

3-2015

Maine 2025 : An Exploration of the Future Workforce Requirements for the Maine State Government

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**MAINE 2025: An exploration of the future workforce requirements for
the Maine State Government**

By Leading Futurists LLC and Green Consulting Group

March 2015

Preface

Maine's Bureau of Human Resources is seeking to answer critical questions about the future of the state workforce. The Bureau engaged foresight consultancy Leading Futurists LLC, working in collaboration with Green Consulting Group, a consultancy in workforce development, aging workforce and organizational development, to explore those questions and render a report on the Maine State Government Workforce in 2025.

This report is the culmination of that effort, a capstone analysis and presentation of findings of the project which began in August 2014, and was completed in January 2015.

Workforces have to adapt to changing requirements, but the composition of a workforce is slow to change. It requires foresight and a long-term view for an optimal workforce strategy and successful outcomes. It's too easy for a given workforce to be simply what has accumulated and evolved under routine conditions, without intent and planning.

A clear, longer-term view of the directions of change offers the chance for a workforce to be built for current, emerging, and future requirements avoiding gaps and shortages.

Government agencies must build and fine-tune a pipeline of talent through recruitment, training, and managing for current requirements, but also growing and evolving that workforce for future needs.

Acknowledgments

The report and research program's principal investigators, Jennifer Jarratt, Katherine Green, and John B. Mahaffie thank the many Maine state officials and private sector thought leaders who helped us explore the forces and trends shaping Maine's future, the state's future needs in and out of government, and potential solutions to those needs.

The dozens of experts who gave us their time and energy in interviews and/or at the December 2014 working session are listed in the appendix. We would like to specifically and especially thank the Bureau of Human Resources team, led by Sam McKeeman, HR Programs Director- HR Programs Unit, Joyce A. Oreskovich, Director, Bureau of Human Resources for their guidance and support.

We also thank the many Maine government and private sector executives and experts who gave their time for interviews and queries that strengthened and deepened our knowledge of Maine and its government and workforce futures.

Scenario illustrations – Artist and illustrator Simon Adams of Gray, Maine, created the four images accompanying this report's 2025 scenarios. [Simon's website](#).

About the authors

LF Principals Jennifer Jarratt and John B. Mahaffie, foresight consultants since the mid-1980's, deliver to their clients research and analysis, futures exploration workshops, scenarios, keynote presentations, and writing/communications on the future. Each has taught foresight at the university level.

They are experts on the future of work, worklife and the workforce, and have served clients in human resources including Federal agencies, states and municipalities, non-profits, and corporations.

Green Consulting Group principal Katherine Green has 30 years experience in consulting with federal government, industry leaders, and HR professionals, addressing issues of the aging workforce on productivity, workforce management, workforce and succession planning.

The two firms regularly collaborate to explore the future of work, the workforce, and worklife, including a particular focus on the aging workforce.

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Executive Summary

Ongoing change in business, technologies, aging population, environment and more, demands forward thinking from Maine’s government workforce leaders. A clear view of the state’s future workforce needs, and a readiness to innovate, will help ensure the Maine State Government plans and builds the organization it must have to attract, develop, and keep talent over the next decade.

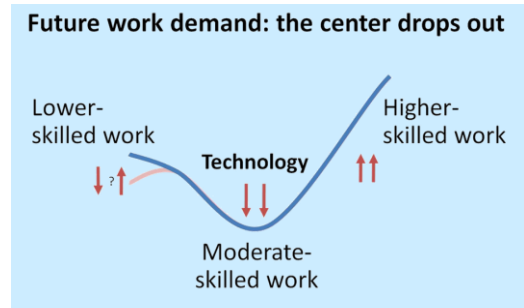
What we can expect by 2025

The 2025 Maine State Government will expand its technological capabilities to serve a digitally-engaged and enabled citizenry. With some exceptions, citizens will anticipate mobile access to their state government, 24/7.

If the state’s workforce is to serve more needs with the same or fewer workers, it must leverage technology to achieve its goals. This means every member of the workforce must upgrade his or her technical skills, be customer focused, and work equally well online and in face-to-face interaction. This also implies a strong ongoing learning commitment to innovation and change.

Workforce requirements

Automation, including artificial intelligence and robotics, will allow the state to leverage the skills of workers for greater productivity. Technology will reduce the need for moderately skilled work such as middle management, application processing, and bookkeeping, which can be automated, leaving workforce needs at the low end, such as repair, maintenance, and manual labor, and high-end, such as design, analysis and other knowledge work that must be staffed. The degree of automation replacing lower-end skills is uncertain, in part it will be a choice, and in part it depends upon technology readiness, e.g. in self-driving vehicles. With an older citizenry and workforce, most workers will need to be age competent to ensure productive workplaces and satisfied citizens.



Scenarios for Maine State Government’s future

Four 2025 scenarios—stories depicting possible futures for the Maine State Government, explore key areas of change:

Scenario 1. The Senior Civil Service —in which Maine sets an international example for an active and productive older workforce

Scenario 2. Virtual Maine—Maine leaps forward into online government service, embraces technology to build more community, social focus

Scenario 3. New Economy Maine —A technically expert, younger government workforce backs a growing high-tech economy in the state.

And, as a cautionary tale:

Scenario 4. A Workforce Left Behind—With fewer employees, and less change, government workers struggle to serve the state’s many and growing needs.

Together, the scenarios show that, under most circumstances, several things are true:

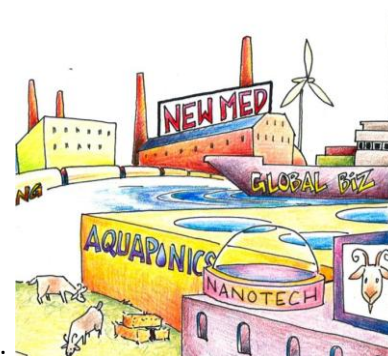


Image: Simon Adams

MAINE WORKFORCE 2025

- Maine has many possible futures that derive from forces shaping the state's economy, its population demographics, its culture, its government service needs, and its citizens' energy and innovation
- The state has options in shaping how these forces play out that will affect the future of people who work for the government and are served by it
- Almost all of the possibilities demand greater investment in work-related education and skills training for government workers as well as the state's citizens
- The government's work, and its services, will use emerging technologies extensively, and in innovative ways
- Like other states, Maine will have to operate in a wider and more interdependent world than it has historically

How to get there

For success in the near and longer-term future, Maine needs to focus inside and outside its government to strengthen the state's ability to recruit, develop, and keep talent. And as it does so, it must recognize ever-changing demands for skills.

Five critical strategic directions can help ensure success:

1. Build for digital government – Invest in technology and people in order to reap its benefits: improved efficiency, fewer people, and ongoing capability to do more work with fewer people. Workers will be able to do more given the changing technology but they will need continual updating, training and education to function well in the evolving technical landscape.

2. Launch an age transition plan – Reshape the workforce over time, in particular focusing on its age composition and a painless demographic transition. The risk is a brain drain as older talent retires, without the counterbalance of sufficient new skilled workers from younger cohorts. This entails recruitment, succession planning, and work on the state government culture, in particular. An age span of 18 to 75+ is the future - Aging workers by design, not default.

3. Make Maine State Government jobs best in class – Improve workplace conditions, compensation, benefits, flexibility, professional development and professional opportunities. The state's ability to draw and keep talent can rise dramatically with programmatic changes that are not only about compensation. This likely includes recalibrating the Maine's Civil Services Rules. The MCSR rules, designed in prior decades, worked best under historical conditions of stability and predictability. Millennials and younger generations want different work experiences, management styles, flexible scheduling and multiple career paths, and they often choose employment options that match these preferences.

4. Nurture the skills pipeline – Promote programs to raise skill and education levels across the state, and instill leadership, thus benefiting private employers as well as the state government

5. Market Maine – Find new ways to sell the state's job and career attractions to a national, and international marketplace of talent. Leverage the state's strong tradition of connections to the land, its heritage and cultural values. Dovetail this approach with the state's ongoing efforts to attract new business and industries to replace its fading traditional industries.

This report explores these outcomes in depth, and offers detailed suggestions for state government human resources, focused on strategy and development for an effective 2025 workforce.

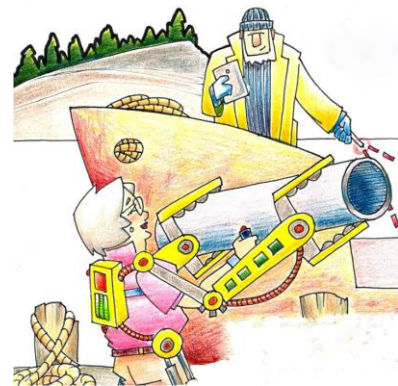


Image: Simon Adams

Part 1: Introduction: A context for change

As it looks into its future, the Maine State Government will reckon with these current and continuing realities for the state:

- 1). Maine is the oldest state in the country, with a median age of 44. That cannot change quickly and will still be a reality in 2025.
- 2). The state operates in national and global economies that are undergoing economic transformations, Maine can no longer depend solely on its traditional mainstays: manufacturing, tourism, fishing and agriculture, and extractive industries to fuel the state economy. New industries and new kinds of businesses will be part of any successful future for the state.
- 3). Maine faces the “new normal” in society and in commerce: the dominance of digital technology, digital processes, and the data-intensive fruits of their application. The state may lead or lag on accommodating this reality. The work of fitting state systems and skill sets to digital realities is open-ended, because the technology is always evolving.

Taken together, these new realities, along with other shaping forces elaborated below, tell us about how Maine and the demands on its government will change. This report brings a focus on the resulting requirements for the state government’s 2025 workforce, and draws implications for state government human resources.

Workforce development will be central to sustaining and advancing the state government’s work. Prospects for a successful state government workforce future are closely entwined with the future of the state economy, and implications in this analysis for the Maine State Government workforce are often implications for the state overall.

Broad forces shaping Maine’s Future

Over the next decade, a set of core trends will further reshape the US and Maine’s economy and society with implications for the State Government and its workforce:

Globalization and a global re-balancing of production—Global production is at once transitioning to a new era of automation and being rearranged across the global landscape. In the next ten years, more production will return to North America, but on a new basis. Goals of greater sustainability, the application of new digital technologies and automation, and new business models will transform it. What will not happen is a return to economies of traditional, high-volume manufacturing that depend on a large cadre of manufacturing workers.

Criticality of trade—Connected to rebalanced production is a reassessment of competitive advantage for any state and any region. How much of a state’s economy can be based on inter-regional and international trade, and in which sectors, needs to be established. Trade, in and out of its region are likely essential to long-term economic health.

Global value chains—trade and production are becoming dependent on connecting raw materials suppliers, component manufacturers, distributors and marketers, in complex, often global, arrangements. Thus, for example, Canada’s Bombardier Aerospace manufactures its aircraft along an



international value chain including parts of production done in Canada, the US, and Mexico, on the same aircraft. [\[Source\]](#)

Competition for skills, resources—Worldwide, resources may be in short supply. This includes raw materials, limited overall in supply, or constrained by trade, conflict, and environmental regulation. It also includes skilled labor. For example, more foreign-born students who take degrees in the United States are returning to their home countries for professional opportunities, so their skills may be less available in the U.S. Immigration policies will continue to be uncertain. The US may be planning to open the door for more skilled immigrants in 2015-2016, but this will not solve the growing demand for skills.

Return of production on a new basis—The restoration of some manufacturing production to North America reflects multiple realities: its new basis in high-tech coordination and automation, the rising cost of labor in Asian centers of production, environmental pressures to reduce the use of energy to transport goods, and new business models that emphasize the local, the craft, and the custom. The resulting new production businesses will look much different from manufacturers in the past.

Rapid pace of technological change—Across these systems is a swift pace of innovation that keeps the leading edge of technology moving, inserting a permanent flux into commerce, the marketplace, and the systems that sustain them.

Demand for innovation in a start-up oriented culture—In part because of that, there is a strong and growing “start-up” culture that is fueled by the ever-emerging opportunities offered by addressing new technological opportunities and issues. Companies are struggling to be more efficient, more productive, sustainable, and to keep costs down to compete globally. At the same time they recognize tomorrow’s competitive success means being more innovative, and more collaborative, internally and externally.

Workers who learn and adapt to change: expect a new group of “superlearners.” Perhaps 12-15% percent of the future workforce can become “superlearners,” using emerging technologies and new education options to expand their capabilities. These include online learning and benefiting from a vastly expanded stream of information available at the workplace and beyond. Overall there will be changes in how and when people learn—a college degree may be less important, for example when specific applied skills are needed.

Shrunk and weakening middle class—The “American Dream” has paled against the emerging realities of the US economy. The middle class has less income, less wealth, and greater fragility than it had in recent decades. At the core of this are flat or declining incomes, higher costs of housing, education, transportation, and healthcare. With this is a decline of the employment “contract,” with more workers forced to work effectively as freelancers, often underemployed. Evidence emerging now suggests that the millennial generation, born between 1980 and 2000, is worst off, has faced what some analysts have dubbed a “failure to launch.” An improving economy may be easing this somewhat.

Aging society and workforce, with a strong flavor of change embodied in The Millennials and succeeding generations--the U.S. and more so, Maine, must reckon with an aging society, aging workforce and the interplay of values, attitudes and social change that accompany it. At the same time, new technologies and shifts in industries demand new, often more complex skills and a technology focus.

Maine faces these external shaping forces as an economically stable, but slow-growing economy. The state is aging rapidly, and has not yet proved its ability to attract new talent to the state in adequate numbers for either public or private employment.

Part 2: Maine State Government’s external realities shaping its future

Among the key themes the Maine Bureau of Human Resources identified for this exploration of the future, six focus on the external social, economic and technological environment shaping demands on the state government workforce. Those were:

- Impact of Maine’s changing demographics
- Influence of economic drivers
- Effect of increased private sector competition for skilled workers
- Technology available / influencing citizen-government communications
- Effects of robotics
- Impact of state or federal legislation

Each is explored below.

Maine’s changing demographics

What we can expect by 2025

Maine has the oldest population of any US state. Though the state’s population is growing more diverse, it started on that path with a predominantly non-Hispanic white population. The arrival in the state of a typically younger cohort of Hispanic and non-White migrants is building a duality in broad terms: young and more diverse, old and mostly non-Hispanic white. These patterns are a part of the sorting of southern, urban Maine and northern, rural Maine.

The state is, more than most, senior-dominated, Maine already lives the reality that will be true for the US in 2025, a demographically senior state, serving the needs, especially of an older population, and drawing on an older population to sustain its businesses and state government workforce.

Maine population and population projections by generational cohort

Age \ Year	Age																	Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84		85+
2015	68	70	74	82	86	74	74	73	79	91	105	108	100	85	60	41	30	32	1.3 m
2025	68	69	70	74	78	77	79	75	75	74	79	88	99	99	86	67	40	35	1.3 m

Population in thousands.
Data [source](#).



By 2025, the older two generations, Baby Boomers and “Silents,” who are much less diverse, will be out of, or leaving the laborforce. Generation X, a much smaller cohort, will be in workplace and political leadership, with the Millennials close behind. To fill the void left by smaller numbers of Generation X, employers may bring Millennials into higher responsibility, sooner, or keep older workers in jobs longer.

*The Appendix gives a key to where this report addresses each question posed by the Bureau of Human Resources.

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By 2025, Generation Z will be rising to adulthood. The younger cohorts, Generation X, The Millennials, and Generation Z, are more ethnically diverse.

Maine's changing demographics – Key implication

Future workforce needs will likely pose even bigger problems as skills needs, technology-capabilities, and education level requirements rise further. That in turn means that employers will have to change their requirements and expectations, and often train and retrain their workforces, or seek talent from elsewhere. Against this, Maine faces a continuing double brain drain: younger, skilled workers, already in short supply, are often drawn to jobs elsewhere, while older talent may take its option to retire.

The evolving Maine economy

What we can expect by 2025

Maine's growth track over the next 10 years is not certain. In traditional forms, manufacturing has declined and largely left Maine. That pattern will not reverse. Likely the state can sustain slow, steady economic growth, but that growth will have to come on a new basis.

However, "post-industrial" manufacturing: production on a different basis and scale from what existed through much of the 20th century, has potential and may be emerging in Maine. It's possible that smaller scale, craft businesses will take up some of the slack, and there are startups and continuing small manufacturers around the state that help drive its economy now.

While the state continues to have a reasonably low unemployment rate, some of its workforce, like that elsewhere, is underemployed, and recent college graduates struggle to find employment. Skilled Mainers will continue to be drawn to jobs out of state. As noted, the middle class is being squeezed throughout US society. And the young adult millennial generation—a workforce cohort in short supply in Maine—is often worst off.



Microbreweries are an example of scaled-down, niche production which may nevertheless find a wider regional, or national market

Image: Stone Coast Brewery, Cliff, via Flickr, cc attribution license

The evolving Maine economy—Key implication

New Maine industries will include more local, craft, and niche production and services. There will likely be an increase in small businesses, and no significant growth in large enterprises in most sectors, possibly excepting healthcare and insurance. Maine's economy will depend on new technologies and the application of technologies in new ways. More of its businesses will be non-traditional, using new business and ownership models. The changes will challenge regulators and safety processes, e.g. drone aircraft and new materials such as nano-composites.

Wars for talent—private sector competition for skilled workers

What we can expect by 2025

Maine's improving economy, new investment, and new industries in the state suggest that competition for skills with the private sector will increase in the coming decade.

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The jobs picture for Mainers may be brightening. But in the competition for talent, the private sector and public sectors are likely to fight over a limited talent pool, while lots of other, less-skilled workers, are part-time or unemployed.

Maine could continue to see many with good levels of education and skill look outside the state for opportunities. The state government is contending with local employers competing for skill, as well as employers outside the state.

“For nearly a decade skilled trades and STEM positions are among the top 10 hardest jobs to fill, both globally and in the U.S.”

--[Manpower Group](#)

The Millennials and Gen Z

By 2025, Millennials (born from 1980 to 2000, aged 25 to 44 in 2025) will make up about 75% of the American workforce. While still inclined to leave Maine for opportunities in the 2020s, they will likely remain a vital force in Maine’s start-up culture, responsible for part of the vitality of new business startups, particularly in Portland and some of the innovative farming in the state. Success with younger workers may depend on initiatives to nurture new businesses, draw college students to the state and keep younger Mainers in the state.

Image: Michael Coghlan, via Flickr. CC attribution license.



Wars for talent—private sector competition for skilled workers — Key implication

Broadly, we can project that current and continuing or growing needs for skill in the MSG workforce will emphasize citizen services, technical professions, management, and business and finance. Those are key areas for net job change in forecasts for the State’s workforce overall, so they are areas for contention over workers.

Millennials can see appeal in government service, with interesting work that contributes to their community and society, but they may bring different values to deciding what jobs to pursue, and will balance their interest in the subject matter with strong interest in their work/life balance, income, etc.

Robotics, automation, and artificial intelligence

What we can expect by 2025

While there is logic in saying that smart technologies still need skilled human overseers, and that freeing workers from routinized work will enable them to be turned to new tasks, perhaps ones that enhance organizations and life, we don’t yet know what that will really mean.

Signs are there will be a rapid development now of autonomous and tele-operated machines, i.e. robots and other smart devices, and the artificial intelligence in software and hardware that accompany them. The Google self-driving vehicle experiments, among others, are 1). Proving in concept what is possible, and 2). Relying the public and regulators to grapple with the meaning of these new systems, and, presumably, learn gradually to accept them.

With automation we know the direction of change more clearly than we know the extent of that change. There are not really any inevitable outcomes. There are choices.

Some advances, and the freeing up of human labor that comes with them will drive or enable new kinds of work. For example, just a few years ago we didn’t have the concept of “search engine optimization”. [\[Source\]](#) It’s now a job for, at least for the time being, human experts, assisted, of course, by smart software.

Artificial intelligence (AI) is all around us now, in routine applications of smart software in devices and computing systems. This form is often called "artificial narrow intelligence." That routine application type will continue to expand. The capability of the software may be narrow, but it can be highly sophisticated, e.g. a chess-playing software. We are likely to see a rapid growth of more sophisticated versions. They will more fully mimic human general intelligence, and may someday exceed it. [\[Source\]](#) AI commentators like to point out that as soon as AI is routine in a system, we forget it's AI. Household thermostats, smartphone apps, car air bags, and so on, all involve routine applications of AI.

Software crunches masses of information and transactions, e.g. permit applications, and puts only flawed, disputed, or problematic ones in front of a human for action.

In a Pew survey, 52% of technology experts said that technology advances will not displace more jobs than they create by 2025, while 48% said they will. [\[Source\]](#) Some noted that workplaces are simply not prepared for the changes technology will bring. The results will include demand for new skills, and redefining what jobs are.

What's less certain

Artificial intelligence and advanced automation are emerging in an uncertain social context. The open questions include how far society will tolerate them, particularly in replacing human labor.

There's also uncertainty in whether and for what uses we will allow self-driving vehicles and other autonomous devices. They are nearly certain to find use in contained environments, such as we have already seen in mail delivery and warehouse robots. But their use within ten years in the open, such as on city streets, is far less certain.

Finally, it's not certain how we might find new uses for workers made redundant by technology.

Robotics, automation, and artificial intelligence – Key implications

Job loss and job change are inevitable as technology remakes work and the workplace. This will create change and require response by the state government to the need for new skills, job reassignments, recruitment, among other impacts. It will also add a burden on the State's agencies to respond to changes across the state's industries and workforce: job needs, skill needs, new regulation, worker protection, and so on. And when work is automated to remove redundant, transactional tasks, the human interactions that remain raise the value of communication skills, human contact, and empathy.

If the changes wrought by technology create widespread dislocation, job loss, and underemployment, the State Government may also see pressures for social services, assistance, and job finding and training grow rapidly. A parallel from history may be the Rust Belt, where rapid automation and job loss to overseas producers raised the need for social assistance in the US Midwest.

Skills in demand [\[Source\]](#)

According to a 2014 survey of the National Association of Colleges and Employers, the following are the top 10 skills, in descending order of importance.

1. Ability to work in a team structure
2. Ability to make decisions and solve problems (tie)
3. Ability to communicate verbally with people inside and outside an organization
4. Ability to plan, organize and prioritize work
5. Ability to obtain and process information
6. Ability to analyze quantitative data
7. Technical knowledge related to the job
8. Proficiency with computer software programs
9. Ability to create and/or edit written reports
10. Ability to sell and influence others

Trends in legislation and regulation

What we can expect by 2025

At all levels, government is evolving and shifting its emphases and approaches, and this is reflected in the kinds of legislation and new regulation which are emerging. The leading edge of legal and regulatory change will continue to involve the impacts of technology and its associated social and commercial changes around data security, privacy, health and health impacts, ownership, and so on.

Federal vs. state legal tensions. Contentious areas of policy at the state and Federal levels will continue. The tussle between Federal requirements and state laws and preferences will continue in vital, often costly areas including health care, education, and environment.

Federal government employment continues to decline. Impacts on states may be economic, as states have fewer federal employees. As well, the shrinking of federal government workforces may continue to reduce federal services in-state, leaving state government workforces to take over the load. [\[Source\]](#)

Environment will continue to be a source of new regulation at multiple levels as well. The EPA, for example, is calling for carbon emissions control. It wants states to reduce their emissions 30% below 2005 levels by 2030. Climate change worries are also reflected in bond investors' new questions about potential future environmental risks states face, such as sea-level rise impacts on water & sewer systems. [\[Source\]](#) and [\[Source\]](#)

Energy use. Meanwhile, utilities are resisting "net metering," as more homeowners install solar collectors on their roofs and feed power back into the grid. Utilities say they lose customers, plus they still have to maintain the grid. In many states, utilities may push to take over control of home solar power. Trends imply a long-term restructuring of the electric power supply industry. [\[Source\]](#) This may be mirrored in other areas of resource use where technology and decentralization reshape the economics.

Regulating behavior. There are also more local, city, and state laws and ordinances to promote or prevent specific behavior. For example, Los Angeles has gives tax incentives to owners of empty property that could be used for urban farming. [\[Source\]](#)

Immigration. Changes in Canadian immigration policy that came into effect at the beginning of 2015 could affect neighboring states in the war for talent and young, educated workers. Young workers with job offers will be on the fast track for entry into Canada. The new program is called "Express Entry." Canada is not easing immigration for families at this time.

Transportation. Oil transportation safety continues to be an issue for states (including Maine) where oil is transported across the state by rail. Moving oil by rail also creates transportation shortages for other producers, such as farmers, who have limited time to move their crops. [\[Source\]](#)

New tech, new risk, new demands for regulation

Change in society drives new demands on government. There are drivers of new regulation, new oversight, new monitoring, new permitting, etc., that will raise skill and manpower needs for state agencies. Among those drivers are:

- Risks from new technology, e.g. autonomous vehicles, new materials in commerce, new energy sources
- Growing recognition of sources of risk down to the microscopic and parts per trillion level
- Growing public sense of personal risk
- Rising expectations of safety, wellness
- Growing access to information by everyone
- Climate-change driven weather changes, storm surges, more powerful Noreasters, etc.
- New forms of crime, e.g. cybercrime, hacking, identity theft, in more venues
- Terror threats and fear of terror
- Inadequate public understanding of science and technology
- Skill shortages in science and technical areas
- Changing health tech, therapies
- Use and misuse of consumer data, private information, etc.

Trends affecting employment

HR Policies and Legislation: Legislation at national, state and local level continues, often without clear guidelines, leaving organizations vulnerable to employment law interpretation issues. One outcome may be less clear boundaries between the organization's and individual's privacy, affecting behavior outside work, privacy, wellness program participation, off-duty activities, and the use of social media.

Health care mandates. Health care costs are rising and becoming a larger share of total compensation for state and local government workers. Some of this, 46%, is ascribed to aging workforces, some is ascribed to higher drug costs. The Affordable Health Care Act's role in this is not clear. Higher deductibles and higher co-pays are two ways in which costs are passed on to employees. [\[Source\]](#)

New OSHA rules for reporting went into effect in January 2015: all fatalities on the job must be reported within 8 hours, and other serious injuries within 24 hrs. Small businesses (10 employees or fewer) and low risk industries have exemptions from the OSHA rules.

New federal American Apprenticeship Grant program (\$100 million): grants to encourage apprenticeship programs. Applications will be accepted starting April 2015. [\[Source\]](#). Several towns in Maine have posted apprentice opportunities on this site's interactive map.

Work visas. Maine's non-use of H-1B visas to bring in high tech workers (Maine is 41st among states in making H-1B applications) reflects fewer high tech jobs in the state, and lower wages. If H-1B quotas are increased by Congress, there may be more opportunities to lure a high tech workforce. [\[Source\]](#) Applications for H1-B visas in 2015 were already oversubscribed in January, 2015.

Anti-union campaigns in states that do not have "right-to-work" laws at state and local levels are the first stage in changing labor laws and other laws not considered business-friendly by interest groups, including American Legislative Exchange Council, the Heritage Foundation and a newly formed nonprofit called Protect My Check. This approach is currently changing laws in Kentucky. [\[Source\]](#)

Trends in legislation and regulation – Key implications

Changes at the Federal level continue to shift more public services onto state and local governments. Meanwhile, pressures also continue to reduce or at least contain the cost of government, adding pressures on state and local government, and guiding more automation, digitization, and other efficiency strategies. To contain or reduce long-term costs, governments are also doing more outsourcing.

Part 3: Outcomes for the Maine State Government and its work

Taken together, the foregoing creates new demands and expectations of the state government. Though the trend has been to a shrinking government workforce, new demands could reverse that pattern, at least in some departments. At the core are demands for new services from MSG. Meanwhile, these trends and a wave of emerging technology align to drive evolving relationships between the State Government and the Maine citizenry as many more people embrace digital life and as the state invests in digital technology to streamline and reduce costs.

Maine State Government services expected

Broadly, the state's evolving economy and population will raise demand for services in key areas:

- Supporting business and economic development
- Serving an older population
- Addressing the needs of new Mainers, including a more diverse population
- Aligning services and regulation, permitting, taxation, and enforcement with the rise and growth of new kinds of businesses and industries.
- Raising the digital competence of the State Government, and serving the citizenry with a cost efficient, effective suite of digitally-based services.

Relationship between the State Government and the citizenry

Constituencies the state government serves will demand to interact 24 hours a day, 7 days a week, by multiple contact options. Many will be mobile/digital citizens, and prefer to use mobile apps, self-service, automated systems. Others will continue to want legacy systems where they can contact human staffers in the government, or visit centers for government services. The State Government will find itself, at times, choosing which services it can support with technology, or with human staff.

Private sector, customer service experiences flavor the expectations citizens bring to interacting with government. They expect best of class approaches learned from top-notch customer service. And for the convenience of digital interaction, 24/7, they may overlook compromises such as not being able to talk to a human, or giving out their personal information into a digital system.

App use drives new citizen habits and expectations

App-driven services like Uber teach citizens to expect 24/7, mobile convenience. They are changing expectations, redefining services, demonstrating potential automation, and so on. The next wave of mobile apps are likely to be more powerful, with greater, more seamless coordination of functions, so that the user needn't navigate into one app then out to another, to get things done.



Image: simulation of a state government app.

Consider what might happen in the state government:

- The only human drivers are those dispatched to fix autonomous vehicles which have stalled or failed
- Most state services that can be provided digitally rely on intelligent software with occasional system fixes by outsource software technicians in India
- Dozens or more state workers pilot drones from their home workspaces or offices

Maine’s government and the digital citizen

We have already seen the emergence of a digital, mobile-enabled citizenry, and it will shape expectations of citizens of their government.

Governments will be compared by their citizens with the 24/7, convenient, app-driven, socially-connected, crowd-sourced, etc. aspects of these businesses. Citizens as customers or consumers will have their expectations shaped by the best, latest, most convenient, services they experience.

By 2025, technology should be available to routinely communicate, if desired, with two-way, high-quality video, and sometimes with the capability for immersive, multi-sensory experiences. For government-citizen communications there will be at least a good enough level of tele-presence. It may be simple, but be high-quality, two-way video. It will probably be used by most citizens, on mobile devices and will depend on their mobile networks, i.e. not desktop to desktop.

Likely interactions between citizens and human government workers in the future will be the exceptions, the problems, the more difficult cases, much in the way that an airline ticket counter agent today is mainly serving people with special concerns and issues, while most other travelers use self-service kiosks, or manage their flight details at home or on a mobile device.

In all this, however, there will be pressure to maintain the old, legacy systems for citizens who don’t have or don’t want the latest technologies.

Citizens will continue to grow their mobile app habit—they will frequently interact, not human-to-human, but human-to-intelligent system, using voice, text, touch, and possibly gesture interfaces. Some interactions by 2025 could be between a citizen’s avatar or agent and a government intelligent system, and involve no humans whatsoever, though the interaction would be shaped by the citizen’s choices.

The citizen dashboard

The citizen dashboard of 2025 will likely be a set of app-driven capabilities which a citizen can customize for regular use, or navigate among for their occasional, ad hoc needs. There may need to be a central, state or state-agency web place, with a dashboard interface, but more likely, the balance of use will be through descendants of today’s apps, whether those are used on a tablet, smart mobile device, or future home screen or other interface. Apps will, as is emerging now, become platform agnostic, and a citizen’s needs, data, and specifications will be contained in the cloud, rather than in a specific device. Individuals will be able to access any interface, and find their information there.

Broadening digital exchange in government

Where there is potential for change, and /or pressure to further harness technology



Source: Leading Futurists LLC

Maine faces further waves of technological change in the coming decade as it works to catch some agencies up with current demands. There will always be a leading edge of change demanding ongoing technological strategy making. These will usually be accompanied by a need to adjust to social changes created by uses of and expectations for the new technologies. As people's behavior is re-shaped today by their use of mobile phones everywhere they go, future technological options will alter behavioral and social responses in new ways.

Among the emerging and ongoing areas of technology are:

Mobile, cloud-based services—Keeping up with the habits and expectations of the citizenry and harnessing the efficiencies of digital technology means moving more functions and processes online and onto the cloud. Thus a citizen's 2025 relationship with their state government is likely to be substantially app driven.

High-bandwidth, 2-way video communication—To extend services to more Mainers, to reach more citizens in remote places or without requiring extensive state employee travel, and leveraging new technological capabilities, the state will see demand for, and capabilities in, 2-way, high-bandwidth communications for serving its citizenry. Even with areas of bandwidth inadequacy, more services can embrace video or 2-way chat communications, including for mobile device users.

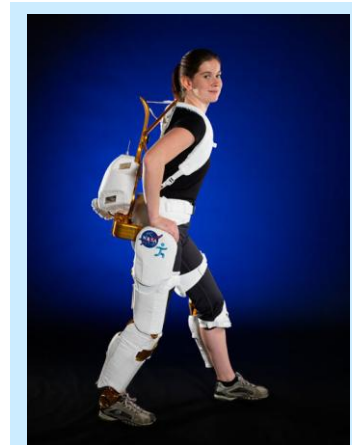
Robotics—Robots that operate with total or near autonomy in contained situations, such as delivering mail inside office buildings, and fetching products from warehouses, are in successful application. We are now seeing the rise of more outdoor and mobile robots that can make more complex decisions and implement their missions under changing conditions. The home-vacuum robot Roomba is an early example, and suggests how agricultural, maintenance, and other robots may emerge. New robots will take over repetitive physical tasks from human workers.

Artificial intelligence—Behind all of these smart systems, and in applications which are purely computer- or network-resident, AI is expanding its capabilities to interpret data, make decisions, and act. Diverse occupations can be performed, at least in part, by AI systems. Potential applications include speech recognition, image analysis, data mining, decision-making, permit approval, and surveillance. By 2025, this area will advance, putting more technology in place which will enhance and leverage the work of some human workers over more work volume, or replace human labor outright.

Exoskeletons—A parallel area of development is in exoskeletons, some of which, in the future, could be semi-robotic, with on-board intelligence that help a user with motion and strength they otherwise don't have. Exoskeletons could assist older workers or any workers with doing physical tasks they otherwise could not. The US military has exoskeletons in development for soldiers' use. [\[Source\]](#) Anticipated spin-offs in civilian work could lead to much higher productivity as well. Exoskeletons could possibly extend working lives of blue collar workers whose jobs are physically demanding—while a bit pricey, competition could lower the price to make it affordable for municipal governments, especially for mission critical jobs

What's less certain

Drones—The fast emergence of drones—they were even a plausible, affordable holiday gift at the end of 2014—exemplifies the potential uncharted territory that robotics and automation in society represent. There have been immediately issues with drone use, drone misuse, unexpected problems and issues, and un-considered outcomes. Government will be dealing with these issues going forward, perhaps on an accelerating basis. Commercial, non-military drones represent a front edge of, and particularly difficult manifestation of, machines with their own decision-making capability and autonomy.



NASA exoskeleton designed for assisting astronauts.

Image: NASA.gov

Self-driving vehicles—Google has tested self-driving cars repeatedly, and proven the technology works well and safely, at least in limited real-world tests. Others are developing such technology as well, and it’s likely to be in use within a decade, in delivery vehicles, public transit, and perhaps taxi services. Whether and how far these vehicles spread in the State Government is uncertain, but self-driving vehicles could serve in: long-haul trucking and delivery, road maintenance (e.g. mowers), passenger vehicles and public transit, among other areas.

Immersive virtual reality—Full, high-quality, virtual reality, and similarly, augmented reality are ideal for training, simulation, and could drive safe, remote-operation of emergency response vehicles and robots, among other capabilities. The technology is available now, but requires a level of bandwidth which may make it impractical in widespread use.



Emerging capabilities in virtual reality could transform work and communication

[Image source](#)

Tele-presence—similarly to virtual reality, multi-sensory telepresence can enable remote inspection, diagnosis, monitoring and other functions, but works best with high bandwidth communications. Its application is likely in security, law enforcement and other areas of public safety, but less certain in more routine state government applications.

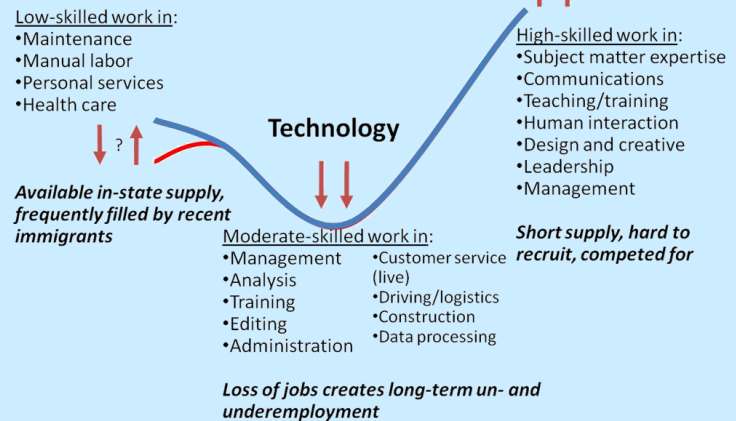
Will the Maine State Government workforce grow or shrink?

Over the next decade, the Maine State Government workforce will likely continue its trend to smaller numbers. Beyond policy changes driving workforce reductions, technology will enable more productivity from fewer workers. It is not likely to be accurate to try to predict the outcomes in total workforce of adding technology and instituting other changes. Too much is uncertain. But other things being equal, including the size of the state's economy and population, numbers are likely to decline further.

However, if there is significant growth in the state economy, particularly in new industries based in new technology and with new business models, there will be demand for more workers in certain departments such as for experts in regulatory work, taxation, and economic development. That increased demand could offset further workforce shrinkage in other departments of government.

Model: Leading Futurists LLC.

Future work demand: the center drops out



Part 4 draws together the many elements of change described here into scenarios of 2025 different 2025 outcomes for the Maine State Government’s future.

Part 4: Maine State Government's Workforce in 2025: Four Scenarios

These four scenarios of possible conditions existing in the Maine of 2025 offer pictures of different futures in which the state government's workforce could be required to operate and serve the citizens. These stories explore "what if?" ideas about the future. They should not be taken as forecasts or predictions.

The four scenarios:

Scenario 1. The Senior Civil Service 2025—Setting an international example for an active and productive older workforce

Scenario 2. Virtual Maine 2025—Maine leaps forward into online government service, embraces technology to build more community, social focus

Scenario 3. New Economy Maine 2025—A technically expert, younger government workforce backs a growing high-tech economy in the state, and

A CAUTIONARY TALE

Scenario 4. A Workforce Left Behind 2025—With fewer employees, government workers struggle to serve the state's many and growing needs

Highlights:

- Maine has many possible futures that derive from forces shaping the state's economy, its population demographics, its culture, its government service needs, and its citizens' energy and innovation
- The state has options in shaping how these forces play out that will affect the future of people who work for the government and are served by it
- Almost all of the possibilities demand greater investment in education and skills training for its citizens and government workers
- The government's work, and its services, will use emerging technologies extensively, and in innovative ways
- Like other states, Maine will have to operate in a wider and more interdependent world than it has historically

Caveat: Like almost all government workforces, Maine state government's workforce must operate within structures that can be more restrictive and less subject to change than those of private sector workforces.

About scenarios

Scenarios are a tool for exploring future possibilities, and communicating ideas about the future that are worth thinking about. The stories each describe a potential future that might be shaped by trends and changes occurring today. Strategic planners in the private and public sectors often use scenarios as preparation and input for their work.

Scenario 1. The Senior Civil Service 2025

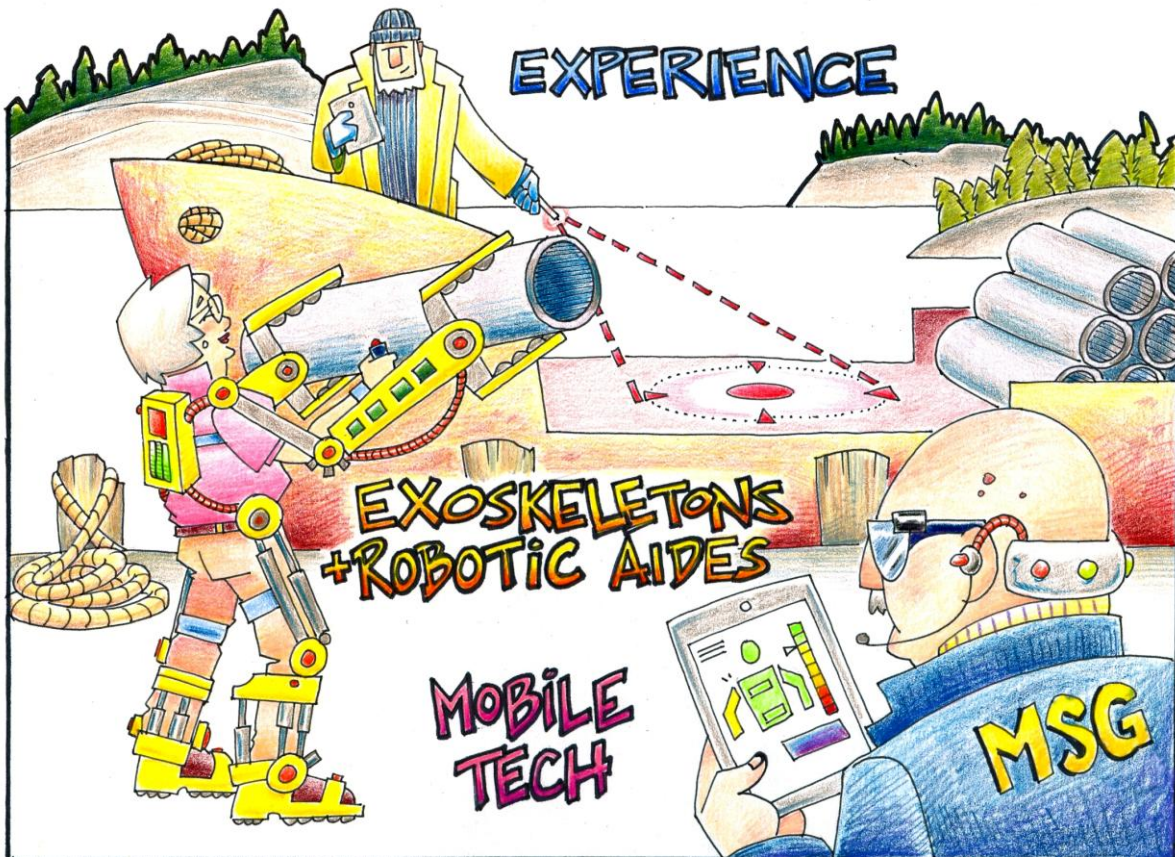


Image: Simon Adams

Setting an international example for an active and productive older workforce.

Assumptions about 2025:

- The state continues its demographic trajectory to an aging workforce and an aging population
- For the most part, Maine's aging citizens are assumed to be healthy, active, and economically productive
- No large influx of immigrants (usually assumed to be younger than the existing population) arrives
- No large influx of young people moves to, or creates new businesses in, the state
- Maine increases its attractiveness to retirees, especially among the 50+ population of the US and overseas.
- The state government has embraced its older workforce, and made it an internationally-recognized model of productivity and effectiveness

What happens by 2025:

Captured from a livestream presentation at the National Governors Association Annual Workforce Performance Awards dinner, remarks by the Director, Department of Administrative and Financial Services, Maine State Government

“Our 7,000 Maine state government workers who tirelessly contribute their talents to our state’s work are an example of an active and productive older workforce. A typical state worker in Maine may stay on staff until his or her 80s if he or she feels good, and enjoys the work. We actively recruit 50+ state government veterans and experienced business professionals from other states to benefit from their experience and knowledge. New-career-seeking seniors come and see us in action. Human resources executives from private industry and government visit to learn about our practices. We are very proud of our training, retraining, education and funding programs for the 50+. Maine is recognized nationally as one of the best places to start mature careers and new businesses.

To adjust and enhance the work experience we’ve redesigned the work and work settings. Of great benefit for many of our more physical jobs are the devices we make available, such as exoskeletons, autonomous vehicles, and robotic aides. State government workers provide round the clock service so our citizens do not have to leave the comfort of their homes to contact or interact with their state government. Wherever possible, the state’s programs are self-serve, with our cheerful staff online and on-call if their help is needed. Citizens can use its services at any time, through Internet and mobile technologies, many of which have been adapted for greater ease of use. Most of our workers have flexible hours, can work from home in or outside of Maine, and frequently share jobs with colleagues to ensure full 24/7 coverage.

Our dedicated Senior Corps unit is committed to managing programs and services for the other face of aging, the so-called “vulnerable minority.” The Senior Corps sets industry standards, recognized and adopted by other states, for stay-at-home-care, and DOL staff collaborates with UME educators to establish training certification requirements for in-home-care workers. The in-home-care program relies on advanced remote technologies; many of the hand-held telemedicine devices used by program graduates are the result of joint MSG and private sector Technology Challenge Grants.

As you might expect, much of our focus in supporting higher education and medical research is aimed at ensuring greater longevity and active health for our citizens. MSG workers are among the many older students at Maine’s institutions of higher education and its technical training institutes. Senior Corps workers teach advanced courses, especially in applied geriatrics, where new developments in service technologies and delivery migrate into Maine’s workplace programs. Our own in-state industrial program leads in technologies for enhancing aging life and work, including robotics, assistive devices, and in illness and injury prevention programs aimed at extending productive lifestyles. Maine was a finalist in the 2024 “Third Age Innovation Awards” for DHHS’ mobile device app that triangulates health care, transportation and insurance management for critical care situations.

On behalf of our citizens and our hard-working staff, we thank everyone for your support and this award as recognition of our workforce initiatives. It’s truly earned!”

Key implication of this scenario: The Senior Civil Service 2025

For the greatest possible success with an aging state government workforce, Maine will need to learn how to maintain the productivity and engagement of older workers, not by “accommodating” them, but by embracing their value, productivity, knowledge, etc. and by creating ergonomically sound work.

Sources, references:

Florida’s experience is reviewed [here](#)

Scenario 2. Virtual Maine 2025

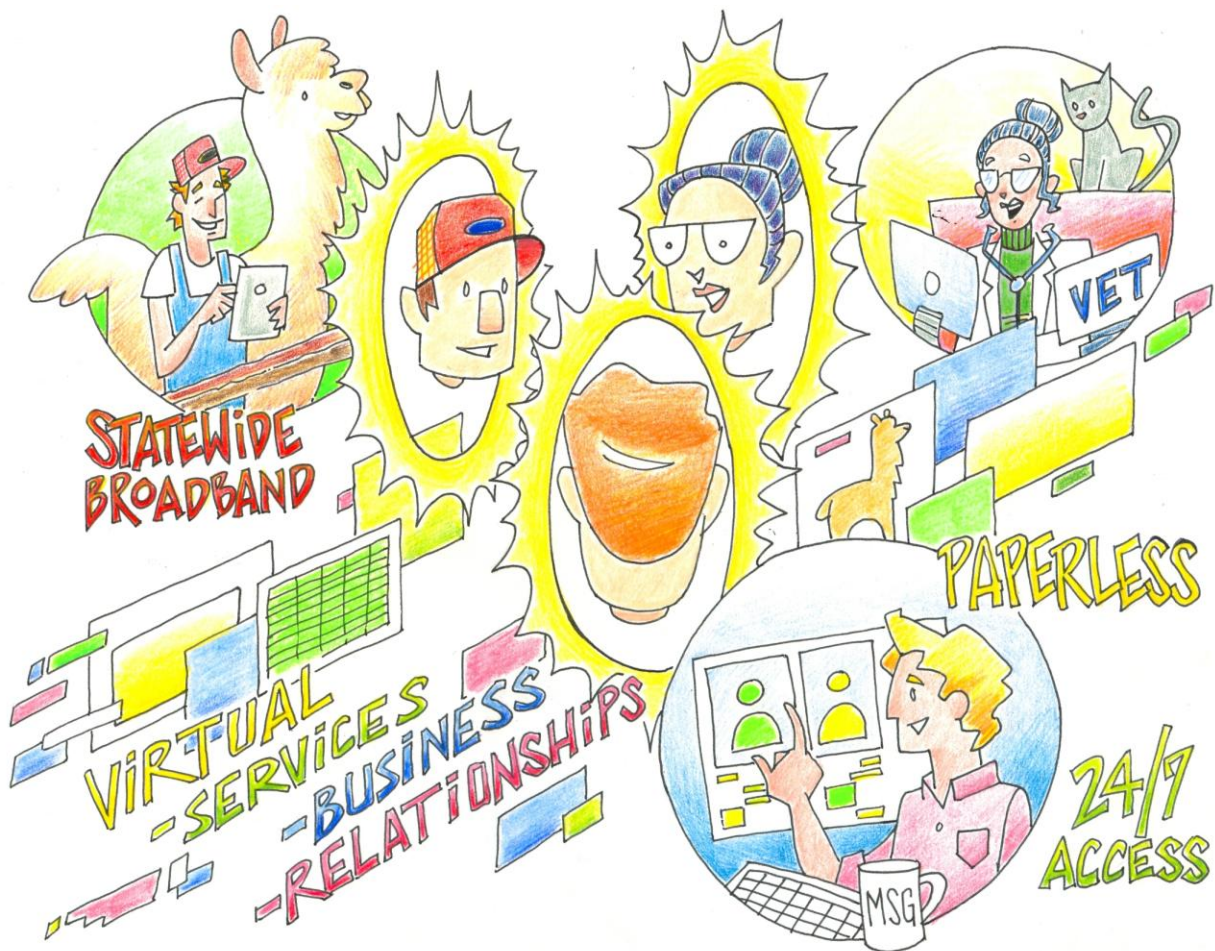


Image: Simon Adams

Maine leaps forward into online government service, embraces technology to build more community, social focus

Assumptions about 2025:

- Digital technology has continued to spread in all aspects of work, commerce, and daily life
- Emerging mobile communications technologies enable and enhance connections among people and governments
- A televideo connection is available 24/7 with people in critical state government departments
- Every citizen has their own personal ID and password to communicate with government, and their choice of how much is private and how much is shared.
- Taxes, permits, licenses, requests for service, etc., are filed online, 97% of the time. State systems are 80% paper-free
- Online data handling software has improved to the point where the state can use it to anticipate and predict fluctuations in the need for services, and in many other aspects of government work

What happens by 2025:

John Standish: Reflections on My Year in Maine, posted on social media account(s)

“As an intern in the state’s social network program in the Economic Development department I was physically actually there. The outdoor time I spent was magnificent and I met some great people. I’m still working for the state designing user apps for citizens to advertise, and find others with similar needs or interests. With fewer geographic limits on work these days you have more choice of where to live, so I’m back in Ohio, at least for now. But I digress, as my father used to say, so here are a few highlights:

Maine is the first state to have all-virtual government services. That’s why I wanted to do the internship after I graduated from UME. All services that can be are delivered online. Even when I was in Maine, I’d meet with colleagues by video. Any citizen can meet and with the Governor’s virtual self, 24/7, and it will report back your concerns to her staff, the relevant department, or to her. Hardly any 3 AM conversations are needed. Everyone knows they have a listening ear in government. For the first few months in 2022 the system was overwhelmed. People had a lot of topics to take up with the Governor.

Some Mainers just won’t or can’t use the technology, and you have to be ready to serve them the old-fashioned way, with a call, an email, a visit. But most people will go online so we can get a lot done. The intelligent systems we use line up the “tough cases” for human action, as needed, and usually deliver a screen on the essential information you need to solve that citizen’s problem or answer their question. Those non-cyber citizens are not invisible—the system knows who they are and what they’re about.

The Governor isn’t the only one with a “persona” in virtual government. Every Mainer can have his or her own virtual person acting for him or herself in the Maine State government’s easy-access system “MyMainer.” Health care, jobs, online-training, education, licensing, aid, policing, tourism, etc., are all included in the resources to be accessed.

More informally, the statewide social network that I got involved with, “MeetMainers” helps people find others with similar interests, ideas, projects, businesses or abilities to solve problems. I helped develop training for all ages to become comfortable using their MyMainer and MeetMainers access. We’re currently piloting the use of selective advertising in some government apps as a revenue stream.

I applaud the state government for recognizing that in the digital world, new business needs excellent digital, virtual, infrastructure and support. Maine is the “start-up state” for many new businesses, especially those with a sharing and joint-use philosophy. An app I developed helped owners of alpaca farms share expensive shearing equipment. Sharing these mobile shearing stations reduces overhead and is a source for sharing knowledge about alpaca breeding, care and industry updates.

Regulation of this shared economy is still contentious even today because it implies overturning a lot of established business practices. I think that because Maine has a strongly community-based culture it has been more friendly to shared spaces and services than other states might be.

The work I really liked doing for the state was in making these virtual government systems friendly, more human, and more satisfying. I think people were worried when we started that the technology might be convenient to use, but distant and uncaring. Not true at all. Using today’s capabilities in emotional computing, most of your experiences with government can be as pleasant as you want them to be—providing they are legal, of course!”

Key implication of this scenario: Virtual Maine 2025

The state has to develop a technology-based service strategy, and bring its workforce and citizens up to speed as communications and data-handling technologies evolve.

Sources, references:

Estonia, with a population the same size as Maine’s, has embraced the paperless, online society in government and society and has pioneered in virtual, online IDs. [\[Source\]](#)

Scenario 3. New Economy Maine 2025



Image: Simon Adams

A technically expert, younger government workforce backs a growing high-tech economy in the state

Assumptions about 2025:

- Global market opportunities available in a changing world support new industries
- Maine develops ‘open for business to the world mentality’ by welcoming cultural diversity in business and population
- Entrepreneurs and investors in new high tech and service start ups, new agriculture, and alternative energy—wind, solar, and waste-to-energy—move to the state
- Experts in new and advanced technologies and industries (medical, food, aquaponics, biotech) are recruited into state government
- Infrastructure investments are seen to be necessary for logistical support, typically in shipping, improving ports, highways, railroads, and high speed broadband
- Small-scale pilot projects help local citizens grasp and build on the business opportunities
- The state’s higher education system supports R&D for new industries and business start-ups
- Alliances between government, industry and higher ed share the cost and benefits of innovation
- Sustainability goals (for the new industries) benefit the state economy through higher efficiencies, fewer maintenance problems, less negative impact on natural resources and by attracting knowledge workers and young workers to the state

What happens by 2025:

Government Workforce Report: 10 years of economic growth!

Over the last decade, Maine's revolution in small-scale smart farming has been the leading edge of a new economy in Maine. Seeing an opportunity, the state's economic development initiative acted as a tech transfer intermediary between new (mostly young) farmers and the state's emerging bio-research facilities. In 2024, Maine, New England's leader in total annual food production, leapt ahead of Delaware, Hawaii, and New Jersey (USDA).

The annual "greenest Maine communities" contest run by the Dept. of the Environment is in its 6th year, with 25 communities competing, half of them in the contest for the first time

Following this successful example, the state's support of new high-tech ventures in Maine has engineered a comeback in manufacturing and exporting, largely led by younger entrepreneurs. In this new model of government/private partnership, a cadre of state experts acts as ambassadors, seeking out global markets, conducting virtual and in-person trade missions, and finding global talent for the state's high tech businesses. A great example is the Maine On-demand Marketplace™, where companies collaborate to produce products to order for a regional customer base. Maine has sixty of these small-scale manufactories. Many have moved into the old mill structures in towns such as Bucksport and Fairfield. Maine's CONNECTMe authority signed off in 2020 on its responsibility for bringing highspeed Internet access throughout the state, which makes many smaller towns more attractive for start-ups. The new businesses are in biotech pharmaceuticals, nanotechnologies, new medical devices, advanced bio-based materials like smart paper, and soft robotics, etc., not old-style assembly line production.

Sustainability is important to our new industries. This fits our culture and values. Maine's beautiful heritage encourages us to lead in efficiency, in carbon-reducing practices, and as a showcase for alternative energies. Our self-reliant communities welcome sustainable, no-waste industries, urban agriculture, fish management, etc. Ecological modernization needs investment and new ideas. We believe we are well on our way!

Coastal development has enhanced the new economy, with more shipping, cruises, transportation, containers to southern ports, joint ventures with other countries, such as Iceland, etc. Tourism benefits as well, with the building of new facilities.

This reversed young Mainers' exodus. And they don't all settle in Portland, either. With the new vitality of coastal Maine and with tech jobs available, educated young Mainers want to stay. Funds from the Workforce Innovation and Opportunity Act (reauthorized in 2015 and extended through the decade) aided Maine in training technically-adept young workers. Also, the ReMain(e), Return, Relocate effort by BHR seems to be paying dividends. More young Mainers than ever remain here to work and start businesses. Further, the return incentives are bringing back Mainers with their families just as the relocation incentives have enticed hundreds of people from other states and countries who are now thriving in Maine.

What does this mean for the state government's workforce? Designing policies and programs to remake the state's economy has required innovative approaches. One model is to allocate people to tasks in new ways. Like new manufacturing, much of the state's work is "on-demand." A young state worker may have many "jobs," that are done on-demand, and use the skills he or she has. This approach to staffing enables the state to use its smaller workforce more efficiently, with less downtime and make-work. Younger workers prefer this style of working; it offers job variety, develops more and different skills and enlarges their social and professional networks across MSG. This approach to 'on-demand' work is highly desirable since social capital is now an evaluated competency.

Key implication of this scenario: New Economy Maine 2025

Encouraging new industries and new people to come to the state, as well as fostering international business growth, will be critical, as well as undertaking monitoring, regulation, and licensing as entirely new forms of business and production emerge.

Sources, references: Germany's experiences with 4 decades of green economic transformation are [here](#). Maine entries in the Database of State Incentives for Renewables and Efficiency are [here](#).

What the first three scenarios say about the future

The scenarios described here are all aspects of potential futures for the state's government workforce, and its work, with considerable overlap, particularly in technologies, in their stories of 2025.

Three primary factors distinguish the scenarios. In Scenario 1 it is demography: the state has embraced an older government workforce and learned how to maintain excellence in its services as that workforce ages. Robotics and remote online services are brought into play to improve life and work for all.

In Scenario 2 it is technology: Mobile technology use drives almost 80% of MSG services. As a result the state can work with smaller staffs with higher coverage and productivity, and more choice of work hours and places. Each citizen has a personal identity and place in the state's virtual communities.

In Scenario 3 it is enterprise: the state encourages and backs start-ups and new models of high-tech and sustainable industries, at least partly as a strategy to bring younger, skilled workers to the state. Moving the state to a more technically-based economy also implies a relatively rapid generational transition in its own workforce.

A less desirable alternative future

Scenario 4, which follows, is a cautionary tale of what might happen if few changes are made, either in the state government's workforce and delivery of services, or in the state's economic conditions. It's not intended as a plausible future, just a gloomy one. Being old is the norm in this Maine, with possible industries such as health care being a primary economic engine.

Scenario 4. A Workforce Left Behind 2025

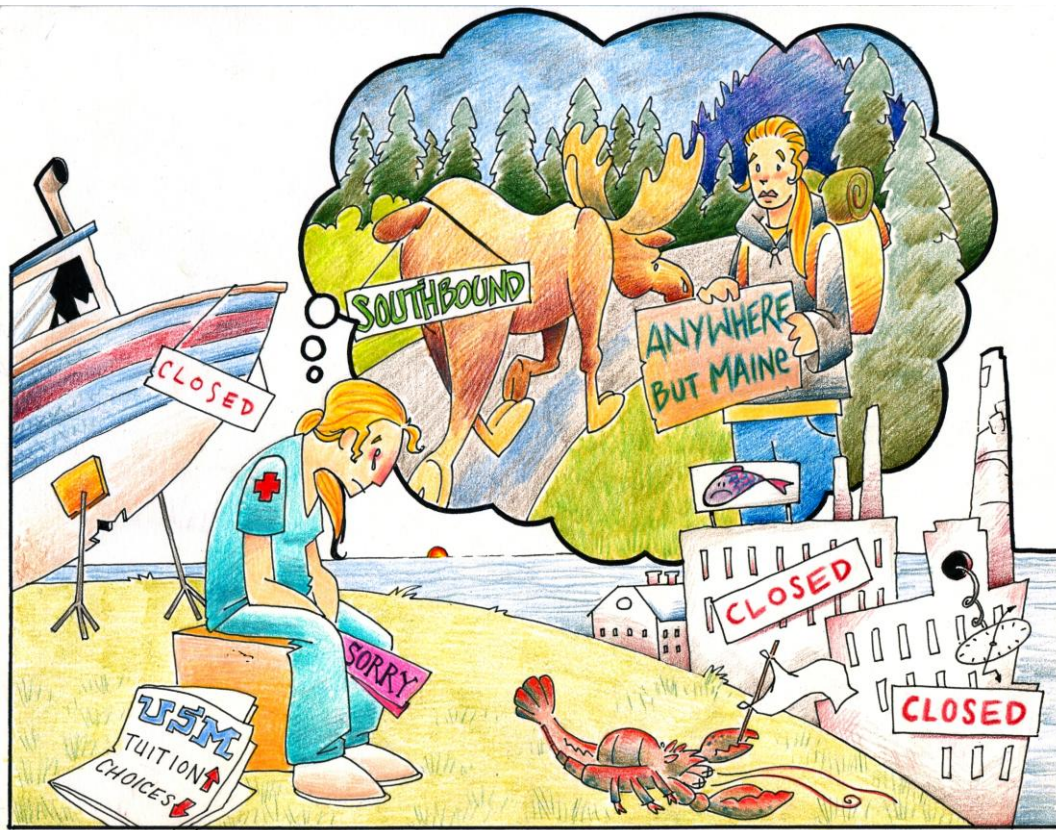


Image: Simon Adams

With fewer employees, government workers struggle to serve the state’s many and growing needs.

Assumptions about 2025:

- Resistance to change is high in industry, the environment, taxes, education, state government
- Only limited investment in the state’s economic development has taken place
- The exodus of young people from the state increases, especially as higher education budgets are trimmed every few years
- Century-old Maine businesses often associated with the state, have moved out of state
- Un- and under-employment numbers persist at high, after the mini-recovery in 2014-2016, partly due to loss of Maine’s traditional industries. Fishing is a declining industry, and possibly signals the end of an era.
- Healthcare is the only sector that continues to grow
- Efforts to increase jobs, promote start-ups, and develop local industry have only some success
- The state’s aging increases more rapidly as retirees flee Florida’s storm surges and move to Maine
- Investment in infrastructure, education and alternative energy is less as a growing share of state revenue supports assistance programs
- Increases in needs for and demands of social services from the state’s low-income population

What happens by 2025:

Are we Forgetting our Young People? by Hilda Stewart (op ed e-Portland Herald, Oct 15, 2025)

We have to give kudos to our state government's workers for improving and maintaining services to our older population. The 5,000 people in the state's employ last year all have capabilities in geriatrics. Any of them can recognize and deal with the problems of elderly citizens as they arise in their departments. People continue to retire to Maine and enjoy its favorable tax structure and its friendly environment. They bring income to the state. And during their productive years they fill important tourism jobs, along with the temporary workers from Eastern Europe. They also start and run small businesses.

But let me introduce you to Annie. Annie is a member of the state workforce but is also one of our increasingly forgotten young minority. She's 24, lives in Aroostook County. She freelances as a visiting nurse for the state, has graduated from a two-year medical e-degree program at U. of M, and gets her assignments from her online portal most days. Her caseload consists primarily of the elderly, performing services virtually and in-person through the KeepMeHome program. She lives with her mother and grandmother. Eats dinner with her family at home every night. Most of her friends have left for jobs away, so she doesn't have much social life. Her clients are fond of her, but even knowing that, some days she feels isolated and depressed.

If you haven't been upstate lately, you may not realize that beyond our coastal areas, poverty is high. Most communities are finding it difficult to provide services for their aging and their poor populations. They look to the already-pressured state workforce for help, but beyond a few internships and summer programs, it has little to offer young people like Annie. Of necessity, the state has had to outsource much of its work that doesn't depend on being in-state, which further reduces options for young people like Annie, who doesn't want to leave her family.

Annie could possibly get a job on a cruise ship for part of the year, if she and her mother didn't have to share care duties. If they can find alternative care, the state will enable her to participate in a work exchange program try to give her a few months free to work elsewhere. The idea of a working vacation on a cruise ship appeals to Annie.

Annie's isolation, though typical for many young people upstate, isn't her only problem. Tourist work is often seasonal and without benefits. The cost of maintaining the beauty of many of the state's attractions is rising, mostly due to the effects of climate change. There are also fewer students in the State's higher education system, with student loans more difficult to get, and the choice of degrees shrinking. A shrinking education base is one reason why businesses are reluctant to come to Maine, for lack of an educated and skilled workforce. Those younger farmers who migrated to the state in the last decade to start 'locavore' agriculture projects, for example, now find it difficult to sell their food to restaurants and stores in Portland and elsewhere. Most now aim their trade at Boston and New York.

As one of the smallest state workforces in the US, much of the government's work has been farmed out to the private sector or contracted to out-of-state contractors and services when particular skills are missing in-state. Most government workers have other jobs that they turn to for part of their income, with a consequent loss of initiative and innovation in many departments.

Like many other young potential future contributors to the state's vitality, Annie's options are limited, either as a government worker, or as a citizen. We need to do more for Annie and her like so Maine becomes a place where young people want to stay.

Key implication of this scenario: A Workforce Left Behind 2025

If present trends continue without new initiatives and policies the state may become an aging backwater with few, if any, opportunities for work or enterprise

Sources, references: Rapid aging in the state: current estimates [here](#)

Part 5: 2025 workforce requirements

Many of the HR recommendations we make are already in place to some degree. However, these approaches to talent acquisition and management can be updated or improved using new technologies and information channels, such as apps on mobile devices, social networking and YouTube videos. The opportunity, going forward, is to seek out and encourage innovations that will reshape HR practices for building the best-in-class workforce of 2025.

Looking out to 2025: Obstacles, challenges, threats and opportunities for the Maine State Government

A view of Maine's future suggests plenty of challenges, but also opportunities for Maine and its state government to advance its workforce.

Obstacles, challenges, and threats

- Twin brain drains: loss of younger talent to other states, loss of older talent to retirement
- Continued war for talent with other regions and the private sector
- Hard-to-find skills in new and critical areas, e.g. data analysis, emerging technology
- Limited capacity of the state education system to prepare workers for 2025 demands

Opportunities

- Make the state a “haven” for desired talent, based, e.g. on specific needs and preferences rooted in values, life stage, etc.
- Harness leading edge technology for government, achieving much greater efficiency and creating a powerful draw in recruitment
- Innovate in government structure, staffing, and leadership to embrace trends, relax rigidities and redefine state government work to enhance mission and employee satisfaction
- Make the state “best in class” as a government employer, to enhance talent recruitment
- Offer returning Mainer incentives
- Build excellence in harnessing the talents of an older workforce

Workforce requirements for 2025

The first four parts of this report describes trends and scenario stories shaping the possible future work of Maine state government. The following describes 2025 outcomes implied for that future workforce, in more detail.

Workforce requirements 2025

- **Lean / effective.** 2025 state government workers' capabilities portfolios include: multi-disciplinary knowledge, inter- and intra-personal skills, creativity and innovation, problem solving, self-directedness, and technological competence. These workers functional well in fluid settings with continually changing work priorities and goals, moving into and out of stable, ad-hoc and virtual teams. Workers often transition into and out of leadership roles, as defined by the task or assignment. The annual 'Organizational Effectiveness Survey' measures citizen

satisfaction, operational efficiency, goals achieved, and progress towards sustainability. The survey's results are included on the MSG dashboard.

- **Digital workers / data analysis.** Workers use technology seamlessly to interact with citizens, mastering devices connecting and engaging with the digital world. Workers retrieve, analyze and use data to solve complex problems, and rely on interpretation of data to predict and anticipate services' design and needs. Some workers design apps and/or systems, others manage or maintain the technology; still others teach other MSG workers about technology's leading edge products and services and how they are adapted for use within state government.

Workforce requirements summary

- Lean and effective workforce
- Digital workers/data analysis
- Age diverse work plan
- Continuous learning and development
- Intelligent innovation and change
- Employment relationships
- Cultural fluency and global competencies

- **Age diverse work plan.** An age audit, completed in 2015, revealed an imbalance of workers' ages with a significant skewing of workers beyond age 50+. A rebalancing plan has extended employment of retirement eligible and older workers long enough to build a replacement workforce of younger workers.

The plan encourages workers 50+ to remain on the job by adjusting work, and work settings to maintain productivity and efficiency. Educational programs shift attitudes and practices to support aging workers. Older workers lead and manage MSG legacy operations providing the time needed for HR to recruit, develop and position the next wave of younger workers. Additionally, the plan redefines primary working ages from 24-54 to 24-75+ creating an age-positive culture now enjoyed by the 50+ workforce.

- **Continuous learning and development.** Workers continually update technical and work knowledge, skills and certifications to keep up with evolving expectations and needs. Learning is offered, accessed, gained and evaluated in a 24/7 environment with instant feedback on learning mastery. Learning, at the individual, team and organizational level is captured, stored and available for the government workforce through enterprise-wide knowledge management systems. The speed and mastery of learning influences workers' access to future assignments, job opportunities and salary increases.
- **Intelligent innovation and change.** Workers are responsible for using innovation to work smarter and better as shifting challenges reset priorities, resources and time. The flow of work is more fluid, and change is anticipated and planned for in managing work. Project management rests on multi-dimensional work efforts utilizing rapid prototyping, simultaneous solutions, crowdsourcing and when necessary, the outsourcing of innovation to solve irregular or sustained problems. The pace of change is marked by continual, daily adaptations involving incremental changes, accompanied by irregular bursts of substantial transformations in work and workflow. Collaboration is required as more work involves others, within and outside of government, as they engage in innovating and problem solving.
- **Employment relationship.** Employment categories within the 2025 state government range from full-time that includes essential, core, operational to part-time that includes temporary, ad-hoc, situational and seasonal. Regardless of employment category, MSG talent recruitment efforts find and evaluate candidates for the right fit, often placing greater emphasis on the 'potential to perform' rather than actual past performance. This is most relevant for new employees aspiring to longer-term employment, as more workers rotate between departments as workloads shift and priorities change.
- **Career path.** Workers self-direct and self-manage their own career paths. Multiple options exist for career growth. Some paths lead to the leadership pipeline, other career options entail varied

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work experiences and opportunities designed to keep workers engaged rather than upwardly mobile. The organization provides development options that align workers' interests with the organization's work goals, thereby maximizing worker efforts that support meeting goals and mission.

- **Cultural fluency and global competence.** Workers are aware of global current events and demonstrate specific cultural competence in countries that Maine considers its trading partners. Of particular importance are Maine's northern neighbors in Canada and Iceland. Within the US, Hispanic language and culture is a larger force in many aspects of the US economy.

Workforce requirements 2025 – Key implication

The workforce of 2025 will span five generations – 18 to 75+ – by design, not by default. Workers will be expected to value learning, and be held responsible, and accountable, for using that learning to enhance and innovate. Technology will be both a means for getting work done, and a familiar presence at work. Workers comfort with, and inclination to use, technology will make it a valuable co-worker. Workers' relationship with state government will be characterized by relationship status and less by where, how and when work is done. Careers choices and mobility will be guided by the individual but aligned with the organization's needs and openings. Maine will influence, and be influenced by, a global economy that operates across borders and time zones, thus requiring knowledge of other people and cultures.

Part 6: How to get there – workforce 2025 development strategies

This section lays out the “what to do about it” conclusions and implications for this report, giving potential strategies and actions around training to maintain skills, succession, knowledge/skill/degree requirements, recruitment, and retention.

Workforce 2025: training to maintain knowledge and skills

A successful 2025 State Government Workforce would need ongoing training to maintain knowledge and skills. Areas of focus would include:

MSG training	Maintain knowledge and skill
Current and emerging technology, data analysis	Technology and digital literacy, including awareness of new/emerging technology. Maintain competence in the use of technology for performing work, citizen interaction; ability to manipulate data for decision making; design and use of metrics and measures to assess performance, effectiveness of people and work systems
Human relations, cultural diversity, global competence, intergenerational awareness	Work effectively with diverse people/different age cohorts; customer service, collaborate in-person and virtually; group problem-solving, decision-making
Public relations, public education and outreach	Ability to communicate, solve problems, build relations with individual citizens and communities; Ability to educate, train and inform the public about public policy, regulations and decisions; Ability to use virtual, social media, print and verbal communications effectively
Talent management practices and us and international labor law	Perform people management practices across the talent management cycle; maintain familiarity with and competency in employment laws and requirements for domestic, international workers; engagement and management best practices
Federal and state legislation	Understanding of current and emerging laws and regulations relevant to department and professional focus. Fluency in Federal and state regulatory software and systems
Human performance across the lifespan	Updated and current knowledge about maximizing human performance and health across the lifespan

Workforce 2025 – training to maintain knowledge and skills - Key implication

Workforce readiness in 2025 assumes a cluster of important attributes: learner, interpreter, communicator, connector. Workers will need to: learn about emerging changes that affect their work, interpret the implications of the change for a wide audience, communicate the relevance and importance of that change, and connect with appropriate social networks impacted by the change. Workers will be savvy operators within the regulatory, legal and programmatic context of their work.

2025 current succession plan and strategy: key components

Getting to a ready and able 2025 workforce suggests changes to current practices in workforce selection, development and utilization. The following sections discuss ways to strengthen existing HR practices, and develop a more suitable and different workplace that appeals to younger generations' preferences and expectations of work.

Succession planning: reduced risk and cost savings

Succession planning for the Maine State Government is critical – by reducing risk, and essential – by saving money. Leaders within the state government workforce should reduce risk by ensuring that no one person, who retires or exits the organization, can effectively impair government operations from meeting its goals. Since MSG has a substantial number of retirement-eligible employees, at least some departments are at significant risk of underperforming unless a pipeline of talent is ready and able to assume permanent positions. In some cases, temporary or interim leaders may assume the duties until a permanent successor is found.

To reduce that risk, MSG needs to identify 'organizational critical' or 'core employees', across departments, whose work is essential to the department's functioning, then identify and develop successors in preparation for the eventual departure of the key talent. Succession planning is for leaders and non-managerial positions deemed vital to operations as well.

Replacing workers comes with many costs. It is more cost effective to plan for a replacement than to hire in a crisis. It starts with time (salary) of all those involved in the hiring process from HR through line management, and includes lost productivity of the person as they prepare to leave, and the reduced productivity as a new hire becomes fully competent. There are indirect costs as well, often involving outlays for recruitment, covering for people involved in the hiring process and added work burdens of co-workers picking up the slack till the newly hired is fully functioning.

However, hiring in a crisis can be even more costly. It can result in paying more for an immediate replacement, or paying for temporary help while seeking a permanent hire. Or worse, making a quick but poor hiring decision that ultimately results in lost productivity, wasted time or results in incalculable costs of lost trust or expensive, wrong solutions. Succession planning is insurance against unforeseen departures of 'core employees' so that even when it does happen, the talent pipeline channels a skilled, ready and motivated replacement.

Succession planning process not only insures against critical MSG work slowdowns or interruptions, but it serves as a strong recruitment and retention tool. Development opportunities and advancement are important career aspirations for younger generations, and clear upwardly mobile career paths are strong motivators for middle-aged workers to stay and invest in their future.

Succession planning strategy for 2025 workforce

Succession planning is the process of identifying and developing successors for key positions. It is a combination of replacement planning and development planning, intended to create a pool of prepared leaders who can assume greater job responsibilities when the time comes. Movement out of leadership ranks can be anticipated (retirement) or unplanned (termination). Either way, succession planning creates a pool of developed talent that can fill part, or all, of the leader's job requirements until a successor is found. Sometimes the successor is temporary, and part of a gap plan to find a permanent

replacement. Other times the successor is promoted based on prior development and demonstrated ability to function in a higher position.

MSG's strategy for creating and implementing a succession plan involves six steps:

1. **Identify future workforce needs** on at least a ten-year horizon, including changing skill sets, and future work requirements for the MSG workforce.
2. **Understand MSG context**, identify what is unique or different about Maine's work culture today, and in the long-term, that influences how a succession plan is designed and implemented.
3. **Identify 'core' or 'critical' positions** within each department, engaging senior management and leadership in analyzing what work or positions would seriously undermine, or prevent, departmental work from meeting its goals today and over the next ten years.
4. **Create successor plans** for each 'core' position. Successor plans describe the strategy needed to develop at least one, preferably more, successors. The plan likely will recognize changing requirements over a multi-year time horizon for the jobs. Choosing the best successor strategy is often influenced by time and money. In some instances, the successor is needed immediately so one is recruited (*buying*) often from the outside since internal candidates are not likely available. In other instances, there is adequate time to develop (*build*) a successor through developmental programs. Sometimes a successor is needed but for a shorter term, in which case the talent can be hired on contract (*borrow*) without long-term investment in salary and benefits. As the replacement timeline lengthens, successor plans need to be agile, flexible to allow for changing requirements as new needs emerge.
5. **Engage all the stakeholders in the development process.** In order for the (build) strategy to succeed, all stakeholders - candidates, HR, line managers and senior management - need to support the development process. Candidates in the development program need both extra time and reduced workloads while engaged in learning, plus additional time back on the job to apply the learning, and participate in coaching and mentoring. Some positions involve a longer development horizon, perhaps 2-5 years, due to the complexity of knowledge and experience needed.
6. **Monitor and collect outcomes and performance metrics.** Individual candidate data needs to be collected on: learning effectiveness, readiness for increased responsibilities and performance of applied learning back on the job. Collection of program evaluation data is important to discern the ROI of development programs, impact on talent retention, and adverse impacts of leadership and SME vacant positions on organizational performance. Recognize in monitoring outcomes that there will be further emerging and changing needs, these needs should inform future decisions about the use of workforce planning resources to build a robust, competent 2025 workforce.

Succession plan strategy - elements

1. Identify future workforce needs
2. Understand MSG context
3. Identify core positions
4. Develop successor plans (Buy, Build, Borrow)
5. Engage stakeholders in development
6. Collect outcomes and performance metrics

Succession planning components for 2025 workforce

Key succession plan components essential for preparing the 2025 workforce.

- MSG's 2025 succession plan needs to be **formal**, with clear and consistent mechanisms for candidate selection. The planning process involves a shared responsibility and

Succession plan components summary

- Formal and transparent process
- Wide and deep reach into the organization
- Robust development program for knowledge and skills
- Competency based leadership model

accountability with clear roles and expectations for everyone involved: the program candidates, HR, line managers and senior management. A clear process for success is also a draw in worker recruitment and a point of appeal in retention.

- The 2025 plan needs to **impact workers far and wide** inside MSG. It should cover key management positions across state government, as well as reaching deeply into the organization to the frontline, supervisory levels. In some instances, subject matter experts (SME's) with industry specific knowledge and skills may need a separate development track. A parallel track may emphasize people and teaming skills, but not focus on leadership competencies necessary at the enterprise-wide level. Where and when new areas of focus or succession tracks emerge, based on changing requirements, the state should be ready to build and augment the succession pipeline.
- The development part of the succession plan should be comprehensive and include **essential development elements**: formal training, assessments, timely feedback on learning mastery and performance, and ample opportunities for on-the-job assignments, and access to mentoring and coaching. The learning methods will likely involve face-to-face, virtual and web based formats, emphasizing collaborative learning and problem solving. New technologies will likely improve the development process through more rapid learning, faster problem solving or greater collaboration – all efforts to improve the speed and efficiency of the learning curve.
- Finally, the succession plan has to be based on **shared views of a 2025 competency model**. MSG leadership and HR need to agree on what constitutes effective leadership now and over the next ten years, and how leadership is and will be identified, evaluated and developed. Leadership competencies, or models, describe what is expected of leaders currently and in the future.

Workforce 2025 – succession plan, strategy, components - Key implication

Succession planning is insurance against unforeseen changes in 'mission critical' functions. It is the process of anticipating, and preparing for, open vacancies without undermining operations. Advance planning mitigates risk and reduces the cost of filling vacancies quickly or poorly. A succession strategy is wise use of talent management monies and resources to create a broad, deep pool of qualified talent in sync with the organization's mission and values. A succession plan is a transparent process of identifying, developing and preparing candidates for future work.

2025 workforce: knowledge, skills, degree requirements

Workforce learning qualifications in 2025 will be less about earning degrees, and more about gaining more and diverse knowledge, demonstrating competence, taking risks, experimentation, collaborating with larger social and professional connections. Many of these work activities will center on finding people and information, solving problems or building social networks.

The avenues for learning are changing and will continue to evolve as well. Currently, many two-year and certificate programs are replacing traditional four-year plus degree programs. Some institutions, outside of higher education, are offering competing, and alternative, programs for professionals such as for-profit educational organizations and professional membership groups. Additionally, there are more ways to learn such as online courses, self-taught options, workplace training and development, experiential learning for credit, and lifelong learning programs. MSG workers should be able to use appropriate options.

Baseline abilities for all workers

- *Technical fluency* with mobile and digital devices
- *Technical literacy* in using varied types of data, gaming, simulation, automation, AI, social media, cloud computing
- *Age competent* in establishing respectful intergenerational relations conducive to productive workplaces and satisfied citizens
- *Learning* as an intentional effort to actively engage in new learning, apply and share knowledge, contribute to shared knowledge base
- *Innovation and quality* responsibility to innovate in work and work systems to improve quality, reduce cost or solve problems
- *Data use / analysis* to obtain, interpret, evaluate and use different types of data to understand and solve problems.

Key knowledge areas: Aging, technology, business development, continuous learning and innovation, management and leadership, talent strategy and organizational stewards

Aging – an aging citizen base and workforce implies knowledge of lifespan aging issues, trends and needs. Aging citizens require services and programs that address their physical, mental health, safety, and housing needs. Maine’s 2025 population will have a larger than average share of the ‘vulnerable minority living in continuum of care facilities or aging-in-place. The continued growth of an aging workforce includes new and different attention to conventional practices of management, ergonomics, workplace learning, knowledge management, health and safety and performance evaluation.

Technology--A view out to 2025 shows that the waves of technological change will continue at a fast pace. State government workers need ongoing training and certification in the use of technology for citizens as well as the workforce. Beyond knowledge of conventional hardware and software systems, more mobile technologies and devices will be used and must be understood. Apps for these devices will be increasingly customized and widely available. Ability to protect personal and organizational information may lag developments in technology.

Business Development – potential growth over the next decade in businesses and entrepreneurship in Maine involves encouraging and supporting business development, including start-ups, connecting employers to a ready, skilled workforce, and providing timely and convenient access to state services involved in the business lifecycle. Economic growth also entails extensive outreach, education and ongoing relationships with the economic community.

Continuous Learning/Innovation – To meet current, emerging, and future requirements, given the pace of change in technology and other areas, all state government workers will likely need to be engaged in ongoing professional development for job content, technology and interpersonal skills, and held accountable for applying learning to solve problems, innovate and improve performance.

Management and Leadership – most 2025 workers will be expected to lead and manage initiatives, projects, teams or employees in a full-time or ad hoc capacity. The 2025 workforce will include workers who are geographically dispersed, living in different time zones, working virtually or onsite. Leaders will need to be masterful communicators, conversant with wide ranging communication forms and cultural habits of a diverse, possibly international, workforce.

Organizational Stewards--the state government and its work will be continually evolving, requiring staff with expertise in large systems redesign and development. Staff will match people and process, and look to maximize people and work systems efficiencies and effectiveness.

[See Appendix for further descriptions of Key Knowledge areas and associated learning and degree requirements]

Workforce 2025 –knowledge, skills, degree requirements - Key implication

The 2025 worker, regardless of job title, will be expected to demonstrate a baseline competence in: technology, interpersonal skills, communications, learning, change, innovation, data use and analysis. Expertise, by person or department, will be needed to set policy, implement programming or support citizens’ needs in diverse fields such as: aging, business development, technology, innovation, talent management and organization redesign and development. These fields exist today but their best practices will be adjusted to a new and different context in 2025.

Workforce 2025: recruitment strategies

Recruitment efforts within MSG should focus on strategies to attract and hire the right talent to build for the requirements of state government. While competition for talent is likely, the state government is in a position to offer more than just salary and benefits to those interested in public service careers.

Specifically, public service employment in 2025 can offer: an opportunity to obtain broad exposure to various types of work, more upward mobility options due to the eventual retirement of its older workforce, and greater opportunity for knowledge sharing and mentoring as experienced workers engage in knowledge transfer activities. Equally, given the right work and workplace conditions, the state itself offers appeal to skilled workers.

Recruitment methods will evolve to leverage technology’s ease and speed of recruiting with employer’s desire to find the right fit with potential candidates. For time and efficiency reasons, recruitment screening will likely migrate more online, and involve more in-depth assessments across multiple forms of intelligence. The recruitment process will seek to match candidates whose values align with MSG. Particular importance will be given to candidates’ interest in and willingness to learn, learning style, work motivations and teaming type.

The following strategies will improve recruitment outcomes for obtaining talent in 2025:

“Best in Class” state workforce

- Maine seeks to build and promote a “best in class” state government from the point of view of workers and potential hires by offering more flexible working options, a broader array of benefits and better professional development opportunities.
- Build MSG work competitive advantages--distinguishing work for the State overall and for specific groups: Millennials, older workers, women, returning Mainers, professionals with special work interests.

Recruitment strategy summary

- Build and promote “Best in Class” state workforce
- Outreach programs
- Technical-discipline specific training
- Recruitment Incentives
- Alignment of public service values “Government Matters”

Outreach programs

- Make better use of employment and social networks to broaden recruitment efforts; leverage social media, apps to facilitate recruitment process for younger workers; refine public relations toolkit (online) and print to include benefits and values of government employment; continue recruiting in professional journals, professional conferences, higher education institutions for older workers still vested in traditional forms of employment searches.

- Refine outreach programs that attract early talent by personalizing the experience (job-for-a-day, ride alongs) and offering immediate feedback to prospective students (post-experience debriefing, interview); offer meet-and-greet sessions following public speaking engagements at community events and job fairs that connect participants with industry professionals to discuss careers and career paths within government; create opportunities for higher educational students to access professionals within MSG for mentoring or assistance with work assignments.
- Identify alternative funding sources with shared interests in government programs or work; build alliances with private sector, philanthropic or business to solve problems, share resources or assist in technology transfer programs; exchange workers to promote innovation and knowledge sharing.

Technical – discipline specific training programs

- Design and offer paid technical training programs for interns and apprentices to prepare candidates for technical vacancies in jobs requiring less academic knowledge than a bachelor's degree (especially useful in trade positions).
- Offer trainee programs, with pay, that convert to full-time after set period (e.g. 800 hours) with salary increase upon satisfactory completion of work (and certification if appropriate)
- Give technical talent the chance to build innovative, leading edge systems they would not be given the chance to work on or take the lead on elsewhere

Recruitment incentives

- Develop recruitment incentives for full-time employees such as paid educational expenses, professional development opportunities, loan repayment programs, hiring bonus, paid relocation expenses, flexible work schedules, additional paid leave upon hiring
- Develop recruitment incentives for contractors and non-Mainers engaged in part-time or project-based work who may transition into the MSG workforce at a later time.
- Institute an online freelance opportunity portal for quickly filling needs for short-term or temporary workers; use a third party vendor to advertise work, screen and recruit workers, and manage salary (and benefits) accrued during the work period

Alignment of values – marketing and recruitment material

- Emphasize “Government Matters” campaign, emphasize core values of government work that aligns with multi-generational desire that work has meaning, purpose and social value; opportunity for positive impact on culture, natural resources

Workforce 2025 – recruitment strategies to attract the ‘right’ workers - Key implication

Competition for skilled workers in 2025 is anticipated to be brisk, with many more workers available but likely missing the preferred skill(s) or job experience. The situation implies either competing harder for the ‘right talent’ through bigger compensation packages, or using development to create the customized workforce. Either way, smart recruiting will rest on personalizing and customizing recruitment efforts and using a streamlined, transparent recruitment process. Leveraging the brands of ‘Maine’s Lifestyle and Natural Resources’ and ‘Public service is good, does good’ will appeal to tech savvy, values driven workers under age 40. Many recruitment strategies have the dual benefit of attracting and keeping workers.

2025 retention strategy: Key components to retain and position current workers for leadership

The key components of a retention strategy for 2025 include multiple opportunities for professional development, strong management, endorsement of high performing work cultures and maintaining healthy and safe working conditions. The tools of effective recruitment and retention greatly overlap, with such clear promises as valuable professional development, workplace flexibility and agreeable work as key incentives.

Onboarding program to orient and acculturate new hires, and increase retention during first year

- Orientation program to familiarize new hires with work expectations, work culture and job requirements, frequent and early feedback during probationary period, participation in 'Followership Training Programs' that foster appropriate participation in various team settings, job coaching to help with transition into new work setting, social and recreational opportunities with other MSG staff as part of work experience.

Retention strategy summary

- Onboarding program
- Professional development (ongoing)
- Leadership development programs
- High performing / accountable culture
- Financial education / retirement support

Professional development options in 2025 should provide continuous learning for job enhancement, or entry into the leadership pipeline for senior management positions in the future

- Ongoing opportunities for skill enhancement or job advancement, refresher courses, upgrading and expanding discipline-specific knowledge and skills, rotational job assignments, sabbaticals, volunteer options
- Individual development plans that align personal and professional goals. These can be designed with apps that are unique to each individual and can have daily, yearly, and lifetime options with regular feedback on progress
- Access to a variety of leadership programs, coaching and mentoring with executives, rotational leadership assignments, opportunities for project work in the private sector

Leadership development programs, seminars, online classes and development opportunities designed, monitored and evaluated by a personal development committee consisting of peers, management, retirees and outside professionals

- Orientation program for new leaders to help transition from individual to leader in various ad-hoc, short-term or permanent assignments
- Personal development committee to oversee implementation and success of development plan
- Formal structured and experiential learning opportunities, inside and outside MSG, to gain knowledge, apply skills
- Virtual training, web-based learning and interactive programs with management experts (e.g. Harvard Manage mentor and Harvard Business Publishing's Leadership Direct)
- Leadership opportunities to engage in and manage projects with alliance members from private, foundation sectors

High performing and accountable work cultures imply optimal working conditions and management that supports and measures excellence and competence

- Maintaining the technology infrastructure that enables workers to leverage social networking and mobile devices for getting work done, adjusting HR policies and practice in line with social networking practices of younger generations

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- Piloting and experimenting with flatter organizational structures, reducing management levels, increasing access to information and pushing decision-making lower into the organization
- Ensuring managers from front line to executive levels are well trained, knowledgeable about HR practices and laws; effective in motivating and engaging individuals across the age-span; competent in managing others across various media, and in different sized groups from small teams to large communities of practice; competent in assessing and measuring performance across key indicators and providing follow-up development to close performance gap
- Keeping ergonomically appropriate and safe working conditions, with attention to lighting, noise, impact of technology on health, ergonomic work fixtures, temperatures, safety and wellness practices; expanded responsibility for 'healthy and safe workplaces' as more telecommuting, work from home options increase; use Universal Design principles in building any new work spaces
- Training workers to effectively manage virtual teams and virtual workspaces through different systems of individual and team accountability, performance management and rewards for outcomes of both work goals and teaming experience, cost and labor efficiencies; making workflex options available to enable workers to choose how, when and where they work
- Access to, participation in, knowledge management programs that connect people with SME's, decision-making outcomes, new initiatives
- Straightforward, open, information systems including those on mobile devices and on workplace video screens
- Frequent visual acknowledgement of individual contributions and creative ideas (Use video), varied rewards for performance customized to the individual's preferences

Financial education and retirement support

- Providing educational programs about money management, savings and retirement; offering multiple vehicles to save for retirement (IRA's, Defined Contribution Plans)
- Offering varied phased-down retirement options; modification of barriers to re-employment for former MSG workers
- "Opt out" should be the default choice for any program or system designed to benefit workers in the long term

Workforce 2025 – retention components: retain current and position future leaders – Key implication

Keeping workers is an ongoing two-pronged strategy: engagement and performance management. Engagement starts the first day of employment by explaining what, how, when, where and why. It continues with frequent, useful feedback about an individual's performance, guidance about development options, plus appreciation and respect for the worker's contribution. Every manager should be using these strategies regularly. Leadership development is about creating an abundance of talent, enlivening those with aspirations to lead, and selecting the best fit when the need arises.

APPENDIX A – Knowledge and skill requirements

The following presents core knowledge and skill needs over the next decade for the Maine State Government workforce in key focus areas for state government services.

Aging – an aging citizen base and workforce implies knowledge of lifespan aging issues, trends and needs. Aging citizens require services and programs that address their physical, mental health, safety, and housing needs. Maine’s 2025 population will have a larger than average share of the ‘vulnerable minority living in continuum of care facilities or aging-in-place. The continued growth of an aging workforce includes new and different attention to conventional practices of management, ergonomics, workplace learning, knowledge management, health and safety and performance evaluation.

Knowledge and skills	Learning and degree requirements
Aging: health, wellness, physical, mental, safety, life long learning, leisure, end-of-life issues and practices	Gerontology, geriatrics, adult development, adult learning, knowledge management, public health and healthcare policy
Program management: service delivery, program evaluation, telemedicine, technology	Project management, program evaluation, telemedicine
Public health: issues, trends, programs, education, disaster, infectious diseases	Public health leadership, management, crises and emergency management
Civic engagement, volunteer management	Volunteer management

Technology—A view out to 2025 shows that the waves of technological change will continue at a fast pace. State government workers need ongoing training and certification in the use of technology for citizens as well as the workforce. Beyond knowledge of conventional hardware and software systems, more mobile technologies and devices will be used and must be understood. Apps for these devices will be increasingly customized and widely available. Ability to protect personal and organizational information may lag developments in technology.

Knowledge and skills	Learning and degree requirements
Technology: Use of increasingly more, complex and interconnected technology, maintenance	Technology, hand-held devices, robotics, drones
Software/apps: software and apps design, cybersecurity, artificial intelligence	IT, software engineer, data management
Technology education: user interface, user education and training, interpersonal skills, change management, crowd and open source solutions	Technology trainer, educational technologist, change management
Data retrieval, analysis and decision-making to anticipate and solve problems	Data analytics, statistics, computer science

Business development – potential growth over the next decade in businesses and entrepreneurship in Maine involves encouraging and supporting business development, including start-ups, connecting employers to a ready, skilled workforce, and providing timely and convenient access to state services involved in the business lifecycle. Economic growth also entails extensive outreach, education and ongoing relationships with the economic community.

Knowledge and skills	Learning and degree requirements
Industry expertise: energy (conventional and alternative), marine, farming/livestock, manufacturing, infrastructure and transportation	Energy, aquaculture and land agriculture, business incubation, technology transfer
Public and global trade policy, regulations	Law, tax law and accounting, commerce, economics, international trade and economics, diplomacy
Public relations, public education and outreach	Public relations, education, communications
Employment Law - domestic, international	Talent acquisition, immigration and H1-B laws and regulations

Continuous Learning/Innovation – To meet current, emerging, and future requirements, given the pace of change in technology and other areas, all state government workers will likely need to be engaged in ongoing professional development for job content, technology and interpersonal skills, and held accountable for applying learning to solve problems, innovate and improve performance.

Knowledge and skills	Learning and degree requirements
Agile learning: ability to be cross-disciplinary, multiple intelligences, interpersonal skills, conceptual and applied learning	Aptitude for learning or demonstration of applied learning
Creativity and innovation, problem solving methods, decision-making systems and methods	Design, design thinking, creative problem solving
Knowledge management systems and roles: create and share knowledge, apply knowledge, subject matter expert, communities of knowledge	Knowledge management, organizational learning

Management and Leadership – most 2025 workers will be expected to lead and manage initiatives, projects, teams or employees in a full-time or ad hoc capacity. The 2025 workforce will include workers who are geographically dispersed, living in different time zones, working virtually or onsite. Leaders will need to be masterful communicators, conversant with wide ranging communication forms and cultural habits of a diverse, possibly international, workforce.

Knowledge and skills	Learning and degree requirements
Manage diversity, cultural competence, social intelligence	Management, business management, sociology and human development
Media savvy: communication skills, social media, public relations	Oral, written, and visual presentation and communications, social media skills

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Knowledge and skills	Learning and degree requirements
Social capital and alliance building	Collaboration, management, leadership
Foresight	Future studies, technological forecasting
Managing teams virtually and globally	Inter-cultural management and collaboration, foreign languages

Organizational Stewards--the state government and its work will be continually evolving, requiring staff with expertise in large systems redesign and development. Staff will match people and process, and look to maximize people and work systems efficiencies and effectiveness.

Knowledge and skills	Learning and degree requirements
Large scale systems: design, redesign	Organizational effectiveness, organization development, change management, organizational studies
Talent strategy: acquisition, management, development, alignment	Talent development and management
Relationship management: build relationships with diverse group of workers (full-time, part-time, temporary, seasonal, contractors)	Technology trainer, educational technologist, change management
Workforce sustainability: manage the growth, use and reallocation of workforce	Talent development, workforce planning and strategy

APPENDIX B – Guide to the Maine 2025 Report – Original RFP tasks

RFP Tasks	Section	Page
1. Identify with specificity what services will likely be expected to be delivered by Maine State Government (MSG) in 2025.	Maine State Government services expected	9
2. Identify what the likely relationship will be between MSG and Maine citizens in 2025.	Relationship between the State Government and the citizenry	9
3. Identify the pace of change in what MSG’s work will be and workforce requirements will be in 2025.	Workforce requirements for 2025	23
4. Identify the likely technologies that will be in use within MSG in 2025.	Robotics, automation, and artificial intelligence	5
5. Identify the likely economic drivers of the economy and how they will influence MSG in 2025.	The evolving Maine economy	4
6. Identify the likely capabilities of technology available to people in Maine in 2025 and how that technology will influence citizen-government communication, expectations of service delivery, and solving governance problems.	Maine’s government and the digital citizen	10
7. Identify what MSG training should be provided to maintain needed knowledge and skills with the workforce of 2025.	Workforce 2025: training to maintain knowledge and skills	26
8. Identify the key components of a current succession plan/strategy to best prepare for the needs of 2025.	2025 current succession plan and strategy: key components	27
9. Identify the knowledge, skills and likely college degree requirements needed by the workforce of 2025 in order to provide efficient and effective services to those served by state government.	2025 workforce: knowledge, skills, degree requirements	29
10. Identify the most effective recruitment strategies that will attract people with the knowledge and skills required of the workforce of 2025.	Workforce 2025: recruitment strategies	31
11. Identify the key components of a retention strategy that would retain current talent and position them to assume leadership positions within the workforce of 2025.	2025 retention strategy: Key components to retain and position current workers for leadership	33
12. Identify the likely effect on MSG in 2025 of increased private sector competition for skilled workers.	Wars for talent—private sector competition for skilled workers — Key implication	4
13. Identify what if any affects robotics will have on MSG in 2025.	Robotics, automation, and artificial intelligence	5
14. Identify the likely impact of Maine’s changing demographics on MSG in 2025.	Maine’s changing demographics	3
15. Identify how the increased use of mobile technologies might influence the delivery of MSG services in 2025, increasing a citizen-centric model of government service delivery.	Maine’s government and the digital citizen	10
16. Identify what type of information will likely be on a publicly-accessed MSG dashboard in 2025.	Maine’s government and the digital citizen	10
17. Identify what anticipated state or federal legislation might have a dramatic impact on the effectiveness and efficiency of MSG service delivery by 2025.	Trends in legislation and regulation	7

Appendix C – Workshop and interview participants

The individuals listed below offered their time and insights for the Maine 2025 project through interviews and/or their participation in the project's December 5, 2014 working session.

Donna Bissett	Land Trust program assistant, Maine Land Trust
Christine Brawn	Executive Director, Health Insurance, Bureau of Human Resources
Kate Carnes	Director Staff Development & Training, SETU, DHHS
Thaddeus Cotnoir	Merit System Coordinator, Bureau of Human Resources
Robin Danforth	Merit Systems Manager, Bureau of Human Resources
Michelle Fournier	Director of Special Projects, Department of Administrative & Financial Services
Richard Freund	Deputy Commissioner, Department of Labor
Denise Garland	Deputy Commissioner, Department of Economic and Community Development
Jerome Gerard	Executive Director, Maine Revenue Services
Becky Greene	Director, Maine Department of Transportation, Human Resources
Chris Hall	CEO, Portland Chamber of Commerce
Phil Harriman	Partner & Republican Political Analyst, Lebel & Harriman, LLP
Lenard W. Kaye	Professor, Director, University of Maine, Center on Aging
Barry MacMillan	Director, Workforce Development & HR Liaison, Department of Health and Human Services
L. Sandy Maisel	Professor of Government, Colby College
Sam McKeeman	Director, Programs Unit, Bureau of Human Resources
Dawn Mealey	Deputy Bureau Director, Department of Labor
Gregg Mineo	Director, Bureau of Alcoholic Beverages & Lottery Operations
Cynthia Montgomery	Chief Counsel, Governor's Office
Karen B. Morgan	Management Analyst II, Bureau of Human Resources
Scott Morrison	VP Operations, Maine, Ascentria Care Alliance
Jeff Nevers	Career Services Coordinator, University of New England - Portland
Peter Nielsen	President, Maine Municipal Association
Joyce Oreskovich	Director, Bureau of Human Resources
Garret Oswald	Director, Maine Jobs Council, Department of Labor
Jeanne Paquette	Commissioner, Department of Labor
Peter Pare	Executive Director, Department of Labor
Deb Phillips	Director, Natural Resource Service Center, Human Resources
Julie Rabinowitz	Director of Communications, Department of Labor
Amanda Rector	State Economist, Executive Branch
Kelly Rickert	Director of Workforce Development, Office of Information Technology
Richard Rosen	Commissioner, Department of Administrative & Financial Services
Laurel Shippee	State EEO Coordinator, Employee Relations
Jim Smith	Chief Information Officer, Office of Information Technology
Kimberly Smith	Associate Commissioner, Department of Administrative & Financial Services
Tammy Sturtevant	H.R. Generalist, General Government Service Center
Warren Whitney	Land Trust Program Manager, Maine Land Trust Network
Don Williams	Director of Human Resources, DHHS