A Study on Public Officials' Human Resource Development

for Digital Platform Government Implementation

Jan. 2025

Ministry of Personnel Management

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2. Training Institute: Mansfield Foundation

3. Field of Study: Personnel Administration

4. Training Period: 2023.7.31. ~ 2025.1.30.

Training Institute Overview

1. **Name of Institution :**

The Maureen and Mike Mansfield Foundation

2. Address

1156 15th St, NW, Suite 1156,

Washington, DC 20005

3. Contact : +1-202-347-1994

4. History &Mission

The Maureen and Mike Mansfield Foundation was created in 1983 to advance Maureen and Mike Mansfield's life-long efforts to promote understanding and cooperation among nations and peoples of Asia and the United States. The Foundation sponsors exchanges, dialogues, and publications that create networks among U.S. and Asian leaders, explore the underlying issues influencing public policies, and increase awareness about the nations and peoples of Asia. The Mansfield Foundation's geographic focus is Northeast Asia and the broader Indo-Pacific as it relates to that region. The Foundation receives support from individuals, corporations, and philanthropic organizations.

5. Organization

The Foundation has offices in Washington, DC, Tokyo, Japan, and Missoula, Montana. It also provides support to The Maureen and Mike Mansfield Center at The University of Montana.

6. Key Personnel

Frank Jannuzi

President and CEO

Frank Jannuzi joined the Maureen and Mike Mansfield Foundation as President and Chief Executive Officer in April 2014. He previously served as Deputy Executive Director (Advocacy, Policy and Research) at Amnesty International, USA. There he shaped and promoted legislation and policies to advance universal human rights, protect individuals and communities at risk, and free prisoners of conscience.

From 1997-2012 Mr. Jannuzi was Policy Director, East Asian and Pacific Affairs, for the U.S. Senate Foreign Relations Committee, where he advised Committee Chairmen Joseph Biden and John Kerry on a range of security, political, economic, and human rights issues pertaining to U.S. relations with East Asia. Early in his career, he served for nine years as an analyst in the U.S. Department of State's Bureau of Intelligence and Research.

Mr. Jannuzi holds a Bachelor of Arts degree from Yale University and Master in Public Policy degree from the John F. Kennedy School of Government, Harvard University.

7. Programs

Mike Mansfield Fellowship Program

Established by the U.S. Congress in 1994 to build a corps of U.S. federal government employees with Japan expertise, each year the Mike Mansfield Fellowship Program places a select group of U.S. officials in postings in their Japanese counterpart agencies. With the selection of the twenty-fifth group of Fellows in 2020, more than 170 federal government officials have now entered the Mansfield Fellowship Program.

Strengthening Government & Expert Networks

U.S. success depends on understanding and collaborating with our partners in Asia, a region that, in Mike Mansfield's words, "…is where our future lies." The Foundation builds and sustains networks of elected leaders, researchers, and policy experts, networks that encourage cooperation on common interests and contribute to continued, constructive U.S. engagement in Asia.

Advancing Policy Through Working Groups

By connecting people and their ideas the Foundation's working groups contribute to solving problems and creating opportunities. By sustaining that engagement, these programs also lead to better policymaking.

Informing & Engaging Opinion Leaders

Mike Mansfield was known for his tendency to listen more than talk, and was highly respected for his sense of bipartisanship and integrity. These values guide the Foundation's outreach to opinion leaders and the public through programs that provide informed and balanced perspectives on U.S.-Asia issues.

Chapter1. Introduction

1.1. Research Background and Purpose

In recent years, the environment surrounding us is changing at a different speed and intensity than before, due to the Fourth Industrial Revolution, the shift to non-face-to-face work environments following COVID-19, and generational conflicts with the MZ generation. In particular, the rapid advancement of ICT technologies due to the Fourth Industrial Revolution, coupled with the transition to remote environments post-pandemic, has led to rapid changes in the policy environment. The Fourth Industrial Revolution, a new industrial era characterized by revolutionary changes in society and the economy through cutting-edge technologies such as artificial intelligence (AI), the Internet of Things (IoT), and big data, was first mentioned by Klaus Schwab at the World Economic Forum in 2016. Since then, it has become the term representing this new industrial age. In particular, the global digital revolution is demanding bold changes not only in the industrial sector but also across society as a whole. As the development of digital technologies becomes a crucial factor determining national competitiveness, many countries are developing and executing digital transformation strategies to implement and expand them.

Over the past 20 years, South Korea has built and operated one of the world's best e-government systems. It has consistently ranked among the top three in the UN e-Government Development Index assessment every year, demonstrating a high level of achievement in areas such as ICT infrastructure.

Figure 1. Progress of South Korea's e-Government

However, while citizens have become accustomed to highly advanced, personalized services in the rapidly digitalized age, many government agencies and private institutions have been creating and using separate systems and data independently. As a result, large volumes of data have not been interconnected, leading to situations where the expectations of citizens for personalized services have not been met. In response to this, the South Korean government has started to propose a 'Digital Platform Government' as the ideal model for the future government and a national strategic industry in the era of digital transformation. It has begun to develop practical strategies to foster digital innovation across society.

The Digital Platform Government is a government that solves social problems and creates new value by connecting all data and services from public institutions and private companies on a 'digital platform' based on digital technologies On this platform, citizens, businesses, and the government work together to address societal challenges and create new opportunities(NIA, 2022). It is similar to how Google connects various websites, YouTube links video content created by individuals and businesses, and Facebook acts as a social media platform. In this model, the government plays a platform role by connecting citizens with government services. On the platform, the government and public institutions share and

utilize public data to provide personalized public services. To implement a Digital Platform Government and offer data-driven, scientific administrative services, it is essential to not only follow and support policy changes but also to lead these changes.

In response to these rapid changes, it is crucial to recruit the right talent, as well as to enhance the digital competencies of existing staff to ensure they are not left behind. In particular, with the rapidly changing policy environment, the importance of human resource development in the public sector is growing, as it is necessary to quickly bridge the gap between current competencies and the new skills required and to fully utilize these competencies.

Human resource development (HRD) conditions are also rapidly changing to be more digital-centered. With the development of digital technologies, it is not only essential to have collaborative capabilities to understand and utilize cutting-edge technologies such as AI, big data, and cloud computing, but it is also crucial to respond quickly and lead these changes. To achieve this, agility, adaptability, empathy, and the integration of work and self-development are increasingly important (Park Seong-min, Oh Soo-yeon, "Research on Public Officials' HRD Strategies in the Post-COVID-19 Era"). In other words, for successful human resource development in the rapidly changing era of digital transformation, it is essential to recognize the necessity of changes the future government will face, manage these changes, and also establish leadership, organizational culture, and systems that are equipped with diversity and inclusivity to support these changes. Through this, the government can effectively provide the public services desired by citizens and enhance national competitiveness.

The purpose of this study is to strengthen the digital competencies of public officials to create policies and deliever public services that meet the expectations of citizens in the rapidly changing digital transformation era. Furthermore, it aims to explore the direction of public servant talent development to lead the digital transformation era and derive policy implications.

1.2. Research Scope and Method

This study will be conducted through an extensive literature analysis to derive improvements for the public officials' human resource development (HRD) system in the era of digital transformation. To begin, the study will explore the concepts of Digital Transformation and Digital Platform Government, and derive the roles and competencies required of public officials in the era of Digital Transformation. It will then examine the importance of HRD in the era of Digital Transformation, analyze and summarize HRD trends discussed at global HR conferences such as ATD (Association for Talent Development) and SHRM (Strategic Human Resources Management). This will help confirm the importance of HRD in the era of digital transformation and provide insights into future directions.

Although the public sector's HRD system shares many commonalities with the private sector's HRD, it also possesses unique characteristics specific to the public sector. Therefore, this study will focus on public sector HRD and base its analysis on HRD trends that can be shared by both the public and private sectors, while excluding HRD content that applies only to the private sector.

Next, the study will investigate and summarize the current state of South Korea's public officials' HRD system, focusing on the HRD framework, Ongoing Learning System, and learning platforms. It will also examine the HRD laws and frameworks of the U.S. federal government, as well as various leadership training programs emphasized by the U.S. federal government. The study will analyze recently released presidential reports related to AI capabilities for U.S. federal government employees, as well as the Reskilling Toolkit published for change management, which have been emphasized in the U.S. federal government employees' HRD. Through this, the study will compare the public officials' HRD systems of South Korea and the U.S. and identify policy cases that could be referenced by the South Korean government.

Finally, based on the insights drawn from the literature review and case studies, the study aims to derive policy implications that can guide the improvement of South Korea's public officials' HRD system in the era of digital transformation.

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Chapter2. Literature Review

2.1. Digital Transformation and Digital Platform Government

Many scholars define digital transformation as "the process of increasing organizational effectiveness by introducing and utilizing new digital technologies in an organization" (Fitzgerald, 2014; Piccinini, 2015; Horlacher, 2016; Karagiannaki, 2017; Liere-Netheler, 2018). In other words, it can be understood as a process that fundamentally changes the processes, work methods, services, and culture across businesses, organizations, and society through the use of digital technologies. The IBM Institute for Business Value also defines it as a strategy in which a company integrates digital and physical elements to change its business model and establish a new direction in the industry (2011, IBM Institute of Business Value).

The "Digital Platform Government" is defined as a government where citizens, businesses, and the government work together to solve social problems and create new value on a "digital platform" where all data is connected (Digital Platform Government Committee Press Release, 2022). In other words, a Digital Platform Government is a government that connects all data and services from public institutions and private companies on a digital platform, proactively providing citizens with personalized services.

There are various definitions and perspectives on the "Digital Platform Government." From the perspective of citizens, it means the integration of public services provided by various government agencies into a single channel. From the perspective of businesses, if the

government provides a platform, businesses can participate as service producers and create value. From a data perspective, the government not only shares and utilizes data on the platform but also integrates data produced and held by businesses and citizens, enabling it to formulate policies based on that data. When AI is integrated, the government could proactively offer personalized services to citizens even before they request public services. Despite the different perspectives on the Digital Platform Government, they all collectively define the transformation of the government's role as a platform. As companies such as Google, Amazon, Meta, Netflix, YouTube, and Uber provide convenient services to citizens through digital platforms, citizens who have experienced these innovative services expect government services to be similar or even better (The study on IT & Future Strategy, NIA, 2022).

The government can improve public services in the following ways through the transition to a Digital Platform Government. First, by utilizing the data it holds and big data and AI technologies on the platform, the government can proactively provide personalized services to citizens at different stages of their life cycle. Second, as a platform provider, the government can contribute to the establishment of a healthy platform ecosystem. Currently, many businesses use existing platforms rather than building their own due to factors like technology and cost. In the long term, the issue of monopoly in platform companies, where only a few businesses own and develop platforms, has become a social concern. However, in the government-provided platform, various companies and citizens can freely participate, and by setting fair rules, the government can encourage the platform to function better, leading to more innovative government services. Lastly, the Digital Platform Government can formulate policies and provide services based on data. Through the vast data on the platform, the

government can make scientific decisions and use this information to rationally improve services.

2.2. The Changing Roles and Competencies of Public Officials

Traditionally, public officials have played a role in formulating and implementing various policies at the central and local government levels, establishing regulations for industries and services, and overseeing their enforcement. In the process of policy formulation, public officials not only participated in discussions with various stakeholders by listening to the opinions and needs of the public, but also played a role in guiding citizens about government policies and services. In other words, the traditional role of public officials was focused on traditional administrative execution, regulation, and information provision, which aimed to secure public trust through consistent policy implementation and stable national services.

However, with the advent of the rapidly changing digital era, the role of public officials has been significantly transformed. In the past, public officials primarily acted as policy information providers, but in the digital era, they have become data analysts, analyzing vast amounts of data necessary for policy decision-making and utilizing it. Additionally, as public participation in policy development expands through digital platforms, public officials are increasingly engaging in direct participation in policy development by communicating with the public and reflecting their opinions, emphasizing their role as communicators with citizens.

As digital technologies advance, public officials must utilize various digital tools, such as AI and data analysis, to perform their duties efficiently. For this, it is important to cultivate a culture where public officials continually learn and develop their skills by acquiring new digital technologies and trends. Furthermore, with the increasing use of digital information and personal data, the ethical responsibility of public officials to manage and utilize data securely has also grown.

With the changes in the administrative environment in the digital era, the competencies required of public officials have also evolved. While there are various opinions about the new competencies required in the digital transformation era, the following are summarized based on several studies.

2.2.1. Understanding and Utilizing Digital Technologies

To manage the digital transformation of public services, data-driven decision-making, and various government policy systems, public officials must have the ability to understand and effectively utilize various digital technologies such as AI, big data, and cloud computing. In other words, they must be proficient in using data management and analysis software, project management tools, and other software.

The most important digital competency in the era of digital transformation is often associated with the term digital literacy. Digital literacy, a term first used by Gilster (1997), refers not only to the ability to use computers but also to the ability to critically assess information found on the internet, combine necessary information, and use it properly. Hobbs (2010) defined digital media literacy as including technical ability, critical thinking, analysis,

practice, reflection, moral thinking, and even participation in team or collaborative activities. When considering various definitions from scholars, digital literacy is understood not only as finding information but also as analyzing data through critical thinking and generating new content. Hobbs extends this definition to include reflection and moral responsibility (Choi, S.Y.,2018).

The core elements of digital competencies have been analyzed by various domestic and international organizations, and the findings are summarized in the following table. According to the table, while proficient use of ICT technologies and data analysis is emphasized, communication skills, digital citizenship, security, and safety are also recognized as essential aspects of digital literacy. These elements highlight the importance of attitudes and approaches toward digital transformation as key components of digital literacy.

Table 1. Comparison and Analysis of Components of Digital Literacy and Competencies Proposed by Domestic and International Organizations

factors	Institution							
	JISC	British Columbia	JRC	Welsh gov(UK)	Massach-usetts	KERIS (2017)	Future -lab	SWGfL
ICT proficiency	○	○	○		○		○	
Information and Data Literacy	○	○	○	○		○	○	○
Digital Creation	○		○	○		○		○
Digital Learning	○							
Communica-tion	○	○	○	○	○	○	○	○
Cooperation	○	○	○	○	○	○	○	
Creativity		○				○	○	
Innovation	○	○						
Critical Thinking		○				○	○	
Problem Solving	○	○	○	○		○		
Digital Citizenship	○	○	○	○	○	○	○	○
Safety and Security		○	○		○		○	○
Computing System					○	○		
Computing Thinking				○	○	○		

Source: Sook Young Choi(2018), A Study on the Digital Competency for the Fourth Industrial Revolution.

2.2.2. Data Literacy

Data literacy refers to the ability to understand, analyze, and make meaningful decisions based on data. It goes beyond merely reading and interpreting data to include the capability to analyze it effectively and make critical decisions. While data analysis skills could be considered part of the digital technology understanding and application competency discussed earlier, the significance of data literacy warrants its separate inclusion.

In the era of digital transformation, simultaneous technological advancements and widespread digitalization have led to an explosive growth in data. The internet, smartphones, various digital devices, online services, and numerous systems generate and accumulate vast amounts of data daily. While decision-making in the past often relied on intuition or experience, today's data-driven environment allows for precise and objective decision-making through analysis. Data literacy is essential for this data-based decision-making process, as the lack of it can result in significant risks and costs associated with flawed data analysis and incorrect conclusions.

Digital transformation is accelerating the adoption of automation and AI technologies, as well as the utilization of big data. AI and machine learning analyze large volumes of data to make predictions and support decision-making. To make informed business decisions, it's essential to properly analyze the vast data generated by various sensors, IoT devices, and cloud systems. This requires data literacy to select reliable data, structure it effectively, and draw meaningful conclusions. To collect and analyze large amounts of complex data and incorporate it into policy formulation, it's also necessary to use big data analytics and data visualization programs.

2.2.3. Communication Skills and Collaboration Abilities

As digital transformation progresses, communication methods in the public sector are also changing. Public officials must be able to communicate smoothly with various stakeholders through digital platforms, convey complex information simply, and collaborate with other agencies using various digital tools. Particularly, as online meetings and remote work increase in the digital age, the ability to communicate effectively in non-face-to-face situations has become even more important.

Moreover, the ability to collaborate with other agencies and departments using various digital tools is also crucial. To achieve this, proficiency in communication and collaboration tools like Zoom and Teams is essential.

2.2.4. Cybersecurity and Ethical Awareness

As digital technologies advance and vast amounts of data are accumulated and utilized, the importance of cybersecurity and personal data protection has grown. Public officials must have a basic understanding of cybersecurity, manage public data securely, and be able to respond to cyberattacks such as hacking. Additionally, the ability to safely protect and manage citizens' personal information embedded in various data is crucial.

The new technologies brought about by digital transformation also raise various ethical issues. For instance, when using AI, careful consideration is needed to determine the extent of authority to grant it, and during the data analysis process, it is crucial to ensure that privacy protection is not violated. In particular, in the government and public sector, policy decisions

must be made with consideration for the ethical use of digital technologies and social responsibility.

2.2.5. Learning Agility

Lombardo and Eichinger define the concept of learning agility as "The willingness and ability to learn from experience and subsequentlyapply that learning to perform successfully under new or first-time conditions" (Lombardo & Eichinger, 2000). In other words, learning agility is the ability to rapidly develop effective actions based on experience in new environments, with flexibility and speed being crucial. Learning agility consists of four domains—adaptability, mental agility, people agility, and results agility—as well as one transcendent factor, self-awareness (S. Haring, J. Shankar, K. Hofkes, 2020).

Figure 2 : Learning Agility Construct & Learning Agility Factors

Source : The Potential of Learning Agility; The relationship between Learning Agility and Success(S. Haring, et al, 2020)

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In a study conducted by McCall and Lombardo in 1983, they examined individuals who were recently promoted to executive positions and given new responsibilities in a new work environment, but failed to perform. One of the main factors they identified for their failure was that these individuals relied too heavily on the skills that had helped them achieve promotion in the past and were unable to adapt appropriately to the new situation. People with learning agility possess the ability to quickly adopt new skills and integrate them efficiently, while also being able to swiftly replace outdated, inefficient skills with new ones. Relying excessively on past successful skills increases the likelihood of failure.

In the rapidly changing era of digital transformation, the ability to quickly learn new technologies and trends, and to adapt to these changes with flexibility, is essential. Learning agility is not simply about acquiring knowledge or skills, but about learning how to effectively apply that knowledge, how to adapt to change, and how to continuously improve. This ability is important not only for personal competency development but also as a key factor in gaining competitive advantage at the organizational level.

2.3. Digital Leadership

The most discussed aspect of the Fourth Industrial Revolution, which is digital transformation, is focused on digital technology. In other words, there is a strong emphasis on securing digital talent and acquiring the necessary digital technological capabilities. However, to effectively embrace and utilize digital technologies, it is crucial to have a high level of interest and acceptance of digital transformation among members. Even with the introduction of the latest digital technologies, if the members' acceptance is low, it is difficult for the technology to be effectively utilized. To drive effective digital transformation in government

organizations, it is essential to plan and operate digital transformation programs tailored to the organization's characteristics, and this requires digital leadership.

Digital leadership is the type of leadership required by leaders in the era of digital transformation (Gonciarski & Swiatkowski, 2018; Kokot, 2021; Oberer & Erkollar, 2018; Tanniru, 2018). Additionally, Diyah Sulistiyorini and Gebi Angelina Zahra define digital leadership as a leadership style that utilizes digital technologies and tools to lead an organization and drive change and growth. They describe it as a set of skills, habits, and abilities necessary to effectively lead in the digital world. In the rapidly changing digital transformation era, leaders are facing new challenges such as fast digital technological changes, pressure to adopt new technologies, and increased non-face-to-face interactions, which they have not encountered before. Although the concept of digital leadership has not been fully established, various studies, including "A Study on the Performance of Digital Transformation: Focusing on the Mediating Effects of Digital Leadership" (2023, Yang Ji-eun, Shim Dong-cheol) and "The Effects of Leadership Style and Work Environment on Digital Leadership" (2023, Diyah Sulistiyorini, Gebi Angelina Zahra), have clarified the role of leaders in the era of Digital Transformation and derived the leadership styles and organizational atmosphere suitable for successful digital transformation.

2.3.1. The Role of Leaders in the Era of Digital Transformation

Leaders in the digital transformation era play two key roles in adopting and utilizing digital technologies within an organization (Agarwal et al., 2011). First, they serve a functional role as Chief Information Officer (CIO) or Chief Digital Officer (CDO). Smaltz et al. (2006) emphasized that a CIO must develop information knowledge, political skills, and

interpersonal skills. Additionally, Horlacher & Hess (2016) analyzed that a CDO's influence within the organization is crucial for successfully implementing digital transformation.

Second, they perform a role as a CEO or general manager in driving successful digital transformation. Agarwal et al. (2011) suggested that leaders in the digital transformation era should base their leadership on transformational leadership, which involves: 1) developing insights into new technologies, 2) creating and implementing strategic IT plans alongside business plans, 3) hiring and retaining competent IT staff, and 4) restructuring business processes based on IT.

An effective digital leader does not blindly embrace all new technologies but actively adopts those technologies that can bring positive change to the organization while adjusting the introduction and use of technologies with negative impacts to fit the organizational context. For a digital leader to achieve successful digital transformation, they must fully understand digital transformation, provide a clear vision and goals to organizational members, and ensure the necessary resources are available. This will ultimately lead to the adoption of digital technologies and improved organizational performance, thereby achieving a successful digital transformation (Yang,J.E., Shim, D.C., 2023).

2.3.2. Leadership Styles

Leadership style refers to how a leader influences others and guides their followers. It includes the leader's thoughts, beliefs, and actions that influence how they interact with others and make decisions. Leadership style impacts motivation, organizational engagement, and productivity. (Diyah Sulistiyorini, 2023).

i.   Transformational Leadership is a well-known leadership style in which transformational leaders demonstrate strong goals and charisma, inspiring and encouraging organizational members through personalized support and mentoring. Transformational leaders foster creativity and new ideas, contributing to organizational growth and change.

ii. Transactional Leadership is another leadership style , involves leaders rewarding and punishing individuals based on how well they perform. They set clear expectations, provide feedback, and offer rewards. Transactional leaders focus on completing tasks and ensuring that standards are met.

iii. Laissez-faire leadership refers to leaders who do not try to control what people do and do not provide clear direction. They believe that employees should make their own decisions. However, without clear goals or support, laissez-faire leadership can reduce productivity and performance.

2.3.3. Organizational Climate

Leadership style sets the tone for how members interact with each other and the organization, thus influencing organizational culture (climate). Organizational climate is influenced by how well people communicate and trust each other, and how satisfied they are with their work. In other words, the organizational climate is shaped by the general perceptions and attitudes that form the work environment, affecting how members interact and make decisions (Diyah Sulistiyorini, 2023).

i.   **Supportive Climate**

Trust, respect, and care for members are essential elements of a supportive

environment. A supportive environment helps members get along well, communicate easily, and provides opportunities and tools for growth. It also increases member satisfaction and organizational commitment, making members more dedicated to achieving organizational goals.

ii. **Innovative Climate**

An innovative climate fosters creativity, experimentation, and risk-taking. Organizations with an innovative climate value and reward innovation. They offer autonomy for new ideas and aim for a learning organizational culture. This atmosphere encourages the adoption of digital technologies and supports members in taking innovative approaches.

iii. **Participative Climate**

A participative climate emphasizes employee involvement, cooperation, and participation in decision-making. It empowers team members, seeks their opinions, and nurtures a sense of ownership and engagement. This climate encourages participation in digital change initiatives, where employees actively contribute to the adoption of digital technologies and support it.

Organizational climate plays a significant role in the success of digital leadership and digital innovation.

2.3.4. Leadership Style's Influence on Organizational Adoption of Digital Technology

Leadership styles also affect the adoption and acceptance of digital technologies. Transformational leadership has long been recognized as a core factor in the adoption of digital technology in organizations. Transformational leaders motivate organizational

members to accept change, take risks, and encourage them to participate actively in the digital adoption process. They also create an encouraging environment, empower employees to take initiative, and foster engagement in the digital transformation process. (Diyah Sulistiyorini, 2023).

In contrast, transactional leadership, which focuses on routine tasks, rewards, and punishments, can hinder digital technology adoption. Transactional leaders rely on established processes and resist change, limiting employees' willingness to adopt digital technologies. (Diyah Sulistiyorini, 2023).

Furthermore, laissez-faire leadership, which involves minimal involvement and lack of control, is also a barrier to adopting digital technologies. A lack of vision, direction, and support during digital technology transitions, combined with this passive approach, can lead to confusion among employees due to insufficient collaboration and support, further restricting the organization's ability to leverage digital technologies. (Diyah Sulistiyorini, 2023).

2.3.5. Impact of Leadership Style on Organizational Climate and Digital Transformation

Leadership style has a significant impact on organizational climate. Many studies have proven that transformational leadership positively influences the organizational climate. Transformational leaders motivate organizational members, create a positive work environment, and achieve high performance. On the other hand, transactional leadership, which focuses on rewards based on performance, can have a positive influence by establishing clear expectations for contingent rewards. However, passive management can lead to micromanaging and a lack of autonomy, which may have negative impacts. Laissez-

faire leadership, characterized by a lack of direction, communication, and disregard for members, leads to negative effects on the organization.

A positive and supportive organizational climate enhances the effectiveness of digital leadership. When members perceive high trust, open communication, and collaboration within such an environment, digital leaders can effectively communicate vision, drive innovation, and encourage members to embrace digital technologies. An innovative environment promotes psychological safety, fostering risk-taking and experimentation, which are essential for successful digital transformation.

On the other hand, an innovation-hostile organizational culture can hinder the execution of digital leadership. Environments marked by fear, distrust, and resistance to change will lead to skepticism, indifference, and limitations in adopting digital technologies. In such environments, digital leaders may find it difficult to gain cooperation from employees for the successful implementation and utilization of digital initiatives.

Leaders can motivate employees, encourage more participation, and foster a mindset of continuous learning and change. In a supportive climate, members freely share their thoughts on digital technologies, actively participate. An innovative climate encourages creativity, experimentation, and risk-taking, helping members try and adopt new digital technologies. A participative climate gives members a sense of ownership, involves them in decision-making, and provides feedback from leaders, all of which positively affect digital leadership

Strong leadership and management are crucial for shaping organizational climate and ensuring that leadership works effectively within the organization. If open communication,

teamwork, and necessary resources for digital projects are provided, digital transformation will occur more easily.

2.4. HRD Trend Anlaysis(2023~2024)

According to global HR conferences such as ATD (Association for Talent Development) and SHRM (Strategic Human Resource Management) in which are a majority of HR professionals are participating, the importance of AI is increasing, while skill-based learning is being emphasized, and new leadership suitable for the digital era is being demanded.

In the rapidly changing digital era, it is crucial not only to secure new digital talent but also to enhance the digital competencies of the existing workforce in order to respond quickly. To achieve this, the importance of talent development is growing, and particularly, data-driven, personalized talent development is essential in situations where individual digital needs vary.

To this end, it is essential to secure data on the competencies required in the digital age, appropriate education, and personal learning histories. Without analyzing data on an individual's learning history and career, it would be impossible to make meaningful suggestions regarding personalized education.

The following is an analysis and summary of the HRD trends emphasized by ATD and SHRM between 2023 and 2024.

2.4.1. Changes in L&D Driven by Generative AI

AI can be classified based on its core performance functions into analytical AI (such as Google search engine, Facebook feed) and generative AI (such as Chat GPT). It can also be categorized by its area of application into general AI and vertical AI, and by its collaboration with humans into co-pilot AI and autopilot AI. In particular, with the emergence of Chat GPT, the influence of generative AI has grown significantly.

AI is at the center of transformation, and as a result, corporate training is evolving from face-to-face learning to AI-based digital learning. Furthermore, AI can be divided into analytical AI (Google) and generative AI (Chat GPT).According to a study by the Boston Consulting Group (BCG), the use of Chat GPT improved work speed by 25% and increased work quality by 40%, demonstrating that the use of generative AI enhances work productivity and reduces performance gaps between individuals.

Figure 3 : Comparison of Individual Performance Score

Source : Boston Consulting Group(www.bcg.com)

Figure 4 : Performance Distrubution – Inside the Frontier
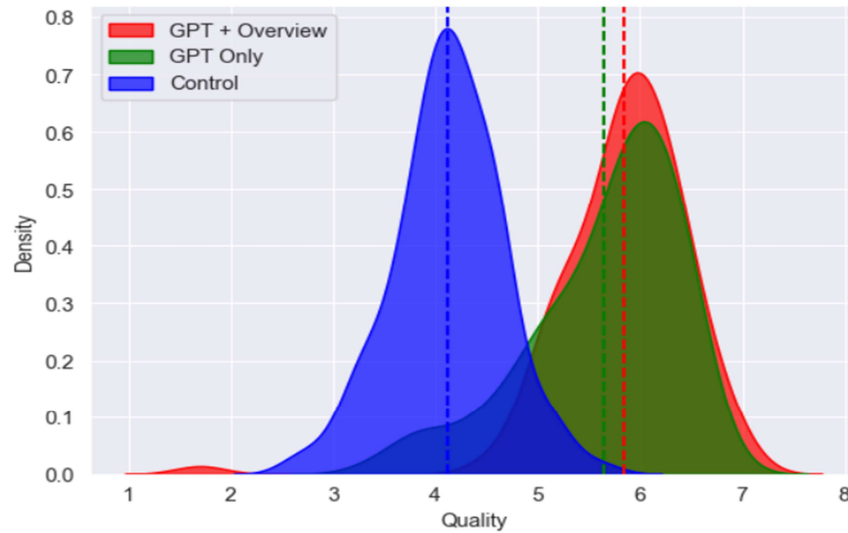
Notes: This figure displays the full distribution of performance in the experimental task inside the frontier for subjects in the three experimental groups (red for subjects in the GPT+Overview condition; green for subjects in the GPT Only condition; blue for subjects in the control condition).

Source : Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality(Harvard Business School, 2023)

When combining generative AI with training, better results are achieved compared to using generative AI alone, which highlights the importance of proper training even when utilizing generative AI. In the AI era, AI literacy—understanding and applying AI to solve key issues in the workplace—is essential for improving performance and productivity of employees.

Furthermore, while general organizations see AI as a means to reduce costs and increase the value of proposals combined with AI, high-performance AI-driven organizations recognize AI as a new business or revenue source.

In instructional design, AI can be utilized in various stages such as analysis and design. Below is an example of how AI can be applied in accordance with the ADDIE model.

Figure 5 : AI Utilization at Each Stage using ADDIE MODEL(Based on ATD ICE 2024)
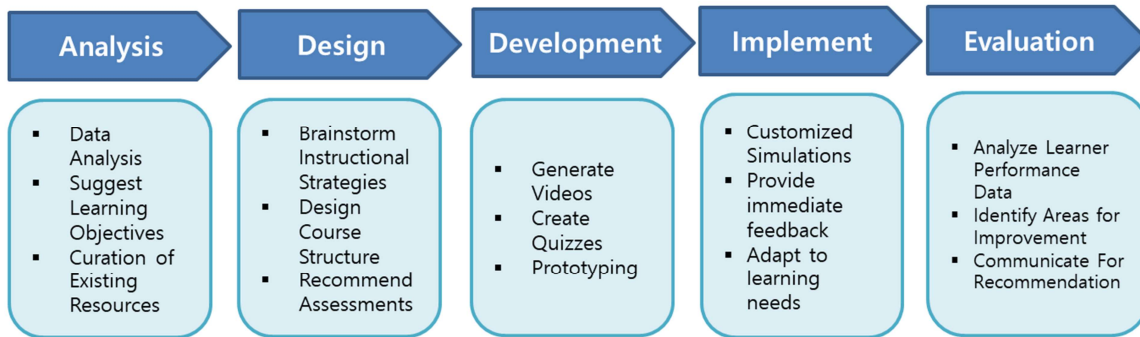
2.4.2. AI in L&D (Changes in Learning and Development with AI)

In L&D, AI can enhance training effectiveness and increase productivity in three key areas: Automation & Productivity, Personalized Learning, and Use of Data Insights. According to Dr. Phillippa Hardman, AI is most commonly utilized in instructional design for video development, content draft creation, diagnostics/assessment, and operations.

When creating AI prompts, it's important to provide specific inputs, create personas for the AI to clarify perspectives, and define the format of the output clearly. Additionally, when utilizing AI in L&D, the following do's and don'ts are summarized:

Table 2 : Dos and don'ts for using AI in L&D

DO	DON'T
• Review and edit the output. Even after you've given feedbacks • Be honest abour the use of AI • Understand your company policy for working with AI • Use AI like an assistant that can share some of the mental load but still requires instructions • Make sure you are using AI within company guidelines	• Use AI as a replacement for your own expertise • Trick your learners into thinking something is not AI if it is • Forget that AI can hallucinate • Use AI tools without educating yourselfon how they work • Use AI in our learning design if it increase the cognitive load of your facilitator

Source : ATD ICE 2024

Automation through AI is rapidly changing jobs and the education environment, and even high-wage workers are being exposed to automation through GPT. According to the WEF's Future of Jobs Report 2023, by 2027, 61% of workers will require retraining, but only 50% will have access to training, making the role of L&D even more crucial.(WEF, Future of Jobs Report 2023)

Personalized learning refers to tailoring the content, learning methods, management, and motivation to the individual. AI provides solutions for personalized learning by creating a learning journey tailored to the learner's needs, offering a customized learning experience (e.g., Coursera Coach). It also provides solutions for designers to create, curate, and customize content based on generative AI (e.g., Coursera Course Builder). In the era of AI and digital transformation, learners are facing challenges with content overload and the

expansion of online learning. To resolve this confusion, connecting learning, careers, and the support of managers will be a key role for L&D in the future.

In order to analyze and utilize learning data, it is essential to collect a large and diverse set of data. Additionally, the Experience Application Programming Interface (xAPI), which provides guidelines for connecting different content, platforms, and systems, and specifies the rules and requirements that developers must implement to ensure the interoperability of courseware and systems, is crucial. Equally important is the Learning Record Store (LRS), which stores the data collected through xAPI. If sufficient data is gathered and analyzed based on xAPI, it becomes possible to enable personalized learning and feedback, analyze the correlation between learning and performance, and design, manage, and predict learning using big data..

AI technology is transforming the future readiness of the workforce, heightening curiosity and excitement while also increasing skepticism, fear, and anxiety. As AI technology advances, digital skills are emphasized, but simultaneously, human skills such as analytical thinking, creative thinking, leadership, and resilience are also being stressed.(WEF, The Future of Jobs Reports 2023). Compared to the rapid pace of AI development, the integration and utilization of AI in the HR field is relatively slow. To enhance operational efficiency, improve employee experience, and strengthen organizational competitiveness, it is necessary to increase the use of AI in HR.

Figure 6 : Ranking of Reskilling focus(2023-2027)

	Ranking difference	Reskilling focus, 2023-2027	Average composition of reskilling strategies
1. Analytical thinking	–		
2. Creative thinking	–		
3. AI and big data	+12		
4. Leadership and social influence	+5		
5. Resilience, flexibility and agility	-2		
6. Curiosity and lifelong learning	-1		
7. Technological literacy	-1		
8. Design and user experience	+9		
9. Motivation and self-awareness	-5		
10. Empathy and active listening	-2		
11. Talent management	+1		
12. Service orientation and customer service	+1		
13. Environmental stewardship	+10		
14. Resource management and operations	–		
15. Marketing and media	+6		
16. Quality control	-6		
17. Networks and cybersecurity	+5		
18. Dependability and attention to detail	-11		
19. Systems thinking	-8		
20. Programming	–		
21. Teaching and mentoring	-2		
22. Multi-lingualism	-4		
23. Manual dexterity, endurance and precision	+1		
24. Global citizenship	+1		
25. Reading, writing and mathematics	-9		
26. Sensory-processing abilities	–		

Cognitive skills　Physical abilities
Engagement skills　Self-efficacy
Ethics　Technology skills
Management skills　Working with others

Share of companies (%)   0 20 40 60 80 100

Average share of reskilling priorities (%)   0 2 4 6 8 10 12

Source
World Economic Forum, Future of Jobs Survey 2023.

Note
The Future of Jobs Survey uses the World Economic Forum's Global Skills Taxonomy.

Source : World Economic Forum, Future of Jobs Survey 2023

2.4.3. Skills-Based Talent Development (The New Standard in L&D)

Skills are linked to jobs, roles, and competencies. While skills originate from competencies, there is a notable difference in that they are more business and market-oriented. Competencies refer to the ability to perform a job successfully and efficiently, encompassing knowledge, behaviors, attitudes, and skills. In contrast, skills are the ability to effectively use one's knowledge to execute tasks or generate outcomes. As the pace of change in jobs and technologies increases, the traditional competency model, which is centered around jobs and roles, has limitations and is shifting towards a skills-based approach.

Figure 7 : Relations among Job, Role, Competency and Skill
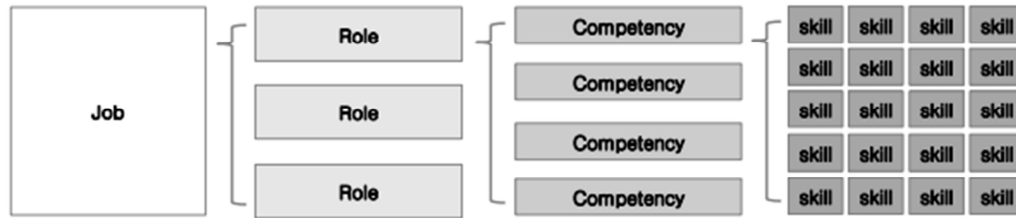
Source : hunet.co.kr

The rapid changes in the business environment and the increase in project-based work have led to a need for smaller work units than traditional jobs and roles. In addition, the rise of the gig economy, the increase in freelancers, and the emergence of a culture focused on DEI(Diversity, Equity, and Inclusion) and actual performance have become prominent. Also, advancements in technologies such as AI have made it possible to manage a large number of skills. As a result, global HR has begun to focus on skills. However, since this is still in the implementation stage, it is difficult to find successful domestic cases of adoption.

Individual skill development occurs in three stages. In the first stage, skill gaps are defined, where AI can be utilized. In the second stage, skill-based training is carried out through appropriate upskilling programs. In the final third stage, specialized internal skills are trained, based on collaborative learning within the organization, where learners engage in work-related training alongside experts.

To discover and update skills, methods include developing them in-house, using open-source resources (such as ESCO, O*NET),* or utilizing platform providers. The advantage of using platform providers is that skills are already built into their systems, but the downside is that it incurs substantial costs for development and ongoing management. Therefore, utilizing

open source can be an alternative worth considering. A skill set required for an L&D Manager was derived from the open-source platform *O**NET, and the results are as follows.(executed in onet.org)

Skills Save Table: XLSX CSV

All 35 displayed

Importance	Skill
81	**Learning Strategies** — Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
75	**Active Listening** — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
75	**Instructing** — Teaching others how to do something.
75	**Reading Comprehension** — Understanding written sentences and paragraphs in work-related documents.
75	**Speaking** — Talking to others to convey information effectively.
72	**Coordination** — Adjusting actions in relation to others' actions.
72	**Monitoring** — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
72	**Social Perceptiveness** — Being aware of others' reactions and understanding why they react as they do.
72	**Writing** — Communicating effectively in writing as appropriate for the needs of the audience.
69	**Active Learning** — Understanding the implications of new information for both current and future problem-solving and decision-making.
69	**Critical Thinking** — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
66	**Complex Problem Solving** — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
66	**Judgment and Decision Making** — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
66	**Management of Financial Resources** — Determining how money will be spent to get the work done, and accounting for these expenditures.
66	**Persuasion** — Persuading others to change their minds or behavior.
66	**Service Orientation** — Actively looking for ways to help people.
63	**Management of Personnel Resources** — Motivating, developing, and directing people as they work, identifying the best people for the job.
63	**Time Management** — Managing one's own time and the time of others.
56	**Systems Evaluation** — Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system.
53	**Systems Analysis** — Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.
50	**Negotiation** — Bringing others together and trying to reconcile differences.
50	**Operations Analysis** — Analyzing needs and product requirements to create a design.
47	**Management of Material Resources** — Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.
47	**Mathematics** — Using mathematics to solve problems.
25	**Quality Control Analysis** — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
19	**Operations Monitoring** — Watching gauges, dials, or other indicators to make sure a machine is working properly.
19	**Technology Design** — Generating or adapting equipment and technology to serve user needs.
13	**Programming** — Writing computer programs for various purposes.
13	**Science** — Using scientific rules and methods to solve problems.

Career Development, Skill Agility, Career Mobility, and Business Impact will become new opportunities for L&D in the AI era.

i. Career Development

In the AI era, people are more concerned about their jobs being replaced by AI, which has led to a heightened focus on career development. The primary motivation for individuals to develop skills that are in demand is career development and for companies, guaranteeing and supporting employees' career development is a key strategy for retention.(LinkedIn Workplace Learning Report, 2024)

ii. Skill Agility

AI is influencing the global economy, and both employers and employees must adapt and respond agilely to change. To move from static learning to dynamic skill development, skill agility is essential, and personalized skill development is required.

iii. Internal Mobility, Career Mobility

AI provides the flexibility to place skills where they are needed. We need to understand where skills are required within an organization and how to supply them, ensuring that skills are allocated according to the organization's priorities. As workforce skill agility increases, career mobility becomes easier, the organization's agility improves, and retention rates rise. Additionally, higher skill agility allows for the rapid placement of the right skills, ultimately strengthening the organization's competitiveness.

iv.   **Business Impact**

The ultimate goal of L&D is to drive business performance. Skill development is critical in AI transformation, and L&D professionals must demonstrate the business impact. Various business impact metrics, such as performance reviews, employee productivity, retention rates, business performance indicators, and skill gap resolutions, can be used to measure this impact.

A new way to certify and verify skills is through open badges and digital badges. Digital badges can be used as motivation for acquiring skills, and the micro-credential (badge) market is continuously growing. IBM utilizes open badges in five areas: knowledge, skills, proficiency, qualifications, and general areas. The implementation of open badges has shown positive effects, including motivation for learning and recognition of achievements. Open badges are closely linked to skills, enabling the creation of a personal and organizational skill cloud (database) and mapping the skills of employees. Open badges and skill clouds can not only present individual career paths but also help in team formation by utilizing the skill cloud to support optimal team structures.

2.4.4. Learning Eco System

Figure 8 : Learning Eco System
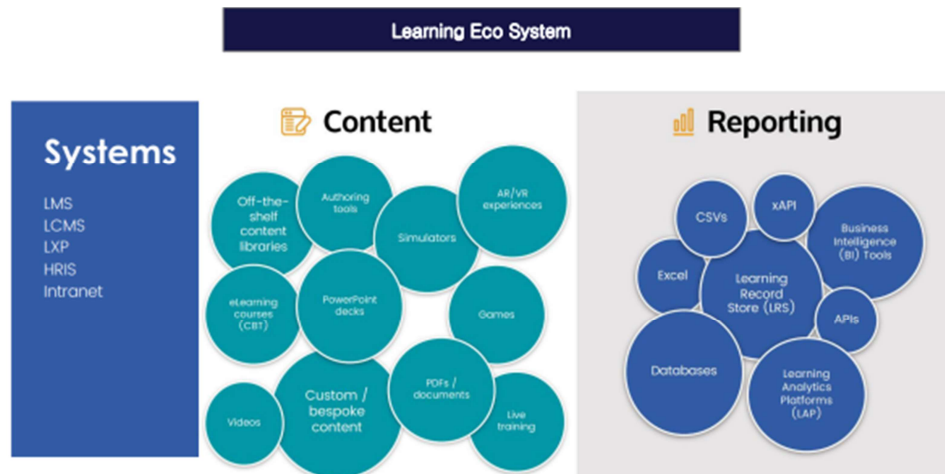
source : ATD ICE 2024

High-performing organizations achieve tangible talent and business outcomes through their L&D technology ecosystems, with relatively higher investments in collaborative learning, new technologies (VR/AR), and performance support.

High-performing organizations utilize AI more extensively than other organizations across various L&D environments. In the future, AI will increasingly be used in areas such as matching learning to skills and skill gaps, adaptive learning, and career journey mapping.

The traditional e-learning systems we currently use, such as LMS, are facing demands for transformation. Enhancements are required in areas related to learning culture, including online interaction, collaborative learning, personalized learning, learner-generated content, data analytics, and improved accessibility.

While the LMS serves as a foundational platform, an ecosystem-based tech stack is necessary for more effective L&D solutions.

Figure 9 : Learning Stack Map

Modern learning, compared to traditional learning, emphasizes lifelong learning, interconnectedness, and personalized learning, with technology and people as its core elements. The learner-centric learning ecosystem is composed of the following components: Push Learning, Pull Learning, Coaching, Reinforcement, Performance Support, Sharing Knowledge.

2.4.5. Learning Experience & Learning Journey

To design effective learning, it is essential to adopt the assumption that learning is a process, not just an event. To overcome the forgetting curve after learning and achieve continuous improvement in competencies and knowledge, follow-up activities such as retaining events, coaching and feedback, and performance support are necessary. Additionally, within the learning process, appropriate learning experiences must be matched to learning objectives.

The design of a learning journey can be structured into five stages: Goal Setting, Input, Output, Follow-up, and Result. The learning journey design integrates formal learning for each segment, social learning with peer groups, and curated digital content.

i. Stage 1: Goal Setting

Programs are designed to align with individual needs and capability goals.

ii. Stage 2: Input

Learning occurs through content (e.g., videos), books, and mentor/coach matching.

iii. Stage 3: Output

Activities include creating plans, completing worksheets, presentations, role-playing, and practicing work applications.

iv. Stage 4: Follow-up

Reflection, practice, feedback, and action plans help learners retain and apply what they've learned.

v. Stage 5: Result

Learning outcomes are collected, analyzed, and reported.

2.4.6. Business Impact(The ultimate goal of L&D)

Education refers to activities designed to enhance the overall competencies of employees, while development focuses on preparing employees for mobility within the organization. Training, on the other hand, is aimed at improving performance in current or

required tasks. Training becomes necessary when new changes demand learning or when there is a performance gap.

For effective training needs analysis, it is crucial to link it to job performance. Training needs arise when:

i.   A performance gap exists (expected performance vs. current performance) requiring training,

ii.   Future training needs must be determined (through information collection, interviews, data analysis, and proposal development)

iii.   Existing training programs need evaluation

iv.   Benchmarking of high performers is necessary.

2.4.7. Leadership in AI Era

In an era of disruptive change, most people are experiencing shifts in business strategies and processes, leading to increased tension between leaders and employees. Employees feel more comfortable with hybrid work arrangements and demand more information and communication from their leaders, while leaders face heightened levels of stress. Although disruptive change has some positive aspects, it often undermines employee engagement and retention, causes burnout, and escalates conflicts with leadership. In such times, leaders are expected to foster trust, compassion, stability, and hope.

i.   **Trust**: Leaders should effectively use both formal and informal dialogues to share responsibilities and foster partnerships with employees as business collaborators.

ii. **Compassion**: Genuine empathy can drive higher retention, engagement, and improved productivity. Leaders should listen actively, respond promptly, and react appropriately.

iii. **Stability**: In times of uncertainty, employees look to leaders for stability, making meaningful feedback essential.

iv. **Hope**: By setting clear directions, formulating strategies, and promoting participation and motivation toward goal achievement, leaders can instill hope within the organization.

The importance of leadership is growing as leaders' feedback significantly increases employee engagement. However, interest in leadership is decreasing. Despite challenges such as the quantitative and qualitative shortage of leaders, excessive stress on leaders, lack of time for leader development, difficulties faced by HR departments, and the ongoing changes, great leadership is inclusive leadership. To improve performance and productivity, it is crucial to manage and utilize emotional intelligence (EI).

2.4.8. DEIB & Psychological Safety

Recently, in addition to DEI (Diversity, Equity, and Inclusion), belonging has been increasingly valued. Belonging refers to the feeling of being welcomed, respected, recognized, and safe, which leads to the sense of being protected and supported (connected, respected, protected). When employees feel connected, respected, and protected, their sense of belonging increases. To foster belonging, it is necessary to regularly communicate and express these feelings.

Psychological safety is the belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns, and mistakes (Amy Edmondson, Harvard Business School). This psychological safety is crucial because, in an environment of safety, employees can respond with performance, but in a state of psychological insecurity, they only exhibit survival instincts. Psychological safety is particularly important for the work environment of the MZ generation and the cultural aspects of the digital age.

To ensure psychological safety, the CARE leadership model can be used.

- Clarity : Teams strategize and set goals

- Autonomy : Leaders creates leaders

- Relationship : People over results

- Equity : Treat others the way they want to be treated

Chapter3. Human Resource Development

for Public Officials in South Korea

3.1. Overview

3.1.1. History and Legal Framework[1]

Public official training in South Korea began with the establishment of the National Officials Training Institute (NOTI) in 1949, the predecessor of the Central Officials Training Institute (COTI). The National Officials Training Institute mainly conducted training for newly hired employees and small-scale refresher courses. In 1963, the enactment of the Education and Training of Public Officials Act provided the legal foundation for public official training. According to this law, public officials are required to receive training to efficiently perform their duties, and supervisors were given the responsibility of nurturing their subordinates. In the 1970s, South Korea's government-led economic growth built the nation we know today, with competent public officials driving that growth. Over the years, public official training has contributed to strengthening the nation's competitiveness by enhancing the capabilities of public officials.

Recently, in line with a future-oriented approach to talent development, the paradigm has shifted from training-focused education to self-directed talent development. As a result, the name of the Public Official Training Act was changed to the Act on the Capacity Development of Public Officials (effective January 1, 2016). Along with this, the Central

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[1] www.mpm.go.kr, www.nhi.go.kr

Officials Training Institute was renamed and restructured as the National Human Resources Development Institute (NHI), and has been driving innovation in talent development accordingly.

Article 1 of the *Act on the Capacity Development of Public Officials* explicitly states its purpose as follows: "The purpose of this Act is to develop the capacity of state public officials as o for the entire nation equipped with established public officer-ship, professional expertise, and future-oriented capacities."[2]

In addition, the *Enforcement Decree of the Act on the Capacity Development of Public Officials* and related administrative rules and regulations have been established to stipulate the delegated matters and other necessary provisions for the implementation of this law.

3.1.2. Framework for Public Officials' Learning and Development

Figure 10 : HRD Framework for Public Officials(1)
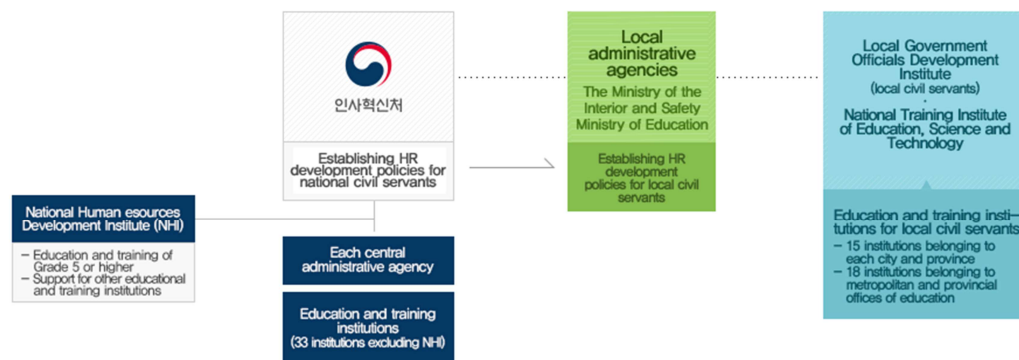
Source : www.mpm.go.kr

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[2] www.law.go.kr

The Ministry of Personnel Management (MPM) is the central authority responsible for managing matters related to the personnel, education, and ethics of national public officials. In the field of public officials' human resource development (HRD), MPM sets the overall direction, and this is then detailed and implemented in various ministries and public official training institutions through the planning and operation of training programs. For local public officials, the Ministry of the Interior and Safety and each local government independently run their own training programs. However, since local governments follow the HRD direction and guidelines set by MPM, the role of MPM in establishing and operating public officials' personnel policies, including HRD, is particularly important.

Figure 11 : HRD Framework for Public Officials(2)

Source : www.mpm.go.kr

Public officials' education is categorized based on the target audience and content, including basic training and specialized training. Basic training aims to develop the fundamental qualities, competencies, and abilities required for public officials, and it is primarily focused on training for new recruits, promotions, and leadership development by rank. This training is mainly provided by government public official training institutions such

as the National Human Resources Development Institute (NHI). Below is the annual training

schedule for the National Human Resources Development Institute.

Figure 12 : NHI Training Program Overview
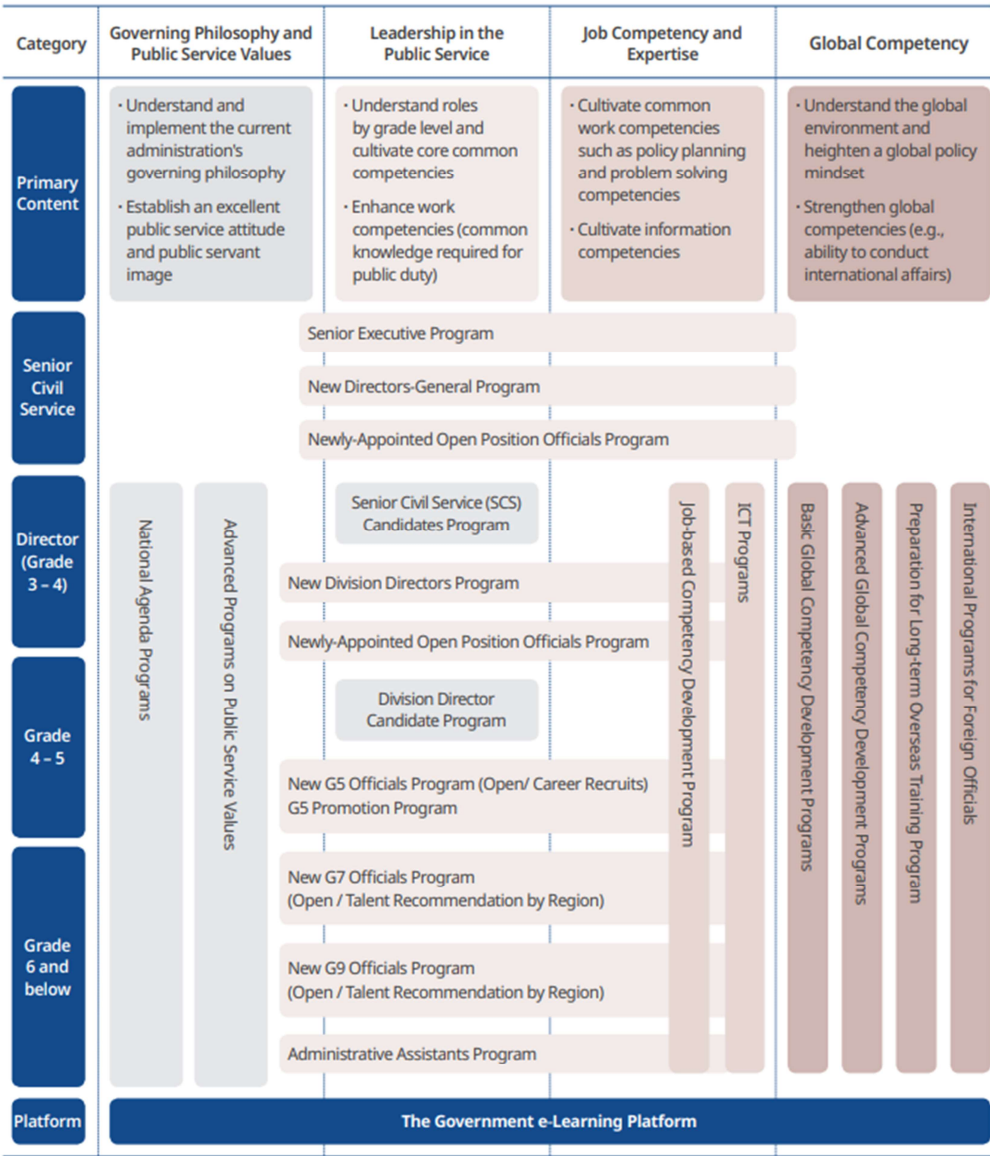
Classification of Public Officials in General Service of the Republic of Korea
Minister and Vice Minister / Senior Civil Service (Deputy Minister and Director-General) / Grade 3-4 (Director) / Grade 5 (Deputy Director) / Grade 6-9
(General Staff)

Source : www.nhi.go.kr(NHI highlights Vol34. 2024)

3.2. Ongoing Learning System[3]

In response to the era's demands for a knowledge-based and lifelong learning society, the Ministry of Personnel Management (MPM) introduced the Ongoing Learning System in 2007 to establish and promote a culture of continuous learning among public officials. Under this system, public officials at grade 4 or below are required to complete 80–100 hours of annual training. Learning achievements are linked to personnel management (promotions); officials who fail to meet the required training hours are excluded from promotion evaluations. Department directors are also responsible for ensuring their teams meet these learning requirements, which helps establish and maintain this learning culture.

The current Ongoing Learning System consists of mandatory training and voluntary informal learning. However, challenges remain, such as the lack of recognition for self-directed learning activities closely tied to job roles (Park Seong-min & Oh Soo-yeon, 2021). Furthermore, the system's reliance on quantitative measures, such as training hours, does not adequately reflect the quality of learning. Concerns have also been raised about the significant burden of allocating additional learning time outside regular working hours (Cho Dae-yeon, 2019).

To alleviate the fatigue associated with mandated annual policy and structured training, at least 40% of the required learning hours are now allocated to department-designated learning. Additionally, various job-related activities—such as study groups, mentoring, and obtaining degrees or certifications—are increasingly recognized as informal learning. Furthermore, a learning analytics dashboard has been implemented to help employees track

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[3] www.mpm.go.kr

their progress and make learning more accessible. These updates aim to foster a stronger culture of ongoing learning and make it easier for employees to stay engaged.

3.3. Learning Platform[4]

Learning platforms vary by operational approach, including LMS (Learning Management System) and LXP (Learning Experience Platform). LMS is the most traditional and widely used type of learning platform, replicating offline activities such as attendance tracking, lectures, and quizzes in an online format. It offers the advantage of centralized management of learning and development programs, ensuring compliance with learning standards and regulations. The Korean government has operated *Government e-learning platform*, an LMS-based platform tailored for public officials since 2000.

The Korean government has achieved quantitative growth in learning through various efforts to foster a learning culture in public service, such as the introduction of the Ongoing Learning System. However, the reliance on collective and standardized training has proven insufficient to meet the diverse learning needs of individual public officials. Furthermore, structured learning models have struggled to adapt to the rapid pace of change. To resolve these challenges, the Ministry of Personnel Management (MPM) leveraged digital technology to establish and operate the *Intelligent HRD Platform* based on AI and big data in 2020. This platform allows access to a wide range of government and private sector content anytime, enabling personalized learning experiences. Since 2023, the service has been expanded to cover all government ministries.

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[4] www.mpm.go.kr

The Intelligent HRD Platform is an advanced learning platform that integrates diverse learning content from both public and private sectors while offering personalized learning opportunities through AI and big data. Its key features include:

Figure 13 : New HRD Platform Overview

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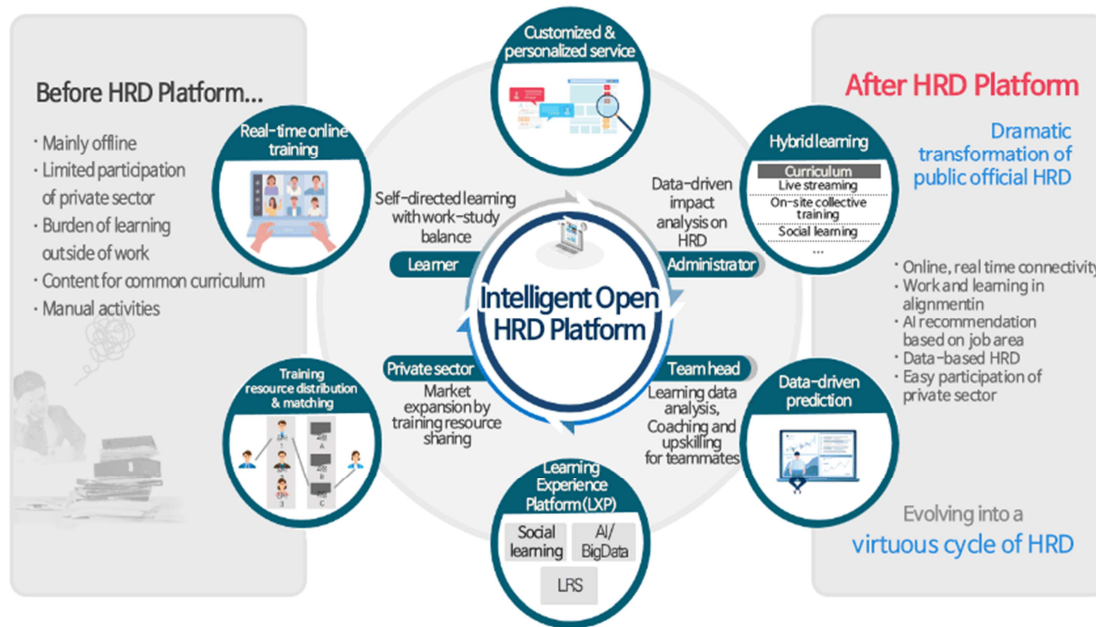
Source : www.mpm.go.kr

Firstly, the HRD platform serves as a learning hub that aggregates and provides various content from both the government and private sectors. Public officials can conveniently access not only government-produced learning materials but also the latest educational resources from international organizations, research institutions, and private companies.

Secondly, it is an interactive learning platform that supports a variety of learning activities. Learners can enhance their learning outcomes through interactions such as sharing feedback, commenting, and following other learners. This encourages micro learning and unstructured learning, while also fostering a culture of ongoing research and discussion.

Thirdly, it is an open learning platform where anyone can contribute content. In addition to government-produced content, experts, specialized instructors, and private sector contributors can create and share learning materials. Private content providers, if they possess high-quality educational materials, can contribute to the platform without complex procedures, and public officials themselves can create and offer content related to their work.

Fourthly, the talent development platform operates using the LXP (Learning Experience Platform) method rather than the traditional LMS (Learning Management System) approach. Leveraging AI and big data, the platform analyzes each public official's personnel data, job information, and learning history to provide proactive and tailored learning recommendations. A personalized dashboard is also provided to visualize this data. Learners can compare their learning progress with peers and receive analysis to boost motivation. Team leaders can access the learning status of their team members, enabling personalized coaching. Additionally, training managers can use the platform to analyze learning trends by team and job level to inform the planning of educational programs.

Chapter4. Training and Development

for U.S. Federal Government Employees

The U.S. Office of Personnel Management (OPM) is the highest personnel agency of the U.S. federal government, responsible for managing human resource policies according to U.S. federal laws and regulations. Regarding federal government HRD, OPM designs policies and programs to support talent development in ways that align with strategic human resource management, such as leadership development and talent management. In particular, OPM develops policy frameworks and flexibility to support effective learning and development programs, including leadership development programs for managers and executives. Additionally, it creates policies and guidelines for implementing systems that support employee learning, development, and leadership. OPM also provides technical HRD advice at the government level to help federal agencies develop and implement management programs to achieve their goals.

4.1. Legal Framework[5]

The U.S. federal government requires each agency to establish and manage training plans for its employees, ensuring that a specific budget is allocated for employee development. When selecting training participants, agencies must choose individuals who are well-suited to achieving the agency's goals and enhancing performance. Diversity, including factors such as gender and race, must be ensured in the selection process. Long-term academic training is also supported when it is necessary to meet the agency's strategic goals

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[5] www.opm.gov/policy-data-oversight/training-and-development/

and resolve personnel issues. For such training, a mandatory service period of three times the duration of the training is set, and if violated, the training costs must be reimbursed. In this way, the U.S. federal government recognizes the importance of talent development to achieve agency goals and enhance performance. It selects suitable candidates for training and supports long-term training. It can be observed that there are operational similarities with our country. The relevant provisions are as follows:

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5 U.S. Code § 4103 - Establishment of training programs

(a)In order to assist in achieving an agency's mission and performance goals by improving employee and organizational performance, the head of each agency, in conformity with this chapter, shall establish, operate, maintain, and evaluate a program or programs, and a plan or plans thereunder, for the training of employees in or under the agency by, in, and through Government facilities and non-Government facilities. Each program, and plan thereunder, shall—

(1) conform to the principles, standards, and related requirements contained in the regulations prescribed under section 4118 of this title;

(2) provide for adequate administrative control by appropriate authority;

(3) provide that information concerning the selection and assignment of employees for training and the applicable training limitations and restrictions be made available to employees of the agency; and

(4) provide for the encouragement of self-training by employees by means of appropriate recognition of resultant increases in proficiency, skill, and capacity.

(b) (1) Notwithstanding any other provision of this chapter, an agency may train any employee of the agency to prepare the employee for placement in another agency if the head of the agency determines that such training would be in the interests of the Government.

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(2) In selecting an employee for training under this subsection, the head of the agency shall consider—

(A) the extent to which the current skills, knowledge, and abilities of the employee may be utilized in the new position;

(B) the employee's capability to learn skills and acquire knowledge and abilities needed in the new position; and

(C) the benefits to the Government which would result from such training.

5 U.S. Code § 4107 - Academic degree training

(a)Subject to subsection (b), an agency may select and assign an employee to academic degree training and may pay or reimburse the costs of academic degree training from appropriated or other available funds if such training—

(1)contributes significantly to—

(A) meeting an identified agency training need;

(B) resolving an identified agency staffing problem; or

(C) accomplishing goals in the strategic plan of the agency;

(2) is part of a planned, systemic, and coordinated agency employee development program linked to accomplishing the strategic goals of the agency; and

(3) is accredited and is provided by a college or university that is accredited by a nationally recognized body.

(b)In exercising authority under subsection (a), an agency shall—

(1) consistent with the merit system principles set forth in paragraphs (2) and

(7) of section 2301(b), take into consideration the need to—

(A) maintain a balanced workforce in which women, members of racial and ethnic minority groups, and persons with disabilities are appropriately represented in Government service; and

(B) provide employees effective education and training to improve organizational and individual performance;

(2) assure that the training is not for the sole purpose of providing an employee an opportunity to obtain an academic degree or qualify for appointment to a particular position for which the academic degree is a basic requirement;

(3) assure that no authority under this subsection is exercised on behalf of any employee occupying or seeking to qualify for—

(A) a non career appointment in the senior Executive Service; or

(B) appointment to any position that is excepted from the competitive service because of its confidential policy-determining, policy-making or policy-advocating character; and

(4) to the greatest extent practicable, facilitate the use of online degree training.

5 U.S. Code § 4108 - Employee agreements; service after training

(a)An employee selected for training for more than a minimum period prescribed by the head of the agency shall agree in writing with the Government before assignment to training that he will—

(1) continue in the service of his agency after the end of the training period for a period at least equal to three times the length of the training period unless he is involuntarily separated from the service of his agency; and

(2) pay to the Government the amount of the additional expenses incurred by the Government in connection with his training if he is voluntarily separated from the service of his agency before the end of the period for which he has agreed to continue in the service of his agency.

Source : opm.gov

4.2. Career Development and Training Program Management[6]

4.2.1. Individual Development Plan(IDP)

Aligning employee training and development with the organization's vision and goals benefits both individuals and the organization. The OPM encourages federal employees to create and update their Individual Development Plans (IDP) each year. The IDP includes personal information, career goals, training objectives, and the programs employees plan to take. Both the employee and the supervisor sign the IDP. The IDP helps employees identify their training needs, set up learning and development plans, and adjust them to align with the organization's goals, helping them reach their development targets. While it is not mandatory to complete an IDP, many training and leadership programs require it.

Figure 14 : Individual Development Planning Process
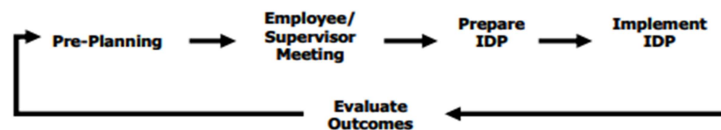
1. **Pre-Planning** – Supervisor and employee prepare independently for meeting

2. **Employee/Supervisor Meeting** – Discuss employee strengths, areas for improvement, interests, goals, and organizational requirements

3. **Prepare Individual Development Plan** – Employee, in consultation with supervisor, completes plan for individual development

4. **Implement Plan** – Employee pursues training and development identified in plan

5. **Evaluate Outcomes** – Supervisor/employee evaluate usefulness of training and development experiences

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[6] https://www.opm.gov/policy-data-oversight/training-and-development/career-development/
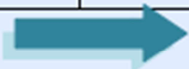
By using an Individual Development Plan (IDP), supervisors gain a clearer understanding of their employees' professional goals, strengths, and development needs. Employees, in turn, take personal responsibility and accountability for their career development by acquiring or improving the skills necessary to stay current in their roles. Some of the benefits of an IDP include:

- Providing an administrative mechanism for identifying and tracking development needs and plans
- Supporting the planning of an agency's training and development requirements
- Aligning employee training and development efforts with the agency's mission, goals, and objectives

On the other hand, Senior Executive Service (SES) officials, unlike regular employees, are required to create an Executive Development Plan (EDP) and to update it regularly for continuous education and development. Federal agencies are required to create programs for the continuous development of senior executives. The EDP is reviewed every year, and the agency is responsible for overseeing the executive development process.

Figure 15 : Steps for Writing an EDP

Steps for Writing an Executive Development Plan (EDP)

An EDP template is available on LaborNet: http://labornet.dol.gov/forms/DL1-6071.pdf

Step 1. **Understand where you are**	▪ Consider the skills and knowledge (see the Summary of the Executive Core Qualifications) that will enhance your performance: ✓ Include areas for improvement. ✓ Consider strengths you want to further develop. ✓ Think about direct or indirect feedback you have received that will help guide your development. If you recently completed a 360 Degree Assessment, review those results. **Be honest. Be clear. Be practical. Challenge yourself.**
Step 2. **Use the EDP format* to:** a) Identify developmental objectives. b) Create an action plan that includes specific activities, costs, and dates. *See the attached sample EDP. An EDP template is available on LaborNet: http://labornet.dol.gov/forms/DL1-6071.pdf	▪ Create developmental objectives that are connected to the Department's mission and strategic goals. Effective EDPs are **S.M.A.R.T.:** ✓ **S**pecific – Make your EDP clear enough so that you and others can understand and conceptualize the objectives. ✓ **M**easurable – Objectives do not have to be measured numerically, but completion (or effort towards completion) should be easily observable. ✓ **A**chievable – Create an EDP that stretches you, but is realistic enough to be achieved. ✓ **R**elevant – Align developmental objectives with your professional and career goals. EDPs need to enhance specific skills and make you more effective as a manager or executive. ✓ **T**ime Bound – Set a specific, yet realistic, time frame that will drive completion.
Step 3. **Review with your supervisor**	▪ Review your EDP with your supervisor and solicit their feedback. Work with your supervisor to ensure your objectives align with the organization's priorities and brainstorm about possible developmental activities. Once you have incorporated their feedback into your EDP, have your supervisor sign off on the plan.
Step 4. **Implement your EDP**	▪ Keep your EDP in an accessible place and periodically review the plan to ensure it is meeting your developmental needs.
EDP → Your roadmap to the future	

Source : opm.gov

Figure 16 : Executive Development Plan Sample

SAMPLE*
EXECUTIVE DEVELOPMENT PLAN

Name: Reggie Regulations **Position/Title:** Deputy Director of Comprehensive Compliance Campaigns **Agency/Office:** EBSA	The **Executive Development Plan (EDP)** serves as a blueprint for all your short-term and long-term continual learning activities that strengthen executive and managerial performance. Activities should allow for a broader perspective in the Department, as well as Government-wide, and assist executives and managers in meeting organizational goals. Plans should be updated annually.

Career Goal: Director of Comprehensive Compliance Campaigns

Developmental Objectives (Expected Outcomes)	Developmental Activities	Costs (if any)			Dates	
		Tuition/ Materials	Travel	Per Diem	Beginning	Ending
Increase **external awareness** of the Congressional politics and legislative processes that impact my organization's policy area	Read the Harvard Business Review article: *Primer on Politics and Government Management in the United States* by Joseph Bower	n/a	n/a	n/a	3/1/11	3/1/11
	Complete TheCapitol.Net audio course *How Federal Agencies Can Work Effectively with Congress and Its Staff*	$47.	n/a	n/a	4/1/11	4/1/11
	Work with Assistant Secretary and office team in preparing for upcoming congressional hearing	n/a	n/a	n/a	5/1/11	5/15/11
Build coalitions with relevant Federal agencies to bolster cooperative labor law enforcement initiatives	Attend Harvard Kennedy School course: *Creating Collaborative Solutions: Innovations in Governance*	$6,600.	$450.	$1,590.	10/23/11	10/28/11
	Identify relevant peers in other Federal agencies. Host bi-monthly roundtable sessions at DOL dealing with interagency peers involved with cases dealing with labor law enforcement	n/a	n/a	n/a	1/13/12	12/15/12
Enhance my **strategic thinking** and ability to develop organizational plans and track measurable results	Attend the Graduate School three-day Course: *Strategic Planning for Government Organizations*	$895.	n/a	n/a	8/31/11	9/2/11
	Participate in a one-month rotational assignment within DOJ's Office of Accountability; work on a project dealing with strategic planning and establishing program performance metrics.	n/a	n/a	n/a	2/1/12	2/29/12
Update my knowledge of the latest practices of **technology management** in Federal labor law enforcement	Host a roundtable discussion at DOL SES conference dealing with best practices in technology management/labor law enforcement	n/a	n/a	n/a	10/19/11	10/19/11

*This EDP is for illustrative purposes and does not depict an exhaustive list of developmental activities.

Source : opm.gov

4.2.2. Mentoring and Coaching

Mentoring and coaching are tools that help with personal and professional career development. Mentoring focuses on providing guidance, direction, and advice in specific career areas, while coaching aims to maximize people's potential by enhancing their awareness, confidence, and creative drive. Federal agencies operate formal mentoring and coaching programs to support career and interpersonal development. Mentoring involves both formal and informal relationships between mentors and mentees and plays a crucial role in professional development in both the public and private sectors. Mentoring helps improve and sustain employee performance and encourages organizational commitment and knowledge sharing.

Coaching, on the other hand, is an experiential development process that promotes change and growth in both individuals and groups, and is used to address professional challenges. Coaches engage in structured conversations that deepen the coachee's insights and help them take actionable steps. The goal is for the coachee to design the behaviors and actions necessary to achieve their objectives.

4.2.3. Training Program Management[7]

i.   Training Policy Guidance

Agencies are responsible for developing, implementing, and evaluating training programs to achieve their vision and mission. Based on training policies and guidelines, agencies must develop their own training policies in alignment with strategic plans and missions. Each agency must regularly assess its overall human resource management program, at least once a year, to identify training needs. Through this needs assessment, agencies can identify the performance requirements and competencies needed to achieve their mission.

The needs assessment identifies the gap between the required performance and current performance, and then looks for ways to reduce or eliminate this gap. This assessment should be conducted on three levels. First, at the organizational level, the performance of the organization is assessed, and the necessary actions to alleviate the weaknesses and problems

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[7] https://www.opm.gov/policy-data-oversight/training-and-development/training-program-management/

as well as to strengthen its strengths and competencies are determined. At the occupational level, the skills, knowledge, and abilities needed for each job are examined, along with any gaps that may arise in the organization due to new environments are identified. It also investigates ways to eliminate these gaps. Finally, at the individual level, an analysis is conducted to assess how well individuals perform tasks, their ability to take on different tasks, and what kind of training they need.

ii.   Training Option

Federal employees are required to undergo federal mandatory training, which includes general mandatory training for all federal employees, role-specific mandatory training, and job-specific mandatory training. Training related to IT security, the Constitution, anti-discrimination laws, and occupational safety and health is included in the mandatory training for federal employees. While many federal agencies set their own mandatory training requirements, these are not federally mandated by law. Additionally, even in cases where the federal government does not have sufficient funding, employee development is emphasized, and a variety of informal training options, such as job training, online courses, webinars, and other low-cost or free resources, are formalized and encouraged for use. Agencies are also encouraged to utilize various magazines, journals, and other materials for learning.

4.3. Leadership Development[8]

The U.S. Office of Personnel Management (OPM) provides leadership training to federal managers and senior executives to help them become effective leaders. Leadership is needed at all levels, and it includes roles that influence, create, and implement good governance. Leadership development should begin well before individuals transition into supervisory and managerial positions. For current and future leadership training, OPM has developed and distributed effective learning interventions to support the development of Executive Core Qualifications (ECQs). The core elements of the ECQs are as follows.

4.3.1 ECQ[9]

The OPM has established five core qualifications (Executive Core Qualifications, ECQs) and uses them as a foundation for the selection, performance management, and leadership programs of senior executives. ECQs are designed to assess managerial experience and potential, rather than technical expertise. To achieve successful performance in the Senior Executive Service (SES), each ECQ requires specific competencies, and the ECQs are interdependent. The following five core qualifications are required for successful job performance by senior executives. The five core qualifications are Leading Change(ECQ1), Leading People(ECQ2), Result Driven(ECQ3), Business Acumen(ECQ4), Building Coalition(ECQ5) . Their detailed contents are as follows:

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[8] https://www.opm.gov/policy-data-oversight/training-and-development/leadership-development/

[9] https://www.opm.gov/policy-data-oversight/senior-executive-service/executive-core-qualifications/

Figure 17 : ECQ Overview

Executive Core Qualifications

Leading Change	Leading People	Results Driven	Business Acumen	Building Coalitions
Definitions				
This core qualification involves the ability to bring about strategic change, both within and outside the organization, to meet organizational goals. Inherent to this ECQ is the ability to establish an organizational vision and to implement it in a continuously changing environment.	This core qualification involves the ability to lead people toward meeting the organization's vision, mission, and goals. Inherent to this ECQ is the ability to provide an inclusive workplace that fosters the development of others, facilitates cooperation and teamwork, and supports constructive resolution of conflicts.	This core qualification involves the ability to meet organizational goals and customer expectations. Inherent to this ECQ is the ability to make decisions that produce high-quality results by applying technical knowledge, analyzing problems, and calculating risks.	This core qualification involves the ability to manage human, financial, and information resources strategically.	This core qualification involves the ability to build coalitions internally and with other Federal agencies, State and local governments, nonprofit and private sector organizations, foreign governments, or international organizations to achieve common goals.
Competencies				
Creativity and Innovation External Awareness Flexibility Resilience Strategic Thinking Vision	Conflict Management Leveraging Diversity Developing Others Team Building	Accountability Customer Service Decisiveness Entrepreneurship Problem Solving Technical Credibility	Financial Management Human Capital Management Technology Management	Partnering Political Savvy Influencing/Negotiating

Source : opm.gov

i.   ECQ 1: Leading Change

This core qualification involves the ability to bring about strategic change, both within and outside the organization, to meet organizational goals. Inherent to this ECQ is the ability to establish an organizational vision and to implement it in a continuously changing environment.

Table 3 : Componenta of ECQ1 and their Definitions[10]

Creativity and Innovation	Develops new insights into situations; questions conventional approaches; encourages new ideas and innovations; designs and implements new or cutting edge programs/processes.
External Awareness	Understands and keeps up-to-date on local, national, and international policies and trends that affect the organization and shape stakeholders' views; is aware of the organization's impact on the external environment.
Flexibility	Is open to change and new information; rapidly adapts to new information, changing conditions, or unexpected obstacles.
Resilience	Deals effectively with pressure; remains optimistic and persistent, even under adversity. Recovers quickly from setbacks.
Strategic Thinking	Formulates objectives and priorities, and implements plans consistent with the long-term interests of the organization in a global environment. Capitalizes on opportunities and manages risks.
Vision	Takes a long-term view and builds a shared vision with others; acts as a catalyst for organizational change. Influences others to translate vision into action.

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[10] https://www.opm.gov/policy-data-oversight/senior-executive-service/executive-core-qualifications/#url=ecq1

ii.   ECQ2 : Leading People

This core qualification involves the ability to lead people toward meeting the organization's vision, mission, and goals. Inherent to this ECQ is the ability to provide an inclusive workplace that fosters the development of others, facilitates cooperation and teamwork, and supports constructive resolution of conflicts.

Table 4 : Componenta of ECQ2 and their Definitions[11]

Conflict Management	Encourages creative tension and differences of opinions. Anticipates and takes steps to prevent counter-productive confrontations. Manages and resolves conflicts and disagreements in a constructive manner.
Leveraging Diversity	Fosters an inclusive workplace where diversity and individual differences are valued and leveraged to achieve the vision and mission of the organization.
Developing Others	Develops the ability of others to perform and contribute to the organization by providing ongoing feedback and by providing opportunities to learn through formal and informal methods.
Team Building	Inspires and fosters team commitment, spirit, pride, and trust. Facilitates cooperation and motivates team members to accomplish group goals.

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[11] https://www.opm.gov/policy-data-oversight/senior-executive-service/executive-core-qualifications/#url=ecq1

iii.   ECQ3 : Result Driven

This core qualification involves the ability to meet organizational goals and customer expectations. Inherent to this ECQ is the ability to make decisions that produce high-quality results by applying technical knowledge, analyzing problems, and calculating risks.

Table 5 : Components of ECQ3 and their Definitions[12]

Accountability	Holds self and others accountable for measurable high-quality, timely, and cost-effective results. Determines objectives, sets priorities, and delegates work. Accepts responsibility for mistakes. Complies with established control systems and rules.
Customer Service	Anticipates and meets the needs of both internal and external customers. Delivers high-quality products and services; is committed to continuous improvement.
Decisiveness	Makes well-informed, effective, and timely decisions, even when data are limited or solutions produce unpleasant consequences; perceives the impact and implications of decisions.
Entrepreneurship	Positions the organization for future success by identifying new opportunities; builds the organization by developing or improving products or services. Takes calculated risks to accomplish organizational objectives.
Problem Solving	Identifies and analyzes problems; weighs relevance and accuracy of information; generates and evaluates alternative solutions; makes recommendations.
Technical Credibility	Understands and appropriately applies principles, procedures, requirements, regulations, and policies related to specialized expertise.

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[12] https://www.opm.gov/policy-data-oversight/senior-executive-service/executive-core-qualifications/#url=ecq1

iv.   ECQ4 : Business Acumen

This core qualification involves the ability to manage human, financial, and information resources strategically.

Table 6 : Components of ECQ4 and their Definitions[13]

Financial Management	Understands the organization's financial processes. Prepares, justifies, and administers the program budget. Oversees procurement and contracting to achieve desired results. Monitors expenditures and uses cost-benefit thinking to set priorities.
Human Capital Management	Builds and manages workforce based on organizational goals, budget considerations, and staffing needs. Ensures that employees are appropriately recruited, selected, appraised, and rewarded; takes action to address performance problems. Manages a multi-sector workforce and a variety of work situations.
Technology Management	Keeps up-to-date on technological developments. Makes effective use of technology to achieve results. Ensures access to and security of technology systems.

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[13] https://www.opm.gov/policy-data-oversight/senior-executive-service/executive-core-qualifications/#url=ecq1

v.   ECQ5 : Building Coalition

This core qualification involves the ability to build coalitions internally and with other Federal agencies, State and local governments, nonprofit and private sector organizations, foreign governments, or international organizations to achieve common goals.

Table7 : Components of ECQ5 and their Definitions[14]

Partnering	Develops networks and builds alliances; collaborates across boundaries to build strategic relationships and achieve common goals.
Political Savvy	Identifies the internal and external politics that impact the work of the organization. Perceives organizational and political reality and acts accordingly.
Influencing/Negotiating	Persuades others; builds consensus through give and take; gains cooperation from others to obtain information and accomplish goals.

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[14] https://www.opm.gov/policy-data-oversight/senior-executive-service/executive-core-qualifications/#url=ecq1

4.3.2. Center for Leadership Development

The Leadership Development Center has been dedicated to developing visionary leaders to transform government for over 50 years. It provides leadership and professional development solutions tailored to federal employees at various levels and roles, ranging from entry-level leaders to senior executives, as follows:

- Leadership development coursesbased on the Executive Core Qualifications (ECQs)
- Customized leadership programsfor agencies
- Specialized training for HR professionals
- Courses and project-based learning opportunities in:

  - Human-centered design and customer experience

  - Process and performance improvement
- Streamlined hiring and development through the Presidential Management Fellows Program.
- Learning technology and assisted acquisition solutions through USALearning®

4.3.3. LEAD Certificate Program

In 2008, OPM established the LEAD Certificate Program to provide federal employees with a leadership development pathway and support agency succession planning. The program is designed to evaluate leadership effectiveness, acquire core knowledge, and develop essential skills critical to leadership success.

This self-paced program allows individuals to select and enroll in courses independently while tracking their progress through a learning management system. Upon completing each program, participants receive a certificate signed by the OPM Director. The LEAD Certificate Program offers a career development pathway tailored to four levels of leadership roles: aspiring leaders, team leaders, supervisors, and managers.

Table 8 : Comparison of LEAD Certificate Programs by leadership level

Level	Objective	Audience	Repuried Courses
Aspiring Leader	Gain fundamental skills to grow your confidence as a high performing, rising leader.	~GS-9	<u>Leadership Skills for Non-Supervisors</u> <u>Emotional Intelligence</u> + 3 electives
Team Leader	Learn strategies and techniques to lead from where you are and refine practical skills for building, managing, and participating in teams and projects.	GS-11~ GS-13	<u>Leadership Skills for Non-Supervisors</u> <u>Team Development</u> + 3 electives
Supervisor	Build skills that emphasize exercising influence and authority, knowing when to lead and when to manage, and fostering a diverse and inclusive workforce that values and leverages differences.	GS-13~ GS-15	<u>Supervisory Development 1: Fundamentals</u> <u>Supervisory Development 2: Learning to Lead</u> + 3 electives
Manager	Acquire strategies to align operations with organizational priorities, mobilize employees, and create innovative solutions to complex challenges.	GS-16~ GS-17	<u>Management Development 1: Leading from the Middle</u> <u>Management Development 2: Leading Organizations</u> + 3 electives

Source : opm.gov(author rearranged)

4.3.4. Leadership Program for SES

The U.S. federal government emphasizes the importance of leadership and its development, believing tha great leaders can transform and improve the government to better serve the American people. To support the continuous development of senior officials and cultivate leadership, the OPM established the Federal Executive Institute (FEI) in 1968. Since its inception, FEI has provided programs to more than 30,000 senior federal officials. All of FEI's training is built upon Executive Core Qualifications (ECQs) and competencies recognized as essential for career and organizational success.

i. Leadership for a Democratic Society Program(LDS)

The Federal Executive Institute (FEI) offers the Leadership for a Democratic Society (LDS) program for GS-15 and Senior Executive Service (SES) employees, designed to continually enhance individual expertise and leadership capabilities. Based on OPM's Executive Core Qualifications (ECQs), the LDS program emphasizes self-directed leadership development through profound self-reflection, extending to interpersonal and organizational analysis within the workplace. Moving beyond training that focuses on predefined competencies, the program centers on enabling participants to construct their own frameworks of understanding, operating under the premise that there are no fixed values.

The OPM states that senior officials who complete the LDS program, one of the core programs offered by the FEI, are expected to achieve several key outcomes. These include enhanced self-awareness as individuals, team members, and leaders; strengthened leadership and management skills, particularly in areas such as team building, strategic thinking,

influence/negotiation, political acumen, and external awareness; an expanded understanding of the U.S. Constitution as the foundation of federal public service; effective utilization of a diverse federal workforce; and improvements in resilience, mental and physical well-being, and work-life balance.

Table 9 : Sample Schedule and Topics

Week 1 - Personal	Week 2 - Interpersonal
Self-Awareness Individual Values Public Service Wellbeing Constitutional Values	Transforming Self Developing Others Embracing Dialogue Productive Conflict An Inclusive Republic
Week 3 - Enterprise	Week 4 - Integration
Transforming Organizations Leading in Complexity Adaptive Leadership Strategic Thinking and Planning Leading Change	Championing Execution Resilience Envisioning Capstone Projects Commencement

Source: opm.gov

ii.   SES Leading EDGE

The SES Leading EDGE is a senior executive development portfolio tailored for the federal government's SES officials. This government-wide initiative supports the enhancement of SES competencies at every stage through a variety of programs and approaches. This program includes the following.

- OPM Senior Executive Orientation Briefing

- Senior Executive Forum

- Senior Executive Leadership Labs

Federal-level programs for senior executives support government-wide performance outcomes and address continuous change by fostering networking and leadership development among senior officials across the government. These programs complement the limitations of agency-level training initiatives.

4.4. The U.S. Government's Response to Digital Transformation

To successfully implement digital transformation, the U.S. government, led by the President and the Office of Management and Budget (OMB), plays a central role as a coordinator of government innovation. The OMB sets policy directions, aligns them with budgets, and establishes policy priorities. In this process, the President's Management Council leads government-wide goal management, while interagency committees handle specific functional areas, ensuring clear and coordinated leadership for these initiatives.

The U.S. government pursues government-wide, long-term innovation based on digital transformation. To achieve this vision, it develops step-by-step roadmaps and implements rigorous performance management. In the short term, the initial focus is on creating a paperless government and achieving the Cross-Agency Priority (CAP)[15] Goals outlined in the President's Management Agenda. Following this, the government plans to advance regulatory reform, organizational restructuring, and IT modernization. Ultimately, it aims to achieve long-term, fundamental reforms through collaboration with Congress and the private

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[15] Cross-Agency Priority Goals(https://trumpadministration.archives.performance.gov/CAP/overview/)
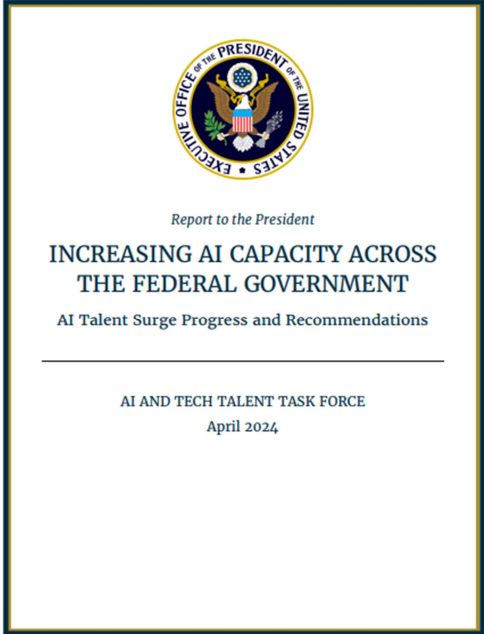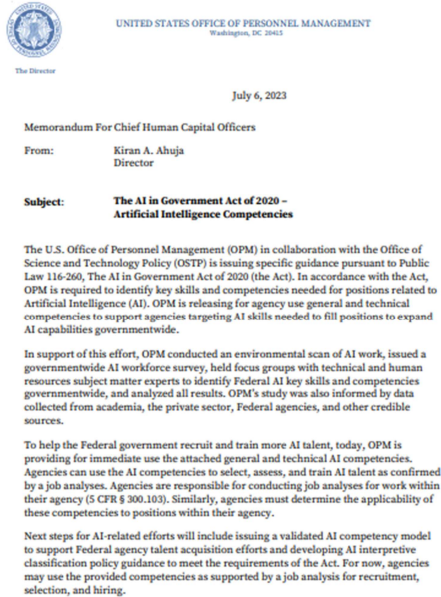
sector. With the President and OMB holding leadership, reform initiatives are closely tied to budget allocation and national coordination, increasing their feasibility.

The U.S. government has also established a Federal Data Strategy and announced implementation plans to ensure that data-driven values are embedded in all federal policy processes and that a digital culture is institutionalized. By investing continuously in data infrastructure and human resources, the government fosters a culture of ongoing, collaborative learning about data. It also promotes education and development focused on the value of data for public benefit, thereby cultivating data leadership among the federal workforce.

In particular, recognizing the growing importance of AI, OPM defined and announced AI competency standards to further solidify its AI strategy in July 2023. Additionally, the federal government established the AI and Tech Talent Task Force in October 2023 to enhance AI utilization capabilities and recruit AI experts across the government.. In April 2024, it submitted the "AI Talent Surge Progress and Recommendation" report to the President.

4.4.1. Artificial Intelligent Competency Model

Figure 18 : AI Talent Surge Progress and Recommendation Report

AI Talent Surge Program and Recommendation(2024.4.)	Issue of AI Competency Model (2023.7)

Source : opm.gov

The AI and Tech Talent Task Force has implemented measures to strengthen AI and technology leadership within agencies and improve training to enhance the AI capabilities of the federal workforce. The OPM has announced that the use of data and AI will be integrated into the core competencies for senior public officials. Additionally, to establish AI capabilities at the government level, the task force has defined both general and technical competencies and issued guidelines.

The AI and Tech Talent Task Force is implementing measures to strengthen AI and technology leadership within agencies while improving training to enhance the AI capabilities of the federal workforce. Notably, the OPM has announced plans to incorporate the use of data and AI into the core competencies for Senior Executive Service, ensuring that all government leaders are equipped to drive change through AI and technology. Additionally, the task force has defined general and technical competencies for AI and issued guidelines to establish AI capabilities at the government level.

As advancements and innovations in AI, technology, and data continue, competency ranking changes related to AI have been forecasted through evaluations by supervisors and employees. The definitions of AI general and technical competencies, along with shifts in their rankings, are as follows: Integrity, technical ability, and problem-solving skills remain consistently recognized as critical. However, competencies such as communication, technological awareness, data analysis, and adaptability are anticipated to become even more significant in the near future, reflected by their higher future rankings.

Table 10 : AI Competency Ranking

Competency	Current Importance	Future Importance
Integrity or Honesty	1	1
Technical Competence	2	2
Accountability	3	12
Problem Solving	4	3
Reasoning	5	5
Computer Skills	6	4
Reading Comprehension	7	9
Reading	8	14
Technology Application	9	6
Attention to Detail	10	7
Learning	11	8
Written Communication	12	11
Interpersonal Skills	13	18
Teamwork	14	17
Self-Management	15	25
Oral Communication	16	20
Communication Results	NR	10
Technology Awareness	NR	13
Data Analysis	NR	15
Flexibility	NR	16
Information Management	NR	19
Data Extraction and Transformation	NR	21
Planning and Evaluating	NR	22
Creativity and Innovation	NR	23
Data Visualization	NR	24
Customer Service	NR	26
Decisiveness	NR	27
Mathematical Reasoning	NR	28
Strategic Thinking	NR	29

Source :   Artificial Intelligence(AI) Competency Model(opm.gov)

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Table 11 : AI Competency Model Definitions[16]

i.   **General Competencies**

Competency	Definition
Accountability	Holds self and others accountable for measurable highquality, timely, equitable and cost-effective results. Determines objectives, sets priorities, and does and delegates' work. Accepts responsibility for mistakes. Complies with established control systems and rules.
Attention to Detail	Is thorough when performing work and conscientious about attending to detail and potential biases.
Computer Skills	Uses computers, software applications, databases, and automated systems to accomplish work.
Conflict Management	Encourages creative tension and differences of opinions. Anticipates and takes steps to prevent counter-productive confrontations. Manages and resolves conflicts and disagreements in a constructive manner. Escalates conflicts and disagreements when appropriate and constructive in order to get to resolution.
Creativity and Innovation	Develops new insights into situations; questions conventional approaches; encourages new ideas and innovations; designs and implements new or cutting-edge programs or processes.
Customer Service	Anticipates and meets the needs of both internal and external customers. Seeks to obtain customer feedback through various channels to improve products and services. Delivers high-quality products and services; is committed to continuous improvement.
Decisiveness	Makes well-informed, effective, and timely decisions, balancing speed, and thoughtfulness; perceives the impact and implications of decisions and takes decisive and early steps to mitigate negative impacts.
Design	Knowledge of conceptualizing, developing, producing, understanding, and using plans, models, blueprints, and maps, including the use of tools and instruments to produce precision technical drawings, working prototypes, components, or systems.
Digital Collaboration	Uses digital tools, technologies, or social media for communication, knowledge-sharing, and collaborative processes; works with others to construct and create resources and knowledge, or provide services, in a digital environment.

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[16] https://chcoc.gov/content/skills-based-hiring-guidance-and-competency-model-artificial-intelligence-work

Competency	Definition
Emotional Intelligence	Ability to understand and manage feelings so that they are expressed appropriately and can monitor one's own and others' feelings and emotions, discriminate among the emotions and to use this information to manage situations, thinking and actions.
External Awareness	Understands and keeps up to date on local, national, and international policies and trends that affect the organization and shape stakeholders' views; is aware of the organization's impact on the external environment.
Flexibility	Is open to change and new information; rapidly adapts to new information, changing conditions, or unexpected obstacles
Influencing or Negotiating	Persuades others; builds consensus through give and take; gains cooperation from others to obtain information and accomplish goals.
Information Management	Identifies a need for and knows where or how to gather information; organizes and maintains information or information management systems.
Integrity or Honesty	Behaves in an honest, fair, and ethical manner. Shows consistency in words and actions. Models' high standards of ethics
Interpersonal Skills	Treats others with courtesy, sensitivity, and respect. Considers and responds appropriately to the needs and feelings of different people in different situations.
Learning	Uses efficient learning techniques to acquire and apply new knowledge and skills; uses training, feedback, or other opportunities for self-learning and development.
Mathematical Reasoning	Solves practical problems by choosing appropriately from a variety of mathematical and statistical techniques.
Memory	Recalls information that has been presented previously.
Oral Communication	Makes clear and convincing oral presentations. Listens effectively; clarifies information as needed. Effectively communicates technical information to non-technical audiences and stakeholders
Organizational Awareness	Knows the organization's mission and functions, and how its social, political, and technological systems work and operates effectively within them; this includes the programs, policies, procedures, rules, and regulations of the organization.
Partnering	Develops networks and builds alliances; collaborates across boundaries to build strategic relationships and achieve common goals.

Competency	Definitions
Planning and Evaluating	Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization to accomplish goals; monitors progress and evaluates outcomes. Sets reasonable expectations with leadership and stakeholders on project delivery.
Political Savvy	Identifies the internal and external politics that impact the work of the organization. Perceives organizational and political reality and acts accordingly.
Problem Solving	Identifies and analyzes problems; weighs relevance and accuracy of information; generates and evaluates alternative solutions; makes recommendations.
Project Management	Knowledge of the principles, methods, or tools for developing, scheduling, coordinating, and managing projects and resources, including monitoring, and inspecting costs, work, and contractor performance.
Reading	Understands and interprets written material, including technical material, rules, regulations, instructions, reports, charts, graphs, or tables; applies what is learned from written material to specific situations.
Reading Comprehension	Understands and interprets written material, including technical material, rules, regulations, instructions, reports, charts, graphs, or tables; applies what is learned from written material to specific situations.
Reasoning	Identifies rules, principles, or relationships that explain facts, data, or other information; analyzes information and makes correct inferences or draws accurate conclusions.
Resilience	Deals effectively with pressure; remains optimistic and persistent, even under adversity. Recovers quickly from setbacks.
Self-Management	Sets well-defined and realistic personal goals; displays a high level of initiative, effort, and commitment towards completing assignments in a timely manner; works with minimal supervision; is motivated to achieve; demonstrates responsible behavior.
Strategic Thinking	Formulates objectives and priorities and implements plans consistent with the long-term interests of the organization in a global environment. Capitalizes on opportunities and mitigates risks.
Stress Tolerance	Deals calmly and effectively with high stress situations (for example, tight deadlines, hostile individuals, emergency situations, dangerous situations).

Competency	Definition
Supporting Diversity	Maintains an open mind regarding different ideas, opinions, values, and beliefs; recognizes own worldview and understands its influence on interactions with others; incorporates a variety of viewpoints to help accomplish work goals; contributes to an inclusive work environment with equitable treatment of individuals across all demographics (for example, race, gender) and social (for example, culture) groups.
Teaching Others	Helps others learn through formal or informal methods; identifies training needs; provides constructive feedback; coaches others on how to perform tasks; acts as a mentor..
Teamwork	Encourages and facilitates cooperation, pride, trust, and group identity; fosters commitment and team spirit; works with others to achieve goals.
Technical Competence	Uses knowledge that is acquired through formal training or extensive on-the-job experience to perform one's job; works with, understands, and evaluates technical information related to the job; advises others on technical issues.
Technology Application	Uses machines, tools, instruments, or equipment effectively; uses computers and computer applications to analyze and communicate information in the appropriate format.
Technology Awareness	Knowledge of developments and new applications of information technology (hardware, software, telecommunications), emerging technologies and their applications to business processes, how emerging technologies can impact people's rights and safety, and applications and implementation of information systems to meet organizational requirements..
Written Communication	Writes in a clear, concise, organized, and convincing manner for the intended audience. Effectively communicates technical information to non-technical audiences and stakeholders.

ii. Technical Competencies

Competency	Definition
Artificial Intelligence and Machine Learning	Knowledge of the principles, methods, and tools used to design systems that perform and apply human-like intelligence functions such as neural networks, deep learning, natural language processing, robotics, and image recognition.
Communication Results	Translates technical concepts, data findings, uncertainty, or limitations (including potential bias) from data sets into concise, plain language and supporting diagrams and media.
Data Analysis	Manipulates and exploits internal and external, structured, and unstructured data sources to accomplish organizational goals.
Data Extraction and Transformation	Retrieves and ingests disparate types of data from a variety of unstructured and structured sources, and then organizes, cleans, and transforms data sets for easy access, analysis, and optimization
Data Visualization	Utilizes tools, techniques, and software to generate reports or visualizations that convey data analyses, findings, and limitations.
Testing and Validation	Works closely with AI system design, engineering, implementation, and system stakeholders to develop appropriate methods for testing and validation to ensure that systems comport with goals and values, and potential sources of bias are uncovered, considered, and mitigated.
Values-driven Design	Systematically applies principles and techniques from relevant subject matter domains to all aspects of design, development, maintenance, and deployment to protect the rights and safety of stakeholders and the public, ensuring equity, security, privacy, autonomy, accessibility, justice, beneficence, and nonmaleficence. Creatively combines technical and policy approaches to protect and support these core values. Ensures that values inform the design, deployment, testing, and oversight of AI systems, and that important value-related design choices are communicated to end users.

4.4.2. Upskilling & Reskilling[17]

The U.S. federal government has developed a strategic workforce management roadmap and is making systematic efforts to implement it. These efforts include proactive workforce management, rapid training, redeployment, and securing top talent. Additionally, the government emphasizes that continuous learning and training should be integrated into all three stages of this process—innovation, research, and pilot projects (OMB, 2018).[18]

In 2018, the government identified insufficient job performance competencies among public officials as a major issue. In response, it introduced change management manuals like the **Reskilling Toolkit** in 2020 to improve competencies.

The Reskilling Toolkit serves as a resource for agency leaders, managers, supervisors, and employees involved in planning and implementing reskilling and upskilling efforts, while adhering to the Merit System Principles and fulfilling the "21st Century Workforce Development" goal outlined in the President's Management Agenda. This toolkit follows the guidelines and tools of OPM but was created in collaboration with the Office of Management and Budget (OMB), the National Science Foundation (NSF), and the Department of Housing and Urban Development (HUD).

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[17] https://www.opm.gov/policy-data-oversight/workforce-restructuring/reshaping/accelerating-the-gears-of-transformation/reskilling-toolkit.pdf

[18] KIPA 2020, Research on Digital Transformation Strategies for the Public Sector

Reskilling involves training individuals who have demonstrated aptitude for learning entirely new tasks, while upskilling refers to educating individuals performing the same work in new ways.

Reskilling and upskilling involve a variety of stakeholders, including agency leaders, managers, supervisors, and employees. Agency leaders determine priorities and goals within the legal framework, identify strategies and resources needed to achieve the agency's mission, and assess progress toward goals using performance outcomes. Managers execute strategies, secure and manage resources needed to accomplish the agency's mission within the legal framework. Employees engage in professional development, cultivate positive working relationships, and contribute to achieving the agency's mission, each bearing role-specific responsibilities for reskilling and upskilling. When effectively implemented, reskilling and upskilling enable managers to fulfill missions, deliver forward-looking, improved customer services, and maintain a well-trained workforce. Supervisors benefit from reduced skill gaps, workforce readiness, and the establishment of a continuous learning culture. Employees gain opportunities to transition roles and acquire new skills.

Change management is the process where agency leaders assess, apply, and share organizational improvements to motivate employees and help them work together to achieve lasting, measurable, and meaningful progress. For successful change management, the ability of sponsors and leaders to communicate effectively is paramount. It is also essential to consider individual and psychological factors when managing change and communicating. To this end, the Reskilling Toolkit recommends the following practices:

- Recognize responses to change are necessary and normal

- Anticipate and allow for strong emotions.

- Try to keep the familiar in place

- Know that employees will not move faster through the change than change sponsors and leaders do

- Increase information flow.

- Communicate first through action, then words.

Reskilling and upskilling progress through the stages of planning, implementation, and evaluation. Among these, planning is the most critical for effective reskilling and upskilling. It is essential to establish a strategic direction, identify skill gaps, analyze the workforce, develop and implement action plans, monitor and evaluate program outcomes, and develop and deliver reskilling/upskilling strategies. The Reskilling and Upskilling Logic Model serves as a sample framework for planning, implementing, and evaluating these initiatives.

Figure 19 : Reskilling and Upskilling Examples

Reskilling and Upskilling Logic Model Example

This Reskilling and Upskilling Logic Model serves as a sample visual for planning, implementing and evaluating the performance of these efforts.

Drivers	Inputs	Activities		Outputs	Outcomes
Agency Goals and Plans Mandate Major Change in Agency or Workforce Different Work or Change in How Work is Accomplished Employee Desire or Need PMA	Time Financial Resources Federal Partners Equipment Facilities Staff Technology Data	**PLANNING** Conduct Job Analysis Position Management Review Identify Agency Skills and Performance Gaps Develop and Communicate a Reskilling or Upskilling Strategy	**IMPLEMENTATION** Mentoring Programs Coaching Programs Rotation Opportunities Details Training—Internal and External Shadowing Programs Blended Learning Online Training Career Paths	Percent of Competency and Skills Gaps Closed Percent of employees who participate in training Percent of employees who participate in mentoring, shadowing or coaching programs Manager satisfaction with quality of reskilled or upskilled employees Employee overall satisfaction	**SHORT TERM** Position Agency for the Future Reduced Skills Gaps New Opportunities; New Career Improved Performance **LONG TERM** Mission Achievement Continuous Learning Culture Engaged Workforce

ASSUMPTIONS
What unexamined beliefs about people involved, leadership support, and agency context influence the inputs, activities, outputs and outcomes?

EXTERNAL INFLUENCES
What in the external social, economic, etc., environment could positively or negatively interact with and/or influence outcomes?

Source : Reskilling Toolkit(2020), opm.gov

Before undertaking reskilling or upskilling efforts, it is crucial to first establish a strategic direction. Effective reskilling and upskilling rely on leadership commitment and support, appropriate resources, and workforce planning and policies designed to facilitate these initiatives.

During the planning phase, agencies should analyze the current workforce and project how it will evolve. It is important to identify specific areas, scales, and personnel where reskilling and upskilling are needed to meet strategic goals. Understanding the outcomes sought from reskilling and upskilling is vital. For example, determining what "success" looks

like, whether the desired outcomes are measurable and achievable, and the benefits of achieving these outcomes are all critical considerations.

In the implementation phase, four key components are essential: strategies to address current and future skill gaps, plans to execute these strategies, measurement of progress, and effective communication about the implementation process. Various approaches can support reskilling and upskilling efforts, including blended training, career pathways, coaching, and mentoring. Specific examples of these approaches can be found in the table below.

Figure 20 : Example Reskilling and Upskilling Approaches

Example Reskilling and Upskilling Approaches

BLENDED TRAINING	Training that requires two or more methods of delivery, which must be completed in order to satisfy the educational requirements.
CAREER PATH	A progression of positions in one or more occupational series.
COACHING	Partnering with individuals in a thought-provoking and creative process that inspires them to maximize their personal and professional potential.
DETAIL	A temporary assignment of an employee to a different position for a specified period, with the employee returning to his or her regular duties at the end of the assignment. A detail assignment implies that there is a vacant position available for the candidate to occupy which requires a Standard Form 52 preparation and submittal through proper channels.
MENTORING	A process that focuses specifically on providing guidance, direction, and career advice. It is usually a formal or informal relationship between two people – a senior mentor (usually outside the protégé's chain of supervision) and a junior protégé.
ON THE JOB TRAINING	Formal methods/activities planned and structured to promote learning by doing, e.g., detail assignments/programs.
ROTATIONAL ASSIGNMENT	Developmental assignment away from an employee's current position. During these assignments, individuals learn to adapt and successfully lead in a new position.
SHADOWING ASSIGNMENT	Observing a Federal leader in daily activities for a defined period of time. By watching leaders in action, the program participant gains exposure to leadership duties, responsibilities and approaches, and observes how concepts learned are applied in real-world situations.

Source : Reskilling Toolkit(2020), opm.gov

After the planning and implementation stages of reskilling and upskilling, an evaluation is conducted to assess the impact of the training. This evaluation measures the effectiveness of the training and its influence on employees' reskilling and closing skill gaps providing measurable outcomes. Through this evaluation, it is possible to determine whether the training meets the identified development needs, how well learners have acquired the training content, the extent to which learning has been transferred to actual work, and whether the training has contributed to achieving the agency's mission.

In this way, the U.S. federal government is making strategic efforts in workforce management amidst the rapidly changing administrative environment. The government analyzes the current workforce situation, recognizes the gap with future needs, and continues efforts in reskilling and upskilling to bridge this gap. In the era of digital transformation, effective change management through strategic workforce management is more important than ever to successfully lead government reform.

4.5. USA Learning

USALearning (formerly GoLearn) is the official learning and development site for the U.S. federal government. It was established in 2004 under the White House e-Gov initiative and provides support for federal workforce development and high-quality e-learning services. USALearning's training and human resources services can be broadly categorized into learning ecosystem support and education design, development, and support services.

Learning ecosystem support includes Learning Management Systems (LMS), Learning Record Stores (LRS), learning content management systems, knowledge management systems, learning portals, cybersecurity, and helpdesk operations support. Education design, development, and support services involve creating and delivering instructor-led formal and informal learning (online or in-person) that meets organizational and individual goals.

Figure 21 : USALearning Servicing Model

Source : https://usalearning.gov/
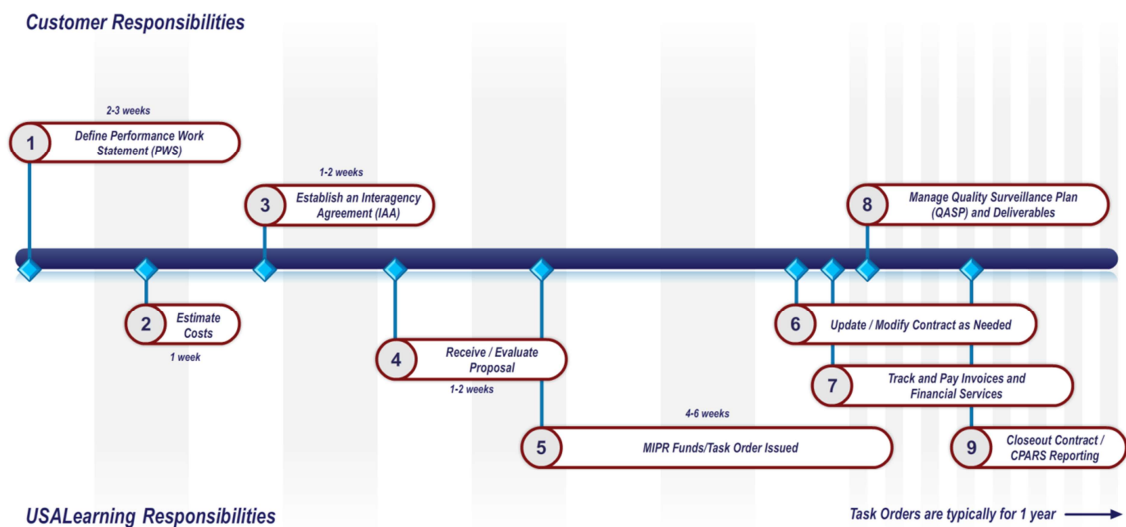
Chapter5. Conclusion

In today's rapidly changing administrative environment, it is crucial for governments and businesses to establish a profile of the ideal talent that meets contemporary demands and secure such talent accordingly. While recruiting new talent is essential, it is equally important to continuously support existing employees in developing the competencies newly required by their roles. At the organizational level, it is important for key talent to acquire the competencies needed by the organization through tailored learning, which can then be effectively utilized in a timely manner. On an individual level, there is a high level of interest in career development, and supporting the development of new skills is a significant motivating factor. Moreover, supporting employees' self-development has become a critical strategy for retaining talent in organizations, especially in times of high turnover.

In the era of the digital transformation brought on by the COVID-19 pandemic and the Fourth Industrial Revolution, the focus of talent development is shifting to digital. The direction and methods of talent development are also evolving. Public officials' talent development in the era of digital platform must move in new directions.

5.1. Improving Public Officials' Competencies and Ongoing Learning Systems

The training for public officials in South Korea is divided into basic and specialized training, with basic training including new employee training, promotion training, and leadership training by rank. The importance of basic training to enhance common competencies and leadership development remains unchanged. However, the detailed

competencies and training contents need to evolve to align with digital transformation. For example, the U.S. federal government, responding to the rapid spread of AI among federal employees, has defined and ranked the AI competencies required to enhance the AI capabilities of its workforce. A review of the competency rankings reveals that qualities such as integrity, technical ability, responsibility, problem-solving skills, and reasoning are still highly valued, while competencies in communication, data analysis, data extraction and transformation, information management, and data visualization have newly emerged as important skills.

Moreover, the continuous learning system introduced in 2007 to foster a culture of continuous learning among public officials mandates public officials to complete a set amount of training, and plays an essential role in promoting an organizational learning culture. However, concerns persist that the recognition of learning based solely on the number of learning hours may lead to formalization of learning and fail to acknowledge various types of informal learning. In organizations where laws and procedures are prioritized, formal learning remains important, but many scholars like following Lombardo's assertion that "70% of skill development comes from challenges on the job, 20% from learning with peers and collaboration, and 10% from formal courses" (Lombardo, Michael M; Eichinger, Robert W, 1996), have consistently emphasized the importance of informal learning through the 70:20:10 model. The U.S. OPM recognizes informal training activities such as participation in special projects, reading supplements, speaker forums, and meetings as learning activities. The Ministry of Personnel Management (MPM) in South Korea is also continues its efforts to recognize various forms of informal learning through research and surveys. However, with

the ongoing digital transformation, a variety of learning formats are being used, and ongoing attention and improvement are required to ensure that diverse learning forms are recognized.

5.2. Enhancing Digital Competency

A digital government is operated based on various digital technologies, making it imperative for public officials to enhance their digital competencies. Digital literacy, such as the ability to manage and analyze data and to use project management software, is essential for understanding and utilizing technologies like AI, big data, and the cloud. Additionally, data literacy is critical for analyzing vast and complex data sets and making data-driven decisions for policy-making. To achieve this, systematic digital education should be provided to all public officials, alongside specialized training for digital experts.

The UK government, which is leading the implementation of digital government, operates the 'Digital Academy,' which supports digital skills training and development. The UK also partnered with Microsoft to provide digital technology education for 30,000 public officials. Similarly, the South Korean government mandates that public officials undergo digital competency training at least once a year. To enhance the digital capabilities of government employees, it is necessary to expand digital education comprehensively. The UK government's collaboration with top private companies in providing public official training offers a valuable reference for improving digital education for government employees.

5.3. Strengthening Leadership Training

In the era of digital transformation, the government is focusing on building a digital platform government to offer more efficient and proactive personalized services. A digital

platform government collects and analyzes not only public data but also all private sector data in one place, enabling the provision of customized services to citizens. The digital platform government has the advantage of providing personalized services to citizens while maximizing the efficiency of the government. To successfully implement this, not only the establishment of digital technology infrastructure is required, but also strong leadership capable of leading and managing the process is essential. Leadership plays a key role in introducing and utilizing technologies for digital transformation and managing internal processes to improve organizational performance.

The competencies required for leaders in the digital transformation era can be summarized as follows: First, for successful digital transformation, organizational leaders must have a deep understanding of digital technologies and the ability to develop strategies. Leaders should not only have knowledge of various digital technologies but also possess a clear vision for how to use them and the capacity to lead successful change management.

Second, as the stakeholders in policy become more diverse in the face of complex environmental changes, and with the rise of non-face-to-face communication due to the COVID-19 pandemic and the digital transformation era, communication methods have also become more diverse. To effectively communicate with diverse stakeholders and lead collaboration, leaders must possess strong communication skills and conflict resolution abilities, including organizational communication among peers, public opinion gathering, and policy promotion.

Third, a digital platform government comes with important ethical issues such as privacy protection and data security. Public officials responsible for creating and

implementing policies that significantly impact citizens must uphold legal and ethical responsibilities when utilizing digital technologies. Leaders in the digital age are increasingly expected to have a strong sense of responsibility in digital ethics, privacy protection, and data security.

To equip leaders with the necessary skills for digital transformation, training in both technical and strategic leadership is essential. Leaders who shape and implement government policies must be prepared to adapt to the digital environment and manage change effectively, which is the first step toward realizing a digital platform government. Additionally, in the rapidly changing environment, the required competencies will continue to evolve. To quickly recognize new technological trends and learn, it is important to have an innovative organizational atmosphere that embraces change without fear, as well as learning agility. Leadership has a significant influence in fostering such an organizational culture, which is why leadership training in the digital transformation era is increasingly emphasized.

The U.S. federal government also believes that great leaders can change and improve the government, continuously emphasizing the importance of leadership and its education. The OPM (Office of Personnel Management) established the Federal Executive Institute (FEI) in 1968 to focus on leadership development and the continuous education of senior public officials. In particular, the Leadership for Democratic Society (LDS) program, operated by the FEI, is a four-week leadership course aimed at senior officials, where the focus is on self-reflection through participant presentations and discussions, except for some constitutional value education. The LDS program could serve as a useful reference for improving senior public official leadership program in our government.

5.4. Optimizing Learning Platforms for the Government Workforce

To implement a digital platform government, it is essential for public officials to learn the latest technologies and trends and apply them in practice. Learning platforms enable this by offering access to the knowledge and technical content needed anytime and anywhere, supporting continuous learning journeys.

In rapidly changing environments, the limitations of common, content-based learning models and formal learning methods that fail to keep up with fast changes have been recognized. In response, the South Korean government (MPM) has proactively developed an AI and big data-based 'Intelligent Talent Development Platform' since 2020, enabling officials to access diverse content from both government and the private sector. The platform recommends personalized learning based on individual learning histories, career paths, and preferences. It is an interactive platform where individuals can also share their expertise, promoting collaborative learning.

For a learning platform to support personalized learning through an LXP model, it is essential to secure a sufficient quantity and quality of diverse content that meets the demand. Additionally, sufficient learning data must be accumulated to apply algorithms that recommend appropriate learning content based on individuals' learning histories and career paths. Long-term efforts to standardize learning data across both public and private sectors will be necessary to expand the use of learning data.

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