November 6, 2015

To: Supervisor Michael D. Antonovich, Mayor
Supervisor Hilda Solis
Supervisor Mark Ridley-Thomas
Supervisor Sheila Kuehl
Supervisor Don Knabe

From: Rodney C. Gibson, Chair
Quality and Productivity Commission

DIGITAL BY DEFAULT – LEVERAGING SOFTWARE AS A SERVICE FOR ACCESSIBILITY AND IMPACT

On June 9, 2015, Supervisor Sheila Kuehl introduced a motion, co-authored by Supervisor Michael Antonovich, Mayor of the Board, which directed the Quality and Productivity Commission to examine the various types of software and information technology solutions available to the County.

The Board motion specifically requested a report back with recommendations on how the County can more widely utilize free and low-cost commercial software and information technology infrastructure services across multiple platforms, particularly high-definition (HD) video broadcasting and secure videoconferencing.

In response, the Commission formed a 12-person Working Group to address your Board's directive. As requested, the Commission is pleased to submit its report on "Digital by Default – Leveraging Software as a Service for Accessibility and Impact."

If you have any questions or require additional information, please have your staff contact Victoria Pipkin-Lane, Executive Director, at (213) 974-1361 or vpipkin@ceo.lacounty.gov.

RCG:VPL:LP

Attachment

c: Chief Executive Office
Executive Office, Board of Supervisors
SAAS Working Group
Quality and Productivity Commission

County of Los Angeles
Quality and Productivity Commission

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“DIGITAL BY DEFAULT”

Leveraging Software as a Service for Accessibility and Impact

BY

Quality and Productivity Commission

November 9, 2015

THE LOS ANGELES COUNTY
CHIEF EXECUTIVE OFFICE
QUALITY AND PRODUCTIVITY COMMISSION

Board Report Working Group

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"DIGITAL BY DEFAULT":

LEVERAGING SOFTWARE AS A SERVICE FOR ACCESSIBILITY AND IMPACT

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EXECUTIVE SUMMARY & RECOMMENDATIONS

Supervisor Sheila Kuehl and Supervisor Michael D. Antonovich, Mayor, directed the Quality and Productivity Commission (QPC) to examine various types of software and information technology solutions and to provide recommendations on how the County may more widely utilize free and low-cost commercial software, and information technology infrastructure services across multiple platforms.

A 12-member ad hoc Working Group, established by the Commission Chair, met on several occasions to address the Board's directive; and settled on four major areas of inquiry. These areas were 1) how decisions are made regarding software infrastructure, 2) video broadcasting and secure videoconferencing, 3) options for lower-cost software procurement, and 4) device, operating system, and browser neutrality.

As the Board motion states, "The rapid growth of Software-As-A-Service (SAAS), device-neutral web applications, and increasingly sophisticated free and low-cost software is changing the ways in which government information and services can be accessed, as well as government's ability to operate more effectively and transparently." The Working Group noted that while there is Countywide interest in software implementations, "whose value and cross-platform accessibility may exceed that of custom-built, County-specific solutions," there is an important opportunity at this time to incorporate digital government into the fabric of County strategic, managerial and operational decision-making and to increase awareness of software options and best practices.

The Quality and Productivity Commission supports adoption of such practices, which are designed to leverage resources, improve access and quality of service, and enhance employee productivity while reducing costs. Three elements, which are explained in detail later in the report, are vital to changing the County culture as it relates to software solutions:

1) A clear, Countywide digital government strategy;

2) Committed and consistent dissemination and exchange of best practices; and

3) Policies and procedures to ensure the broadest possible access and compatibility, while maintaining currency with the continuing evolution of consumer and enterprise technologies.

The Working Group, which included subject matter experts from the Departments of Internal Services, Chief Information Office and the Chief Executive Office/Countywide Communications, conducted its scope of work with the goal of establishing salient recommendations to leverage software as a service for accessibility and impact.

RECOMMENDATIONS

- Digital Government
  - Development of a countywide digital government mission statement
  - A comprehensive and collaborative assessment of Department technology needs and potential opportunities
- Best and Shared Practices
  - Development and maintenance of an accessible database of emerging and established software solutions
  - Facilitation of the active dissemination and exchange of best and shared practices regarding technology adoption
- Cost-Effective Software Infrastructure
  - A countywide preference for adaptable and inexpensive software solutions, beginning with open source software, software as a service (SaaS), and consumer applications, prior to consideration of more traditionally hosted and fully managed software or perpetually licensed software
- Digital Neutrality
  - A countywide policy of device, operating system, and browser neutrality

BOARD REPORT

“DIGITAL BY DEFAULT”

Leveraging Software as a Service for Accessibility and Impact

"THE FUTURE IS ALREADY HERE. IT'S JUST NOT VERY EVENLY DISTRIBUTED."
—WILLIAM GIBSON (1999)

BACKGROUND

On June 9, 2015, Supervisor Sheila Kuehl introduced a motion, co-authored by Supervisor Michael Antonovich, Mayor, and approved by the Board of Supervisors, which directed the Quality and Productivity Commission (QPC) to examine the various types of software and information technology solutions available to the County.

The Board Motion specifically instructed the Commission "to report back with recommendations on how the County can more widely utilize free and low-cost commercial software; and information technology infrastructure services across multiple platforms, particularly high-definition (HD) video broadcasting and secure videoconferencing."

To address the Board's directive, Commissioner Rodney Gibson, Ph.D., Chair of the QPC, convened a 12-person *ad hoc* Working Group. It included Deputies from the offices of Supervisor Kuehl and Mayor Antonovich, the Chief Information Officer, the Acting Director of Internal Services, two Quality and Productivity Commissioners appointed by Supervisor Kuehl and Mayor Antonovich, and executives from the CIO ISD, and CEO Countywide Communications, as well as Commission staff. The Working Group initially convened on Wednesday, June 24, 2015, and met subsequently in August and September to determine and pursue the scope of the inquiry.

To understand the opportunities for and possible barriers to wider utilization of free and low-cost commercial software and information technology infrastructure services across multiple platforms, the Working Group first sought to understand the decision-making process for software infrastructure within the County. Having done so, it studied options for software procurement as well as best practices for operating system and device compatibility. Pursuant to the Board motion, the Working Group also reviewed the current state of video broadcasting and secure videoconferencing, with a particular focus on the broadcasting and video archiving of Board meetings.

These Working Group inquiries led the Commission to develop four major recommendations, each of which broadly relates to all areas of inquiry.

	Areas of Inquiry	Focus of Recommendations
I	How decisions are made regarding software infrastructure	1. Digital government as a Countywide strategic focus 2. Use of best & shared practices 3. Preference within parameters for open-source & software-as-a-service (SaaS) 4. Digital neutrality policy
Special topic	Video broadcasting and secure videoconferencing	
II	Options for software procurement	
III	Device, operating system, and browser compatibility	

In the course of its inquiries, both the Commission and the Working Group have been made aware of specific service providers and product vendors in various phases of procurement and contracting with the County. Your Board's Motion made specific reference to commercial software, and it has become virtually impossible to map the broader technology landscape without naming specific private enterprises. However, any reference in this report to a specific company, contracted service, or procured product is for descriptive purposes only and does not constitute an evaluation or endorsement of that company, service, or product. The recommendations contained here are limited to policy goals and operational strategy; the tools used by the County to implement them may vary and indeed will shift as technology evolves.

INTRODUCTION

As Supervisor Kuehl and Mayor Antonovich noted in their motion, “the rapid growth of software-as-a-service (SAAS), device-neutral web applications, and increasingly sophisticated free and low-cost software is changing the ways in which government information and services can be accessed as well as government's ability to operate ever more effectively and transparently. For example, high-definition (HD) video broadcasting and videoconferencing services, with secure transmission and reception, are widely available to anyone with internet access and a computer, smart phone or tablet.” Indeed, the renewal of the County’s seven-year contract for Board meeting broadcast and video archiving, which will include, for the first time, compatibility with multiple operating systems and mobile devices, likely will raise expectations for improved—and ever more cost-effective—accessibility among all County stakeholders, whether residents, employees, contractors, or other partners.

From open-source to software as a service (SaaS) to commercial off-the-shelf solutions the public and private sectors have a range of options to improve business operations while containing costs. The choice of a specific solution depends on careful advance consideration of key factors related to the scope of the project and the County’s unique needs, including costs, hardware, customization, security, mobile access, integration, and control of the final product. These factors play a key role in determining whether and how a County entity pursues software development. However, the Working Group noted that while there is broad countywide interest in software implementations “whose value and cross-platform accessibility may exceed that of custom-built County-specific solutions,” there is an opportunity to amplify consistent Countywide awareness of options and best practices for decision-making.

The Quality and Productivity Commission supports “adoption of such practices, [which] could leverage scarce resources, improve access to, and quality of, service, and enhance the productivity of County employees while reducing costs.” This report’s findings clearly show that three elements are vital to a successful change in County culture related to software solutions:

(1) a clear countywide digital government strategy,

(2) committed and consistent dissemination and exchange of best practices, and

(3) policies and procedural parameters to ensure the broadest possible access and compatibility, even as technologies shift over time.

I DIGITAL GOVERNMENT – A COUNTYWIDE STRATEGIC PRIORITY

With the widespread availability of advanced consumer and enterprise technologies, County residents expect a responsive, nimble government, both open to and capable of new ways of providing the best public services and other operations. Digital tools can encourage creativity, transparency and openness; ultimately they create the conditions that enable the continuous improvement of government products, services, and outcomes.

As the OECD has noted,

> The diffusion and adoption of technologies is also changing expectations on governments' ability to deliver public value. Governments can no longer afford to separate efficiency from other societal policy objectives in the governing and managing of digital technologies. The economic and financial crisis is showing that improved service delivery and internal public sector efficiency go hand-in-hand with economic growth, societal equality, and good governance objectives such as greater transparency, integrity and citizen engagement."[1]

Your Board, and the County as a whole, long have recognized these changes and the fundamental importance of utilizing available technologies to enhance operational workflow, assist in decision-making, and bridge constituents with their government. This report is submitted in the context of prior reports whose findings and recommendations regarding technology-related management and operations remain relevant today, and the County has made substantial progress to date.[2] However, the principles of digital government have yet to find voice in an official Countywide declaration of policies and priorities. Current approaches,

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[1] "Recommendation of the Council on Regulatory Policy and Governance," p. 2. OECD Public Governance and Territorial Development Directorate, 15 July 2014, http://www.oecd.org/gov/public-innovation/Recommendation-digital-government-strategies.pdf, accessed November 1, 2015.

[2] Quality and Productivity Commission, Single Web Access Point for Los Angeles County, March 2012, http://qpc.co.la.ca.us/cms1_179618.pdf; Citizens' Economy and Efficiency Commission, A Review of Los Angeles County's Process for Transitioning to E-Government Applications, February 2014, http://eec.lacounty.gov/Portals/EEC/Reports/198_0214-egov.pdf. In 2015, the Center for Digital Government honored Los Angeles County in the County Portal Category as part of its annual recognition of "city, county and state governments for outstanding portals and websites based on innovation, functionality, productivity and performance" (http://www.govtech.com/cdg/digital-government-achievement/Best-of-the-Web--Digital-Government-Achievement-Awards-2015-Winners-Announced.html, accessed November 1, 2015).

while well intentioned and collaborative, struggle with persistent uncertainties and remained characterized by both service duplication and service gaps.

Los Angeles County is ready to make digital government the norm for strategy, management, and operations. In order to prioritize the timely adoption of cost-effective technological improvements, including free and low-cost software infrastructure—your Board may wish to consider developing and implementing foundational policies and procedures making clear that digital government is a core priority for the County.

To this end, the Quality and Productivity Commission recommends the development of **a countywide digital government mission statement**, rooted in a **comprehensive and collaborative assessment of Department technology needs and potential opportunities.**

The title of this report, "Digital by Default," has its genesis in the groundbreaking work of the United Kingdom's Government Digital Service[3], which encapsulates our core recommendation for a clear directive to all County departments that emerging technology applications are an integral part of Los Angeles County government operations and services. Ideally, a Countywide mission statement, as developed by the Chief Executive Office working with the Chief Information Office and the Internal Services Department, would provide high-level guidance for strategic decision-making related to customer service; digital business processes, operations, and procurement; and technology infrastructure (See Attachment C).[4]

Aligning real-time data around needs and trends, and organizing the best and most creative thinking in the County around a common goal, will promote a positive image of the County. Linking Departmental software development strategies to demonstrated needs and opportunities will improve the County's stature as an open, accountable, and effective government. A focus on digital government benchmarks will inspire County managers to improve the quality and productivity of government services, strengthen public trust, and encourage civic and community engagement. Appropriate digital government performance measures could be very significant to the career development process for high-level information technology employees.

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[3] "About the Government Digital Service," Government of the United Kingdom Cabinet Office. https://gds.blog.gov.uk/about/, accessed October 29, 2015.

[4] Principles for digital government services have been created by, among others, The White House (https://www.whitehouse.gov/digitalgov/deliverables, accessed November 1, 2015) and the United States Digital Service (https://playbook.cio.gov, accessed November 1, 2015) as well as leading organizations such as Code for America (https://www.codeforamerica.org/governments/principles/, accessed November 1, 2015).

HIGH-DEFINITION (HD) VIDEO BROADCASTING AND SECURE VIDEOCONFERENCING INFRASTRUCTURE

As requested by your Board, this report includes specific findings related to high-definition (HD) video broadcasting and secure videoconferencing. Based on materials provided by the Countywide Communications Office (CEO) and the Internal Services Department, we have determined that while the County is making measurable progress toward accessible multi-platform solutions, knowledge about this progress may not be widely shared across departments.

VIDEO BROADCASTING: ***ACCESS***

The County of Los Angeles currently contracts with Network Television Time ("NTT") to capture and record video of the Board of Supervisors meetings. The meetings are live-streamed over the Internet/Intranet and re-broadcast on KLCS Wednesday evenings at 10pm. CEO staff also distributes the live meeting for carriage on the LA County Channel via cable television systems in the County on Time Warner channel 94, Cox channel 65, Verizon FiOS channel 43/45, and AT&T U-verse channel 99.

Information received by the Commission from the Working Group indicates that the clarity of screen resolution when watching the Board meeting varies and has limitations depending on the viewing device. With regard to Internet/Intranet live-streaming and playback of Board Meetings, technology obstacles to date have limited viewing to a Windows PC computer using an Internet Explorer web browser. This limitation has drastically limited the potential audience to those with a very narrow subset of devices and has entirely prevented access to the Board meeting from mobile devices such as smartphones and tablets.

On November 5, 2014, your Board approved a new seven-year contract with NTT, at a cost not to exceed $500,000 annually, for continued services related to the broadcasts of the Board meetings. The new contract requires migration to a new Webcasting Management System (WMS) with the service provider Granicus, whose legislative content management system includes webcasting public meetings. Working closely with the CEO, ISD and NTT, Granicus has developed a custom hardware and software system, which as of November 2015 is being deployed and tested throughout the County.

Upon launch of the new replacement system, currently scheduled for December 2015, the new WMS will offer the following features previously unavailable under the County's legacy arrangement:

- Expanded device/operating system compatibility: Live and on-demand content will be viewable in H.264 and .MP4, making it available on all desktop and laptop PCs, Apple Macs, Android and iOS mobile devices
- Video captioning viewable during the live streaming broadcast
- Synchronized and cross-linked materials to the video. Users can watch indexed videos and browse agendas and view supporting documents all within a single multimedia player window.
- Live rewind/fast-forward and the ability to "clip" segments for download or website embeds

Advanced search will allow users to search across public meetings, archives and event data, including agendas.

VIDEO BROADCASTING: ***QUALITY***

In 2012, replacement equipment was procured and installed in the County's Video Control and Board hearing rooms. All equipment necessary to broadcast in high definition (HD) was installed, with the exception of some playback equipment. As a result, the Commission has been given to understand that the County now has the *capacity* to transmit the Board meetings in HD. Even so, Board meetings currently are broadcast and web-streamed only in standard definition (SD). The Commission has been advised that this is because cable and telephone companies—citing reasons related to a lack of their legal obligation to do so, bandwidth considerations, and limitations on viewer access—to date have not been willing to allow Public, Education and Government ("PEG") channels, like the LA County Channel, to be transmitted in HD.

VIDEOCONFERENCING TECHNOLOGY

Videoconferencing technologies can significantly reduce the need to travel to offsite meeting locations, thereby minimizing lost time and lost productivity. They can yield tangible hard cost savings in mitigating travel, lodging, vehicle and mileage expenses, as well as risk and liability mitigation for the County. Videoconferencing technologies leverage the County's Enterprise Network to interconnect remote video endpoints, enabling multiple systems to conduct live meetings and share content.

COUNTY-HOSTED VIDEOCONFERENCING

At this time, ISD reports, video infrastructure is optimized for internal use within the County network. ISD provides a Cisco-based redundant central infrastructure housed in ISD Data Centers. The infrastructure has a 118 port capacity High Definition (HD) video bridge, which supports scheduling, directory, management, and reporting; the licensing is based on concurrent use model. There are 230 licenses to support external facing clients needing to communicate with County personnel. It is also configured with 310 licenses that support internal calls on the infrastructure, and it also has 525 Jabber licenses to support desktops, laptops and mobile devices including iPads.

The central infrastructure supports standards-based HD room systems such as Cisco, Polycom and Life-size. ISD reports that 29 Departments currently use the infrastructure with 304 registered room units and growing. The infrastructure also has more than 1,940 registered Jabber clients serving 27 Departments.

ISD provides support to County Departments to register all County-owned endpoints, both room systems and desktop clients. ISD provides user training, call scheduling, call set-up, and the necessary monitoring and reporting to ensure the quality of the infrastructure and video sessions. Upon customer requests, ISD also provides customized training.

ISD also provides staff to troubleshoot system issues and perform diagnostics to resolve issues. ISD is responsible for maintaining the infrastructure and provides ongoing infrastructure support and operations. If failed hardware is identified in the core infrastructure, ISD implements the hardware replacement and appropriate spares depot. End-user equipment is the responsibility of the device owners.

There is no cost to County departments or agencies in use of the central video infrastructure at this time; this is due to the initial purchase included a pre-paid five-year warranty, which expires on June 30, 2016. As of the submission of this report, ISD is assessing the feasibility of continuing this free-use model.

CLOUD-BASED VIDEOCONFERENCING

ISD is pilot-testing Microsoft Azure, including Microsoft Office 365 Skype for business (formerly named Lync) on 5 room system endpoints to validate the integration between the Skype environment and the current Cisco Tandberg infrastructure. ISD reports that its implementation of Skype for Business is rooted in the Microsoft Government Cloud, which

meets government security and privacy compliance standards, including HIPAA.[5] ISD maintains the current master agreements for WebEx and Go-to-meeting cloud services for those departments that require web collaboration services. County infrastructure currently does not support some popular consumer-facing applications, such as Apple FaceTime. However, ISD reports that other options are available through the Cisco infrastructure platform. For example, Zoom interoperability exists through Cisco's VCS Expressway using standard SIP protocol. A recent partnership between Cisco and Apple will bring native interoperability within a year for all iOS and OS clients via the Cisco Unified Communications Manager (CUCM). Other supported vidoconferencing interfaces include Jabber Guest, which will be free for all external mobile users and web plug-in desktop users; Spark clients, also without charge, will have URI dialing capacity and secure integration with Cisco's on-premise infrastructure, which ISD already supports. Cisco currently is beta testing a web-based video client for external public access.

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[5] See "Microsoft Azure Trust Center: Compliance," https://azure.microsoft.com/en-us/support/trust-center/compliance/, accessed November 3, 2015.

II BEST & SHARED PRACTICES

In recent years, through its regular visits and consultations with County Departments, the Quality and Productivity Commission has observed the increasing importance of technology as core to performance improvement and efficiency strategies. However, as noted above, awareness across the County regarding options and best practices for technology-related decision-making—especially software and online digital services—remains uneven. Moreover, Departments actively seeking best and shared practices have inconsistent awareness of and access to current information about County pilots, proven successes, and lessons learned.

To improve awareness of, access to, and adoption of best available options, we recommend that your Board consider working with the Chief Information Office to **develop and maintain an accessible database of emerging and established software solutions**, (including subscriptions, whether individual or enterprise, whether held by a single Department or in use across multiple agencies), and working with the CIO and the Quality and Productivity Commission to **facilitate the active dissemination and exchange of best and shared practices** regarding technology adoption.[6]

A database of existing software solutions would help streamline procurement and speed department deployment with the latest applications and service innovations. As earlier reports have indicated, individual departments vary widely in their knowledge of and comfort with available software and would benefit from having a one-stop menu of existing options. Such a menu also would prevent procurement duplication and ensure that enterprise licenses are used wherever feasible and cost-effective. It also would facilitate openness and transparency in government, consistent with state legislation requiring the cataloging of certain enterprise-level information systems containing personal data.

As the Commission knows from its continuing work through Department visits and through the Quality and Productivity Managers Network, progress depends on information exchanges across organizational divides. The Commission could serve as a partner in the CIO's efforts to increase Departmental awareness of appropriate opportunities, successes, and cautions.

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[6] The Quality and Productivity Commission has defined a "best" practice as one believed to be more effective at delivering a particular outcome; best practices frequently are based on repeatable procedures that have proven themselves over time. The Commission understands "shared" practices to include pilot projects that anticipate cost benefits and improved service; these may include processes potentially applicable across more than one Department.

III Cost-Effective Software Infrastructure

As your Board's Motion makes clear, it is critical to the efficient operation of the County that decision-makers become more familiar with and recognize the benefits and advantages of utilizing free and low-cost commercial software and information technology infrastructure services across multiple devices and platforms.

In the course of its inquiries, the Working Group was advised that software costs typically are 5% - 10% of the total cost of ownership of a particular project. Expenditures for design, deployment, day-to-day management, and maintenance account for the lion's share of software deployment costs regardless of the underlying software license. The table below describes five ways software can be licensed with key considerations and use cases.

Software/application delivery method	Key considerations
1. Open Source Software – Open source software (OSS) is a development process, a distribution model, included in a set of free or low cost software licenses. OSS licensing typically allows organizations to open up their projects to the public for submissions, contributions, modifications, repair, or to build on top of the existing software code.	OSS is typically offered in the following business and licensing models: • Commercially supported OSS – this is a model where a vendor or set of vendors provides such services as training support and professional services for the OSS, e.g. Red Hat Linux. This is the most widely adopted form of OSS, offering flexibility in balancing costs versus risks. Depending on the maturity of OSS, the supplier choice and costs varies widely. • Dual licensing – this is a model where the software is offered as both an open-source license and a separate proprietary license, e.g. Oracle MySQL and Berkeley DB. Typically, dual-licensing schemes tend to be a single vendor promoted open-source project. • Open Core – this is a model where the vendor provides proprietary software in the form of add-on modules or management tools that functions on top of OSS, often to simplify deployment and integration with on-premise infrastructure and applications, e.g. Acquia Drupal.

Software/application delivery method	Key considerations
	While the OSS software licensing model may be less expensive than traditional licensing models there are inherent risks to the OSS model that should be considered, including: • Maintenance and support - Unlike proprietary software products, there may not be a single vendor to call when things go wrong. More popular OSS software often have abundant support resources on the Internet in the form of Internet mail lists and archives, discussion forums, and support repositories or databases. However, it can be overwhelming and a simple question may result in multiple conflicting answers with no authoritative source. Several companies, including vendors such as Red Hat, Novell, JBoss, and MySQL AB, provide support and consulting services for a fee. • OSS project viability is also a concern. While a project released under an open source license will always remain open, future developments may not. • OSS licenses bring new challenges to the enterprise. The primary risks are contamination, derived works, and indemnification. It's important to note that these risks apply equally to open and closed source software projects. However, enterprises are more likely to encounter these problems with OSS due to the ease with which developers can access the OSS source code.

Software/application delivery method	Key considerations
2. Software as a Service (SaaS) – SaaS is a software licensing model that includes the right to use the software that is hosted, operated and managed remotely. Services are tracked with usage metrics to enable multiple payment models. The service provider has a usage accounting model for measuring the use of the services, which could then be used to create different pricing plans and models. These may include pay-as-you go plans, subscriptions, fixed plans and even free plans.	• SaaS enables enterprises or consumers to access application functionality as a service without having to worry about the underlying operational or infrastructure details on how the application is implemented. • SaaS differs from managed services or hosting in that all qualified subscribers get a uniform base application service. Software releases and updates to software functionality are often provided more frequently and at a higher cadence than in the traditional software model. • The amount of data, the rate of change of data and the latency requirements of the information are all considerations that must be taken into account when evaluating a SaaS solution. • SaaS is often delivered using Internet technologies and connectivity. Technical implications, such as security and quality of service, should be considered. • SaaS business application managers need to make the security level of a SaaS provider a key evaluation criterion during selection process, and continue to monitor security service levels during use. Because sensitive data and critical business processes will be outside County's firewall, departments must ensure that the SaaS provider at least maintains the same level of security that the department demands of its own IT operations. • A standard SaaS Service Level Agreement is offered to all tenants and subscribers of the service.

Software/application delivery method	Key considerations
3. Consumer applications – this model of software licensing usually includes the use of the mobile consumer applications to support field or out of office use.	• The increasing use of mobile devices in combination with social networks and cloud services are pushing governments to re-evaluate their application strategies to more effectively engage with constituents where and when they want to be reached. As such, mobile consumer solutions need to be device agnostic. • Where appropriate, consumer applications can be adapted for use to enhance and extend the consumer outreach. • Mobile digital processes must be synchronized with other engagement channels, and the content as well as the context must be appropriate and impactful to the customer on that mobile device. It should be consistent with other channels while enhancing the accessibility and usability of the online service.
4. Hosted, fully managed software – this software delivery model is similar to the perpetual license model, except that the software is installed, operated and managed by a vendor, often at a remote location. Software hosting and management (computing, storage, and network infrastructure, as well as technical labor) costs are incurred, in addition to the software license and maintenance costs.	• This hosted and fully managed software model avoids the up-front capital investment for infrastructure (computing, storage and network) and the need for skilled technical resources to operate and administer the software. • Software licensing and maintenance are similar to that of a Perpetual License model with ongoing maintenance and support costs. • This software is typically accessed using secured/dedicated network connections, but increasingly can also be delivered using Internet connectivity and technologies. • Comprehensive service level agreements (SLAs) are required to ensure the security, quality and responsiveness of the service.

Software/application delivery method	Key considerations
5. Perpetual license with annual maintenance – this is the traditional way for which software can be acquired. This model requires an initial cost to acquire the software license to use and an annual maintenance fee (usually between 15% - 20% of the initial license fee) that include technical support and entitlements to new software releases. Examples of software licensed under this model include large complex enterprise systems, e.g. enterprise resource planning (financial, budgeting, procurement and human resources).	• Licensed software is typically installed on-premise and therefore incurs costs for infrastructure (e.g. servers, storage, network and facilities), as well as skilled technical resources to operate and administer the use of the software. Software releases and updates typically occur once or twice a year. • Allows for "customizations" to support specific business requirements, which results in higher cost of implementation and upgrades, as these "customizations" would have to be retrofitted with each software upgrade. Rigorous testing is required for each software upgrade and update to ensure that "customizations" continue to work as designed. • While software maintenance costs typically include entitlements for new software releases, there may be additional costs for technical services to perform software upgrades, especially if customizations have been made.

In general—and especially for pilot initiatives intended to test new approaches to operations and customer service—we recommend that project managers look first to open source software, software as a service (SaaS), and consumer applications, before considering more traditionally hosted and fully managed software or perpetually licensed software.

To accomplish this goal, we recommend that your Board consider implementing a policy that creates **a countywide preference for adaptable and inexpensive software solutions**. Based on input from the Working Group, the Commission recommends that the order in which software/application delivery methods are listed above be adopted as the current order of preference for selection and licensing.

To adopt a preference rather than strict rules recognizes that technology projects may vary in their need for scalability, reliability, and security, each of which affects the overall cost effectiveness of a given solution, as well as its responsiveness to changing business process requirements. That said, these parameters should not be used as excuses to prevent the kind of experimentation and innovation needed to keep the County at the forefront of productivity

and impact with a highly agile, adaptive and responsive infrastructure that is in turn highly efficient and cost-effective to run. New technologies are emerging almost daily that can enable unparalleled mobility, scalability, and capacity, as well as ease security and compliance. Furthermore, with the continuing success of eCloud, ISD has demonstrated capacity to ensure carrier diversity and system redundancies to avoid overload and downtime, as well as to apply quality-of-service (QoS) classifications to prioritize data appropriately.

Given the speed at which technology evolves, the County would benefit from clearly delineated policies to ensure the long-term viability of projects still requiring traditionally hosted and fully managed software or perpetually licensed software. Department managers would benefit from specific guidance related to the timely implementation of upgrades, interoperability with emerging operating systems and devices, and, anticipating technological or contractual end-of-life, complete data portability.

IV Digital Neutrality

The Google Android, Apple iOS/OS X, and Microsoft Windows operating systems together account for virtually the entire current market of desktop and mobile devices in the United States; [7] However, many critical County online services and applications remain inaccessible to iOS/OS X users and to Linux-based users who choose to opt out of proprietary platforms, and similar challenges exist for users of browsers other than Microsoft Internet Explorer.

Furthermore, mobile device usage is expanding rapidly; in many cases mobile devices are serving as desktop substitutes or replacements. The accessibility and usability of County digital government services, for constituents, employees, and partners alike, therefore, increasingly depends on the availability and functionality of device agnostic mobile platforms.

In order to ensure that County digital government services, including broadcast, videoconferencing, chat, and applications are universally accessible to the public, we recommend that your Board establish a **countywide policy of digital neutrality for devices, operating systems, and browsers**. By neutrality, we mean that all web, broadcast, videoconferencing, chat, and mobile application services should be made available, on equivalent terms, in native formats on the three most common desktop operating system families (currently Windows, OS X, and Linux) and the three most common mobile operating system families (currently iOS, Android, and Windows) *and also* native to or broadly compatible with devices representing at least 90% of the current U.S. market; and furthermore that all browser-dependent applications, services, and interfaces be natively functional on desktop and mobile browsers representing at least 90% of the current U.S. market (currently Google Chrome and Android, Microsoft Internet Explorer, Mozilla Firefox, and Apple Safari). By "compatible," we mean operable via mobile web application and/or via use of plugins, codecs, or other software intermediaries that may be installed easily and at no cost to the end user.

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[7] "Desktop Operating System Market Share," http://www.netmarketshare.com/operating-system-market-share.aspx?qprid=10&qpcustomd=0&qpsp=198&qpnp=1&qptimeframe=M, http://gs.statcounter.com/#all-os-US-monthly-201501-201507-bar, accessed November 4, 2015; "Mobile/Tablet Operating System Market Share ," http://www.netmarketshare.com/operating-system-market-share.aspx?qprid=8&qpcustomd=1, accessed November 4, 2015; "Usage share of operating systems," https://en.wikipedia.org/wiki/Usage_share_of_operating_systems, accessed November 4, 2015; "Usage share of web browsers," https://en.wikipedia.org/wiki/Usage_share_of_web_browsers, accessed November 4, 2015.

We further recommend that this policy of digital neutrality be applicable to all enterprise contracts and that long-term contracts contain provisions to ensure that County vendors and subcontractors maintain the County's interoperability as new operating systems and devices emerge and gain popularity.

RECOMMENDATIONS

1. Digital Government

   1.1. Development of a countywide digital government mission statement

   1.2. A comprehensive and collaborative assessment of Department technology needs and potential opportunities.

2. Best and Shared Practices

   2.1. Development and maintenance of an accessible database of emerging and established software solutions,

   2.2. Facilitation of the active dissemination and exchange of best and shared practices regarding technology adoption.

3. Cost-Effective Software Infrastructure

   3.1. A countywide preference for adaptable and inexpensive software solutions, beginning with open source software, software as a service (SaaS), and consumer applications, prior to consideration of more traditionally hosted and fully managed software or perpetually licensed software.

4. Digital Neutrality

   4.1. A countywide policy of device, operating system, and browser neutrality

ATTACHMENTS

BOARD MOTION BY SUPERVISORS KUEHL AND ANTONOVICH – JUNE 9, 2015

The rapid growth of software-as-a-service (SAAS), device-neutral web applications, and increasingly sophisticated free and low-cost software is changing the ways in which government information and services can be accessed as well as government's ability to operate ever more effectively and transparently. For example, high-definition (HD) video broadcasting and videoconferencing services, with secure transmission and reception, are widely available to anyone with internet access and a computer, smart phone or tablet.

The Executive Office of the Board, the CEO and County departments, in working to improve the accessibility of their online services, share an interest in using free and low-cost commercial software and information technology services whose value and cross-platform accessibility may exceed that of custom-built County-specific solutions. Adoption of such practices could leverage scarce resources, improve access to, and quality of, service, and enhance the productivity of County employees while reducing costs.

I, THEREFORE, MOVE that the Board of Supervisors direct the Quality and Productivity Commission to report back in 90 days with recommendations on how the County can more widely utilize free and low-cost commercial software and information technology infrastructure services across multiple devices and platforms, particularly high-definition (HD) video broadcasting and secure videoconferencing.

REQUEST FOR EXTENSION TO REPORT BACK ON SOFTWARE-AS-A-SERVICE (SAAS) AND THE USE OF FREE AND LOW-COST SOFTWARE – SEPTEMBER 4, 2015

County of Los Angeles
CHIEF EXECUTIVE OFFICE
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 713, Los Angeles, California 90012
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September 4, 2015

To: Supervisor Michael D. Antonovich, Mayor
Supervisor Hilda L. Solis
Supervisor Mark Ridley-Thomas
Supervisor Sheila Kuehl
Supervisor Don Knabe

From: Sachi A. Hamai
Interim Chief Executive Officer

Rodney C. Gibson, Chair
Quality and Productivity Commission

REQUEST FOR EXTENSION TO REPORT BACK ON SOFTWARE-AS-A-SERVICE (SAAS) AND THE USE OF FREE AND LOW-COST SOFTWARE

On June 9, 2015, on a motion by Supervisor Kuehl and Mayor Antonovich, the Board directed the Quality and Productivity Commission to report back in 90 days on software-as-a-service (SAAS) and specifically, the following items:

1. How the County can more widely use free and low-cost commercial software;

2. Recommendations for using information technology infrastructure services across multiple devices and platforms; and

3. Feasibility of using high-definition video broadcasting and secure videoconferencing.

On June 24, 2015, Commissioner Rod Gibson, Chair of the Quality and Productivity Commission, convened a SAAS working group to respond to the Board's directive. Members of the working group include Deputies and Commissioners appointed by the Third and Fifth Supervisorial Districts and subject matter experts from the Chief Information Office, Internal Services Department and the Countywide Communications Office.

Subsequent meetings of the working group were held to decide on the scope of work – digital operations, device-neutral applications and free and low-cost software.

The Commission is requesting a 60-day extension, to November 9, 2015, to complete its research and submit a final report with recommendations to the Board.

If you have questions, staff may contact Victoria Pipkin-Lane, Executive Director, at (213) 974-1361 or at vpipkin@ceo.lacounty.gov.

SAH:RCG:RM
VPL:lp

c: Jim Jones, Chief Operating Officer, Chief Executive Office
Robinetta Mack, Employee Relations, Chief Executive Office
Executive Office, Board of Supervisors
SAAS Working Group
Quality and Productivity Commissioners

SUGGESTED GUIDING PRINCIPLES FOR DIGITAL GOVERNMENT

1. Customer Service
    a. Ensure that official County government websites are clearly identifiable by all constituencies through common visual website elements and structures across the County Portal and full breadth of department Internet websites
    b. Ensure that all constituencies can trust that those websites will:
        i. Provide current and accurate government information
        ii. Provide access to the fullest array of County information and services in a consistent and cost effective manner.
        iii. Handle private constituent data with dignity, integrity, and security
        iv. Be available, reliable, and free from unnecessary back-end complexities
    c. Write and organize digital resources, including websites and applications, based on best practice in user experience, ensuring that they are easy for users to access and use.
    d. Apply these principles as equally for internal County constituents and users as for external constituents and users.
2. Digital Business Process, Operations, and Procurement
    a. Embrace the principles of e-Government and actively promote the use of the County Portal and department Internet websites and applications to encourage and facilitate the electronic conduct of County business.
    b. Embrace the adoption of open-source and other low-cost tools and platforms, provided they meet County requirements for scalability, reliability, security, and overall cost effectiveness, and responsiveness to business process requirements
    c. Minimize reliance on costly enterprise software and hardware; where such are necessary, minimize the use of long-term legacy contracts that hinder the advancement of County technology
    d. Promote seamless government, taking advantage of the County Portal, with departments working together to simplify and unify information, as well as comply with existing federal, state, and County laws, regulations and policies.
    e. Apply a federated content management model to allow departments to develop, approve and manage their content, with ultimate accountability at the department head level.
3. Infrastructure
    a. Maintain state of the art resources, which are needed to enable a highly agile, adaptive and responsive infrastructure that is in turn highly efficient and cost-effective to run.
    b. Ensure support for unparalleled mobility, scalability, and capacity.

c. Streamline procurement to speed department deployment with the latest applications and service innovations.
d. Optimize control over security and compliance.
e. Ensure carrier diversity and system redundancies to avoid overload and downtime
f. Apply quality of service (QoS) classifications to prioritize data appropriately