Vision 2023

California Technology Strategic Plan

January 15, 2021

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Executive Summary

Vision 2023 is California's Statewide Strategic Plan to efficiently and effectively use technology to meet our society's goals, and make progress on the big, complex problems affecting us all.

COVID-19 reminded us how fragile our communities, businesses, and our lives are. It has shown where our government must prepare better, and where public services must improve.

This plan is the result of unprecedented participation during an incredibly hard time. Across government, we surveyed thousands of staff and ran over 60 interviews, including California's legislature, local government and the civic technology and vendor community. We heard from passionate, creative public servants who will thrive with connection, direction, consistency and policies aimed for success.

Vision 2023 lays out how technology powers not just more efficient and effective government, but a compassionate and fair government. Our vision is of a government that operates without surprises or hidden traps. It is a convenient, accessible, and reliable government and one that hears its people's voices and reacts to their needs and desires.

In the next three years and beyond, our goals are to:

- Deliver easy-to-use, fast, dependable, and secure public services.
- Ensure public services are equitable and inclusive.
- Make common technology easy to access, use, and reuse across government.
- Build digital government more quickly and more effectively.
- Build confident, empowered multi-disciplinary teams.

We will achieve our vision by working toward these goals and applying our guiding principles: **to put people first**, **make continuous, timely improvement** and recognize that **working together beats working alone**.

Letter from the State CIO and Deputy State CIO

As California's Chief Information Officer and Deputy Chief Information Officer, it's our calling to use technology efficiently and effectively to achieve society's goals and make progress on big, complex problems.

Vision 2023 is California's Statewide Technology Strategic Plan. It's a result of working with thousands of public servants, leaders, our legislature, local governments, listening to our public, and learning from experts around America and the world.

We heard everyone loud and clear.

We are proud to share a vision for California's future that dreams big, focuses on the next three years, and sets out a bold direction for the years to come.

Our vision is for **more efficient and effective government, improving at an exponential rate.** Our current pace of transformation simply isn't fast enough to meet the needs of the Californians we serve.

But becoming more efficient and more effective isn't the full story.

Our vision is of **technology powering compassionate, human-centered government**.

In our vision, all public services will be easy to use, accessible and reliable, ready and available wherever and whenever needed.
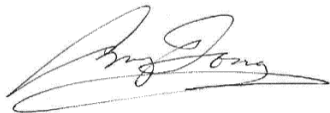
California is the world leader in radically improving people's lives by inventing opportunities and finding fresh ways to use technology.

We understand that technology is a tool for the California State Government's most important job of all: representing and serving all Californians.

We know that success doesn't come from the top, but comes from unleashing the accumulated knowledge, experience and passion of everyone.

We present Vision 2023 as a call to empower over 200,000 public servants, local government, the technology community and our public.

Let's get to work.

Amy Tong, State of California, Chief Information Officer and the Director of the California Department of Technology

Richard Rogers, Deputy State Chief Information Officer and Chief Deputy Director of the California Department of Technology

#visionmatters

Our vision

A trip to 2023 and beyond

Imagine if government worked like this:

When MW loses their job, whether during an emergency like COVID-19 or a recession, they can apply for unemployment insurance with their baby on their hip in one hand, and their phone in the other. In minutes, the unemployment insurance money MW needs is in their bank account, ready to use.

MW gets the help they need quickly. It means they can put food on the table, supporting a local store. Supporting MW and everyone like them makes our neighborhoods and communities stronger.

We can make this happen. We keep the promise of public service by ensuring every Californian has the information and help they need when they need it with compassion, ease and urgency.

*

Meanwhile, Kimberly, a state staffer, has an idea for a faster, simpler way for her program to help MW. It takes just seconds for her to find the right colleague in another department to work with. They work together in real-time instantly, from home, in their offices, or in the field.

With standard, readily available tools, using secure data held by the state, and building on the successes and failures of teams before her, Kimberly and her colleagues build a simple mobile website to test their idea with real people. After a few tweaks based on what they've learned, Kimberly's idea works. Sharing the team's solution and results, their idea is put in place.

Two weeks after Kimberly had her idea, all of California's 40 million residents can benefit from her focus on making people's lives better.

Kimberly and her team's names go up on her department's wall celebrating all the small, quick changes improving lives. What Kimberly and her team learned — what didn't work, what did, and what they changed — goes straight into improving the systems, tools, guides and advice for putting the next idea for improvement into place, wherever it appears.

<div align="center">*</div>

We can make this vision real

Our vision of the future is inspired by thousands of passionate, dedicated public servants across all of government, our legislature, local governments, and the technology community who all provided input to this strategic plan.

The people we talked to shared their passions, dreams, and what's getting in our way. We heard their ideas about what needs to change, and how we might make that change together.

We can make this vision real by bringing every part and discipline of government to work together, using technology as a lever to listen to people, help people, and improve at what we do, every single day.

Our process

To understand how technology can meet our vision and better serve the California public, we held more than 60 interviews and meetings with:

- State government technology executives and leaders (Agency Information Officers, Chief Information Officers, and the California Department of Technology's leadership and enterprise architects);
- Agency, department and business executives and leaders;
- Staff representing the legislative and judicial branches;
- Local government leaders; and
- Technology companies and the civic technology community.

We received survey responses from nearly 8,000 staffers across 19 departments, supervisors and managers at the California Department of Technology, and Chief Information Officers.

We ran an open collaboration session and survey with technology companies, and also reached out to companies that have never worked with the state.

We reviewed technology reports from the Legislative Analyst's Office and the California State Auditor, and the Employment Development Department Strike Team's detailed assessment and recommendations.

Finally, we reviewed industry reports and researched the experiences, successes and challenges of civic technologists and governments across the United States and the world.

Through our work, we learned about how technology is used, planned for, managed and bought in our state. We listened to what people told us they need to use technology well. We found common, repeated problems and learned about how people have solved them.

The insights gleaned have helped shape and inspire this vision.

We have intentionally written this vision as simple as possible to keep it accessible. Our full research insights will be published on this website shortly.

- ● Find out the organizations that contributed to Vision 2023, the people who contributed and the reports and information we used.

Our guiding principles

The emergencies of 2020 strained the state's operations and highlighted the importance of technology in supporting Californians in their time of need. These principles are the bedrock of how we use technology. By applying them together, we will bring our vision to life.

1. Put people first

In 2020, putting people first meant a multi-agency team building covid19.ca.gov in order to meet Californians' need for understandable, accurate and up-to-date information.

We achieved this by doing the hard work to understand what Californians and the public servants working for them needed, applying disciplines like user research, analytics, product management, continuous delivery and more.

2. Continuous, timely improvement

COVID-19 showed us how public services are ready to adapt quickly and flexibly in changing circumstances. But those improvements must be timely, too.

Across all of government, we must develop and nurture a culture and the skills needed to update and improve systems and services every day, rather than waiting for large, complete replacements of IT systems.

3. Working together beats working alone

We saw the best of public service when small multi-disciplinary teams came together from different departments and agencies to solve big challenges.

With a common goal of putting people first, diverse disciplines, state staff, civic technologists and private sector partners designed and delivered compassionate, human-centered services at speed, improving every day through fast feedback.

Our goals and challenges

We have set five broad goals to achieve Vision 2023. In the next three years and beyond, we must:

- Deliver easy-to-use, fast, dependable and secure public services.
- Ensure public services are equitable and inclusive.
- Make common technology easy to access, use, and reuse across government.
- Build digital government more quickly and more effectively.
- Build confident, empowered multi-disciplinary teams.

To achieve these goals, we must also understand what challenges stand in our way.

To inspire leaders and teams who would like to engage in this transformation and to work together across government, we have highlighted key challenges we'll need to face to achieve each goal. We have chosen these challenges based on our interviews and research to help us to set specific objectives and results for us to achieve each year.

We have deliberately chosen to concentrate on these goals and challenges to build momentum, alignment and trust. Making progress here is key to using technology proactively instead of reactively as we emerge from 2020.

We hope to inspire leaders and teams to help us set specific objectives and key results. We can achieve Vision 2023 by charting the path forward together, and holding ourselves accountable to doing the hard work over the next few years.

1. Deliver easy-to-use, fast, dependable and secure public services

> "Claimants shouldn't have to understand the structure of a department to receive benefits they've already paid for."
> - User research interview with Carol Williams, Chief Deputy Director of Operations, Employment Development Department

COVID-19 and wildfires reminded us that government services can mean the difference between life and death. When government fell short, state staff and technology company partners responded with creativity and dedication, improving services quickly and deliberately.

Public services should be easy to use. We've seen and heard that the quality of our public services is inconsistent. Before COVID-19, Californians could only apply for some services in person. They could use some services online, but only at a computer, not on a phone. People entering the wrong information repeatedly is a sign that we must make services easier to understand and use[1], and many people aren't confident enough to use online services and find them confusing or alienating.

Public services should be fast. Californians expect and demand fast services from their government. Fast services require understanding what fast means for users and identifying bottlenecks in those services. It also requires empowering our state staff to be part of the process. We must look for bottlenecks in our own processes and policies, and rewrite them to be simpler, clearer, more straightforward and to make use of automation.

Public services must be dependable. Californians must be able to trust their government. We earn that trust by making sure government services are

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[1] See Employment Development Department Strike Team Detailed Assessment and Recommendations, September 16, 2020

dependable. This means information like public health data and guidance must be accurate, up-to-date and useful.

Public services must be secure. Californians share their personal information, data and resources with their government. They must be confident that government will keep their information private and secure, and that government will steward their resources, preventing fraud and abuse.

Challenges to focus our work ahead together

Challenge 1.1: How might we make it easier to understand and navigate public services and information?

Why this matters:

- People must search for public information and services across over three hundred websites managed by more than 150 departments.
- Users face inconsistent and disconnected experiences on California state websites.[2]
- Many services and websites are written to postgraduate English reading levels, making them hard to understand.

Challenge 1.2: What must we do to ensure critical public services and technology infrastructure are ready for surges, and are resilient and dependable? How might we make strike teams a thing of the past?

Why this matters:

- Surges in demand will always happen. Sometimes they are predictable, when following changes in the law, like Motor Voter and Real ID. COVID-19 was a lesson in unexpected surge in demand. Critical public services must be ready and regularly tested to meet increases in peak demand, and it is unacceptable for critical public services to be available only during certain office hours.
- Dramatic service failures have led to emergency incidents and strike teams

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[2] See Research Findings and Insights Appendix on speed, performance and responsive design for mobile devices and interfaces.

to stabilize services. These strike teams are reactive and unsustainable[3].
● These failures also often happen at the seams where technology, policy, and operations meet, and weakness or obsolescence in each contribute to overall failure.

Challenge 1.3: How might we provide faster, more consistent, and more accurate public services?

Why this matters:

● Slow, inconsistent, or inaccurate services ~~can~~ undermine trust in government and raise questions of fairness, bias and competence.
● COVID-19 highlighted services that rely on paper due to a combination of policy and technology. Paper processes often mean higher costs and slower service.
● Programs often lack the operational insights, dashboards or metrics to identify opportunities to change policy and operations, improve technology, and use automation. Without this information, programs are unable to effectively prioritize changes.[4]

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[3] See Research Findings and Insights Appendix on approaches to legacy technology systems.

[4] See Research Findings and Insights Appendix on manual processes and the Employment Development and Employment Development Department Strike Team Detailed Assessment and Recommendations, September 16, 2020

2. Ensure public services are equitable and inclusive

"It feels like we assume the public are upper-middle-class white people with college degrees."

- User research interview with Christian Griffith, Chief Consultant, Assembly Budget Committee

COVID-19 showed how public services can mean the difference between life and death. Given these stakes, the state has an obligation to make sure all Californians can equitably access public services. Technology plays a critical role in meeting that obligation.

Making public services fair and inclusive requires focus and work.

In California, nearly 16 million Californians speak a language other than (or besides) English. And non-native English speakers include many of the most vulnerable Californians. But many public services can appear as if these Californians were an afterthought.[5, 6]

Different abilities may require people to engage with technology differently. They may need screen readers or web pages with more distinct colors. This is not a niche issue. Nearly a quarter of adult Californians have some kind of disability. Throughout our lives, most of us will experience disability, whether permanently or temporarily.[7] [Assembly Bill 434](#) (AB-434) recognized this by requiring government websites to comply with industry and federal accessibility standards. But being inclusive and accessible to all is more far reaching than complying with rules. It requires understanding the needs of those we seek to include, and testing with them to help ensure we meet the mark.

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[5] Web analytics data prepared by CDT Office of Enterprise Technology and the Office of Digital Innovation alpha.ca.gov team

[6] See Research Findings and Insights Appendix and [Employment Development Department Strike Team Detailed Assessment and Recommendations](#), September 16, 2020

[7][Disability Impacts All Of Us](#), The Centers for Disease Control and Prevention (CDC)

Making public services more accessible and inclusive improves the experience for everyone. We do not intend to exclude. But our defaults make exclusion more common than we would like to admit. For example, many websites are written at a post-graduate reading level. This is typical of government writing. Simplifying the information we share with the public to a 6th grade reading level makes it easier for all Californians to understand and engage with their government. Inclusion is hard work. It requires dedication and focus.

Diverse teams help. What we put out to the world reflects our biases and experiences. We need teams that look like California as we build technology to serve Californians. Building these teams requires hiring talent, partnering and purchasing services from people who reflect the totality of California. COVID-19 illustrated how a simple change such as dropping the requirement to be on-site in Sacramento — opened the state to vendors and talent who are normally excluded. We can and must make our broader state technology community better reflect our state.

Challenges to focus our work ahead together

Challenge 2.1: How can we make digital services and information accessible to everyone?

Why this matters:

- All Californians must be able to access government services.
- Digital is increasingly the primary and expected channel for government services.
- Compliance with AB-434 and industry accessibility standards do not automatically result in increased accessibility for real users[8].
- Improving service accessibility will improve the experience for all Californians.

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[8] See Research Findings and Insights Appendix on language and ability, and Employment Development Department Strike Team Detailed Assessment and Recommendations,September 16, 2020

Challenge 2.2: How can we ensure all Californians have access to affordable, reliable high performance broadband?

Why this matters:

- California seeks to deliver more services digitally, but without greater broadband access this strategy won't reach many vulnerable people who most need state services.
- 23 percent of California housing units — home to 8.4 million residents — do not have broadband subscriptions.[9]
- These Californians face five significant hurdles in accessing or adopting broadband: availability (speed and reliability), affordability, access to devices, digital skills and the data to focus our solutions.
- Delivering broadband to all Californians will require at least $6.8 billion in private, federal, and state investments as bandwidth demand continues to grow — outstripping expected funding from the Federal Communication Commission's Rural Digital Opportunity Fund and existing state programs.

Achieving the state's goal of Broadband For All will require partnerships with and support from the broadband industry and federal, municipal and tribal governments.

Challenge 2.3: How might we better reflect the diversity of California in the teams building technology for California?

Why this matters:

- More diverse government workforces — in terms of sex, race, ethnicity, language, ability, and experience — leads to better policy outcomes for represented communities.[10] Diverse workforces with diverse life experience and perspectives are better able to understand people's needs[11].
- Diverse workplaces known to value inclusion help attract and retain the best talent from a wider pool.

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[9] Calculated by California Broadband Council staff and the California Emerging Technology Fund 2019 survey on non-smartphone broadband subscriptions.

[10] Bradbury, M. and Kellough, J. E. (2008). Representative bureaucracy: Exploring the potential for active representation in local government.

[11] The business case for diversity in the workplace is now overwhelming, World Economic Forum, 2019 and Diversity Wins: How inclusion matters, McKinsey & Company, 2020

- Our state technology workforce does not yet reflect the state we serve, particularly among women (35 percent of workforce vs. 50 percent of population) and Hispanic or Latino colleagues (12 percent of workforce vs. 39 percent of population).[12]

Challenge 2.4 How can we create an equitable, inclusive and diverse playing field for technology vendors?

Why this matters:

- In general, our technology policy and procurement environment incentivizes large technology procurements (e.g., tens or hundreds of millions of dollar "projects") instead of smaller procurements (e.g., sub-million dollar "teams"), which results in a small pool of eligible vendors that may not deliver the best results.
- Procurements focused on approaches or solutions that have already been decided limit innovation, speed and quality of problem-solving, and may exclude newer, smaller vendors with new or innovative approaches.
- Engagement and surveys with technology companies found many barriers to entry, especially for companies new to doing business with the state.[13]

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[12] US Census Bureau QuickFacts: California and CalHR Statewide Reports

[13] See Research Findings and Insights Appendix on vendor barriers to entry.

3. Make common technology easy to access, use, share and reuse across government

"Our scale is so big. We have over 60,000 employees. Per user, year over year, that all adds up."
- User research interview with Russ Nichols, Agency Information Officer, CA Department of Corrections and Rehabilitation

Many of the jobs to be done across government involve common needs and tasks.

There are common needs to deliver services to the public. When we examined large technology projects in planning across the state we found 79 case management systems across 22 departments; 45 reporting systems across 15 departments; 27 licensing systems across 23 departments; 23 claims management systems across 7 departments and 20 content management systems across 10 departments.[14]

There are also common infrastructure needs, ranging from document management and electronic signatures to identity authentication, verification and validation.

Instead of tackling these problems with a collective approach, the state environment makes it easier for departments and programs to pursue individual projects. In some cases, it is difficult for programs to simply and easily reuse what has been successful elsewhere.

To deliver value to users more quickly, we must pool our investments and efforts into a shared digital infrastructure. We can do this by using common technology that can be adapted, shared and reused across the state. For most common problems, this will mean developing a suite of demonstrated approaches to be used by default, unless exceptions are met.

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[14] Technology projects subject to the Project Approval Lifecycle (PAL)

To build this shared infrastructure, we will need to practice and develop expertise in working at scale. We will need to make it easier and faster for teams to apply shared experience and patterns to solve problems. And we will need to make it easier and faster for teams to acquire modern, common technology for common needs like document management, helpdesk and support services, and identity authentication and verification.

"How can we work together in one shared environment, as one organization?"

- User research interview with Krista Canellakis, Deputy Secretary for General Services, Government Operations Agency

Staff in different departments need to be able to find each other in seconds, collaborate on documents and data in real-time and chat on video, no matter where they are.[15] They need consistent, easy access to the modern tools to do their jobs, from analyzing or sharing data to managing projects.

Centralizing and standardizing on common technology choices make it easier for us to take advantage of our scale as the world's fifth-largest economy. We have a duty to use our size to deliver better services at a responsible cost, allowing us to use our public funds to better serve people. This does not mean locking the state into a single choice, or vendor or inflexible static standards. It means understanding user needs and providing managed choices and flexibility. Most importantly, achieving this goal will make it faster and easier for teams to solve actual Californians' problems, such as receiving emergency grant funding, starting businesses or finding child care.

Challenges to focus our work ahead together

Challenge 3.1: How can we ensure that our staff have easy access to the tools they need to succeed?

Why this matters:

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[15] See Research Findings and Insights Appendix on staff collaboration needs.

- Employees are frustrated that they cannot:
  - Look up each other's contact information or availability,
  - work on documents together in real-time with colleagues from other departments (as collaboration tools replicate departmental boundaries),
  - rely on a common baseline of modern tools or
  - be sure that the technology and tools available to them will meet their needs.
- Inconsistent policies, implementation, and availability of software and IT infrastructure reduces productivity, reduces security,[16] reinforces silos and inhibits collaboration and multi-disciplinary teams.[17]
- We learned about challenges with remote work in terms of home internet availability and access to devices capable of video meetings. Although these issues surfaced for the state because of the pandemic, they helped us see the broader implications for Californians that we need to address.

Challenge 3.2: How do we make it easier for departments to successfully use and reuse common technology?

Why this matters:

- The way technology projects are started and overseen, including through the Project Approval Lifecycle (PAL) frequently leads to large technology projects and fully custom technology, or heavily customized commercial off-the-shelf technology. This approach in turn leads to projects taking too long to deliver value.
- Reaching a goal of delivering value to users within six months of contract award[18] means programs need ways to be able to quickly solve common problems with easily available, proven common infrastructure or services. But repeated implementation without assessing lessons learned means that technology projects are not benefiting from avoiding errors or not replicating poor processes.[19]
- Federated policies have resulted in unnecessary complexity. Departments expressed a need for clear, consistent and flexible statewide standards on subjects such as data ownership and use, cloud services and graded

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[16] [Employment Development Department Strike Team Detailed Assessment and Recommendations](#), September 16, 2020, on password management.

[17] See Research Findings and Insights Appendix on barriers to staff collaboration.

[18] 18F De-risking Guide, [State Software Budgeting Handbook](#)

[19] See Research Findings and Insights Appendix on improving institutional learning.

approaches to risk.
- All state entities are under budget pressure to do more with less. Negotiating deals individually at the program or department level for common state requirements misses the state's opportunity to use its purchasing power to get better value. But these larger deals, like CDT's Vendor Hosted Subscription Services (VHSS) and DGS' Software Licensing Program (SLP), don't exist for a wide enough range of technology yet,[20] or don't yet provide better value for money.

Challenge 3.3: What do departments and staff need to easily access and use the data they need?

Why this matters:

- Successfully and seamlessly coordinating evacuations during emergencies like fires and toxics spills require entities like CalOES, county sheriffs and emergency operations centers to share situational awareness to coordinate responses such as fast and safe evacuations. This isn't supported by current data infrastructure.
- Programs aren't able to quickly and securely prototype and experiment with data without affecting operations.[21]
- Many data problems are solved on an ad-hoc basis instead of systemically, because of an inconsistent, crisis-driven approach.[22] Meaningful change requires an environment that supports continuous institutional learning, and consistent processes and governance for the usage, access and control of data.

Challenge 3.4: How might we improve reliability, reduce the burden and decrease the costs of running departmental websites?

Why this matters:

- Commodity web hosting and publishing infrastructure is duplicated across departments and a potential candidate for standardization and centralization.
- Not all public websites are able to meet surges in demand.

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[20] See Research Findings and Insights Appendix on technology procurement vehicles.

[21] See CalData's California Data Strategy 2020 and Research Findings and Insights Appendix on data policy, tools, systems and infrastructure.

[22] See Research Findings and Insights Appendix on infrastructure automation.

- Inconsistent web platforms, templates and design across the state lead to complex operations and inconsistent user experiences for Californians.

Challenge 3.5: How can we develop a more secure, reliable and consistent way for people seeking state services to prove who they are?

Why this matters:

- Users have an expectation of speed of service. Where services rely on proving who you are, breakdowns at the intersection ("seams") of policy, operations and technology have led to unacceptably slow service. This is sometimes due to inconsistent implementation of identity verification and authentication services.
- Multiple unconnected systems for users to authenticate their identity mean that users must repeatedly prove their identity across programs. This doesn't match users' expectations who see government as a single entity. For example, similar but different requests for information result in repeated mistakes.
- Programs and departments bear the burden of implementing, maintaining, supporting and securing multiple identity verification and authentication systems, when identity verification and authentication is a common need.
- Delivering options for a common approach to identity verification and authentication is at early stages and requires significant work to understand the public's needs and expectations for privacy and security, how and when government shares information, transparency about information and information sharing, and informed consent.
- Similarly, significant work is required to understand program, departmental, agency and statewide needs.

4. Build digital government more quickly and more effectively

The COVID-19 pandemic forced our government to adapt rapidly and rethink how we serve 40 million Californians. We had to adapt our older technology and implement new solutions to help people quickly, sometimes in just days.

In our work, we found departments hungry to use technology to dramatically improve service delivery and outcomes. But they felt that technology is not doing as much as it should. We heard from leaders and program teams about how it is difficult to make such improvements quickly and effectively.

Part of how we will build digital government faster and more effectively is addressed by our goal of making common technology easy to access, use, share and reuse across government. But common technology is only part of the answer.

The situation can be more complicated when it comes to the technology that supports core public services.

Some of the foundations of our government are large complex programs. These programs usually involve older technology infrastructure ("legacy" technology, often running on state mainframes). Achieving our vision requires successful, replicable approaches so these kinds of programs can quickly and efficiently meet people's continually changing needs.

Technological improvements are typically scoped and implemented as "projects." There are defined requirements, budgets and schedules pre-specified years before completion. The process to approve these projects can take years. Technology investments should receive approvals and oversight. But there is growing recognition across agencies, departments, legislative staff and the Legislative Analyst's Office that we need pathways to get to better faster.[23]

Last, there is a common desire for learning from our collective experiences using technology to improve public services across the state. Even though the

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[23] Legislative Analyst's Office report on the 2019-20 Budget, Aligning the State's IT Project Approval Process With the Annual Budget Process

particulars may vary, every technology investment is an opportunity to improve our knowledge about how to build digital government. Building digital government more quickly, and more effectively requires making success easy to copy, and making failures easy to learn from.[24]

Challenges to focus our work ahead together

Challenge 4.1: How can we better balance oversight and planning with speed and delivery?

Why this matters:

- Most stakeholders want faster progress, and recognize that investments will continue to need thoughtful planning, investment approval and oversight, but too many initiatives take years before changes or improvements are delivered.
- The existing approval and oversight process is designed for large, fully planned technology "projects," providing assurance to the Legislature and Department of Finance, but the experience of this process is cumbersome and slow to all stakeholders.
- An alternative pathway is needed to allow faster progress and learning for teams, programs and departments who have demonstrated success.
- Unclear and inconsistently applied approval processes, standards and requirements highlight a need for clarification, better coaching and consistency to set investments up to succeed regardless of who's building or approving them.

Challenge 4.2: How might we develop the information needed to prioritize statewide technology investments to improve services, realize savings and reduce risk?

Why this matters:

- The Legislature and Department of Finance need greater transparency to feel confident that we are appropriately investing and building useful technology at both the service and statewide enterprise level.
- A model focused on projects has left no room to identify or support

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[24] See Research Findings and Insights Appendix on improving institutional learning.

statewide common infrastructure or shared services that would provide compound benefits for multiple projects.

Challenge 4.3: How might we better modernize legacy infrastructure to meet our goal of continuous, timely improvement?

Why this matters:

- Much of the state's critical IT infrastructure and tools were created years or even decades ago. While in many cases the underlying systems are stable, newer technology added to these systems is often complex to manage, difficult to change and does not scale to meet demand.
- The state has few successful models for continuously updating legacy infrastructure. But the default approach of replacing legacy systems wholesale (a "big bang") doesn't work either, with a high risk of failure and increased cost, complexity and time to deliver.
- Many programs face large, complex problems like operational data exchange. But the state has yet to embrace fully and decisively successful public and private sector approaches, like small-scale interventions, solving immediate, practical problems one by one as part of a long-term strategy. What is needed to successfully and repeatedly solve problems like this?

Challenge 4.4: How can we stop re-learning the same lessons? How can we speed progress by institutionalizing learning?

Why this matters:

- The state has a widespread, urgent need for consistent documentation (e.g. "playbooks"), but creating and maintaining effective, useful documentation is rarely prioritized, funded or assigned to staff with appropriate training.
- Technology leaders clearly expressed the need for projects to document and apply lessons from each others' successes and failures.
- Critical systems rely on the outstanding work of long-term government employees who are nearing retirement. Where systems rely heavily on vendors, there is a need to actually transfer knowledge to the state.

Challenge 4.5: What are the needs for long-term harmonization of statewide infrastructure, and how can they be met?

Why this matters:

- The problems unique to our state government involve scale and the intersection of policy, programs, operations and technology. Delivering on our vision requires that programs and data interoperate with each other, but this also requires understanding trade-offs and long-term planning.
- To date, attempts to address this have not been adequate. How can we make continuous progress as well as decide what should be state-level infrastructure and then implement that infrastructure?

5. Build confident, empowered multi-disciplinary teams

"Technology is a product of the culture that builds it. "
- Kellan Elliott-McCrea, former Chief Technology Officer, Etsy

"It's hard for me as a director when I don't have IT project experience."
- User research interview with Eraina Ortega, Director, California Department of Human Resources

Our public servants are smart and dedicated. They want to spend their time on hard problems, and for technology to remove routine items from their plate.

Agency, departmental and technology leaders candidly told us about wanting to avoid the failure of bold initiatives. They told us about being scared by technical jargon, not knowing what's possible or where to start, but being eager and willing to learn.[25]

All state staff shared the need for an environment that supports learning and of the need for consistent support and guidance. Empowered teams need safe places to learn, where they can speak up, test new ideas and have tough conversations. This means acknowledging not only where we fall short, but also the risks of not changing. We must create spaces for empowered teams to build, release, learn and improve.

We also heard loudly that progress means bringing new skills, experience and talent into government. New, critical services like COVID-19 notifications were possible because we hired or partnered to bring designers, user researchers, data engineers and more into our teams.

We can't form these teams without technology companies and the vendor community. When COVID-19 forced the state to drop the requirement for

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[25] See Research Findings and Insights Appendix on leadership.

vendors to be on-site it became easier for the state to acquire skills, significantly increasing the pool of vendors with which to collaborate. Remote, multi-disciplinary teams allowed the state to experiment with and gain an understanding of what skills were needed, how these skills could be best obtained, and lastly, how they can be developed.

Technology does not solve problems alone. Successful departments and teams organize themselves around common goals, working across silos, from the bottom up and from the executive level down. Executives should build and create space for multi-disciplinary teams from the beginning. These teams are not successful when space for them is created and supported as an afterthought.

No one person has the right answers to the most important problems. More importantly, because change is a constant, the right answer today may not be the right answer in the future. We need to invest in the people, teams, and culture that will help continually learn and solve problems.

Knowing how to do this cannot be hard to figure out. But developing the people, skills and culture of continually learning and solving problems across all of government is a long-term goal. We need to celebrate and learn from the teams who are doing this well, and share that knowledge widely. We need to make it easy to create open spaces, build multi-disciplinary teams and hire the best vendors to complement our staff.

In the end, our people and teams are those who do the work. Together, they will build the infrastructure we need, understand the problems that need solving and deliver our vision of compassionate, human-centered, effective and efficient government.

Challenges to focus our work ahead together

Challenge 5.1: What do leaders need in order to confidently and successfully integrate program, operations and technology to continuously improve outcomes?

Why this matters:

- Executives and leaders shared that technology is critical to their business and program operations and success. But often, they lack the skills and knowledge to confidently make effective decisions about how technology can be used to improve outcomes.
- Executives and leaders also shared that they often work in environments without the peer or higher-level support they need.
- Teams and departments find it difficult to make progress and work in a multi-disciplinary way without managers and leaders fluent in the core technology concepts that are critical to programs and businesses.

Challenge 5.2: How can we build stronger, integrated, multi-disciplinary teams?

Why this matters:

- Technology is not an end but a tool to help improve government — and successful use requires collaboration and integration across disciplines.
- Much technology capability is organized largely based on a historical IT structure focused on operations ("keeping the lights on") and supporting commodity technology, even as roles have increasingly intertwined with core programs.
- There are few models for successfully incorporating "technology" skills into healthy, integrated teams. This includes models for working with vendors.[26]

Challenge 5.3: How can we better invest in and develop our technologists?

Why this matters:

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[26] See Research Findings and Insights Appendix on multi-disciplinary teams and vendor collaboration.

- Surveys showed that current technology leadership programs don't fully meet the needs of staff with gaps in the skills and training they provide, including on-the-job learning.
- Inconsistent and obsolete job descriptions and understanding of competency make it difficult for the state to develop skills and an environment for technologists to be successful. A good example of work in this area is CalData's [California Data Strategy 2020](#)

Challenge 5.4: How can we attract and keep the technology talent needed for 21st century government?

Why this matters:

- Critical roles such as user researchers, designers, technical writers and data engineers are needed to achieve our goals and vision. We found it is very hard to recruit for these roles.
- Other governments have developed strategies to successfully attract technology skills that include concepts of tours of service, alongside options to develop long-term careers.
- Burnout is real. Technologists we spoke to are very mission-oriented and proud of their work, but onboarding, support structures and integration need to be improved.

What's next

Our vision sets the direction. Up next: the work.

Prioritizing challenges

We have identified critical challenges that we need to resolve to make meaningful progress towards our goals over the next three years.

These challenges aren't written into stone. We need your help to identify any critical challenges we may have missed, and your input into which are the most important to start with and why. We will also need to decide what not to do.

Building challenge teams

We are putting out a call for leaders who want to own, shape and guide the work to design and achieve Vision 2023's statewide objectives and key results.

These are statewide challenges that require diverse perspectives and engagement to accelerate meaningful improvement.

Each challenge will require three roles: leaders, doers, and advisors.

If the challenges inspire you to take on any of these roles, please register your interest for specific initiatives here.

- Leader(s): passionate about solving the problem and excited to build the multi-disciplinary team to make continuous, tangible progress. Responsible for solving the challenges and able to gain executive support to invest significant time to lead the initiative.
- Doers: willing and able to roll up their sleeves to help deliver key results. Typically overlaps with your day-job and able to get support from your leadership team to dedicate the time to do the work *well.* This will require not doing other things.
- Advisors: bring relevant expertise or experience that can help shape successful initiatives, including from outside state government!

Developing objectives and key results

In early 2021, Challenge Teams will co-develop the objectives and key results that describe what we want to accomplish this coming year.

The objectives and key results for each Challenge Team are how we will keep ourselves accountable. They will show whether we have done what we said we would do.

Doing the work

Team leaders will manage progress, check-in with the teams working to achieve key results and flag emerging issues throughout the year.

The quarter before the end of the calendar year, we will ask each team to brainstorm the next years' key results, and reflect and score progress against this year's key results

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