

**INTERNET PRESENCE AS A SMALL BUSINESS CAPABILITY: THE CASE OF  
MOBILE OPTIMIZATION**

**Troy Voelker**

University of Houston Clear Lake  
voelker@uhcl.edu

**Doug Steel**

University of Houston Clear Lake  
steel@uhcl.edu

**Elsa Shervin**

University of Houston Clear Lake  
shervinE6322@uhcl.edu

**ABSTRACT**

*This study reports on the mobile optimization efforts of 376 small and mid-sized enterprises (SME's) operating in a suburban sector of a major U.S. metropolitan area. We find that just under 50% of SME websites sampled were mobile optimized, defined as websites that render differently on a mobile browser than they do on a desktop browser. Firms with a greater Internet presence and firms whose websites include basic, essential design elements are far more likely to have a mobile optimized website than those who do not. Multi-unit organizations, retailers, and healthcare oriented businesses are also each more likely to have a mobile optimized website.*

**Key Words:** Internet presence, website design, search engine optimization (SEO), mobile optimization

## INTRODUCTION

Approximately 143 million mobile phones were sold in the U.S. in 2014. Many of those mobile phones were smartphones, such as those models made by Apple as well as those made by various manufacturers who use Google's Android operating system. The 2014 sales are a continuation of an ongoing trend in which sales of mobile devices are gradually overshadowing and replacing sales of desktop and laptop computers.

Many Americans are now tethered to their mobile technology, using it as their primary (and in some case only) access to the Internet (Stewart, Wettstein, & Bristow, 2004). The dot-com bubble of the late 1990's is, in effect, replaced by a mobile wave surging in this decade. Americans frequently use mobile devices for web browsing, shopping, and consumption of other web-based media traditionally accessed through a desktop personal computer (Iniesta-Bonillo, Sanchez-Fernandez, & Cervera-Taulet, 2012).

One confound which manifests in this transition to mobile devices is the challenge of mobile optimization. Websites and media designed for optimal viewing on the larger, desktop monitors are often difficult to view on a mobile device. Smartphones typically mimic the aspect ratio and resolution potential of larger devices. However, the proportionally smaller mobile phone screen can result in web content that has been "shrunk down" far beyond easy viewability.

For businesses of all size, the need to achieve mobile optimization is becoming one of increasing importance. Mobile optimized content is content which has been reconfigured in such a way as to be easily

viewable and consumable on a mobile device. This has taken on even greater significance with Google announcing its intention to use mobile optimization as one of its indicators of website relevance for searches initiated from a mobile device (Google, 2015; Ohye, 2015). For large and small businesses alike, mobile optimization is now one of several critical requirements to assure optimal search results (Ohye, 2015).

In this study, we examine the mobile optimization patterns of business websites for small and mid-sized enterprises (SME's) in a major southwestern metropolitan marketplace. Our intent is both descriptive and explanatory. Studies of Internet presence and use of web based media for SME's are rare and thus our ability to describe the characteristics of this phenomenon contributes to the field. We offer evidence that SME mobile optimization is part of an emerging body of research on Internet presence (Chen, Shih, Chen, & Chen, 2011; Shih, Chen, & Chen, 2013), demonstrating that this firm-specific capability explains mobile optimization beyond that explained by industry patterns and firm complexity.

## LITERATURE REVIEW

### Search Engine Optimization

Search engine optimization consists of the practices intended to increase the number of visitors to a website by "obtaining high-ranking placement in the unpaid listings" of search engine result pages (Thurow, 2015), p. 44). This work focuses on organic, or unpaid, results rather than paid-placement campaigns requiring firms to bid on promotion in paid ads that show up adjacent to the organic results.

While many sites vie for top ranking for a search term such as “office supplies,” there is only space in the top spot for one web page. The ensuing competition pits firms against each other for placement. Those that show up on the first page of search results stand to gain the most because research suggests that users rarely look past the first page of results (Killoran, 2013).

Benefits obtained by SEO require maintenance. Improving one’s rankings comes at an expense to the competition’s rank and the competitors can, in turn, respond to ranking changes by adapting their pages to move up in the rankings (Stella Tomasi & Xiaolin Li, 2015).

The process of optimizing search engine placement is complex because the underlying ranking factors vary between search engines and the ranking algorithms of each engine are proprietary (Ledford, 2009, p. 5). As a result, SEO practitioners rely on “best practices” and advice from third-party firms (Moreno & Martinez, 2013).

### **Mobile Optimization**

Consumers reach for their mobile devices when looking for information. In fact, Google’s internal data as well as another report suggest that more searches are initiated on mobile phones than desktop computers and that the number of mobile-initiated searches is increasing at a faster rate than desktop-based ones (Dischler, 2015; Merkle, 2015). To reach these consumers, businesses should make themselves available in this medium.

It is not enough to simply be found by mobile users. A site must work properly on a small screen and provide a smooth experience so consumers are not frustrated. Along these

lines, Google, the largest search engine by market share, now shows to mobile users only sites it deems “mobile friendly” (Barr, 2015). Ultimately, if a business wishes to be searchable on the largest Internet search engine (Google) by users of the most prominent and fastest growing search segment (mobile users), the business needs to mobile optimize its web resources.

This is part of its “mobilegeddon” update. While this update “has no effect on searches from tablets or desktops. It affects searches from mobile devices” (Ohye, 2015). The update will help ensure mobile users have an excellent mobile browsing experience using Google’s search product and in turn, won’t use a bad experience as a reason to explore a competing mobile search engine. Users do have an expectation that they will be guided to pages that load properly and as consistent with their search terms and this update helps ensure that experience.

In summary, a mobile-friendly website should be a consideration for business owners wishing to serve those with mobile devices. This is often accomplished with a “responsive” design that adapts to the available screen space and serves mobile devices without unnecessarily shrinking font sizes to unreadable levels (Matthews, 2014).

### **Mobile Optimization and Industry Patterns**

A firm must choose whether or not to have a website and whether or not to mobile optimize the website. When considering reasons why businesses choose one path over another, researchers often turn to isomorphic tendencies as discussed in institutional theory (DiMaggio & Powell, 1983). Institutional theorists suggest that three isomorphic

mechanisms, mimetic, normative, and coercive, explain the homogenization of organizations.

The mimetic isomorphism path represents tendencies represent the human nature to learn socially through others and as a result make choices similar to those already present in an environment. Taken further these mimicking patterns, over time, become standards of practice or ‘industry recipes.’ Firms who match the pattern are considered more legitimate than those who fail to match the pattern (Batchelor & Burch, 2011). Effectively, when confronted with ambiguity (“how should our website look?”) firms look at what close competitors and recognized leaders (best practices) suggest and imitate those practices. The commonality of practice resulting from this then becomes part of a subjective standard outsiders will use (“I can’t believe they didn’t...”) when evaluating organizations. This results in a cycle of mimicry and judgment which reinforces similarity within a system (Voelker, 2011).

The normative isomorphism path represents tendencies for common experiences associated with professionalization and education, to shape a common point of view within an industry. An accounting education, for example, predisposes an individual to view problems “like an accountant would,” which is reinforced through professional standards like the CPA exam. The central idea here is that common training and education predisposes groups to focus on common issues and to draw upon common tools when they approach those issues.

This commoditizing force is not inherently positive or negative, although the accounting

example used might suggest that it is a largely pro-social phenomenon. Commoditizing, though, simply means homogenizing in that variation within a system is reduced. Within small business literature it is informative to think about this normative force as present within the common, and typically unfortunate, outcomes for minority business owners. There, similarities in lack of education, lack of access to capital, and lack of supportive networks leads to similar well-documented, unfortunate outcomes (Gibson, McDowell, Harris., & Voelker, 2012; Hendon & Bell, 2011).

The coercive isomorphic force represents tendencies for legitimizing bodies to establish and enforce common standards within an industry. At the broadest level these may be governmental forces setting regulatory norms for an industry. It can also be the common standards of an accrediting professional body, consider for instance how AACSB accreditation serves to make schools of business more similar. Coercive isomorphic standards can emerge from outside of the industry context.

As discussed in our section on search engine optimization, search engines such as Google have a significant influence on web technology deployment through their search engine ranking algorithms. For businesses to thrive they need to be web searchable, the algorithm for search thus becomes a coercive isomorphic force. Firms that fail to optimize their web pages for Google find themselves obscured to a late page search ranking.

But Google does not publish their algorithm and thus, firms are faced with great ambiguity in their approach to search engine optimization. This is most certainly also true

with the more recent phenomenon of mobile optimization as a search engine optimization decision. As with any other ambiguous activity we would expect mimetic isomorphism to manifest as “doing what the competition does.” To this end, the isomorphic forces are not competitive, but rather complementary and mutually reinforcing. This leads us to our first hypothesis.

***Hypothesis 1:** The mobile optimization behaviors of firms follows an industry recipe model. Optimization is more likely to be present in some industries while being mostly absent in others.*

### **Mobile Optimization and Firm Complexity**

Organizational theory researchers have long recognized that firms vary in their internal complexity (Thompson, 2005). At the most simple level, many small firms tend to be much generalized in their organization. Everybody working for the firm does everything; many hats are worn by each member of the organization.

As firms increase in size and scope, though, it is typical to see greater specificity arise within the structure of the firm. Tasks once done by all become jobs handled by a specialized few. Processes which were once done as-needed become codified into protocols, policies, and procedures. Communication patterns which were once informal become hierarchically embedded in reporting relationships and areas of responsibility.

This well recognized pattern of increasing complexity is almost certainly present in small businesses and their approach to Internet technology (Samuel Fosso Wamba & Lemuria Carter, 2014). For the smallest of firms and for many startup firms, web media decisions

are ad hoc or one-off without necessarily any attention to internal replication or consistency. Lacking technical capabilities to design websites on their own, business owners may outsource the process to a consultant who themselves does not know the small business very well (Chuleeporn Changchit & Tim Klaus, 2015a). Further, lacking technological sophistication, the small business owner may not have the capacity to judge the consultant and may make decisions from a basis of cost or social familiarity (“my nephew knows a lot about websites...”). The result is a haphazard and inconsistent approach to web based media.

This changes though as firms grow in complexity. As the small business scales up or becomes more complex, it will typically delegate tasks to specific persons hired on for their expertise. Rather than a website consultant, the firm may hire their own technology expert who manages the entire web presence of the small business. This person more likely knows the small business and also knows the technology. As a result we would expect a more complex and consistent approach to web presence.

One way this can manifest is through franchising. When a small business startup opens through franchising, they buy access to an established business model. This results in access to a standardized approach to marketing and messaging, which may for example include franchisor management of (or expected standards for) Internet presence. The central logic here is that mobile optimization is more likely to occur in businesses complex enough to have a designated role associated with the management of the firm's web presence. This brings us to our second hypothesis.

**Hypothesis 2:** *The mobile optimization behaviors of firms follows a firm complexity model. More complex firms are more likely to have mobile optimized websites than the websites of more simple firms.*

### **Mobile Optimization and Internet Presence**

While industry patterns and complexity stories offer a predictable way of thinking through our question, each suggesting that the environment affects firm behaviors while leaving vacant explanations of how firm's affect their environment. Business owners are not simply passive participants in their industries and in the market. They are active participant's making choices and charting paths. In this section we explore how a firm's idiosyncratic choices may result in outcomes not well explained by homogenizing stories.

A central assumption of both the resource based view of the firm and the dynamic capabilities perspective of the firm is that firms have an idiosyncratic allocation of resources and capabilities (Barney, 1991; Teece, Pisano, & Shuen, 1997). Within the same industry, competing for similar customers, firms draw upon unique combinations of resources and capabilities in ways that differentiate them from their competitors. Further, these capabilities in turn shape the learning potential or absorptive capacity of the firm leaving it easier to learn adjacent capabilities and harder to learn distant capabilities (Cohen & Levinthal, 1990; Tzokas, 2015; Voelker, Niu, & Miles, 2011).

Within the context of our research, a firm's ability to effectively deploy web based media is quite likely a skill. While industry context and firm complexity may explain part of the

story, some firms are likely to simply be better than their peers in ways not well explained by size and complexity alone (Chuleeporn Changchit & Tim Klaus, 2015b).

Small businesses differ in their Internet presence in a way consistent with a resources and capabilities narrative (Voelker & Steel, 2015). Some small businesses are quite comprehensive in their deployment of web based media, others are haphazard, others are barely visible, and some firms have not yet transitioned to the Internet. Voelker and Steel (2015) refer to this as the Internet presence, or "the range and depth of adoption of an Internet website as well as various popular social media applications"

We suggest that the decision to mobile optimize a company's website would also be consistent with a firm's capability of managing their Internet presence. Getting found by prospective clients on the web is also component of a firm's Internet presence. We would expect firms who are more comprehensive in managing their other Internet presence activities. They would therefore be more likely to have a mobile optimized website than would firms with a minimal Internet presence. This leads us to our final hypothesis.

**Hypothesis 3:** *The mobile optimization behaviors of firms follows an Internet presence capability model. Firms who manifest greater sophistication in their Internet presence are more likely to have mobile optimized websites than are the websites of firms who demonstrate a less sophisticated Internet presence.*

## **METHODOLOGY**

We evaluate the mobile optimization of firms using a sample of 376 small and mid-sized enterprises operating in a large suburban market adjacent to a major southwestern city. We began our data collection using a repository of SME's involved in the Chamber of Commerce in this market. From there we restricted ourselves to SME's who provide on-site location based exchange. These are businesses where the end customer was most likely to visit the business at some stage in the economic exchange. We omitted businesses where the economic exchange was most likely to happen at the end-customers location with no (or very little) likelihood of the customer ever visiting the business location.

We are focused on SME's who operate more traditional, so-called click and mortar (Lahuerta Otero, Muñoz Gallego, & Pratt, 2014), businesses for whom the Internet is primarily a source of promotional activity. We are not examining businesses who are primarily engaged in web commerce, nor SME's who might typically conduct their business at a client's residence (e.g. pest control companies), nor are we looking at the activities of large corporations.

We collected data directly from the company's website and other openly accessible web based media. This included their use of social networking media (Facebook, Twitter, etc.), reviews from common third party websites such as Yelp, and their "map pack" data from Google and Microsoft's Bing search engines. While some of this information includes redundant data (e.g. whether or not a phone number is listed in each media type), we track 40-different pieces of observable Internet presence data for 413 organizations of which 376 are private,

for-profit SME's. We also created a demographic profile for each firm. This includes industry classification and whether the firm is franchised (if determinable) or multi-unit. We also coded for the global popularity of the company website using the sites Alexa ranking.

Our data collection was non-invasive and represents an objective assessment of the outward facing behaviors of each of the firm's Internet presence. Data was collected by a paid research assistant. The research assistant was trained in, and worked from, a 70-line data-coding protocol developed by the primary researcher.

This data collection sampling took approximately three months of work and compensation was provided by a faculty research support grant from the employing University. Over the course of these three months, the primary researcher met with the data coder on a weekly basis. During these meetings any conflicting or confusing results were discussed and evaluated. Further, the primary researcher separately, and regularly, randomly sampled coding to determine consistency of results. In general, our coding consists of binary variables (has a profile, does not have a profile) there was little room for subjectivity in our assessment and thus little room for disagreement between the data coder and primary researcher.

## **MEASURES**

The dependent variable in the present study is whether, or not, the firm's website is mobile optimized. Since there is little agreement upon the specifics of mobile optimization and given that Google does not specify how it defines "mobile friendly" in their search algorithm, we used a very basic definition for

mobile optimization. For purposes of our sample, a website is considered mobile optimized if the website is visually different when viewed on a mobile device than it is on a browser viewed from a desktop computer.

A firm that has made no effort to differentiate their desktop browser and mobile browser viewability is coded with a '0' for non-optimized. Firms whose websites have a different appearance in a mobile browser than they do in a desktop browser are coded as a '1' for optimized.

We coded for the industry of the firm using the first two-digits of the North American Industry Classification System (NAICS) which is commonly used in business research. NAICS uses a drill-down model for its six-digit classification where each subsequent pair of digits adds greater granularity to the classification. For example, NAICS 72 represents all types of accommodation and food services with 7211 differentiating lodging from 7223 food services. For purposes of this study we focused on the two-digit classification and used unique binary controls for the industry's most commonly appearing in our sample.

We coded for firm complexity using a multi-unit designation. Our sample are SME's where the customer is likely to conduct some significant level of business at the businesses physical location. When that firm has a single location it is often a very small business. In general, when these firms grow they do so through additional units or branches. For example, a local pizza restaurant with three locations is treated as a more complex entity than a pizza restaurant with a single location.

Our data attempted to track for franchising, but this proved more difficult to

authenticate. While popular franchises were easy to discern, some businesses use both a franchise and a corporate model simultaneously and it is not always clear upon viewing their Internet presence which ownership model is present at a local site. However, all of the firms we were able to verify as franchised firms in our sample were also multi-unit firms. Indeed most had units across multiple state lines. We have chosen, for simplicity to treat complexity as simply multiunit for this study. A firm with more than one identifiable location is coded as a "1," while a firm for which we cannot identify multiple locations is coded as a "0."

Research suggests that the presence of basic website design elements greatly improves the navigability and trustworthiness of the website (Resnick & Montania, 2003). Following Voelker and Steel (2015), we used the presence or absence of three website artifacts as an indicator of the comprehensiveness of their website design. Voelker and Steel found that only a quarter of the websites of SME's they examined contained a contact number or email address, operating hours, and a map or physical address. We similarly find about 1 in 4 of the firms in our sample to have all three artifacts. Our results differ from theirs on those having zero of the three (10% for us, 25% for them) as well as for those having two of the three (50% for us, 25% for them), we attribute these differences to choices in sampling. We specifically focus on retail-consumer focused SME's with a brick and mortar model while that was not their specific SME selection criteria. We coded our website variable as the count of the three design elements present allowing for a range of 0 (none present) to 3 (all present).



Voelker and Steel (2015) also demonstrate that the website comprehensiveness of the firm is a useful predictor of whether, and what type, of other Internet presence activities of the firm. In their study, firm’s whose websites had all three design elements were also more likely to utilize multiple social networking media (Facebook, Twitter, etc.) while firms without the three design elements were unlikely to have any other Internet presence. We coded Internet presence as a count variable for the number of non-website Internet presence sources. This included Facebook, Twitter, Google+, Youtube, LinkedIn, Instagram, and Pinterest.

**ANALYSIS**

We used a very low bar for mobile optimization, the website had to be visibly different on a mobile and desktop browser. Even so, just over half (55%) of the firm’s websites we sampled were mobile optimized. 171 of the websites we reviewed were not different when viewed on a mobile device.

Our firms were nearly evenly split between single-site and multi-unit locations. 180 of the firms operated from a single location while 196 had at least a second location.

Many of the businesses we examined were in NAICS 54, with 69 of the firms listed as professional, scientific, and technical. We also found 62 financial services (NAICS 52) firms, 53 health care firms (NAICS 62), 39 construction firms (NAICS 23), 34 other services (NAICS 81), 23 administrative services (NAICS 56) and 22 retailers (NAICS 22). For each of these industries we included a dummy variable for the two-digit NAICS where a firm was listed as “1” if they were from that industry and a “0” if they were not. Most other industries had a handful of coded firms and thus not enough to merit specific control.

Distribution of results for number of website elements and breadth of Internet presence appears in table one below. A bit more than 10% of the firms in our sample lack all three website design elements (address, contact information, and operating hours) and a full quarter have no other Internet presence than a website. 139 of the organizations have all three website design elements and about a quarter of the firms in our sample have an Internet presence which includes at least four other, non-website, resources. As with Voelker and Steel (2015), we find substantial variation even with these relatively simplistic indicators.

**Table 1:**  
**Website Design Elements and Internet presence**

	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4+</b>
<b>Website elements</b>	42	31	201	139	N/A
<b>Internet presence</b>	101	87	63	64	97

Correlations for all variables appears in table two below. Supporting our broad expectations, we see numerous correlations

with mobile optimization all of which manifest in our expected directions. Inclusion of website elements ( $r=.23$ ) and Internet

presence ( $r=.33$ ) each positively and significantly correlate with mobile optimization. Consistent with the findings of Voelker and Steel, we find that Internet presence is typically larger for firms who have more of the three website design elements in place ( $r=.12$ ).

Multiunit firms are also more likely to have a mobile optimized website ( $r=.22$ ). Consistent with a story of firm complexity resulting in more worker specialization, we see that multi unit locations correspond with a larger Internet presence ( $r=.30$ ) and inclusion of more website design elements ( $r=.19$ ).

Health care firms ( $r=.16$ ) and retailers ( $r=.14$ ) are each more likely to be mobile optimized while construction companies ( $r=-.18$ ) were less likely to have a mobile optimized

website. Supporting a story of industry recipes, construction firms were also likely to have fewer website design elements ( $r=-.15$ ) and a narrower Internet presence ( $r=-.12$ ) but this pattern is not as clearly visible with other industries in our sample.

Examination of our hypothesis was conducted using logarithmic regression of our predictor variables onto the binary dependent variable, mobile optimization. Binary logarithmic regression is a statistical technique that estimates the probability, or odds, of an observation landing in either of two outcome conditions. Results of our logarithmic regression appear in table three below. Our regression model explains about 27% of the variation in mobile optimization and offers useful insight into patterns of optimization, and non-optimization, in the sample.

**Table 2**  
**Correlations of Variables**

	1	2	3	4	5	6	7	8	9	10
1 Optimized										
2 Multi_unit	.215**									
3 Website	.226**	.188**								
4 Web_Presence	.333**	.301**	.115*							
5 NA_23	-.180**	-0.093	-.152**	-.123*						
6 NA_44	.137**	-.124*	.108*	-0.007	-0.085					
7 NA_52	0.032	.211**	.218**	-0.009	-.151**	-.111*				
8 NA_54	-0.091	-0.027	-.229**	0.036	-.161**	-.118*	-.211**			
9 NA_56	0.077	0	-0.043	0.042	-0.087	-0.064	-.113*	-.121*		
10 NA_62	.155**	0.082	0.097	0.094	-.138**	-0.101	-.180**	-.192**	-.103*	
11 NA_81	-0.029	-.181**	0.002	-0.099	-.107*	-0.079	-.140**	-.149**	-0.08	-.128*

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Our first hypothesis suggests that mobile optimization follows an industry recipe model. In this, firms within an industry copy

actions of their competitors and comply with the expectations of common third-parties. Thus behaviors, or lack of behaviors,

become common and typical of most of the firms within that industry. We find evidence supporting this in that retailers and healthcare firms are significantly more likely to be mobile optimized and that construction firms are significantly less likely to be mobile optimized. For the two more likely cases, the presence of larger competitors (major retailers) as well as coercive pressures of governance and regulation (the affordable care act) cause retailers and health care providers to devote more attention to their website and its accessibility.

Our second hypothesis suggests that firm complexity explains mobile optimization choices. We suggest that as firms grow in size and scale they are more likely to dedicate specific resources to recurring needs. These resources are likely to be more specialized which, in turn, suggests more professional outcomes. With the data available to us, we used multi unit as an indicator of firm complexity under the theory that managerial complexity for a single-unit SME is far less than that for a two or greater unit SME. Consistent with our expectations, multi unit locations are more likely to have a mobile optimized website.

Our third hypothesis suggests that firms have a capability in managing their Internet presence; some firms excel in managing their web presence and others are lacking. Firms who are more likely to include all three website elements and firms that have a broader Internet presence are more likely to be aware of the need for, and then seek out the means to, mobile optimize their website. Consistent with our expectations, having more website design elements and having a broader Internet presence each significantly correspond to

increased likelihood of having a mobile optimized website.

**Table 3**  
**Logarithmic Regression of Predictors on Mobile Optimization**

	$\beta$	Exp( $\beta$ )	Sig.
<b>Multi unit</b>	.56	1.76	*
<b>Website</b>	.37	1.45	*
<b>Internet presence</b>	.37	1.45	***
<b>NA_23</b>	-.53	.59	
<b>NA_44</b>	1.78	5.92	**
<b>NA_52</b>	.18	1.19	
<b>NA_54</b>	-.05	.96	
<b>NA_56</b>	.98	2.65	
<b>NA_62</b>	1.02	2.76	*
<b>NA_81</b>	.37	1.45	
<b>Nagelkerke R<sup>2</sup> = .27</b>			

## DISCUSSION

We used a very low threshold for mobile optimization, simply whether or not the website appeared different in a mobile browser than it did in a desktop browser. We believe that was a reasonable standard given that mobile optimization is a new concept, there is ambiguity in what “optimal” optimization means, and it remains deeply uncertain which mobile optimization standards improve search engine rankings (Ahmad Ghandour, 2015). Startlingly, even with the low standard we employed, almost half of the firms in our sample do not have websites that are mobile optimal.

Our results suggest, though, that it is not simply a coin-toss, 50-50, chance whether one will find a mobile optimized business website or not. We are able to document several situations where the odds are greatly increased and at least one where the odds are significantly decreased. Companies who have

all three of our tracked design elements (contact information, operating hours, and physical address) are more likely to have a mobile optimized website. Companies with a broader Internet presence are more likely to be mobile optimized. Health care companies and retailers are more likely to have a mobile optimized website while construction firms are less likely.

Our work with Internet presence extends Voelker and Steel (2015). Like them, we find about one in four firms have all three website design elements and those firms are indeed more likely to have a broader Internet presence than firms with fewer or no website design elements. As with our measure of mobile optimization, we are using a very simplistic measure for estimating the sophistication of a firm's Internet presence.

Simply checking for three, frankly obvious, website design elements and counting the number of other sources of website presence is, at first glance, a seemingly basic method to evaluate sophistication of a capability. And yet, the degree of unsophistication seems so large in both our sample and theirs, that a simple measure proves surprisingly informative. Perhaps at some point, the typical small business will routinely include the measures we check for. Perhaps at some point, the typical small business will have a broad Internet presence. But that time is not yet here and a significant number of firms are still in a very nascent stage of developing their Internet presence.

If were to examine an older repository, the yellow pages for example, we would expect to find contact information and location information. One might think that this would naturally extend over to business websites, but

our evidence as well as prior studies, suggests that this would be an overly optimistic expectation.

One might similarly expect frequent, routine mobile optimization, given the prominence of mobile devices and the frequency at which consumers use mobile devices to look up small businesses. But again, our data suggests one would be naively optimistic in such an assumption.

## CONCLUSION

We believe that the most significant limitation of our study lies in the simplicity of our coding. We use binary variables for many of our measures - presence and absence is our primary focus. And yet, in spite of this limitation we are able to discern patterns that are predictable given our knowledge of industries, firms, and capabilities. The limitation is, we believe, less on our data and more on the state of the field. Businesses are not yet well enough versed on the topic to exceed the relatively low bars we set for presence (of website elements, of breadth of Internet presence, of mobile adoption).

Our findings and their limitations suggests an abundance of opportunity. For small businesses, small gains in these areas such as changing the layout of your website for mobile devices or simply spot checking your website for the design elements can place you in advance of a surprisingly large number of competitors. For those who teach and advise business practitioners, many improvements lie within short reach (Bakeman & Hanson, 2014). For researchers, this is an early glimpse into an emerging field of study. We are all still very early in the learning curve of Internet presence, there is tremendous room for gain to be had.

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