that flows from the statistical models that dominate economics increases the risk of harm from negative black swans because it produces social structures (organizations, institutions) that are overly specialized and unable to adapt to perturbation in their environment.

Ignorance is not bliss; it is hell for decision makers. Black Swan Theory focused on what it called the Fourth Quadrant (the region of ignorance), which, in my restatement, is closest to the origin. Decision makers are better off in Limbo than hell because in this space, characterized by vagueness, they can analyze contingencies and build in monitoring devices that adjust system

performance. They are better off in purgatory than hell because, in this space characterized by uncertainty, they can analyze scenarios and buy real options delaying important decisions until the uncertainty is reduced. The best decision makers can hope for is to face risk, against which we can hedge. Unfortunately, there is no heaven on earth for decision makers dealing with electricity resource decisions.

#### IV. IMPLICATIONS OF KNOWLEDGE MAPPING FOR MEDIA DIVERSITY ANALYSIS

##### A. Critical Policy Conclusions

Knowledge and action go hand in hand in both schools of thought. The terrain of decision making is complex, particularly when a real time, real world decision liking ensuring reliable electricity must be made

##### B. The Relevance of Knowledge Mapping to the Media

One of the most critical policy implications of this map of the terrain of knowledge is that the narrow optimization approach that flows from the statistical models that dominate contemporary economic analysis and policy recommendations is counterproductive. Narrow optimization increases the risk of harm from negative black swans because it produces social structures (organizations, institutions) that are overly specialized and unable to adapt to perturbation in their environment.

This will come as music to the ears of diversity advocates who have long argued that economic efficiency is not the only basis on which media policy.<sup>17</sup>

As the relative value of diversity is seen to increase, the crucial issue becomes one of the trade-offs that must exist between diversity and the other aspects of wider economic performance...The business of balancing the aggregate performance of individual options (on the one hand) and portfolio diversity (on the other) might be termed **diversity optimization**... In other words, where a non-zero value is attached to diversity, any diversity-optimal portfolio of investment, technology or policy options will display a lower overall performance under other criteria than would be the case if only the best-performing options were included to their maximum possible contributions.<sup>18</sup>

First, *Mother Nature likes redundancies*... The first, the simplest to understand, is defensive redundancy, the insurance type of redundancy that allows you to survive under adversity...So redundancy *equals* insurance, and the apparent inefficiencies are associated with the costs of maintaining these spare parts and the energy needed to keep them around in spite of their idleness.... [A]s they become larger, companies appear to be more “efficient,” but they are also much more vulnerable to outside contingencies... Add the fact that when companies are large, they will need to optimize so as to satisfy Wall Street analysts... to sell the extra kidney and ditch insurance to raise their “earnings per share” and “improve their bottom line.”<sup>19</sup>



While it is convenient that the observations about economic efficiency and specialization are consistent with long standing diversity advocacy, an even more important conclusion is that the conditions in which diversity is the best policy fit the media space quite well. Several characteristics of the perception of the media to justify the connection I want to make to Black Swan Theory and Diversity Analysis.

**Ambiguity in the Publish Sphere:** The public sphere is a socially constructed space where outcomes are inherently difficult to define and predict. Both of these lines of thought are intended to address areas of social life where precise statistical models of behaviors and outcome are weak at best. They seek alternative frameworks for understanding the performance of systems in a specific space that is subject to risk, uncertainty, fuzziness and ignorance. This is the situation in examining the performance of the media in providing its political functions. While we believe it is important, we have never had much of a handle on how the function is accomplished. Whenever a Black Swan occurs – an important rare event takes up by surprise – we place significant blame on the media. We think the press should be able to see the Black Swans and, by calling our attention to them, enable us to prevent them from happening or to mitigate their impact. When the media does its job, particularly the new media, we see it as a White Swan. It is a surprise event that has a history changing impact. While incumbent regimes recognize the potential, their ability to prevent the events and their impact is uncertain, at best.

**Increasing Importance of Recursive, Scalable Systems in the Public Sphere:** Black Swan theory argues that the increasing importance of rare events stems from two trend in contemporary society.

Our modern, complex, and increasingly recursive world... means that the world in which we live has an increasing number of feedback loops, causing events to be the cause of more events, thus generating snowballs and arbitrary unpredictable planet-wide winner-take all effects. We live in an environment where information flows too rapidly, accelerating epidemics. Likewise events can happen *because* they are not supposed to happen.<sup>20</sup>

A second characteristic of the modern world that increases the importance of rare events is scalability – the tendency for impact to spread widely, “those who start, for some reason getting some attention can quickly reach more minds than others and displace the competitors,<sup>21</sup> fads will be more acute, so will runs on banks... a very strange virus spreading throughout the planet.”<sup>22</sup>

The characteristics that Black Swan Theory cites as causes of the increased importance of black swans are characteristics of the media space. The 21<sup>st</sup> century media space is recursive and scalable. The term viral has been popularized by the advent of the new media.

**Specialization of Functions in Different Areas of the Terrain of Knowledge:** As shown in Exhibit III-2 above, given the behavior patterns of the mass media, this framework suggest that the monitoring function of the Fourth Estate is better suited to events that fall in the regions of knowledge where outcomes and probabilities are better known, whereas participatory Fifth Estate functions are better suited to events that fall in regions where the opposite is the case.

Monitors are attracted to leaders and decision making bodies. That is where the action is likely to be. Given limited resources that is where they will devote their attention. Indeed, one of

the alleged sources of failure to perform the monitoring function well is an extreme dependence on the schedule of events and prepackaged news that is provided by the subjects who are supposed to be monitored.

The emerging media in the digital age bring a different set of resources to the media space. Large numbers of eyeballs are much more likely to be able to see the local terrain, notice unscheduled and unscripted events (from racial slurs on the campaign trail to violence against protesters), and announce them to a broad audience very rapidly. New media are performing the Fourth Estate discovery function, but that is only part of the function of a fourth estate.

News events as varied as the commercial jet landing in the Hudson River and the uprising in Egypt have demonstrated that people armed with cellphones – not professional reporters – are often the first sources of breaking news, uploading Twitter posts, Photos and video to the Web. But the result can leave people drowning with too much information.

A web start-up named Storify Web site, which opens to the public Monday, aims to help journalists and others collect and filter all this information...

Even though journalists may not be the first on the scene, they select the most reliable sources, digest loads of information and provide context for events....

“We knew we basically needed to capitalize on the reality that the industry is facing, which is that we no longer have exclusivity on sharing and publishing information...

“There’s a big need for tools that allow people to collect bits of social media content and organize them in some fashion.”<sup>23</sup>

This new media service underscores that the announcement function is a small, but important part of what the Fourth Estate does. The function of the reporter to gather and evaluate and the editorial judgment remain critically necessary to turn items into news.

## **V. MEANING AND MEASUREMENT**

### **A. Statistical Indices**

As someone who has calculated a boatload of Hirschman-Herfindahl indices (HHI) it is disappointing to find that it is not only **not** the preferred measure of variety-balance, but that it does not even address the most important aspect of diversity in the first place (see Exhibit V-1). The problem is not so much variety and balance, as disparity. While data limitation have been a constant source of criticism of the effort to describe the media space, the most fundamental challenge is to agree on and operationalize the factors that affect the functionality in the space. Counting the number of outlets and their market share is less important than assigning weights to those market shares based on the underlying differences between outlets.

The HHI can best be conceived of as a pie chart in which every element is identified along with its share of the space (market). It is calculated by multiplying the share of each element by itself (squaring) and summing. The Shannon-wiener index uses the same data inputs, but multiplies the log of the share times the share and sums across all elements. Although Stirling argues that the Shannon-Weiner index is superior, when he introduced diversity, he went back to simple shares. However, note that the diversity index is calculated by weighting each elements and multiplying its

share by every other element (weighted). The Stirling Diversity Index is disparity time balance.

**EXHIBIT V-1:**

**CONCEPTS AND MEASURES TO BUILD A DIVERSITY INDEX**

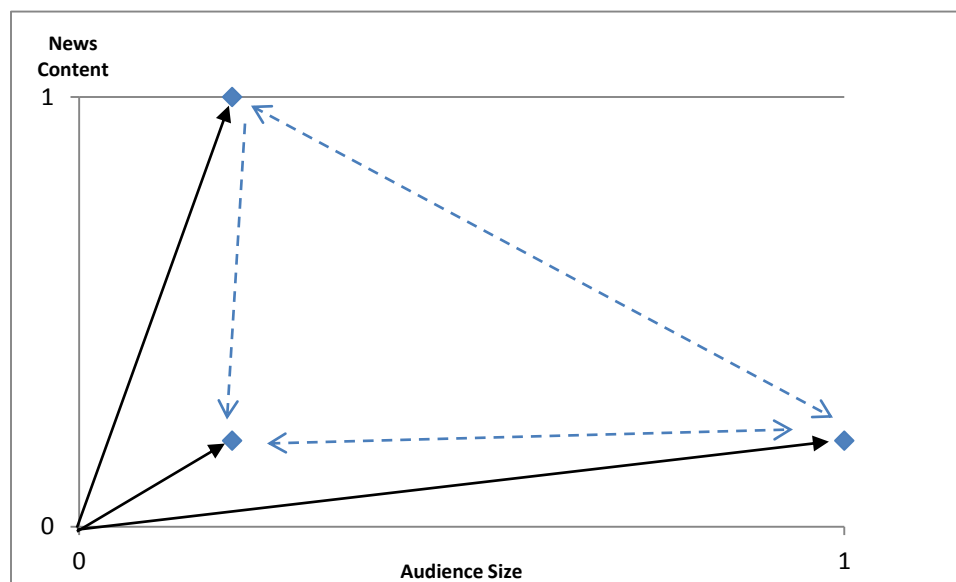
Concept	Name	Formula
Variety	Simple	$N$
	Scaled	$(N^2 - N)/2$
Balance	Gini/2	$\sum_{j=1}^n (p_i * p_j)$
Variety and Balance	HHI	$\sum_{i=1}^n p_i * p_i$
	Shannon-Weiner	$-\sum_{i=1}^n p_i * \ln p_i$
Disparity		$\sum_{j=1}^n d_{ij}$
Diversity	Stirling	$\sum_{j=1}^n d_{ij}^\alpha * (p_i * p_j)^\beta$

**B. Geometric Distance**

A good way to see what is going on is by examining Euclidean distances between elements (see Exhibit V-2). The broken arrows in Exhibit V-2 represent the distance between the elements and these can be taken as the disparity measure. If the distance is weighted by the product of the share of the two elements in the pair, these can be summed into Stirling’s Diversity Index. By varying the exponents  $\alpha$  and  $\beta$ , we can give greater or lesser weight to balance or disparity. The solid arrows in Exhibit V-2 represent the Euclidean distance from the origin, which I believe is a useful empirical observation. The farther from the origin, the more the media outlet adds to the media environment – it reaches a larger audience or delivers more news content.

**EXHIBIT V-2:**

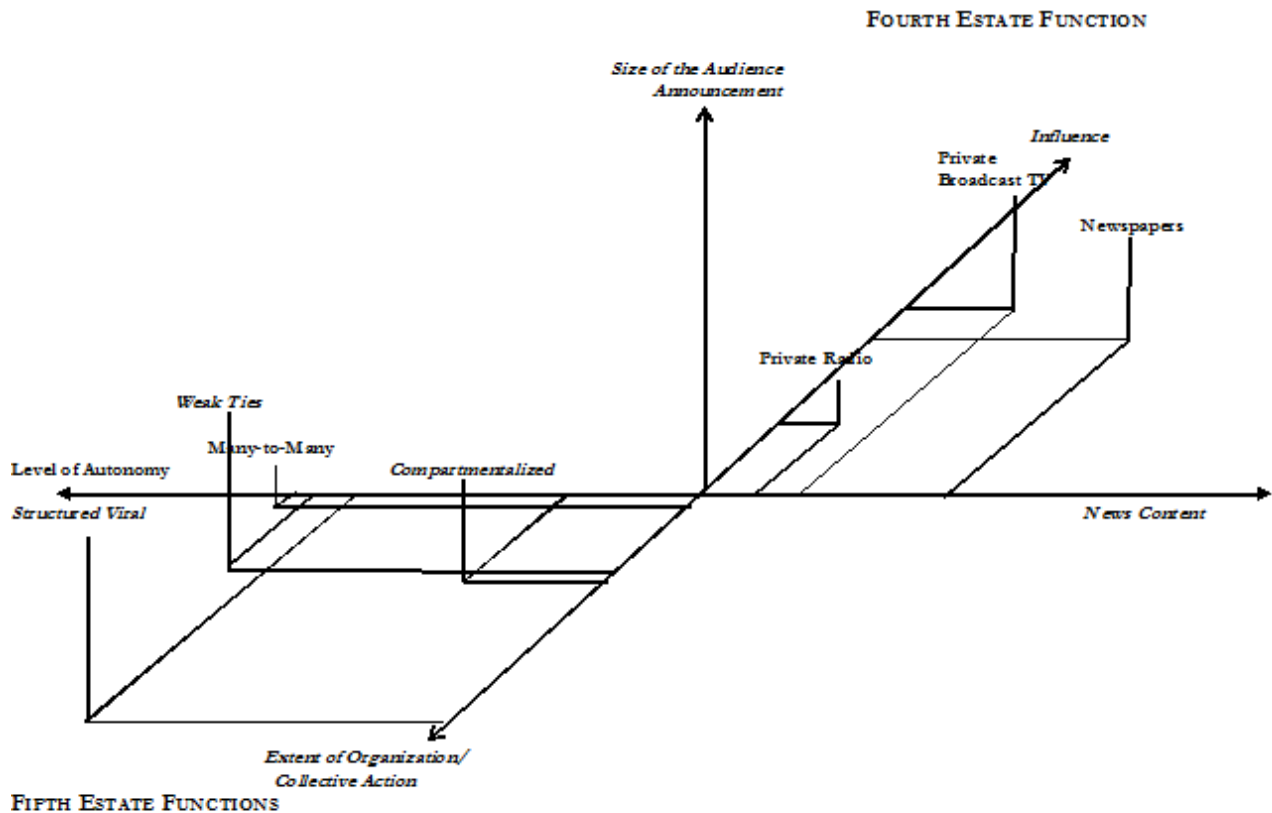
**EUCLIDEAN GEOMETRIC DISTANCES AS A BASIS FOR DISPARITY AND DIVERSITY**



Once one leaves the realm of variety and balance and enters the realm of disparity and diversity, the reality is that the index is likely to be determined more by the judgment of what traits of outlets are important (i.e. “d” or which disparities matter) and how to weight disparity and balance (i.e. the relative size of the exponents  $\alpha$  and  $\beta$ ). The qualitative decisions will dominate and the courts will decide whether the output was reasonable.

Adding dimensions to the analysis quickly increases complexity and results in demanding calculation regimes. Exhibit V-3 begins the translation of the public sphere map from Section II into the geographic diversity space defined in Sections III and IV. We show the characteristics that affect Fourth Estate Functions above the x-axis and to the right of the y-axis; while the Fifth Estate Functions are below and to the left. All of the locations are qualitative assessments. In the Fourth Estate Quadrant I identify media outlets. In the Fifth Estate region, I identify types of networks.

**EXHIBIT V-3: MAPPING THE TERRAIN OF 21<sup>ST</sup> CENTURY MEDIA BY THE PRESS FUNCTIONS**

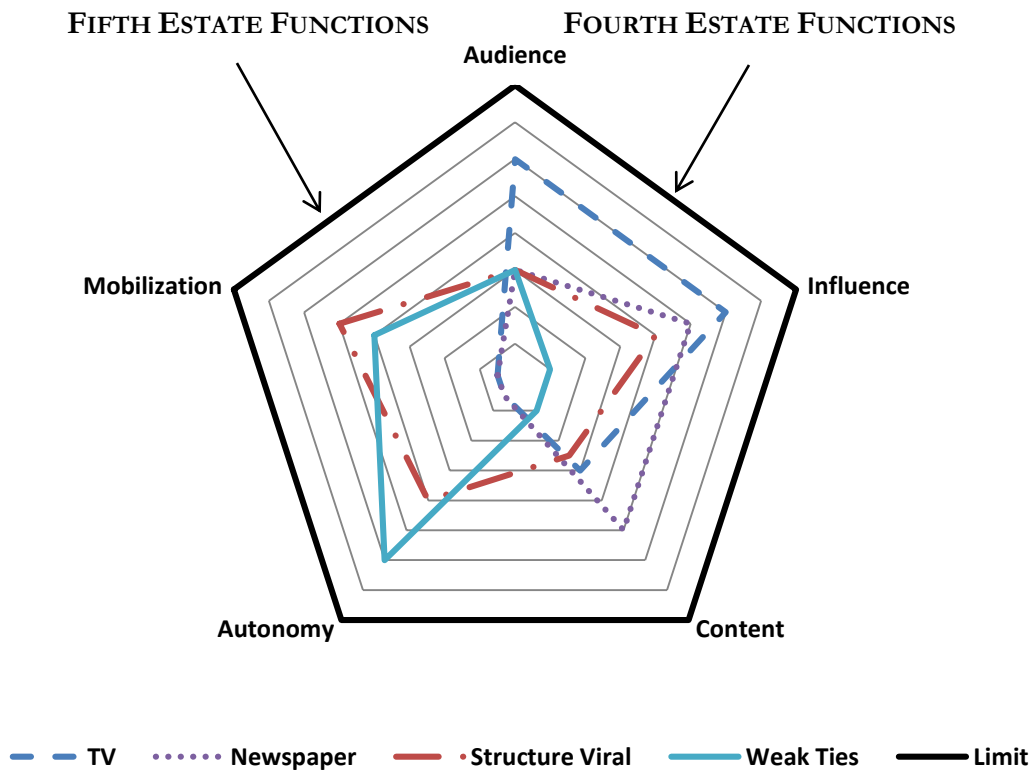


Depicting the terrain in this way misses the fundamental point about redundancy. This problem is particularly important for the new media. That is, 20<sup>th</sup> century commercial mass media did not contribute much directly to mobilization or participation. They did not allow autonomous participation within the media, although they may have stimulated a great deal of it outside the media. New media has the effect of increasing that participation while also providing some of the Fourth Estate functions. This can be represented geographically with radar graphs, as shown in Exhibit V-4. I place audience at the center, since it is critically important to both Fourth and Fifth Estate functions. Although Fifth Estate Functions fall on the left and Fourth Estate

functions fall on the right, the overlap provided by each of the media is evident.

I see great potential for structured viral communications because they blend viral communications at the edge of the network with light handed organization at the center.<sup>24</sup> The new media add a significant amount of coverage in the Fifth Estate function mobilization and autonomy, and a little bit or redundancy in the Fourth Estate functions of audience and content. The outer boundary (the limit), which the media do not approach, reminds us that in regions of ignorance ambiguity remains. Exhibit V-4 is constructed to make it clear that the new media may add some redundancy to the fourth Estate functions, but they do not replace them by any stretch of the imagination.

**EXHIBIT V-4: REDUNDANCY AND FUNCTIONALITY IN THE 21<sup>ST</sup> CENTURY MEDIA**



**C. Conclusion**

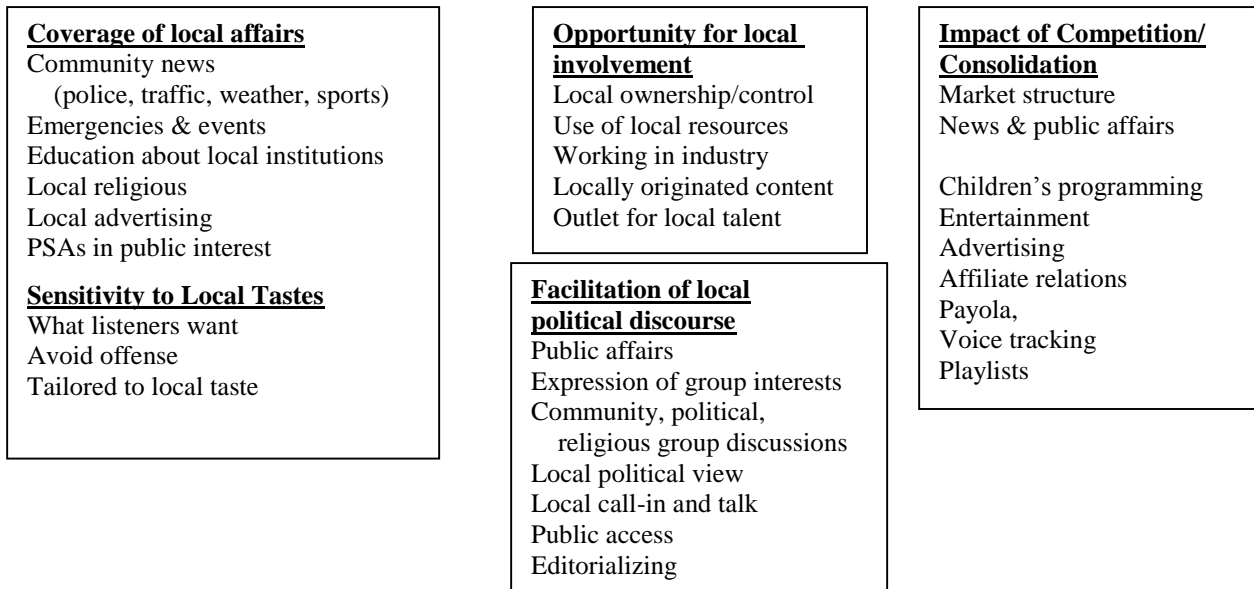
Needless to say, this is a small first step toward building a different rationale and analytic basis for a diversity index. The other three major justifications for promoting diversity – value, innovation and pluralism also deserve to be developed. Analysis in other fields suggests that it may be possible to conclude that different justifications fit different regions of the map of knowledge.

The existing rationale for diversity should be translated into the new framework. This analysis could be the basis for identifying the factors that should be included as the “disparity” measures. That analysis should also inform the weights that are chosen. Mike Powell’s diversity

index bungled the “d”s and  $\alpha$ , producing an index that was so illogical and out of touch with reality that even courts which hesitate to second guess expert agencies could not let it stand. Because this analysis focuses on the justification for diversity other than pluralism, I suggest that we look to the FCC’s localism policy for guidance in this regards. Exhibit V-5 summarizes my earlier analysis of the official documents in the FCC’s localism portfolio. The performance measures are consistent with the earlier discussion of the functions that the media is supposed to provide.

We can identify fifty different ways to construct a Diversity Index, but ultimately, we need to be humble about the quantification. There will always remain a great deal of subjective judgment in the analysis, no matter how formal we make it. Since the goal is to convince decision makers to adopt policy, the analogies to other disciplines helps and I think we have to keep it simple. The HHI was simple and grounded, but now appears to be too simple. Any diversity index needs to be grounded, intuitive and comprehensible. The above presentation of five attributes may be the limit and the geometry of pentagons is manageable.

**EXHIBIT V-5: TRADITIONAL CONCERNS ABOUT MEDIA FUNCTIONALITY AS A SOURCE FOR INSIGHT INTO DISPARITY AND IMPORTANCE.**



**Source: “When The Market Does Not Reign Supreme: Localism And Diversity In U.S. Media Policy,” *International Communications Association*, May 2008**

**ENDNOTES**

<sup>1</sup> Cooper, Mark, *Media Ownership and Democracy in the digital Information Age* (Palo Alto: Stanford Law School=, Center for Internet and Society, 2003), Chapter 8.  
<sup>2</sup> Cooper, Mark, “When Law and Social Science Go Hand in Glove: Usage and Importance of Local and National News Sources, Critical Questions and Answers for Media Market Analysis, Telecommunications Policy Research Conference, October 2004.  
<sup>3</sup> Cooper, Mark, “Junk Science And Administrative Abuse In The Effort Of The FCC To Eliminate Limits On Media Concentration,” *International Communications Association*, May 2008.  
<sup>4</sup> Stirling, Andrew, *On the Economics and Analysis of Diversity* (Science Policy Research Unit, University of Sussex, 2000).

---

<sup>5</sup> Benhamou, Françoise, Reanto G. Flores, Jr. and Stephanie Peltier, *Diversity in Cultural Economics: Theoretical and Empirical Considerations* (Granem, Université Angers, September 2009); Cooper, Mark, *The Case Against Media Consolidation* (New York: Donald McGannon Center for Communications Research, Fordham University, 2007), Part I.

<sup>6</sup> Wikipedia identifies the following areas where the concept has been applied that are relevant to this paper

<http://en.wikipedia.org/wiki/Diversity>: “Diversity may refer to the following:

#### **In Science and Technology**

[Biodiversity](#), the degree of variation of life forms within a given ecosystem, biome, or an entire planet.

[Diversity Index](#), a statistic intended to assess the diversity of any population in which each member belongs to a unique group, type or species.

[Diversity scheme](#), a method for improving the reliability of a message signal by using multiple communications channels

[Antenna diversity](#), a method of wireless communication that use two or more antennas to improve the quality and reliability of the link

#### **In Sociology, Economics, Law and Politics**

[Multiculturalism](#), or ethnic diversity, the acceptance of multiple ethnic cultures

[Diversity \(business\)](#), the business tactic which encourages diversity to better serve a heterogeneous customer base

[Diversity \(politics\)](#), the political and social policy of encouraging tolerance for people of different backgrounds

[Diversification \(finance\)](#) involves spreading investments

<sup>7</sup> Cultural diversity, <http://unesdoc.unesco.org/images/0014/001429/142919e.pdf>; Biodiversity,

<http://www.cbd.int/doc/reports/cbd-report-2010-en.pdf>

<sup>8</sup> [http://en.wikipedia.org/wiki/Fourth\\_Estate](http://en.wikipedia.org/wiki/Fourth_Estate): The concept of the *Fourth Estate* (or *fourth estate*) is a societal or political force or institution whose influence is not consistently or officially recognized. It now most commonly refers to the [news media](#); especially print journalism. [Thomas Carlyle](#) attributed the origin of the term to [Edmund Burke](#), who used it in a parliamentary debate in 1787 on the opening up of press reporting of the [House of Commons of the United Kingdom](#). Earlier writers have applied the term to lawyers, to the queen of England (acting as a free agent, independent of the king), and to the [proletariat](#). The term in current use is now appropriated to the Press, with the earliest use in this sense described by Thomas Carlyle in his book *On Heroes and Hero Worship*: Burke said there were ‘Three Estates in Parliament; but, in the Reporters’ Gallery yonder, there sat a Fourth Estate more important far than they all. In Burke’s 1787 coining he would have been making reference to the traditional three estates of [Parliament](#): The [Lords Spiritual](#), the [Lords Temporal](#) and the Commons. If, indeed, Burke did make the statement Carlyle attributes to him, the remark may have been in the back of Carlyle’s mind when he wrote in his *French Revolution* (1837), “A Fourth Estate, of Able Editors, springs up; increases and multiplies, irrepressible, incalculable.” In this context, the other three estates are those of the [French States-General](#): the [church](#), the [nobility](#) and the [townsmen](#). Carlyle, however, may have mistaken his attribution

<sup>9</sup> I refer to this role as the 5<sup>th</sup> estate for ease of reference and because the concept is being applied to the impact of the Internet on the contemporary media landscape. It is generally hoped that monitoring society and informing the public will get them to act, but mobilizing is a different kettle of fish. This type of activity predominates in cyberspace because the medium is naturally suited to do this. William Dutton (2009), ‘The Fifth Estate Emerging through the Network of Networks’, *Prometheus*, Vol. 27, No. 1, March, p. 2) describes the Fifth Estate as follows: “More generally, the networks comprising the 5th Estate have two key distinctive and important characteristics: 1. the ability to support institutions and individuals to enhance their ‘communicative power’... by affording individuals opportunities to network within and beyond various institutional arenas. 2. The provision of capabilities that enable the creation of networks of individuals which have a public, social benefit (e.g. through social networking websites. “My use of the term “5th estate” has similarities and differences with the use Dutton makes of the term above. We agree that the emergence of the 5th estate stems for the dramatic expansion of access to information and the ability to communicate across institutional and geographic boundaries. We disagree with the suggestion that the 5th estate can supplant the 4th estate. Interestingly, the only other reference to the explicit use of the term 5th estate that Dutton makes is to a web site that adopted the name. The web site described itself as serious and satirical commentary and appears to be defunct (with no entry after July 2009). This example underscores the two characteristics of the 5th estate that distinguish it from the 4th estate. It is largely commentary and its durability over time at the level of individual organizations is suspect. Others have argued that the 5th estate is necessary to monitor the 4<sup>th</sup> estate.<sup>9</sup> Ironically, if the 4<sup>th</sup> estate were doing a better job, the need for and role of the 5<sup>th</sup> estate in this regard would be reduced, but its broader role in democratic discourse would continue.

This is the view that McChesney and Nichols (*The Death and Life of American Journalism: The Media Revolution that Will Begin the Worked Again* (Philadelphia, Nation Books, 2010).) take. They point out that the ratio

---

of opinion to fact in the media of the 5<sup>th</sup> estate is much higher than the 4<sup>th</sup> estate. Few resources are devoted to collecting and reporting news and much of the news that is disseminated has its origin in the work of the 4<sup>th</sup> estate. After discussing the crisis of the 4<sup>th</sup> estate in the implosion of the consolidated, industrial business model of the media, McChesney and Nichols devote a great deal of attention to explaining why the emerging 5<sup>th</sup> estate is not likely to fulfill the functions of the dwindling 4<sup>th</sup> estate. Indeed, without a vigorous 4<sup>th</sup> estate, the 5<sup>th</sup> estate can become an echo chamber in which opinions are never challenged or tested by factual accounts.

<sup>10</sup> [http://en.wikipedia.org/wiki/Public\\_sphere](http://en.wikipedia.org/wiki/Public_sphere)

<sup>11</sup> Baker, C. Edwin, *Media, Markets and Democracy* Cambridge: Cambridge University Press, 2002), pp. 149-151.

<sup>12</sup> Baker, 2002, pp. 187-192.

<sup>13</sup> [http://en.wikipedia.org/wiki/Emergent\\_evolution](http://en.wikipedia.org/wiki/Emergent_evolution): **Emergent evolution** is the [hypothesis](#) that, in the course of [evolution](#), some entirely new properties, such as [life](#) and [consciousness](#), appear at certain critical points, usually because of an unpredictable rearrangement of the already existing entities. The concept has influenced the development of [systems theory](#) and [complexity theory](#).

<http://en.wikipedia.org/wiki/Emergence>: In [philosophy](#), [systems theory](#), [science](#), and [art](#), **emergence** is the way [complex systems](#) and patterns arise out of a [multiplicity](#) of relatively simple interactions. Emergence is central to the theories of [integrative levels](#) and of [complex systems](#).

<sup>14</sup> [http://en.wikipedia.org/wiki/Social\\_construction\\_of\\_reality](http://en.wikipedia.org/wiki/Social_construction_of_reality) **Social constructionism**: and [social constructivism](#) are [sociological theories](#) of [knowledge](#) that consider how social phenomena or objects of consciousness develop in social contexts. . . . Social constructs are generally understood to be the by-products of countless human choices rather than laws resulting from divine will or nature. . . . A major focus of social constructionism is to uncover the ways in which individuals and groups participate in the construction of their perceived social [reality](#). It involves looking at the ways [social phenomena](#) are created, institutionalized, known, and made into [tradition](#) by humans. The social construction of reality is an ongoing, dynamic process that is (and must be) reproduced by people acting on their [interpretations](#) and their [knowledge](#) of it. Because social constructs as facets of reality and objects of knowledge are not "given" by nature, they must be constantly maintained and re-affirmed in order to persist. This process also introduces the possibility of change.

<sup>15</sup> [http://en.wikipedia.org/wiki/Institution#cite\\_note-0](http://en.wikipedia.org/wiki/Institution#cite_note-0): In **institution** is any [structure](#) or [mechanism](#) of [social order](#) and [cooperation](#) governing the [behavior](#) of a set of [individuals](#) within a given human community. Institutions are identified with a [social purpose](#) and permanence, transcending individual [human](#) lives and intentions, and with the making and enforcing of rules governing cooperative human behavior. The term "institution" is commonly applied to customs and behavior patterns important to a [society](#), as well as to particular formal organizations of [government](#) and [public service](#). As structures and mechanisms of social order among humans, institutions are one of the principal objects of study in the [social sciences](#), such as [political science](#), [anthropology](#), [economics](#), and [sociology](#) (the latter being described by [Durkheim](#) as the "science of institutions, their genesis and their functioning"). Institutions are also a central concern for [law](#), the formal mechanism for political rule-making and enforcement.

<sup>16</sup> Stirling 2000, pp. 15. 7...16.

<sup>17</sup> Most recently in McChesney, Robert and John Nichols, *The Death and Life of American Journalism: The Media Revolution that Will Begin the Worked Again* (Philadelphia, Nation Books, 2010).

<sup>18</sup> Stirling 2000, p. 100.

<sup>19</sup> Taleb, pp. 311, 314-315.

<sup>20</sup> Taleb, p. xxii.

<sup>21</sup> Taleb, 2008, p. 30.

<sup>22</sup> Taleb, 2010, p. 317)

<sup>23</sup> Miller, Claire Cane, "Filtering the Social Web to Present News Items," *New York Times*, April 25, 2011.

<sup>24</sup> Cooper, Mark, "Structured Viral Communications: The Political Economy and Social Organization of Digital Disintermediation," , " *Journal on Telecommunications and High Technology Law*, 9:1, 2011; "From Wifi to Wikis and Open Source: The Political Economy of Collaborative Production in the Digital Information Age," *Journal on Telecommunications and High Technology Law*, 5:1, 2006