Title: Local Content Production on the Web: Public or Private?

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This research investigates the production of local content web sites on the World Wide Web, and suggests some municipal methods for improvement. As Castells (1996) identified, local communities are responding to the transnational information age through the creation of powerful local identities. Yet, how are these local identities manifested online? And, what are the characteristics of local content production on the Web? Commercial sites such as Yahoo! Get Local and Digitalcity.com, official city sites like www.ci.seattle.wa.us, and the place name domain names such as www.cleveland.com representing the 30 largest cities in the United States were surveyed. The cities were classified into three regions and three population classes to bring forth regional and population differences in online local community sites. The results of this research suggest that official city sites are excellent at producing top-down content, yet lack in allowing users to participate in online discussions, post messages, and add links to local sites. Furthermore, the commercial local sites are strong in user-generated information, but falter in their local ownership, financing, and imagery. Only through a synthesis of the two, can city sites attract local web surfers and begin to strengthen their community through the Internet.

1. Introduction

This research investigates the production of local content web sites on the World Wide Web, and suggests some municipal methods for improvement. As Castells (1996) identified, local communities are responding to the transnational information age through the creation of powerful local identities. Yet, how are these local identities manifested online? And, what are the characteristics of local content production on the Web? Though there is ample theoretical research on this topic, there is little empirical evidence (Steyaert, 2000). Therefore, this empirical study will survey commercial sites such as Yahoo! Get Local and Digitalcity.com, official city sites like www.ci.seattle.wa.us, and the place name domain names such as www.cleveland.com representing the 30 largest cities in the United States. The cities were classified into three regions (West, Central, and East) and compared to bring forth regional differences in online local community sites. Also, the cities were stratified into large, medium, and small population classes to present population size differences in local content production.

The results of this study are important since online local sites provide a valuable resource for community education and involvement. Furthermore, official city sites are a key communication tool between city, citizen, and community (Abdalla and Cooper, 2000). Defining the characteristics of these sites helps determine what types of sites are the best at producing local content, and leads to recommendations as to how to improve local community sites. This research especially aids city web developers and planners, as they compete with commercial content providers to capture the local web surfers. The issue of access is of vast importance to urban society in the Information Age. Yet, it will not be covered in this paper because it is an entirely separate issue. In a grander picture, this study provides cities with information helpful for strengthening their communities through local web sites. In the words of William Mitchell (1999:

12): "We must understand our emerging options, choose our ends carefully, and build well. Our job is to design the future we want, not to predict its predetermined path."

2. Background

a. The Information Age

Utopian ideas like telecommuting, shopping from home and virtual dating originated from earlier academics and writers. These scholars often wrote from a technological determinist point-of-view – technology shapes reality. As a result, these new ways of interacting would bring forth the death of distance and the city because there would be no need for physical interactions. However, as Aoyama, Warf, and Wheeler (2000) postulate, there is little evidence to support these far-fetched, general claims of the destruction of space and time. While new linkages are weakening the barriers of space and time, they have yet to eliminate them, and are instead strengthening them in many instances. Therefore, advances in communication and information technology (IT) are intensifying the importance of cities as areas of exchange.

Central to Castells' (1996) work is his concept of the "space of flows" and the "space of places." The space of flows is the networks of dominant activity like financial markets, corporate communication and production, and international organizations that transcend political boundaries and traditional spatial areas of jurisdiction through communication and IT. On the other hand, the space of places is the traditional places around which humans organize their daily lives. For example: people tend to think of their identity in terms of their school, neighborhood, community, shopping areas, and other place-based entities. Thus, as Castells identified (1999: 20), "while most dominant activities were constructed around the space of flows, most experience and social interaction was and still is organized around places."

However, communities, or the space of places, are responding to the information age and the "space of flows" through the creation of powerful local identities (Castells, 1997). These identities are shaped around shared local placed-based traits. Local communities are, on the other hand, learning the routes to voice their identities, which Castells (1999) argues as "grassrooting the space of flows." Yet, how are commonplace local identities manifested online?

b. Online Place-Based Communities

In terms of online place-based community research, Beamish's (1995) study of community-based computer networks provides an excellent background. A community network is a network of computers connected to a central computer, which provides community information and a means for the community to communicate electronically. They are not "on-line communities" or "virtual communities" which are not based around a place (Beamish 1995). Furthermore, community networks have been the focus of most research concerning local/place-based uses of IT to strengthen community[1] (Bryan, Tsagarousianou, and Tambini, 1998).

A distinction needs to made between community networks and local content producing web sites. Many of the web sites in this research are private sector creations, which Beamish excludes in her work because of the fundamental differences between the way grassroots organizations and the private sector see their customers (Beamish, 1999). Yet private sector local web sites are a substantial player in the city/local online producer market, and therefore should be considered in trying to understand the creation of local content on the web. Private sector sites became even more prominent in the market when the National Public Telecomputing Network (www.nptn.org), a nonprofit organization set up to help communities establish Free-Nets, filed for bankruptcy in 1996, which signaled the end for many Free-Net community networks. Nevertheless,

Beamish's ideas on community networks are significant to the contemporary Internet of community web sites.

Beamish argues 1) that community networks can become electronic "third places," where people can meet and exchange ideas, 2) that community networks can encourage online interaction which sometimes leads to real world interaction, and 3) that real world interaction can help strengthen communities through increasing attachment to the community. Unfortunately, as Beamish (1995) argues, most community networks have not invested much time in the latter. Rather they provide a great deal of local information, but lack in terms of interaction and discussion capabilities, which are at the heart of strengthening communities. Yet, community networks illustrate that residents are interested in their cities, and that they seek new ways to contribute to them (Beamish, 1995).

Beamish's work on community networks was completed during the early 1990s when communication technology was limited to bulletin board systems and telnet – networking from afar. Therefore there are certain limitations in her research, which no longer exist because of World Wide Web technology. Yet, the very technological limitations of the Internet are what makes the interactions so meaningful - anonymous identities and unknown physical traits allow for less judgmental interactions. Unfortunately, the Internet is eliminating these technological limitations as quickly as possible (Graham, 1999).

c. The Geography of Commercial Internet Production

It is often concluded that the Internet's ability to easily disperse information signifies that its content production is also spatially diffused. However, much of the production of commercial Internet content exhibits traditional urban and economic characteristics as seen in the past (Zook, 2000b). Although new locations of Internet production are growing, older established locations

continue to lead the way. Thus, San Francisco, New York, and Los Angeles are the largest in absolute terms, as well as, in their degree of specialization[2] (Zook, 2000b). While his work illustrates the national and international growth and development of domain names, it does not show the characteristics of specific types of content production, most notably local content production, which this research attempts to understand. Also, it must be mentioned that Moss and Townsend (1997) provided the revolutionary piece on using domain names to measure the geography of the Internet.

d. City Planning in the Information Age

The role of city planner has gradually evolved over time. Friedmann (1987) argues that with the crisis of capitalism upon us, i.e. the great social problems that it accentuates, planners need to broaden their roles as knowledge to action facilitators. No longer should planners advise from the top-down, but rather they should facilitate community groups from the bottom-up. The basis for this community oriented governing draws upon Habermas's communicative action. His theory of communicative action argues that society should be run with the best argumentation or discourse based on an egalitarian environment for actors rather than on politics (power) or economics (the market) (Calhoun, 1992). Coupled with advances in IT, and more specifically the Internet's ability to transcend the political economy, the role of city planners in community development is increasing. Yet, city websites, as an extension of city planning, need to tap this Habermasian technology to realize the full local/place-based strengthening potential of the Internet (Bryan, Tsagarousianou, and Tambini, 1998; Steyaert, 2000).

3. *Methodology*

a. Selection of Cities to Survey

This study surveyed the local websites of the largest 30 cities in the U.S. as defined by the 1998 US Census population estimation according to metropolitan area rankings by population size. Because this is not a random survey of city sites, the findings cannot be generalized for all U.S. cities. But, it can be applied to larger cities in the U.S., and can represent a model for smaller cities to strive for. A random survey was not conducted because many cities do not have the population to support official city sites and commercial sites. Even in Finland - the leading country in per capita Internet hosts in 1998 - only about 50 percent of cities had their own website. Yet, the number is rapidly increasing (Steyaert, 2000). Also, suburban inhabitants often look to central city websites for local information like classifieds, employment opportunities, entertainment, and other types of information. This is nothing new, as the central city newspaper has in the past played a crucial role in disseminating local information.

b. Selection of Sites to Survey

There are numerous local sites on the Web, yet because of time constraints not all of them were selected for survey. In fact, a quick review of the local online community sites for the city of Seattle returned 37 sites, and this number is in no way exhaustive (see Appendix 1). Other research (see Guthrie and Dutton, 1992) has focused on community networks that are locally generated from the beginning to the end, which represent the ideal local content producers on the web. However, this research paper does not focus on the premier local content producing web sites because, most importantly, a systematic national-level, unbiased selection of these web sites is impossible, and because many web users do not even know they exist. Therefore, many of the flagship community sites – designed by locals for locals - are not included. This does not mean, however, that all flagship community sites are excluded from this research. Only the sites that match the selection criteria, which includes some of the premier local sites, were reviewed.

The most popular commercial (Yahoo! Get Local and Digitalcity.com), official (for example: www.ci.seattle.wa.us), and most intuitive (for example: dallas.com) sites were chosen. Yahoo! Get Local's popularity is largely due to www.yahoo.com being the number one search engine on the Internet (Media Metrix, 2000). Also, AOL's Digitalcity.com's popularity can, in part, be attributed to it being the "Local" link on AOL.com – the most popular web page on the Internet (Media Metrix, 2000).

c. Preliminary Survey of Intuitive Sites

Since the most intuitive domain names include dot com, dot org, and dot net, a preliminary survey of the place names for these three types of domain names was conducted. The sites, like www.miami.org, www.miami.net, and www.miami.com, were classified as a community site or other type of site. The characteristic that designates a site as community-oriented is if the site's main page focuses on local information. For the purpose of this study, "focuses" is denoted when the majority of the content is local information. "Local information," is defined as community news (city and regional news), local government information, local business directories, local entertainment, local advertising, local classifieds, school/education information, local weather, and city neighborhood information.

d. Survey of Community Oriented Sites

After the preliminary review of the intuitive sites was conducted, the qualifying community sites, along with the official city site, Yahoo! Get Local sites, and Digitalcity.com sites for each of the largest metropolitan areas in the U.S., was surveyed to determine their strength of local content. The following four variables were extrapolated from the site survey:

1) Street address to which the domain name is registered
2) Street address for the registered domain host-server

3) Street address of the web designer, if the design was subcontracted out

4) The strength of local content, which is defined in the next section

There are two major assumptions in the variables above. 1) It is assumed that the street addresses for the domain name, host server, and web designer are within the city limits for city sites. Although this is speculation, it is derived from the fact that city offices are within city boundaries and that cities are managing their own sites because of the high costs of subcontracting. 2) It is assumed that the registered street addresses in the domain name database "WHOIS" are the actual street addresses. Zook's (2000) analysis of the zip codes registered in the WHOIS database with the CorpTech database – an up to date database of 20,000 high technology firms in the U.S. – concluded that 73 percent of the registered zip codes matched up with the firm's CorpTech zip code.

e. Creating the Local Content Production Index

After surveying the community-oriented sites, a weighted index was created that aggregates the variables described above. As Heying (1997) indicated, local ownership is more beneficial to the community because the owning party has a vested interest in seeing the community prosper. Therefore, local ownership is heavily weighted in the following variables. The weighted index consists of the following arrangement (see Figure 1):

1) *Street address to which the domain name is registered.* This variable accounts for 20 percent of the index, as it is important to determining who owns the website and what their interests are in it. A value of 10 was assigned to the address if it was registered within the metropolitan area that the domain name represents. A value of 8 was assigned to the address if it was within the state that the city domain name was in. A value of 6 was assigned to the address if it was within the region that the city domain name was in. Finally, a value of zero was given to the address if it was not within the region that the city domain name was in.

2) *Street address for the registered domain host-server.* This variable accounts for 10 percent of the index, as it is important to determining if the site is hosted locally. The score values are the same as for the street address to which the domain name is registered.

3) *Street address of the web designer, if the design was subcontracted out.* This variable accounts for 10 percent of the index, as it is important to determining if the design was done locally. The score values are the same as for the street address to which the domain name is registered.

4) *The strength of local content measure.* This variable is by far the most significant factor in the quality of community information sites. Therefore it represents 60 percent of the local content production index. The strength of local content measure is another index based around the framework for classifying community networks as defined by Guthrie and Dutton (1992), and used by Beamish (1995). This framework is defined below.

<table>
<tr><td colspan="2">*Figure 1: The Local Content Production Index*</td></tr>
<tr><td>Local Ownership 20%</td><td rowspan="4">1)   Information Content 10%
2)   Financing (Advertising) 10%
3)   Communication Channels 20%
4)   Imagery 5%
5)   Community Promotion 5%
6)   External Links 10%</td></tr>
<tr><td>Local Host 10%</td></tr>
<tr><td>Local Design 10%</td></tr>
<tr><td>Local Content 60%</td></tr>
</table>
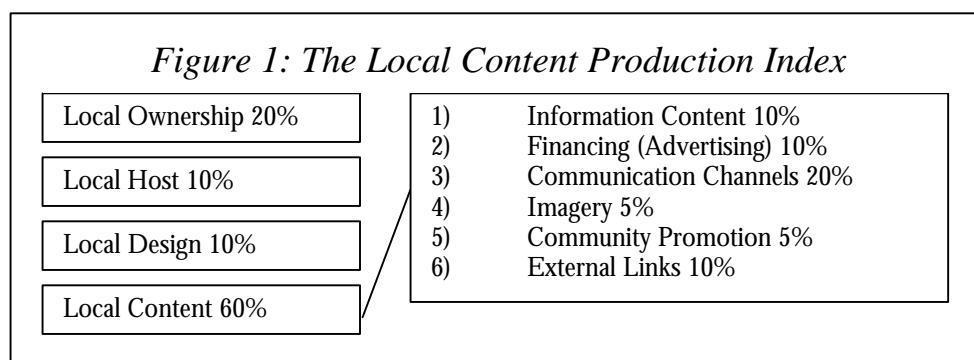
f. Creating the Strength of Local Content Measure

The basis of the strength of local content measure is derived from Guthrie and Dutton (1992), who developed a framework to analyze four city-wide networks in southern California. According to Guthrie and Dutton, the most important technology and policy designs in community networks are: 1) system capacity, 2) accessibility, 3) information content, 4) editorial control, 5) ownership, 6) financing, and 6) architecture of the communication channels. While it is beyond the scope of this paper to analyze all the chosen community content producers on the web with as

detailed of a framework as cited above, the framework does present a basis for the creation of a web-based local content measure. Therefore, based on Guthrie and Dutton (1992) I used the following framework for measuring the strength of local content produced on web sites:

1) Information Content (10%) – Is it local information? How many distinguishable topics are covered on the site? For example: classifieds and local news.
2) Financing (Advertising) (10%) – Is the advertising local? Is the financing local? How prominent is advertising on the site?
3) Communication Channels (20%) – Does the site have online discussion capabilities, newsgroups, and user added links? Or does the owner dictate the content?
4) Imagery (5%) – Does the site feature visual images of the community?
5) Community Promotion Content (5%) – Does the site *lack* travel and tourism information? Is the site focused on locals rather than visitors?
6) External Links (10%) – Does the site link to other local sites on the Web?

A value of 10 is assigned to the site if it has numerous instances of the characteristics of the category, while a value of 5 is assigned if the site has some instances of the category, and a value of 0 if it has no instances. The six categories were weighted together to represent the strength of local content. The aggregated category scores were then added into the local production index, and the total local production score (out of 100) was calculated. The local production index for each city site was then compared to bring forth the strongest local content provider on the web for each city studied.

g. Regional and Population Size Classifications and Comparisons

The cities were classified into two separate classification themes - population and region – to bring forth regional and population size differences in the online local/city content producers. The regional classification consists of East, Central and West (see Figure 2 & Figure 4). The population classification consists of Class I: 20+ million to 5 million, Class II: 5 million to 2 million, and Class III: 2 million to 1.5 million (see Figure 3). The three population classes were chosen

because they are easy to use and are loosely based around international cities, national cities, and regional cities in the U.S. The regional classes were based on their geographic area.

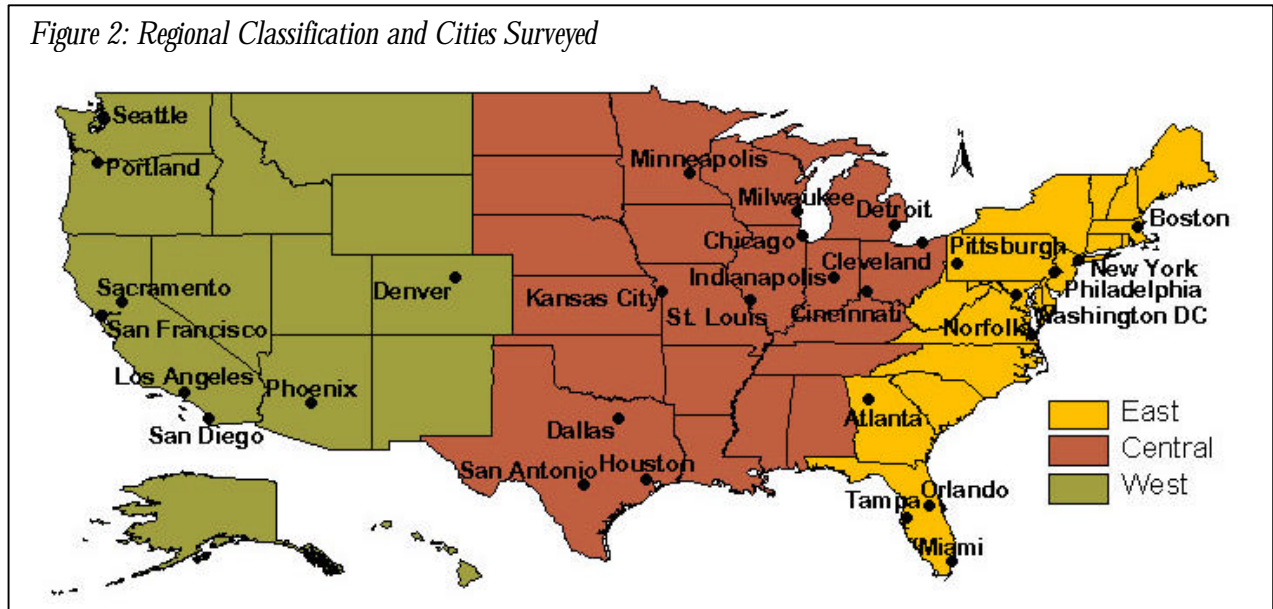Figure 2: Regional Classification and Cities Surveyed

Figure 3 - Population Classification		
MSA	1998 Pop	Region
Class One: 20+ million – 5 million		
New York	20,126,150	East
Los Angeles	15,781,273	West
Chicago	8,809,846	Central
Washington	7,285,206	East
San Francisco	6,816,047	West
Philadelphia	5,988,348	East
Boston	5,633,060	East
Detroit	5,457,583	Central
Class Two: 5 million – 2 million		
Dallas	4,8,02,463	Central
Houston	4,407,579	Central
Atlanta	3,746,059	East
Miami	3,655,844	East
Seattle	3,424,361	West
Phoenix	2,931,004	West
Cleveland	2,911,683	Central
Minneapolis	2,831,234	Central
San Diego	2,780,592	West
St. Louis	2,563,801	Central
Denver	2,365,345	Central
Pittsburgh	2,346,153	East
Tampa	2,256,559	East
Portland	2,149,056	West
Class Three: 2 million – 1.5 million		
Cincinnati	1,948,264	Central
Kansas City	1,737,025	Central
Sacramento	1,685,812	West
Milwaukee	1,645,924	Central
Norfolk	1,542,143	East
San Antonio	1,538,338	Central
Indianapolis	1,519,194	Central
Orlando	1,504,569	East

Figure 4 - Regional Classification		
MSA	Region	1998 Pop
Class One: East		
New York	East	20,126,150
Washington	East	7,285,206
Philadelphia	East	5,988,348
Boston	East	5,633,060
Atlanta	East	3,746,059
Miami	East	3,655,844
Pittsburgh	East	2,346,153
Tampa	East	2,256,559
Norfolk	East	1,542,143
Orlando	East	1,504,569
Class Two: Central		
Chicago	Central	8,809,846
Detroit	Central	5,457,583
Dallas	Central	4,8,02,463
Houston	Central	4,407,579
Cleveland	Central	2,911,683
Minneapolis	Central	2,831,234
St. Louis	Central	2,563,801
Cincinnati	Central	1,948,264
Kansas City	Central	1,737,025
Milwaukee	Central	1,645,924
San Antonio	Central	1,538,338
Indianapolis	Central	1,519,194
Class Three: West		
Los Angeles	West	15,781,273
San Francisco	West	6,816,047
Seattle	West	3,424,361
Phoenix	West	2,931,004
San Diego	West	2,780,592
Denver	West	2,365,345
Portland	West	2,149,056
Sacramento	West	1,685,812

4. Survey Results

a. Preliminary Survey Results

The intuitive site survey returned 20 community oriented sites out of a possible 90 sites (dot com, dot org, and dot net for the largest 30 cities in the US) (see Appendix 2). Only New York and Pittsburgh yielded community sites for all of the possibilities, while numerous cities yielded no intuitive community sites. The East had 11 intuitive sites, the Central had five intuitive sites, and the West had four intuitive sites. Therefore, the East had 37 percent of its possible intuitive sites, the Central had 14 percent, and the West had 17 percent. The East is much larger because New York and Pittsburgh alone represented 6/11 community sites. In terms of the population stratification, Class I returned seven sites, or 29 percent, Class II yielded eight sites, or 19 percent, and Class III returned five sites, or 21 percent. Class I is higher than the others because it includes New York City, while Class II is boosted up because of Pittsburgh's 100 percent return rate.

b. The Local Content Production Index Results

Along with the intuitive sites, the official city site, Yahoo! Get Local, Digitalcity.com and Boulevards New Media sites were surveyed on October 22, 2000 to bring forth their local content production score (see Appendix 3). Boulevards New Media (www.boulevards.com), a privately owned firm in Silicon Valley, specializes in alternative community sites and owns 13 of the largest 30 cities' dot com domain names like www.milwaukee.com. Therefore, Boulevards New Media's 13 sites were included in the intuitive site survey, but were not included in the results of the intuitive survey because the sites are more similar to Yahoo! Get Local and Digitalcity.com than to the other, mostly independent sites in the intuitive survey. Unfortunately, the web designer of the sites was unavailable in each and every site except one: www.newyork.org. Therefore, the web designer address score was omitted from the total local score. Out of the 53 sites surveyed, 30 are city sites,

which maintain their sites internally, eight are newspaper partner sites, which also maintain their sites in-house, and three are user-generated sites. However, the remaining 12 sites might subcontract out the web design work, but most of them probably do not because the site is their primary business venture.

The best overall scores - over 80 percent - went to 1) The City of San Francisco - www.ci.sf.ca.us, 2) Seanet Online Services – www.seattle.net, 3) The Kansas City Star – www.kansascity.com, and 4) Plain Dealer New Media – www.cleveland.com (see Figure 5). The scores for each individual site can be seen in Appendix 3. These sites scored the highest because they are locally owned and allow for user input, which together represents 40 percent of the index.

The City of San Francisco's website was the best local city site surveyed. It is locally owned, is locally hosted, has only local information, is locally financed, allows users to add community website links, has local imagery, has little city travel and tourism information, and has links to local sites. Yet like most city sites, information is dictated from the top-down and user input is very small. Also, the content tends to be government oriented, and lacks information that many web surfers are looking for, like restaurant guides, movie listings, business listings, and discussion capabilities concerning local policy issues.

Figure 5: Best Overall City Sites

Domain Name	Local Owner	Local Host	Local Design	Info Content	Ads	Com Ch	Imagery	Promo	Links	Total Content	Total Local
www.ci.sf.ca.us	10	10	NA	10	10	5	10	5	10	48	0.86
www.seattle.net	10	10	NA	10	10	5	10	0	10	45	0.83
www.kansascity.com	10	NA	NA	10	0	10	0	10	10	45	0.81
www.cleveland.com	10	0	NA	10	10	10	10	5	5	53	0.81

Seanet Online Services, an Internet Service Provider for the Seattle area, owns and operates www.seattle.net, which is the highest scoring privately held site not affiliated with a newspaper. This site is locally owned, locally hosted, contains all local information, is locally financed, allows

users to add community website links, has local imagery, has a visitor's guide and relocation guide, and has lots of local links. But, not unlike city sites, www.seattle.net's information is dictated from the top-down, particularly as a way to maintain its artistic and attractive design.

The Kansas City Star operates www.kansascity.com, and is a Knight-Ridder publication, which makes its local ownership suspect. However, Knight-Ridder has developed the Real Cities Network (www.realcities.com), which is an online network of websites affiliated with their newspapers, and the lower scoring www.miami.com is part of that network. Therefore, there is a considerable difference between Knight-Ridder's Real City community guides, especially when it comes to local content production. Nevertheless, www.kansascity.com is locally owned, has local information, allows for a great deal of user input through discussion channels and suggestion of a local site, lacks travel information, and has lots of local links. Yet, it has little local advertising and no local imagery.

Finally, www.cleveland.com is locally owned, has lots of local information, good local advertising and financing, user input through forums and chat, lots of photos of local news, some travel information, and some local links. However, it is not locally hosted. Also, www.cleveland.com is owned and operated by the Cleveland Plain Dealer newspaper.

The previous two newspaper and other media affiliate sites represent different production styles. The Kansas City Star site allows users to suggest a site, similar to Yahoo! Get Local and Digitalcity.com, but lacks local advertising and imagery. The Cleveland Plain Dealer's site does not allow site suggestions, but does have lots of local advertising and local news photos. The Plain Dealer's site is more integrated with the newspaper, and therefore dictates more of its content and has more advertising. On the other hand, the Kansas City Star's site has fewer characteristics of a traditional newspaper, which in turn, allows for a more interactive online community.

The national networks of local sites – Yahoo! Get Local, Digitalcity.com, and Boulevards New Media - scored near the bottom of the sites (see Appendix 3). These sites are excellent sources of local information, especially Digitalcity.com's local experts section which allows locals to rate local businesses, but unfortunately these sites are not locally owned, not locally hosted, have little local advertising, and no local imagery. Also, these sites depend on users to make them grow, so only well established sites are worthy of a visit. Yet, lots of visits is what makes these sites worthy of a visit, which is a circular argument.

c. Regional and Population Stratification Results

The average local content production score was 0.63, while the East region scored 0.58, the Central scored 0.70, the West scored 0.70 and the regionless sites (Yahoo! Get Local, Digitalcity.com, and Boulevards New Media sites) scored 0.44. Therefore the results suggest a lower average local production score for the East, which is a result of New York's three intuitive sites scoring rather low: 0.5, 0.42 and 0.36 respectively. Also, Pittsburgh's three intuitive sites scored 0.56, 0.48, and 0.47, which brought the East's average even farther down. Since intuitive sites on average scored lower than city sites, the presence of many intuitive sites in the East compared to the rest of the US, pushed the East's overall local content production index lower.

In terms of population classes, Class I scored 0.62, Class II scored 0.65, and Class III scored 0.67, with the average equal to the regional average of 0.63. When the localities are subdivided by population, the New York and Pittsburgh cases are clustered into different classes and their collective bias is minimized. As a result, there is little variation in local content production on the web by central city population.

6. Conclusions & Recommendations

People are responding to the "space of flows" by developing place-based local opinions and communities (Castells, 1996). However, national arenas like Yahoo! Get Local and Digitalcity.com are providing the venues for local discussion. Although the Internet is often hailed as the method to break down traditional places of influence, Zook (2000) has shown that much of the commercial Internet production exhibits traditional urban and economic characteristics, as is the case for Yahoo! Get Local and AOL's Digitalcity.com. On the other hand, local/city place-based sites are not providing arenas for extensive user input – they instead chose to focus on top-down delivery of content with little or no discussion between locals. This finding agrees with Steyaert (2000) who concluded that local Finnish government websites are one-way streams of information to citizen customers and lack interactive capabilities. Also, there is neither a regional nor population difference between the major cities of the US in terms of their ability to generate local content on the Web. But, if cities/localities want to capture the web surfers and strengthen their local place-based community in response to the declining importance of place, they need to soften their top-down approach and allow community members to be a more active part of their online community (Graham, 2000).

Cities should adapt their sites so that users can add links and participate in online discussions and forums, all of which the national, private firms are doing. However, the city sites face a difficult transition because the national sites are already well established, and that is what makes their sites so useful – so much locally generated and personal information. Cities can look to technologically oriented places like Seattle, where a Web Planner position was recently announced. This position hybrids city planning with the Internet to bring the community together through information technology. Also, the highest scoring site was the city of San Francisco's site, which allows users to add local community group links. However, for it to be a truly participatory

community site, it needs to allow more citizen input, which it can model from Yahoo! Get Local and Digitalcity.com's local experts. Luckily, allowing sites to have user input is rather inexpensive and requires very little maintenance because of advanced web technology like Active Server Pages (ASP), Java programming, Common Gateway Interface (CGI) and Perl programming.

One of the difficulties that city sites face is the city naming convention as defined by the Internet Engineering Task Force (IETF) as enforced by the Network Information Center (NIC), which reserves dot gov for the Federal government. Web surfers must turn to search engines and portals like Yahoo! and AOL.com to locate the city site, and in the process are often snagged by the portal's local content section. As a result, cities should adopt user-friendly domain names like www.cityofseattle.net, while maintaining the conventional name like www.ci.seattle.wa.us (City of Seattle, 2000). New York City recently changed its name to www.nyc.gov, which it had owned well before IETF prohibited non-Federal agencies to own dot gov domain names. New York City officials call this "the first step toward making the Internet's ease, speed and focus on consumer service a permanent feature of City government" (New York City, 2000: 1).

We must strengthen our communities so as to build cohesive local units that can preserve their unique characteristics. If we do not, commercial tastes and "translocal" marketing and advertising that provide a more interactive product more quickly and effectively may dilute local qualities. Currently Yahoo! Get Local and Digitalcity.com are responding to citizen's interests in allowing them to post their ideas, be involved in discussion, add links, and manage their portals through customizable "my" pages (i.e. my.yahoo.com). City sites need to incorporate discussion capabilities, message boards, and user suggested local link postings into their sites. As Graham (2000, 27) writes: "the central challenge. . .is to design local ICT [information and communications technologies] systems which are equitable in terms of access as well as supportive of genuine community and civic dialogue." Local content producing web sites should be locally-owned and

locally-produced. This is a necessary step to strengthening local communities in the Information Age.

7. Endnotes

[1] For an excellent review of the democratic potential of civic networks see Tsagarousianou, R., Tambini, D. and Bryan, C. (1998). <u>Cyberdemocracy: Technology, cities, and civic networks</u>. New York: Routledge.

[2] In order to eliminate the population bias of a city, Zook calculated the "Domain Name Specialization Ratio," which indicates how specialized an area is in domain names as compared to the U.S. as a whole. For example: New York City may have the most registered domain names, but this could be attributed to its size. By using Zook's ratio, the population bias is therefore eliminated.

8. References

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Appendix 1: Quick Review of Local Content Producers for the city of Seattle

4Seattle.com
All Seattle
Areaguide Seattle
Ballard: An On-Line Guide
Banana Pages
Beautiful Seattle
City Central Seattle
City of Seattle
CityScape: Seattle
Digital City: Seattle
Lonely Planet - Destination Seattle
Maeg Fest
Northwest Culture
Open World: Seattle
RainCity
Ross' Guide to Seattle
SeaBest
Seattle
Seattle Bizhost.Com
Seattle City Kids
Seattle Department of Neighborhoods
Seattle InfoGuide
Seattle InterLink
Seattle Links
Seattle Monk Magazine
Seattle Sidewalk
Seattle Web
Seattle WOW
Seattle, The Emerald City
Seattle.com
SeattleInsider
SeattleSquare.com
Visiting Cities: Seattle
Wallingford Network
Welcome to Seattle
WestSeattle.com
Yahoo! Get Local: Seattle

Appendix 2: Preliminary Intuitive Site Survey Results + Official City Sites

Pop Rank	City	Region	Domain Name	Site Type
1	New York	East	www.newyork.net	Community Site
1	New York	East	www.newyork.org	Community Site
1	New York	East	www.newyork.com	Community Site
1	New York	East	www.ci.nyc.ny.us	City Site
2	Los Angeles	West	www.losangeles.com	Community Site[1]
2	Los Angeles	West	www.losangeles.org	
2	Los Angeles	West	www.losangeles.net	
2	Los Angeles	West	www.ci.la.ca.us	City Site
3	Chicago	Central	www.chicago.net	ISP or IT related
3	Chicago	Central	www.chicago.org	ISP or IT related
3	Chicago	Central	www.chicago.com	ISP or IT related
3	Chicago	Central	www.ci.chi.il.us	City Site
4	Washington	East	www.washington.com	
4	Washington	East	www.washington.org	Community Promotion
4	Washington	East	www.washington.net	ISP or IT related
4	Washington	East	www.ci.washington.dc.us	City Site
5	San Francisco	West	www.sanfrancisco.com	Boulevards New Media*
5	San Francisco	West	www.sanfrancisco.org	
5	San Francisco	West	www.sanfrancisco.net	Other
5	San Francisco	West	www.ci.sf.ca.us	City Site
6	Philadelphia	East	www.philadelphia.com	Boulevards New Media*
6	Philadelphia	East	www.philadelphia.org	Community Promotion
6	Philadelphia	East	www.philadelphia.net	Community Site
6	Philadelphia	East	www.phila.gov	City Site
7	Boston	East	www.boston.com	Community Site
7	Boston	East	www.boston.org	Other
7	Boston	East	www.boston.net	
7	Boston	East	www.ci.boston.ma.us	City Site
8	Detroit	Central	www.detroit.com	Boulevards New Media*
8	Detroit	Central	www.detroit.net	Community Site
8	Detroit	Central	www.detroit.org	
8	Detroit	Central	www.ci.detroit.mi.us	City Site
9	Dallas	Central	www.dallas.com	Boulevards New Media*
9	Dallas	Central	www.dallas.org	Community Site
9	Dallas	Central	www.dallas.net	ISP or IT related
9	Dallas	Central	www.ci.dallas.tx.us	City Site
10	Houston	Central	www.houston.com	Boulevards New Media*
10	Houston	Central	www.houston.org	Community Promotion
10	Houston	Central	www.houston.net	
10	Houston	Central	www.ci.houston.tx.us	City Site
11	Atlanta	East	www.atlanta.com	Community Promotion
11	Atlanta	East	www.atlanta.net	ISP or IT related
11	Atlanta	East	www.atlanta.org	Other
11	Atlanta	East	www.ci.atlanta.ga.us	City Site
12	Miami	East	www.miami.org	

12	Miami	East	www.miami.net	
12	Miami	East	www.miami.com	Community Site
12	Miami	East	www.ci.miami.fl.us	City Site
13	Seattle	West	www.seattle.com	Boulevards New Media*
13	Seattle	West	www.seattle.org	
13	Seattle	West	www.seattle.net	Community Site
13	Seattle	West	www.ci.seattle.wa.us	City Site
14	Phoenix	West	www.phoenix.net	ISP or IT related
14	Phoenix	West	www.phoenix.com	Private Firm
14	Phoenix	West	www.phoenix.org	Other
14	Phoenix	West	www.ci.phoenix.az.us	City Site
15	Cleveland	Central	www.cleveland.net	ISP or IT related
15	Cleveland	Central	www.cleveland.org	
15	Cleveland	Central	www.cleveland.com	Community Site
15	Cleveland	Central	www.cityofcleveland.org	City Site
16	Minneapolis	Central	www.minneapolis.com	Boulevards New Media*
16	Minneapolis	Central	www.minneapolis.org	Community Promotion
16	Minneapolis	Central	www.minneapolis.net	
16	Minneapolis	Central	www.ci.minneapolis.mn.us	City Site
17	San Diego	West	www.sandiego.com	ISP or IT related
17	San Diego	West	www.sandiego.org	Community Promotion
17	San Diego	West	www.sandiego.net	ISP or IT related
17	San Diego	West	www.sannet.gov	City Site
18	St Louis	Central	www.stlouis.com	Boulevards New Media*
18	St Louis	Central	www.stlouis.net	
18	St Louis	Central	www.stlouis.org	
18	St. Louis	Central	stlouis.missouri.org	City Site
19	Denver	West	www.denver.net	
19	Denver	West	www.denver.com	Boulevards New Media*
19	Denver	West	www.denver.org	Community Promotion
19	Denver	West	www.denvergov.org	City Site
20	Pittsburgh	East	www.pittsburgh.com	Community Site
20	Pittsburgh	East	www.pittsburgh.org	Community Site
20	Pittsburgh	East	www.pittsburgh.net	Community Site
20	Pittsburgh	East	www.city.pittsburgh.pa.us	City Site
21	Tampa	East	www.tampa.org	
21	Tampa	East	www.tampa.net	ISP or IT related
21	Tampa	East	www.tampa.com	Community Site
21	Tampa	East	www.ci.tampa.fl.us	City Site
22	Portland	West	www.portland.com	Newspaper
22	Portland	West	www.portland.org	Other
22	Portland	West	www.portland.net	
22	Portland	West	www.ci.portland.or.us	City Site
23	Cincinnati	Central	www.cincinnati.net	Private Firm
23	Cincinnati	Central	www.cincinnati.org	
23	Cincinnati	Central	www.cincinnati.com	Community Site
23	Cincinnati	Central	www.ci.cincinnati.oh.us	City Site
24	Kansas City	Central	www.kansascity.net	

24	Kansas City	Central	www.kansascity.org	Other
24	Kansas City	Central	www.kansascity.com	Community Site
24	Kansas City	Central	www.kcmo.org	City Site
25	Sacramento	West	www.sacramento.org	Community Site
25	Sacramento	West	www.sacramento.com	Community Site
25	Sacramento	West	www.sacramento.net	
25	Sacramento	West	www.ci.sacramento.ca.us	City Site
26	Milwaukee	Central	www.milwaukee.net	
26	Milwaukee	Central	www.milwaukee.com	Boulevards New Media*
26	Milwaukee	Central	www.milwaukee.org	Community Promotion
26	Milwaukee	Central	www.ci.mil.wi.us	City Site
27	Norfolk	East	www.norfolk.com	Community Site
27	Norfolk	East	www.norfolk.net	Same as Norfolk.com
27	Norfolk	East	www.norfolk.org	Other
27	Norfolk	East	www.norfolk.va.us	City Site
28	San Antonio	Central	www.sanantonio.net	ISP or IT related
28	San Antonio	Central	www.sanantonio.com	Boulevards New Media*
28	San Antonio	Central	www.sanantonio.org	Other
28	San Antonio	Central	www.ci.sat.tx.us	City Site
29	Indianapolis	Central	www.indianapolis.com	Boulevards New Media*
29	Indianapolis	Central	www.indianapolis.org	Community Promotion
29	Indianapolis	Central	www.indianapolis.net	
29	Indianapolis	Central	www.ci.indianapolis.in.us	City Site
30	Orlando	East	www.orlando.org	Community Promotion
30	Orlando	East	www.orlando.net	Community Promotion
30	Orlando	East	www.orlando.com	Community Promotion
30	Orlando	East	www.ci.orlando.fl.us	City Site

*Boulevard New Media Community Site <http://www.boulevards.com>
[1]losangeles.com is Boulevards New Media's best local site.

Appendix 3: Local Production Index Scores

Pop Rank	City	Region	Domain Name	Local Owner	Local Host	Local Design	Info Content	Ads	Com Channels	Imagery	Promo	Links	Total Content	Total Local
5	San Francisco	West	www.ci.sf.ca.us	10	10	NA	10	10	5	10	5	10	48	0.86
13	Seattle	West	www.seattle.net	10	10	NA	10	10	5	10	0	10	45	0.83
24	Kansas City	Central	www.kansascity.com	10	NA	NA	10	0	10	0	10	10	45	0.81
15	Cleveland	Central	www.cleveland.com	10	0	NA	10	10	10	10	5	5	53	0.81
23	Cincinnati	Central	www.ci.cincinnati.oh.us	10	10	NA	10	10	0	5	10	10	38	0.75
18	St. Louis	Central	stlouis.missouri.org	10	10	NA	10	10	0	10	5	10	38	0.75
14	Phoenix	West	www.ci.phoenix.az.us	10	10	NA	10	10	0	5	10	10	38	0.75
8	Detroit	Central	www.detroit.net	10	NA	NA	10	10	5	0	0	10	40	0.75
29	Indianapolis	Central	www.ci.indianapolis.in.us	10	10	NA	10	10	0	10	0	10	35	0.72
27	Norfolk	East	www.norfolk.com	10	0	NA	10	10	5	0	10	10	45	0.72
25	Sacramento	West	www.sacramento.org	10	0	NA	10	10	5	0	10	10	45	0.72
24	Kansas City	Central	www.kcmo.org	10	10	NA	10	10	0	0	10	10	35	0.72
22	Portland	West	www.ci.portland.or.us	10	10	NA	10	10	0	10	10	5	35	0.72
20	Pittsburgh	East	www.city.pittsburgh.pa.us	10	10	NA	10	10	0	10	0	10	35	0.72
11	Atlanta	East	www.ci.atlanta.ga.us	10	10	NA	10	10	0	5	5	10	35	0.72
9	Dallas	Central	www.ci.dallas.tx.us	10	10	NA	10	10	0	0	10	10	35	0.72
1	New York	East	www.ci.nyc.ny.us	10	10	NA	10	10	0	10	0	10	35	0.72
26	Milwaukee	Central	www.ci.mil.wi.us	10	10	NA	10	10	0	5	10	5	33	0.69
10	Houston	Central	www.ci.houston.tx.us	10	10	NA	10	10	0	5	10	5	33	0.69
8	Detroit	Central	www.ci.detroit.mi.us	10	10	NA	10	10	0	5	10	5	33	0.69
3	Chicago	Central	www.ci.chi.il.us	10	10	NA	10	10	0	10	5	5	33	0.69
2	Los Angeles	West	www.ci.la.ca.us	10	10	NA	10	10	0	5	10	5	33	0.69
21	Tampa	East	www.tampa.com	10	NA	NA	5	0	10	0	0	10	35	0.69
16	Minneapolis	Central	www.ci.minneapolis.mn.us	10	10	NA	10	10	0	5	5	5	30	0.67
13	Seattle	West	www.ci.seattle.wa.us	10	10	NA	10	10	0	10	0	5	30	0.67
2	Los Angeles	West	www.losangeles.com	8	8	NA	10	0	5	10	0	10	35	0.66
25	Sacramento	West	www.sacramento.com	10	10	NA	10	5	5	0	5	0	28	0.64
15	Cleveland	Central	www.cityofcleveland.org	10	10	NA	10	10	0	5	10	0	28	0.64
28	San Antonio	Central	www.ci.sat.tx.us	10	10	NA	10	10	0	0	10	0	25	0.61

25	Sacramento	West	www.ci.sacramento.ca.us	10	10	NA	10	10	0	10	0	0	25	0.61
19	Denver	West	www.denvergov.org	10	10	NA	10	10	0	5	5	0	25	0.61
17	San Diego	West	www.sannet.gov	10	10	NA	10	10	0	5	5	0	25	0.61
12	Miami	East	www.miami.com	10	10	NA	10	5	0	0	0	10	25	0.61
7	Boston	East	www.ci.boston.ma.us	10	10	NA	10	10	0	10	0	0	25	0.61
6	Philadelphia	East	www.philadelphia.net	10	10	NA	5	5	0	0	10	10	25	0.61
27	Norfolk	East	www.norfolk.va.us	10	10	NA	10	10	0	0	5	0	23	0.58
12	Miami	East	www.ci.miami.fl.us	10	10	NA	10	10	0	5	0	0	23	0.58
6	Philadelphia	East	www.phila.gov	10	10	NA	10	10	0	5	0	0	23	0.58
4	Washington	East	www.ci.washington.dc.us	10	10	NA	10	10	0	5	0	0	23	0.58
23	Cincinnati	Central	www.cincinnati.com	10	NA	NA	5	5	5	0	0	5	25	0.56
20	Pittsburgh	East	www.pittsburgh.com	6	6	NA	10	5	5	0	5	5	33	0.56
30	Orlando	East	www.ci.orlando.fl.us	10	10	NA	10	10	0	0	0	0	20	0.56
21	Tampa	East	www.ci.tampa.fl.us	10	10	NA	10	10	0	0	0	0	20	0.56
			www.digitalcity.com	0	0	NA	10	5	10	0	5	10	48	0.53
7	Boston	East	www.boston.com	10	10	NA	5	10	0	0	0	0	15	0.50
1	New York	East	www.newyork.org	0	0	NA	10	10	5	5	5	10	45	0.50
20	Pittsburgh	East	www.pittsburgh.org	6	6	NA	10	0	0	0	10	10	25	0.48
20	Pittsburgh	East	www.pittsburgh.net	10	10	NA	5	5	0	5	0	0	13	0.47
			www.yahoo.com	0	0	NA	10	0	10	0	5	10	43	0.47
9	Dallas	Central	www.dallas.org	10	NA	NA	5	5	0	5	0	5	18	0.47
1	New York	East	www.newyork.net	10	0	NA	5	0	5	5	0	0	18	0.42
1	New York	East	www.newyork.com	0	0	NA	10	0	10	5	0	0	33	0.36
			www.boulevards.com	0	0	NA	10	5	5	0	0	5	30	0.33