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Trickle-Down Technology?

The Use of Computing and Network Technology in State Legislative Campaigns

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Does a lag effect exist in the integration of technology into state legislative campaigns? Have state legislative campaigns followed the example of congressional campaigns and become users of voter files, web sites, and other forms of electronic voter communication? Using a survey of state legislative candidates in two states from the 2006 election cycle, the author probes candidates on their use of 18 technological elements. Legislative professionalism, party affiliation, professionalism of a campaign, and money raised were not significantly related to technology use in campaigns. And technology is not in widespread use for elections to state houses. Campaign success is strongly related to the use of online fund-raising, suggesting an incentive for candidates in the future to become more aggressive users of technology.

Keywords: *state legislature; campaign; technology*

Technological advances increase the sophistication and improve the quality of numerous processes in America today. Businesses use technology, especially telecommunications technology, to improve the quality of their marketing efforts. Teachers use technology in the classroom to improve student learning outcomes. At the federal level at least, we know that the same is true of legislative campaigns. Technology advances the cause of federal-level campaigners, but does it have the same effect at the state level?

Scholars have shown that there is a lag effect in adopting new campaign techniques, where candidates at the state level are slower to employ new campaign methods than their federal counterparts (Lynch & Rozell, 2002). The last two presidential elections have seen an increase in popular media attention to the use of technology in the campaigns of the two nominees (Theimer, 2003). The institutionalization of technology use in lower-level campaigns, though, has not been nearly as well explored.

How much has technology drilled down from federal campaigns to their state legislative counterparts? Are candidates and the members of their campaigns committed to using technology? Do legislative professionalism, fund-raising, party involvement, and professional management relate to a campaigns' propensity to use technology? In this research, I contribute new insight into each of those areas using a survey of state legislative candidates from 2006. I will show the levels of technological use among campaigns in two states, show

Author's Note: My sincere thanks to Paul Herrnson, who gave me a copy of his original survey instrument to use in this article. Also, my gratitude to Jason Stegmeier, who collected the campaign finance and voting data in addition to entering the survey data here. Without either of these gentlemen, this work would not have been possible.

the driving forces toward technology use, and investigate the electoral effectiveness of using technology in a state legislative campaign.

Has Campaign Technology Trickled Down to the State-Level Candidate?

Observers point to 2006 as the breakthrough year for technology in campaign politics. Presidential races have used web technology for some time, but they are the cutting edge of technological use because of their professionalism and large fund-raising base. Lower-level campaigns find it much more difficult to devote the money and personnel to technology as is required to use it properly. However, for campaign technology to matter, it must be used at multiple levels of politics. Reich and Solomon (2007) point to 2006 as the year that campaigns across the board institutionalized the greater use of technology, but they focus on federal-level elections only. The question remains if technology has drilled down to state-level races as well, which would suggest technology is truly embedded in campaigns throughout the American political realm (Reich & Solomon, 2007).

Reich and Solomon (2007) also provide a guide for technology by categorizing the campaign uses of technology. Three particular areas stand out: (a) building community, (b) watching (and listening) as it all unfolds, and (c) mobilizing the masses. Reich and Solomon make the case that technology allows for much more frequent and direct campaign communication to create a stable base of volunteers and use them as well as communicate campaign messages to an undecided audience.

Other research suggests a significant incentive for campaigns to adopt the technological tools that presidential candidates have been using for a decade now. A 2006 survey showed that voters expect campaigns to use the Internet for campaign outreach. Of the respondents to the survey, 87% expect political candidates will have a web site; 70% expect the campaigns to use e-mail for direct voter communication; two thirds expect candidates to use the Internet for fund-raising, post video commercials on their web sites, and run online ad campaigns; and half expect campaigns to have blogs and podcasts (Anonymous, 2006).

Virtual Nuts and Bolts: Technological Components of the Current Campaign

No academic literature relates directly to the use of technology in campaigns. We can, however, determine 18 different technological elements in the popular press that campaigns can use to satisfy the Reich and Solomon (2007) categories of communication, community building, and supporter mobilization. To the Reich and Solomon categories, we must add one more vital element: identification. To communicate with voters, a campaign must find them. Having a database of voters in the district in which a candidate is running is essential in using computing technology effectively (Blaemire, 2001, 2002).

For identifying voters, we can specify a single important campaign element: the use of a voter file or database. A campaign can develop its own voter database using publicly available data through county clerks, secretaries of state, state political parties, or other

vendors. Some campaigns have access to voter files available over the Internet that are made available through parties or vendors, which allow them to query the database for specific information without creating or maintaining the database internally (Blaemire, 2004).

One important new development in the use of those databases emerged in the form of 2004's most significant advance: microtargeting. Microtargeting is the use of individual-level data for the purpose of focusing campaign messages on specific voters (Cornfeld, 2007; Weigel, 2006). Political parties and national campaigns have collected massive voter databases, merging magazine subscription and interest group membership rosters with state-produced voter lists.

In 2004, the Bush campaign used its microtargeting database to particular advantage among snowmobile owners in Michigan. By subsetting out snowmobile enthusiast magazine subscribers, the Bush campaign could send a very specific message criticizing opponent John Kerry's environmental policy proposals and how they would affect snowmobile enthusiasts (Gilgoff, 2006). Microtargeting, connected with direct mail media, allows for increasing campaign sophistication and the narrow communication of campaign messages to potentially more responsive audiences.

The microtargeting data can be used not just to send mail to voters but also to pinpoint their homes for face-to-face contact. Some campaigns will use Global Information Systems (GIS) software, also called mapping software, to combine individual-level identification data with maps to guide door-to-door canvassers (Weigel, 2006). Campaigns can tailor their face-to-face messages to specific neighborhoods or households when using the voter file and GIS software in tandem. Because research has shown that face-to-face interaction has the highest potential to drive turnout, being able to more efficiently and effectively do door-to-door campaigning would greatly benefit a campaign (Green, 2004).

There is more software available than just GIS mapping, though. A number of vendors have created all-inclusive campaign management software that will database voters as well as volunteers, manage donations and track expenditures, allow budgeting and calendar management, and perform mail and e-mail merges. Some software even includes communication technology known as "team tools" that lets staff and volunteers in the campaign communicate among themselves and help organize campaign activities. Campaigns have been using such software for a decade, but again, that knowledge comes from federal-level campaigns only (Gimpel, 2003).

For communication, the basic strategy involves activating a campaign web site. Both of the major party nominees in 2000 used and aggressively promoted their web sites, and in 2004, the candidates incorporated other tools to encourage regular traffic to those web sites. As web usage has expanded among the populace, campaigns have followed those voters online. Campaign web sites can be amazingly easy to establish. A single year of basic web hosting, plus a domain name, costs less than $60. However, sophisticated web sites require graphics, design, time to update, and some knowledge of HTML or other programming code. Campaigns at the state level may or may not see a value in putting so much time and effort into a web site.

Within the web site, there are more specific elements that point to the sophistication of web use. A campaign may, for example, simply choose to put a web page up that is an electronic version of a brochure: static and unchanging. The advantage of a web site over traditional broadcast or print media is that it can change almost constantly and provide a

variety of content choices. Weblogs, or blogs, can take the place of a campaign diary that keeps encouraging people to come to the web site for new content daily, or more often, depending on the faithfulness of the poster. Blogs also allow viewer interaction in the form of comments that registered users can leave on the postings (Dotson, 2007).

Another web technology that presidential candidates have embraced is the microsite. Voters may not be interested in going to the candidate's primary web site, but they may go to a site set up for a specific purpose. A microsite is a small web site, separate from an organization's or campaign's default web site with a separate domain name (or URL), and it delivers more focused content about a specific platform item, issue, or concept. Microsites can be designed more effectively to be indexed by search engines or become a hub for fund-raising or outreach programs (Anonymous, 2007). Howard Dean's campaign in 2004 used microsites for specific constituency groups such as Libertarians for Dean and Students for Dean. Messages can be targeted most specifically on microsites and have been shown to be very effective mobilization tools (Trippi, 2004).

Blogs simply scratch the surface of what can be put on a web site. Web-only video, known as viral video, can be uploaded to YouTube and posted on the web site for viewers to see. One of the most popular pieces of viral video in a campaign was the short film "White House West," which starred comedian Will Ferrell impersonating President George W. Bush for the liberal activist group Americans Coming Together. "White House West" was never broadcast on television but did appear on countless computer desktops, carrying a campaign message against President Bush while he was running for reelection in 2004 (Sender, 2007).

Campaigns not only put short films online but also produce ads that are never to air on television but are short enough to do so. The George W. Bush reelection campaign of 2004 started the practice of posting web-only video on its web site with the ad "Unprincipled" that attacked John Kerry's war record. One observer called the introduction of web-only advertising "the single biggest innovation of the 2004 Presidential campaign" (Manatt, 2004, p. 36). If technology does truly trickle down from the presidential level into the state campaigns, then 2006 should show at least some signs of web-only video.

Three more possible web elements remain, though, and they are some of the newest developments in web technology. Podcasts are downloadable audio files that campaigns can record and post to their web sites, and Really Simply Syndication (RSS) feeds allow voters to use a web browser plug-in to get a summary of new additions to the web site with clickable hyperlinks to selectively investigate new items of interest on the campaign web site. In addition, campaigns can use e-postcards, electronic buttons, or other downloadable content for voter-to-voter communication that allows enthusiastic supporters to take the campaign message out to their own friends. Software can be written in house or purchased from vendors to enable such interactive tools as well (Blanchfield, 2006a).

For communication with and mobilization of those voters, Internet technology can also be extremely effective. Campaigns can use e-mail databases to not only communicate internally about electoral matters but send messages to supporters. E-mail is not the only way to communicate with the public. Some campaigns in the United States and elsewhere in the world message their voters using short message service (SMS) or text messaging on their cellular phones (Blanchfield, 2006b).

The final area where campaigns are making use of technology is in their fund-raising efforts. Excepting the self-financed campaign, every candidate at every level needs to raise

some kind of money. Traditional methods of direct mail and phone calls are being augmented or even replaced in some cases with Internet fund-raising. Technology allows separate databasing of donors, and through e-commerce solutions, campaigns can take donations online (Blaemire, 2001; Donatelli, 2005).

In sum, the following elements constitute a fairly complete list of campaign technologies a candidate's organization may decide to use. Each category is listed below with its individual components:

1. Voter identification and location
   a. Voter file or database
   b. GIS/mapping software
   c. Campaign software
   d. Team tools
2. Communication technologies
   a. Web site
   b. Blogs
   c. Viral video
   d. Web-only advertising
   e. Podcasts
   f. E-postcards/buttons/outreach
   g. RSS feeds
   h. Microsites/grassroots mobilization and outreach sites
   i. Other downloadable materials
3. Direct communication
   a. E-mail for voter contact
   b. E-mail for internal campaign communication
   c. Text/SMS messaging
4. Fund-raising
   a. Donor databases
   b. Online fund-raising

A campaign will use none of the above, to a small collection of them, to perhaps the entirety of the techniques listed. All of the techniques have been used at the presidential campaign level, but the question at hand relates to the use of those techniques at lower-level campaigns. As previous research shows, presidential and congressional campaigns develop techniques such as direct mail or fund-raising, and after a lag time, state campaigns adopt those same techniques (Lynch & Rozell, 2002; Salmore, 1993). Does technology use by a campaign follow this trend of "congressionalization?"

Lynch and Rozell's (2002) analysis calls Salmore and Salmore's (1993) results into question. The authors focused their efforts on the Virginia state legislative races for 1995. Although there were many elements of increased professionalism in that year's campaigns, they were not well diffused throughout the body of candidates for office. One advantage that Lynch and Rozell showed is that specific states will have distinct political cultures and, as a result, different approaches to the use of campaign techniques, whether they be professional consultants or the employment of technology.

Lynch and Rozell (2002) chose a single state to study, which makes generalizing their results problematic. Indeed, with its professional legislature and proximity to Washington,

D.C. (where the majority of campaign professionals can be hired, particularly for off-year elections), Virginia represents a unique case that provides little insight into other states. To truly tell if a lag effect exists, we must survey more than one state and ensure that the states in question are sufficiently different to compare.

To gauge the expansion of technology into state campaigns, we must have a mechanism to audit the state of technology use by state-level campaigns. As part of a larger research project in which I am engaged, the Changing State Legislative Campaign Project, I have probed two sets of state legislative candidates in the 2006 electoral cycle regarding their campaigns' use of technology.

Cases for Study

The Changing State Legislative Campaign Project selected two states for an in-depth survey of campaign professionalism, party involvement, and technology use. I chose the states of Kansas and North Carolina as the test subjects for the project.

Kansas and North Carolina are well-suited choices for analysis because of the contrasts between the two. Kansas has a nonprofessional legislature in a Midwestern state with a strong history of citizen politics. North Carolina has a professional legislature and is located in the South, with a history of more professionalized politics. Both states elect their entire slate of state representatives in even-numbered years. Midwestern/Plains states such as Kansas are distant enough from Washington, D.C., that they have little to no access to for-hire consultants from within the Beltway and little to no consultant base within the state. North Carolina, being closer to the D.C. area, would be more likely to have professionals who in turn would suggest an increased technological presence.

Kansas's legislature has 125 members, and North Carolina's has 120; so there are a roughly equal number of districts despite very different populations. The states differ in partisan legislative control as well. Kansas has a dominant 77-48 Republican majority, and North Carolina Democrats enjoy a 68- to 52-seat advantage in their House. North Carolina's 2005 Census Bureau population was listed at almost 9 million residents, and Kansas's population in the same census data was 2.7 million. North Carolina differs from Kansas in having term limits. Kansas shows longer legislative careers and thus less familiarity with the technological advancements in today's campaigns.

The concentration of voters in North Carolina's districts may tell us that candidates need to be more creative in their efforts to reach voters than their counterparts in Kansas. The more voters in a district, the lower likelihood that a given candidate can reach all of the people he or she would like to meet face to face. With cultural, partisan, and structural differences, Kansas and North Carolina make good comparative cases around which to build a study.

One other cautionary note involves the differences between elections processes in the two states. Whereas North Carolina elects both its House and Senate every 2 years, Kansas elects its entire state Senate only in presidential years. Therefore, in 2006, there was no election to the Kansas Senate. Because there is no comparison between Kansas and North Carolina's Senate campaigns, I purposefully excluded the North Carolina Senate data from this study.

Finally, data availability helped drive the choice of Kansas and North Carolina. For both states, necessary and relevant information could be found online. Kansas's secretary of

state and Governmental Ethics Commission web sites provided candidate names and addresses in addition to vote totals and campaign finance reports. North Carolina's State Board of Elections provided the same information.

Data and Method

To assess the state of technology use in those campaigns, I developed a survey originally created by Paul Herrnson and Owen Abbe of the University of Maryland. Professor Herrnson graciously provided me with a copy of his original instrument, which I adapted and added to for this project. Herrnson's survey was originally published in 2003 based on a 2000 survey of state legislative candidates in 1997 and 1998 (Abbe & Herrnson, 2003).

Abbe and Herrnson's (2003) work is instructive because of their parallel findings about campaign professionalism. At the state level, the candidates who hired political professionals were ones who were well funded (either self-financed or traditionally fund-raised). Not all campaigns used professional assistance, meaning there was a "professionalism gap" among state-level campaigns. We would expect campaigns that have professional staffing to be more likely to understand sophisticated campaign techniques and therefore be more likely to use technology for campaign duties. Because Internet technology was in use only at the presidential level at the time of Abbe and Herrnson's work, there were no technology questions in the instrument. I have therefore added questions on the use of and satisfaction with each of the 18 technological elements in a campaign.

After adapting Herrnson's survey, I collected the names, mailing addresses, and e-mail addresses of all candidates for the Kansas and North Carolina House of Representatives from their respective state elections officials. Both states provided databases with names and mailing addresses, but North Carolina did not include e-mail addresses in its database. The absence of available e-mail addresses precipitated a two-pronged approach to my study.

I conducted the survey through a combined traditional mail delivery and online entry. The initial mailing included a paper copy of the survey and a postage-prepaid return envelope along with a URL for the online survey instrument. For Kansas candidates, I e-mailed the candidates with a live-link URL to complete the survey online. Only six candidates chose to complete the online survey, however, as the vast majority completed their survey on paper.

A total of 378 candidates sought election to the legislatures of the two states in 2006, with 200 office seekers in Kansas and 178 in North Carolina. Combining the online with the paper mailed returns yielded 132 responses, for a 34.92% response rate. Although it was disappointingly small, the return rate was enough to produce valid findings. Table 1 reports the basic frequencies for characteristics of the candidates who completed the survey. Democrats are slightly overrepresented, with 70 respondents compared to 62 Republicans. The differences are small, so they do not affect the results. Kansans returned their surveys at a better rate than North Carolinian candidates, with 74 Kansas returns to 58 from North Carolina. Overall, there should be no concerns about the representativeness of the data based on the results from Table 1.

Once survey data were returned and entered, the two state disclosure offices provided total votes per candidate, as well as campaign finance data. I collected total contribution data for each campaign, in addition to more specific source-sector contribution data available

Table 1
Basic Descriptive Sample Statistics

Democrat	70
Republican	62
Kansas	74
North Carolina	58

through the Institute for Money in State Politics at www.followthemoney.org. Business, labor union, and political party committee contributions are all available through the institute web site, as is data on in-state contributions versus out-of-state contributions. Theoretically, a campaign with more out-of-state contributions would be more sophisticated and thus more likely to use technology on a wider scale.

With the addition of the voting and campaign finance data to the survey database, all of the necessary information was collected. The questions to be addressed in the remainder of this research are threefold: (a) How many of each of the 18 forms of technology does a campaign use? (b) What factors, if any, drive the use of technology in a campaign? and (c) Does technology affect the success of a campaign?

To test those three questions, I will use a variety of methods. To answer the first question regarding progress of technology, simply frequencies will suffice. For the second question, which assumes a binary dependent variable (Did the campaign use that technology or not?), logistic regression is appropriate. Finally, the third question probes how vote totals change according to the use of technology, and with a theoretically unlimited number of votes available, standard ordinary least squares regression is the proper method of analysis.

Results: Technology Use

The answers to the first question of this project are remarkably similar to Abbe and Herrnson's (2003) findings, as well as those of Lynch and Rozell (2002), that state legislative races do indeed lag behind their federal counterparts. State-level campaigns may be catching up to their bigger siblings in Congress and the presidency, but they are still at least two steps behind.

Table 2 reports the frequencies of use for each of the 18 campaign technologies. A few important notes stand out, most particularly that there are only 4 elements of the technology that a majority of respondents use. Voter databases, perhaps the most basic and necessary of all technologies, are unsurprisingly used nearly universally. Nearly 90% of all state-level campaigns use a voter database of some kind, so that technology has reached down to state campaigns. Donor databases are also used by almost two thirds of all campaigns. Clearly, data are important to these campaigns, but not data management. Just 28.8% of campaigns used campaign management software, although more than 40% used GIS software. Mapping seems to be an intriguing value and might have to do with Kansas's strong door-to-door tradition. Kansas voters value face-to-face contact, and mapping software helps make that door-to-door more productive and feasible.

Table 2
Technology Use in Campaigns

	Used		Did Not Use	
Technology	*n*	%	*n*	%
Voter file or database	116	87.9	16	12.1
GIS/mapping software	54	41.9	78	59.1
Campaign software	38	28.8	94	71.2
Team tools	36	27.3	96	72.7
Web site	88	66.7	44	33.3
Blogs	38	28.8	94	71.2
Viral video	24	18.2	108	81.8
Web-only advertising	32	24.2	100	75.8
Podcasts	26	19.7	106	80.3
E-postcards/buttons/outreach	42	31.8	94	68.2
RSS feeds	26	19.7	106	80.3
Microsites/grassroots mobilization/outreach sites	40	30.3	96	69.7
Other downloadable materials	26	19.7	106	80.3
E-mail for voter contact	82	62.1	54	37.9
E-mail for internal campaign communication	84	63.6	52	36.4
Text/SMS messaging	30	22.7	102	77.3
Donor databases	94	71.2	38	28.8
Online fund-raising	38	28.8	94	71.2

Note: GIS = Global Information Systems; RSS = Really Simply Syndication; SMS = short message service.

Web sites and e-mail communication are also used by majorities of respondent campaigns, but none of the component technologies that would suggest sophistication on a greater scale. Just 28% of respondents had some kind of blog or daily diary component to their web sites, whereas less than a quarter had any kind of video on their sites. Less than 20% of respondents used podcasts or RSS feeds in their campaign communication, and slightly more than 30% used other downloadable or voter-to-voter mechanisms such as e-postcards.

A two-track attitude toward technology appears in Table 2. The elements that most campaigns integrate are either basic (e-mail use, campaign web site creation, use of existing mobilization sites such as meetup.com) or can be provided to all candidates through the state party organization, such as voter and donor files. Campaigns embrace technology that is easy for them to use or adapt to, but they do not embrace the higher functionality elements that require more monetary investment or labor (e-postcards, viral video, team tools). The spread of campaign technology is advancing in the state legislative campaign, but that spread is not universal. Candidates who embrace technology use it selectively, and certainly not all candidates use the technology. The question remains if any differences exist between candidates in the two states, candidates in the two parties, and incumbents and challengers.

Curiously, Kansas is slightly more technologically sophisticated than North Carolina, although not by very much (see Table 3). With the notable exception of online fund-raising, among all respondents who did use any of the 18 technological components, Kansan candidates engaged in the majority of technology use. North Carolinians were more aggressive online fund-raisers, despite not using technology as much in any other way. The greater

Table 3
State-Specific Distribution of Campaign Technology

Technology	Kansas (%)	North Carolina (%)	*N*
Voter file or database	89.2	86.3	116
GIS/mapping software	43.2	37.9	54
Campaign software	32.4	24.1	38
Team tools	29.7	24.1	36
Web site	64.9	69.0	88
Blogs	31.4	25.8	38
Viral video	18.9	17.2	24
Web-only advertising	24.3	24.1	32
Podcasts	21.6	17.2	26
E-postcards/buttons/outreach	29.7	34.5	42
RSS feeds	21.6	17.2	26
Microsites/grassroots mobilization /outreach sites	29.7	31.0	40
Other downloadable materials	24.3	13.8	26
E-mail for voter contact	67.6	55.2	82
E-mail for internal campaign communication	64.9	62.1	84
Text/SMS messaging	27.0	17.2	30
Donor databases	75.7	65.9	94
Online fund-raising	21.6	37.9	38

Note: GIS = Global Information Systems; RSS = Really Simply Syndication; SMS = short message service.

professionalism of North Carolina's campaigns likely puts a premium on fund-raising, and thus we get a glimpse into the mind of the Kansas and North Carolina candidate. Both see technology as a means to an end: North Carolina appears to see technology mostly as a cash cow, whereas Kansas regards technology as a means to engage in traditional retail politics.

Party affiliation appears to make a difference in the use of technology (see Table 4). If money were the driving factor behind technology use, then we would expect money-advantaged Republicans to use technology more aggressively because they tend to raise more money. Democrats, though, tend to have technology better diffused throughout their cohort of candidates. Although Republicans are more likely to use voter and donor databases, they are so only by a small margin. More sophisticated technology such as viral video, campaign management software, podcasting, and e-postcards are used by a greater percentage of Democrats than they are by Republicans. So whereas Republicans might use technology in greater numbers, Democrats are more sophisticated in their technology usage.

Incumbency, mostly due to campaign experience, should drive greater technology use than that of challenger candidates. Challengers, though, show a greater tendency toward technology use than incumbents in almost all areas. In the use of voter files, e-postcards, microsite usage, internal e-mail, and donor databases, incumbents do lead. In all other areas, challengers use technologies slightly more. The most important note is that the difference between incumbent and challenger technology use is very slight. Challengers may see technology use as an opportunity to overcome the myriad advantages incumbent candidates have in campaigns, leading to their embrace of campaign technology (see Table 5).

Table 4
Party-Specific Distribution of Campaign Technology

Technology	Democrat (%)	Republican (%)	*n*
Voter file or database	85.7	90.3	116
GIS/mapping software	45.7	35.5	54
Campaign software	31.4	25.8	38
Team tools	25.6	25.8	36
Web site	71.4	61.3	88
Blogs	31.4	25.8	38
Viral video	17.1	19.4	24
Web-only advertising	25.7	22.6	32
Podcasts	17.1	22.6	26
E-postcards/buttons/outreach	34.3	29.0	42
RSS feeds	17.1	22.6	26
Microsites/grassroots mobilization/outreach sites	28.6	32.3	40
Other downloadable materials	17.1	22.6	26
E-mail for voter contact	62.9	61.3	82
E-mail for internal campaign communication	65.7	61.3	84
Text/SMS messaging	25.7	19.4	30
Donor databases	68.6	74.2	94
Online fund-raising	28.6	29.0	38

Note: GIS = Global Information Systems; RSS = Really Simply Syndication; SMS = short message service.

Table 5
Seat Status Distribution of Campaign Technology

Technology	Challenger (%)	Incumbent (%)	*n*
Voter file or database	82.4	93.8	116
GIS/mapping software	41.2	40.6	54
Campaign software	32.4	25.0	38
Team tools	29.4	25.0	36
Web site	70.6	62.5	88
Blogs	35.3	21.9	38
Viral video	23.5	12.5	24
Web-only advertising	26.5	21.9	32
Podcasts	23.5	16.6	26
E-postcards/buttons/outreach	29.4	34.4	42
RSS feeds	23.5	16.6	26
Microsites/grassroots mobilization/outreach sites	29.4	31.3	40
Other downloadable materials	20.6	18.8	26
E-mail for voter contact	65.7	59.4	82
E-mail for internal campaign communication	58.8	68.8	84
Text/SMS messaging	29.4	15.6	30
Donor databases	64.7	78.1	94
Online fund-raising	29.4	28.1	38

Note: GIS = Global Information Systems; RSS = Really Simply Syndication; SMS = short message service.

Results: Determinants of Technology Use

Results have given us some conclusive analysis into the state of technology use, but we must also ask the question about causation. Challenger status, party affiliation, and state do show differences in technology use, but the small differences in many areas of use may not be the result of a causal relationship. Do party, state, status, and other factors actually influence technology use?

Besides state and party, there are four plausible explanations for the propensity to use a campaign technology. Fund-raising actually encompasses two of those factors. Aggregate spending totals for the campaign committee should help explain technology use, as would out-of-state fund-raising. Out-of-state fund-raising tends to come from political action committees and other sophisticated parties that target their donations. A campaign would have to employ sophisticated techniques to be taken seriously by out-of-state groups.

One obvious concern with the use of fund-raising as a causal factor for technology use is endogeneity. Fund-raising ability is often related with campaign experience, or campaign professionalism, and thus might show a spurious relationship. In addition, the use of a campaign spending variable may be influenced by self-financed campaigns or heavily loan-subsidized efforts. However, campaign spending should be related to technology use, as using those tools should increase the cost of a campaign significantly. Also, previous works, notably Abbe and Herrnson's (2003), use campaign spending as a variable. Following their lead, I conducted a nonrecursive, two-stage, least squares test between campaign technology use and spending, suggesting that the relationship is not endogenous.

Another factor is the candidate's length of time in office. Notice that I do not use age here. Candidates who are more experienced tend to be more familiar and comfortable with the style of campaigning they know and therefore be more technology averse. To test the influence of campaign experience, I asked respondents to list the year they first ran for political office.

The last factor is campaign professionalism, probed for in the survey I administered to the respondents. The question is a simple yes/no prompt: whether the candidate hired a professional campaign manager. A professionally managed campaign should be much more likely to adopt new technologies into its practices.

With those five variables in place, I ran logistic regressions with each of the 18 technology variables set as the dependent variable in each analysis, the results of which are reported in Table 6. The results of the regression are contrary to the idea of greater technological suffusion throughout state legislative campaigns. In only 2 cases do any variables become statistically significant, in the use of voter files and direct-to-voter e-mail communication.

Voter files regress positively and significantly with the two possible measures of professionalism and sophistication, namely, out-of-state fund-raising and professional campaign management. Also as expected, the sign of the coefficient for length of political career is negative, suggesting that newer candidates are more willing to embrace technology. However, the aggregate amount raised does not meet standards of statistical significance. Most of the expected determinants were significant for the use of voter files, but that is where the expected results end.

In every single other factor, save one, no variables meet statistical significance. The use of e-mail for voter contact displays a statistically significant coefficient with aggregate fund-raising, but that is the only significant independent variable associated with e-mail. And not a single other technological element produces a significant coefficient when regressed against our campaign factors.

Table 6
Determinant Factors of Technology Use (Logistic Regression Coefficients)

Technology	Party	State	Spending	Out of State	Career Length	Professional?	Constant
Voter file or database	0.650	1.198	0.000	0.000*	–0.001*	1.176*	0.738
GIS/mapping software	–0.302	0.149	0.000	0.000	–0.002	–0.113	4.558
Campaign software	–0.084	0.402	0.000	0.000	–0.003	–0.065	4.540
Team tools	0.058	0.414	0.000	0.000	–0.003	–0.050	3.900
Web site	–0.650	–0.617	0.000	0.000	–0.001	0.407	3.507
Blogs	–0.441	0.387	0.000	0.000	–0.003	0.033	4.108
Viral video	–0.071	0.070	0.000	0.000	–0.003	–0.250	3.701
Web-only advertising	–0.386	–0.118	0.000	0.000	–0.003	–0.259	4.668
Podcasts	0.219	0.173	0.000	0.000	–0.002	–0.130	3.175
E-postcards/buttons/outreach	–0.168	–0.288	0.000	0.000	–0.002	0.030	4.279
RSS feeds	0.219	0.173	0.000	0.000	–0.002	–0.130	3.175
Microsites/grassroots/outreach sites	–0.178	–0.409	0.000	0.000	–0.002	–0.073	4.289
Other downloadable materials	0.306	0.767	0.000	0.000	–0.003	0.010	3.015
E-mail for voter contact	–0.008	0.885	0.000*	0.000	–0.001	–0.173	2.600
E-mail for internal campaign communication	–0.102	0.158	0.000	0.000	–0.002	–0.097	3.613
Text/SMS messaging	–0.302	0.800	0.000	0.000	–0.002	–0.045	3.234
Donor databases	0.132	0.096	0.000	0.000	–0.001	0.390	3.119
Online fund-raising	–0.102	–0.969	0.000	0.000	–0.003	0.177	4.601

Note: GIS = Global Information Systems; RSS = Really Simply Syndication; SMS = short message service.
*Significant at .10 level.

Table 6 shows us that technology occupies a new space in terms of our understanding of campaigns. All of the traditional indicators of a campaign with great chance of success do not produce significant results against variables of technology use. If there is a determinant, or a series of them, for campaign technological sophistication, the literature has not yet produced it or them. We know what does not drive technological sophistication, though: fund-raising, campaign professionalism, overall campaign spending, legislative professionalism, or partisan differences.

Party may play a vital role in the use of voter files, though. Both of the parties in each state have made significant investments in voter databases during the past 6 years, so every nominee will have access to the database. The party variable likely fails to achieve significance because there is no difference in the two parties' ability to provide voter files. Instead, the lack of significance in the party variable suggests an overall increase in sophistication for both Republicans and Democrats in the states studied.

Results: Effects of Technology Use

The third and final question to address here is the effectiveness of this technology. Perhaps the fact that none of the standard and expected campaign predictors show statistical relationships with the technological variables can be explained by the relatively limited

use of this technology in campaigns. If the technologies used do not pay off in the form of improved vote totals, candidates will be more reticent to use them. We must determine if using any of these technological methods has an impact on the candidate's eventual vote, which would suggest perceived value among candidates and thus a greater likelihood of adoption of those new technologies.

I performed an ordinary least squares regression analysis with the vote total as the dependent variable. The equation used total amount spent, first year of candidacy, campaign professionalism, and the technological element variables regressed against vote total. Campaigns might be loath to spend money and effort on technology that they believe will not help their bottom line, votes. Conversely, if technology use is significantly and positively related to vote totals, then future campaigns might be more likely to adopt those tools and accelerate the congressionalization process as theorized by Lynch and Rozell (2002).

Table 7 reports the results from the regression model. The results from Table 6 show that fund-raising is the most important factor in earning votes among respondents to the survey. Apparently, technology does not change vote totals or even correlate with the spending habits of campaigns. None of the voter targeting methods achieves statistical significance in the model. Even the use of a voter file, which would easily separate a good campaign from a hopeless one, does not significantly affect the total vote.

One variable of web communication, use of blogs, emerges as statistically significant. The presence of a web site has no effect, and neither do any of the more sophisticated uses of the web save the blog. Online diaries on candidate sites do appear to have an impact. Theoretically, blogging makes sense as a statistically related variable. A campaign that uses a blog encourages regular traffic to its web site. The regular traffic should drive name recognition higher and in turn increase the candidate's votes.

These results suggest that web strategies that encourage regular visits to the web site are very effective, although we would therefore expect RSS feeds to also be significant, which they are not. The explanation may be in the fact that blogs are easier to create than RSS feeds, and campaigns may simply lack the expertise to create those feeds. Candidates can use free blogging software or stand-alone web sites, decreasing both the labor and monetary cost of blogging. RSS feeds require more programming, meaning time and/or labor. Subsequently, it is not surprising that blogs would be used more and more effectively than RSS feeds.

Turning to direct communication, the e-mails and text message variables seem to change little in the established pattern of insignificant technology use. E-mail, both for direct voter contact and internal campaign communication, does not satisfy statistical significance, despite the fact that both are fairly widespread in use. Despite popular claims that technology encourages two-way communication, the two-way communication methods available to candidates are not widely used or effective in achieving campaign goals.

The variable for use of a grassroots mobilization site shows evidence of a significant relationship with the vote. One important lesson from 2004 was the vitality of voter and volunteer mobilization efforts by candidates and parties alike. Campaigns such as Howard Dean's presidential effort were built on the power of the Internet to connect, communicate with, and mobilize a volunteer network. State-level campaigns appear to have begun learning those lessons (Nelson, 2005; Shea, 2006).

The use of online fund-raising practices is perhaps the most significant finding reported in Table 7. Using online fund-raising should in theory help raise more money for the campaign

Table 7
Vote Total as Predicted by Campaign and Technology-Specific Variables

Variable	B	Standard Error	*t*	Significance
Constant	1037.969	5957.883	0.174	.863
Use of voter file or database	372.562	2655.366	0.140	.889
Use of campaign web site	65.490	2311.667	0.028	.978
Use of GIS or mapping software	–2175.841	2510.140	–0.867	.392
Use of campaign management software	–4789.397	3666.185	–1.306	.199
Use of blogs or online diaries	9406.731	3187.332	2.951	.005***
Use of e-mail for voter contact	–205.861	2140.902	–0.096	.924
Use of internal e-mail	–1136.019	2703.731	–0.420	.677
Use of donor databases	3738.466	2228.954	1.677	.102
Use of text messaging	412.077	2682.656	0.154	.879
Use of web video	1066.682	5934.891	0.180	.858
Use of web-only advertising	–3351.832	3292.948	–1.018	.315
Use of grassroots mobilization web sites	–5948.056	2712.718	–2.193	.035**
Use of online fund-raising	10383.047	3188.745	3.256	.002***
Use of podcasts	–11680.994	8129.099	–1.437	.159
Use of other downloadable content	5458.065	5186.834	1.052	.299
Use of e-postcards or voter-to-voter content	–3214.635	3067.902	–1.048	.302
Use of team tools	5871.244	4024.338	1.459	.153
Incumbent/challenger	2496.442	1578.294	1.582	.122
Total amount raised by candidate	.035	0.027	1.312	.197
First run for public office	–.402	2.740	–0.147	.884
Professional campaign management	–196.641	826.483	–0.238	.813
State	9359.183	1697.499	5.514	.000***
Political party affiliation	–1404.584	1481.728	–0.948	.349

Note: GIS = Global Information Systems. $R^2 = .738$.
**Significant at .05 level. ***Significant at .01 level.

as well as being a sign of an aggressive campaign organization. Any technology that helps a campaign's ability to spend money is vital, but technology in and of itself does not bring more votes to a candidate. Online fund-raising involves a serious investment in web design and technology, so it is likely only a professional campaign would adopt the practice. As Howard Dean's presidential campaign in 2004 showed, online fund-raising can be very effective at enfranchising new voters while at the same time boosting overall income for the campaign (Trippi, 2004). Dean's name has emerged twice in reference to the significant areas of technology use in campaigns, adding credence to the idea of a trickle down, or congressionalization, of state campaigns. Seeing the very visible Dean campaign tactics, lower-level campaigns decide to adopt them for their own efforts.

A cautionary note is necessary regarding online fund-raising. Spending by a campaign is highly important to increasing the vote, but technology in all its forms seems to have only limited impact on vote totals. If spending and technology use were indeed endogenous to the model, then we would expect to see the technology variables also achieve significance, yet they do not. Spending and technology use are not significantly related. The campaign that seeks new avenues of outreach would be wise to establish a web site with an e-commerce solution and a blog because those are the most salient forms of technology for a successful campaign.

Spending should be significantly related to technology use for the simple fact that technology costs money. We must think about the technology used by a campaign, though, to understand why the two are not related. Both parties in both states, for example, provide access to their voter and donor files online to candidates for free or for a nominal fee ($50). If neither state had a free or low-cost database, the campaigns would either have to buy access from a private vendor or go without, and they likely would go without. Because there was little or no cost involved, campaigns were open to the technology. Web sites, which can be hosted for a year for less than $50, also do not represent a significant cost commitment on the part of the campaign. Neither does using meetup.com or Craigslist for mobilization, as the sites do not charge for access.

Where cost for a campaign becomes significant is in the area of sophisticated technology, especially web-embedded video and the like. Podcasting requires software and microphones, video requires an expensive camera, and posting either video or audio files on a web site requires space and download bandwidth that would significantly increase the cost of a campaign site. Campaign software is an additional high-cost item, with low-end packages starting in the $500 range and increasing in both cost and functionality into the thousands of dollars.

Campaigns in 2006 seemed to embrace the technology that is easy to integrate and less costly to the campaign. The two-track approach to technology, where a handful of technological entrepreneurs adopt new technologies into their campaign quickly, adds a new insight into our knowledge of campaign process in the states.

Concluding Observations

Campaigns are ever-evolving entities, and so is the technology that those campaigns employ. Students of technology refer to Moore's Law, which states the number of transistors on an integrated circuit for minimum component cost doubles every 24 months. Moore's Law suggests that computing technology develops at an exponential rate. The results today emphatically state that campaigns, particularly at the state level, are glacially slow compared to the advances in technology that they use.

Presidential campaigns adopt technological innovations very quickly, and then those new developments expand into other federal races thereafter. Congressional candidates adopt technology within one or two cycles after their presidential counterparts. The state-level candidate, though, lags behind. Compared to presidential candidates, state legislative races are operating at a campaign level roughly comparable to that of 1996.

Regardless of the professionalism of one's state legislature, one's party, or the professionalism of a campaign, technology is not widespread in use for elections to those state houses. Voter files are commonplace, but video and interactive features are not. The technological paradigm has not yet shifted for state candidates, and the main reason seems to be money.

Spending relates strongly to technology use, as a measure of both the campaign's sophistication and the campaign's capacity to adopt new technologies. A professional campaign today hires, as one of its staffers, a full-time computing consultant whose job would include database management, web design and/or administration, blog updating, and online fundraising oversight. Technology requires both time and expertise, two factors that low-level campaigns lack.

The trickle-down or congressionalization effect may be inevitable, however, as it appears to be in other areas. The process will just develop quite slowly. Fund-raising and professionalism have already developed and partly institutionalized in state legislative campaigns, as will the use of technology. The finding that online fund-raising is so closely related to electoral success should encourage candidates to consider a larger online presence alone.

Caveats and Directions for Future Research

There is a requisite pair of warnings that must accompany these findings. First is the fact that all elections are time bound. Exogenous factors such as a personal scandal or a statewide voter repudiation of the party in power may suppress the effectiveness of technology in one election and allow it to emerge in subsequent contests. Single election cycle studies have only one data point in time, meaning that whereas we have a good picture of the state of today's state-level campaign technology, that picture will change drastically during the next few elections.

Second, although Kansas and North Carolina were carefully chosen for their representativeness of the variety of state legislative campaigns, they are only 2 states of 50. Ideally, a 50-state study would be completed at some point that would explore the greater interstate differences that campaigns would show. That prospect, however, must wait for a later study.

That later, expanded study is indeed the next step. The intent of the 2006 iteration of the Changing State Legislative Campaign Project was as a pilot for later and larger studies, which I am in preparation to perform for the 2008 election cycle. New technologies will also develop that must be included in those future studies. Future surveys for the project will include the number of staffers dedicated to technology administration in each campaign and subject questions regarding video produced by extracampaign personnel, such as fan videos of the style currently being placed on sites such as YouTube. Citizens are expressing their preferences through short video clips not sanctioned by or coordinated by the campaigns. Such grassroots efforts could be the campaign realization of the "Web 2.0" phenomenon of user-created content, and as such, they will be important to track.

Finally, other causal factors may be driving the campaigns that do use technology. If aggregate fund-raising does not explain why some campaigns use technology and others do not, then some as-yet-unexplained factor must. The great mystery to unlock in future studies is the cause of technology use in a campaign.

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