UNLOCK THE HIDDEN SECRETS:

Impact Of Artificial Intelligence (AI) Transformation On The Workforce

21ST ANNUAL ACQUISITION RESEARCH SYMPOSIUM
CREATING SYNERGY FOR INFORMED CHANGE

RESOURCING INNOVATION
MAY 8-9, 2024

ARP — ACQUISITION RESEARCH PROGRAM — NPS

How will the United States defend, protect, and safely navigate the workforce throughout the emerging technology of artificial intelligence and the risk of cyber-attacks?

May 8-9, 2024

Symantha "Sam" Loflin
M.S. Program Management, Naval Postgraduate School, 2020

Artificial Intelligence (AI) Transformation Unlocked

Introduction

Fourth Industrial Revolution

Cybersecurity, Robotics, and Automation

Federal Government

AI Legal and Regulatory - Workforce
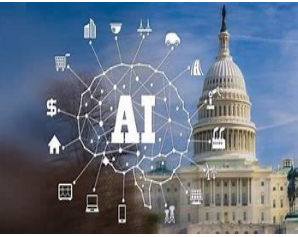
World Economic Forum

Future of Jobs Report

Recommendations

Public Announcement-Site – Government Measures

Enhance Government Oversight

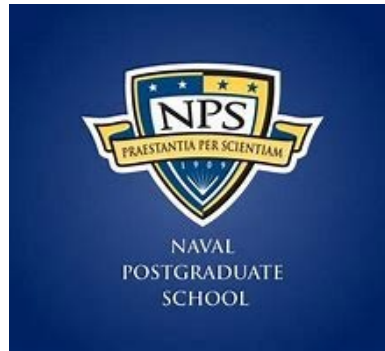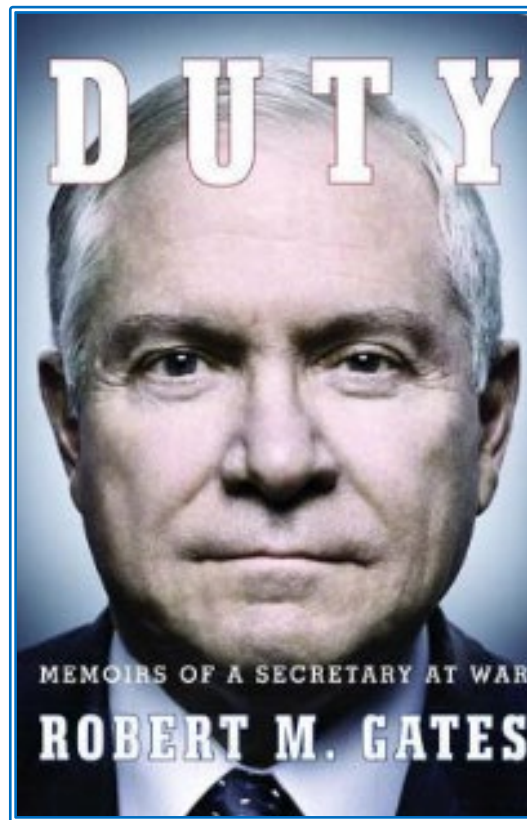Communication - Consortium for Enhanced Collaboration, "Evidence Act"

Introduction

Who Am I – So What?

**PURPOSE:
PAY IT FORWARD**
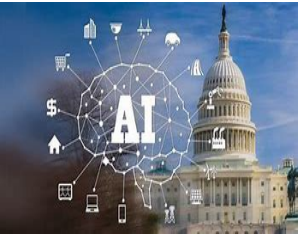**H**elp
Encourage
Acknowledge
Lead

"What I know concerns me. What I don't know concerns me even more.

What people aren't telling me worries me the most."

~As Robert M. Gates, Duty: Memoirs of a Secretary at War~

Gates, R. M. (2014). Duty: Memoirs of a secretary at war. Publisher, Alfred A. Knopf., p.300. https://www.google.com/books/edition/Duty/lYzZAAAAQBAJ?hl=en&gbpv=1&bsq=What%20I%20know%20concerns%20me

Do you know where AI exists?

12 ~ AI Examples

Chatbots: Whether it's a customer service bot or a conversational companion, chatbots are prevalent on the internet. For instance, **ChatGPT**, powered by OpenAI's large language model (GPT-3), can engage in human-like conversations, write blog posts, generate code, and answer questions[1].

Microsoft Bing: While Google remains a popular search engine, **Bing** has undergone a transformation with AI integration. Bing now provides nuanced responses using AI, and its Chat mode allows users to converse with the search engine for various tasks[1].

Google Duplex and Hold for Me: Google's AI-driven technology enables features like **Duplex**, which can make restaurant reservations or schedule appointments on your behalf. Additionally, **Hold for Me** lets Google Assistant wait on hold during phone calls, saving you time[4].

Smart Compose: Gmail's Smart Compose feature uses AI to suggest complete sentences as you type emails, making communication more efficient[4].

Google Recorder: This app transcribes spoken words into text, making it easier to capture and organize audio content[4].

Self-Driving Cars: Although still evolving, self-driving cars rely heavily on AI algorithms for navigation, obstacle detection, and decision-making[2].

Streaming Services (Netflix, Hulu): AI algorithms recommend personalized content based on your viewing history and preferences[2].

Smart Personal Assistants (Alexa, Siri, Hey Google, Cortana): These virtual assistants use AI to understand and respond to voice commands, manage tasks, and provide information[2].

Voice-to-Text Technology: AI-powered speech recognition converts spoken language into written text, enhancing communication and accessibility[2].

Navigation Apps (Google Maps, Waze): Real-time traffic updates, route optimization, and predictive analysis are all AI-driven navigation apps[2].

Rideshare Apps (Uber, Lyft): Algorithms match drivers with riders, optimize routes, and estimate arrival times using AI[2].

Emails: AI filters spam, categorizes messages, and suggests replies, streamlining email management[2].

Source(s)
1. 18 Examples of AI in Daily Life (2024) | Beebom
2. 5 great gadgets that are using AI that you can buy today
3. Everyday Objects That Run on Artificial Intelligence (AI) Software
4. What Americans Know About Everyday Uses of Artificial Intelligence ...

COPILOT. (n.d.). Microsoft. https://copilot.microsoft.com/

Copilot
Your everyday AI companion
Whippets

"White AI looking Whippet scanning something with its eyes with … "
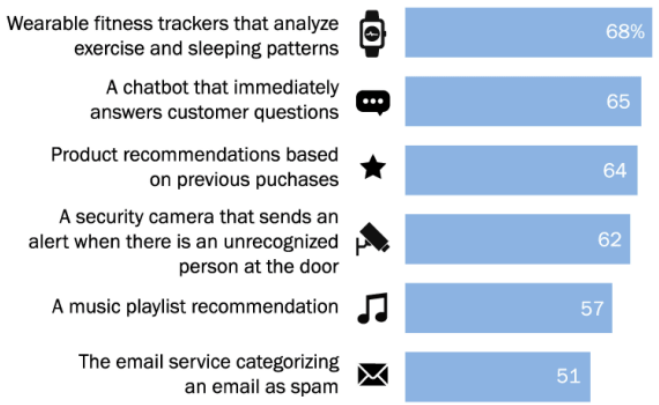
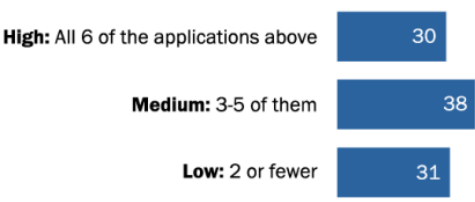COPILOT. (n.d.). Microsoft. https://copilot.microsoft.com/

Survey Shows

Half of Americans or more aware of common uses of AI, but fewer can identify AI's role in all six examples

% of U.S. adults who identify that the following use artificial intelligence in multiple choice questions
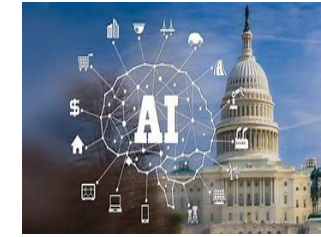
Wearable fitness trackers that analyze exercise and sleeping patterns	68%
A chatbot that immediately answers customer questions	65
Product recommendations based on previous puchases	64
A security camera that sends an alert when there is an unrecognized person at the door	62
A music playlist recommendation	57
The email service categorizing an email as spam	51

% of U.S. adults who correctly identify ___ as using AI

High: All 6 of the applications above	30
Medium: 3-5 of them	38
Low: 2 or fewer	31

Note: All questions are multiple choice; for full question wording, see topline.
Source: Survey conducted Dec. 12-18, 2022.
"Public Awareness of Artificial Intelligence in Everyday Activities"

PEW RESEARCH CENTER

30% of U.S. Adults surveyed correctly identified as using AI

Kennedy, Brian, Tyson, and Saks, (2023, February 15). Pew Research Center, *Public Awareness of Artificial Intelligence in Everyday Activities*, https://www.pewresearch.org/science/2023/02/15/public-awareness-of-artificial-intelligence-in-everyday-activities/

The Internet in Real-Time
How Quickly Data is Generated

Twitter: 165 Accounts Created, 85500 Tweets
YouTube: 30 Video Hours Uploaded, 34710 Video Hours Watched
LinkedIn: 2730 User Searches
Skype: 347220 Minutes Used
Instagram: 277785 Likes, 15000 Comments, 10410 Uploaded

Google+: 86805 +1s
WordPress: 345 Blog Posts
Google: 69120 Searches, $24030 Ad Revenue
Reddit: 15 Posts, 195 Comments, 3180 Votes
Tumblr: 6945 Posts
Pinterest: 3570 Pins

Amazon: 765 Items Purchased, $35385 Money Spent
Foursquare: 525 Check-Ins
Yelp: 7.5 Reviews
Email: 51041670 Emails Sent
Dropbox: 173610 Files Saved
Snapchat: 86805 Stories Viewed, 121530 Messages Sent

Apple: 9510 App Downloads
Android: 18540 App Downloads
Facebook: 782940 Likes, 824640 Posts, 90 GB of Data
WhatsApp: 180 Accounts Created, 3298605 Messages Sent
Netflix: 5790 Hours Watched
Pandora: 15285 Hours Streamed

By the way, in the 15 seconds you've been on this page, approximately 338610 GB of data was transferred over the internet.

Fourth Industrial Revolution

Cybersecurity

Robotics and Automation

Industrial Revolutions

National Institute of Standards and Technology (NIST). https://www.nist.gov/blogs/manufacturing-innovation-blog/cybersecurity-and-industry-40-what-you-need-know
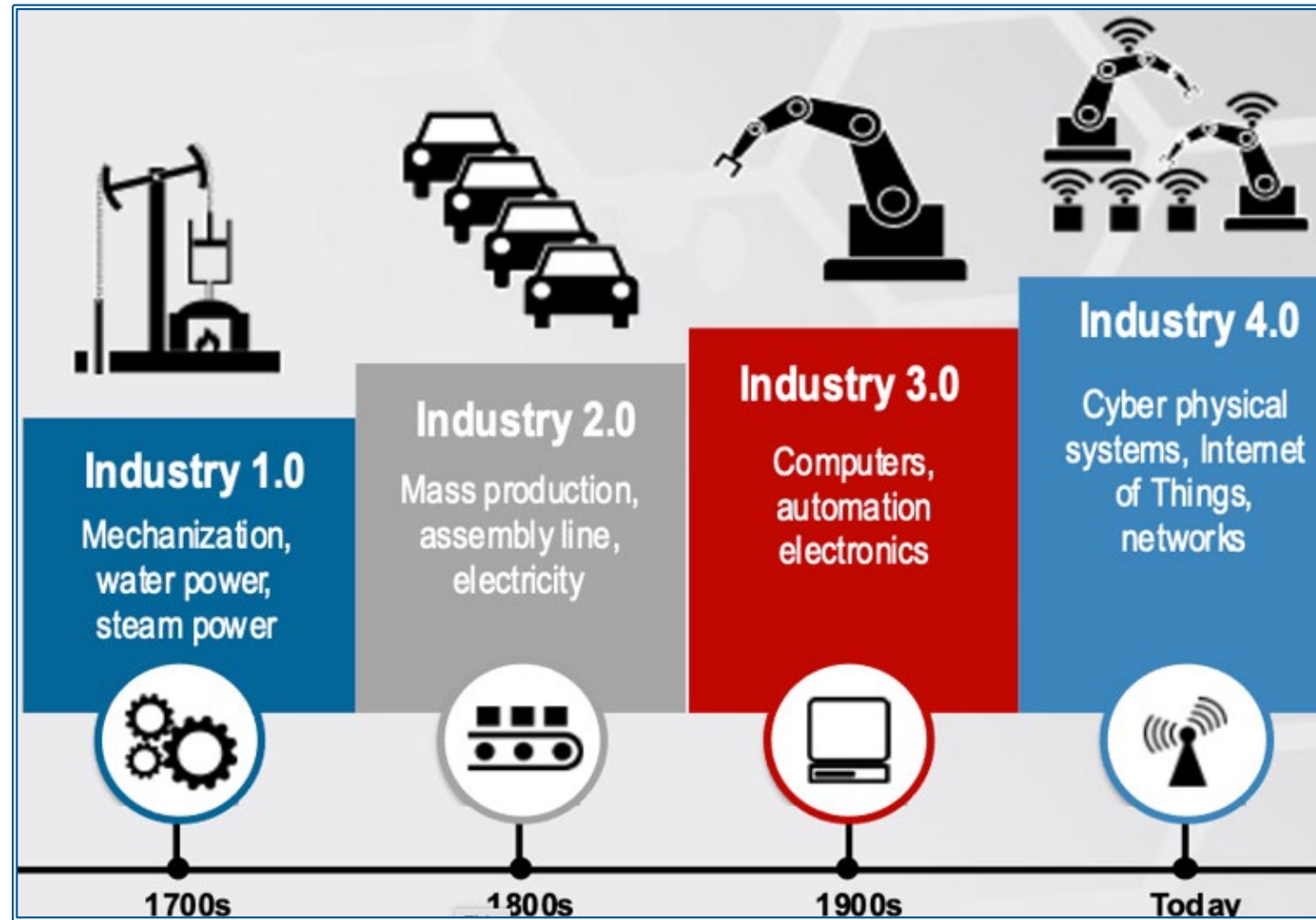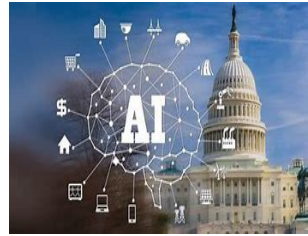
Industry 4.0

Integrating Cybersecurity With Industry 4.0
What It Means for Manufacturing

DID YOU KNOW?

Manufacturing is now the **most targeted** industry for cybersecurity attacks.[1]

90% of surveyed manufacturing executives identify **information technology (IT) and operational technology (OT) security** as a top spend area.[2]

$105K Average **cost of a data breach** for small businesses[3]

277 DAYS Average **time to identify and contain** a data breach[1]

In one study, about **1 out of 5 breaches were the result of supply chain compromises**. These breaches took an average of 26 days longer to identify and contain and were 2.5% more expensive.[1]

Operational Technology (OT)

AVAILABILITY of operations and data,

INTEGRITY of configuration data,

and **CONFIDENTIALITY** of information

The different security priorities for OT vs IT: [4,13]

Information Technology (IT)

CONFIDENTIALITY of information,

INTEGRITY of data,

and **AVAILABILITY** of data and systems

AI Risk Management Framework (RFM). (2023, January 26). National Institute of Standards and Technology (NIST). https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf

COVID-19: Robotics and Automation

1) Robotic biosensing.

2) Robotic distancing.

3) Robotic disinfection.

4) Robotic delivery.

5) Robotic telepresence.

LeadershipReview
Robotics: How crisis is accelerating automation
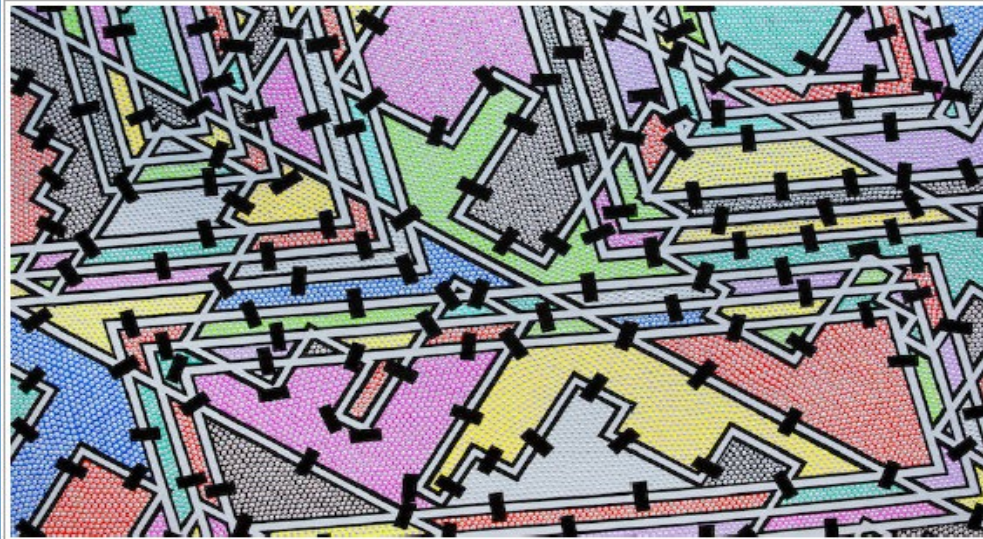
COVID-19 has accelerated the use of robots for numerous routine tasks, heralding a bright future for the robotics sector.

Kobielus, James, (2020, July 10). Information Week and Leadership Review, *Robotics: How crisis is accelerating automation*, www.leadershipreview.net/robotics-how-crisis-is-accelerating-automation/

Unions: Robotics and Automation

…**United Auto Workers, Teamsters, and International Warehouse and Longshore Union**…

…**Auto workers also face transformative change**. Their industry is turning away from **fossil fuel-burning cars in favor of electric vehicles** and **self-driving technology**. The shift requires new, modern manufacturing platforms that fully utilize **automation** and different skill sets…

Harvard Business Review

Society And Business Relations

The UAW and Other Unions Must Focus More on AI and Automation in Their Negotiations

by Yossi Sheffi

September 15, 2023

HBR Staff; Frazao Studio Latino/Getty Images; Umsplash

…Hollywood actors and writers. The actors union **SAG-AFTRA** recently joined the Writers Guild of America on the picket lines for the first time in **63 years**….

…notably how to **prepare workers for a changing workplace**, should also be central to the negotiations…

Sheffi, Yossi. (2023, September 15), Harvard Business Review. *The UAW and Other Unions Must Focus More on AI and Automation in Their Negotiations*, https://hbr.org/2023/09/the-uaw-and-other-unions-must-focus-more-on-ai-and-automation-in-their-negotiations

Chart 1. Union membership rates by state, 2023 annual averages (U.S. rate = 10.0 percent)

Legend:
- 20.0% or more
- 15.0% to 19.9%
- 10.0% to 14.9%
- 5.0% to 9.9%
- 4.9% or less

Table 5. Union affiliation of employed wage and salary workers by state, 2022-2023 annual averages
[Numbers in thousands]

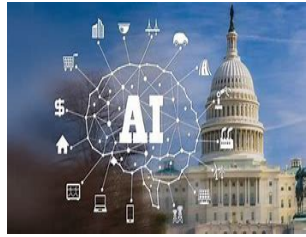| State	2022 Total employed	2022 Members of unions[1] Total	Percent of employed	2022 Represented by unions[2] Total	Percent of employed	2023 Total employed	2023 Members of unions[1] Total	Percent of employed	2023 Represented by unions[2] Total	Percent of employed
Alabama	2,066	149	7.2	173	8.4	2,088	156	7.5	180	8.6
Alaska	298	48	16.0	52	17.3	307	45	14.8	47	15.2
Arizona	3,061	169	5.5	189	6.2	3,164	133	4.2	152	4.8
Arkansas	1,204	59	4.9	68	5.7	1,217	62	5.1	71	5.8
California	16,240	2,617	16.1	2,856	17.6	16,349	2,514	15.4	2,769	16.9
Colorado	2,672	178	6.7	201	7.5	2,730	189	6.9	235	8.6
Connecticut	1,658	236	14.2	256	15.4	1,610	255	15.9	272	16.9
Delaware	442	38	8.5	42	9.4	436	38	8.8	44	10.1
District of Columbia	331	30	9.1	34	10.4	347	32	9.1	36	10.4
Florida	9,100	414	4.5	511	5.6	9,453	442	4.7	578	6.1
Georgia	4,521	200	4.4	244	5.4	4,626	211	4.6	250	5.4
Hawaii	572	125	21.9	134	23.4	573	138	24.1	147	25.6
Idaho	825	39	4.7	49	5.9	810	37	4.5	44	5.5
Illinois	5,611	735	13.1	789	14.1	5,537	708	12.8	755	13.6
Indiana	3,023	223	7.4	260	8.6	3,054	245	8.0	278	9.1
Iowa	1,506	105	7.0	132	8.7	1,490	107	7.2	131	8.8
Kansas	1,318	129	9.8	160	12.1	1,360	120	8.9	144	10.6
Kentucky	1,791	141	7.9	185	10.3	1,719	152	8.8	194	11.3
Louisiana	1,801	76	4.2	94	5.2	1,765	76	4.3	91	5.2
Maine	527	48	9.2	61	11.5	566	52	9.2	61	10.8
Maryland	2,816	327	11.6	372	13.2	2,822	302	10.7	362	12.8
Massachusetts	3,241	413	12.7	447	13.8	3,267	412	12.6	443	13.6
Michigan	4,212	589	14.0	644	15.3	4,409	564	12.8	623	14.1
Minnesota	2,697	382	14.2	411	15.2	2,673	356	13.3	378	14.1
Mississippi	1,102	62	5.6	79	7.2	1,081	75	7.0	106	9.8
Missouri	2,681	257	9.6	284	10.6	2,734	255	9.3	286	10.4
Montana	466	52	11.2	57	12.3	470	56	11.8	61	13.0
Nebraska	923	60	6.5	74	8.1	940	68	7.3	88	9.4
Nevada	1,287	146	11.3	164	12.8	1,382	171	12.4	201	14.5
New Hampshire	687	70	10.1	77	11.2	668	62	9.3	73	10.9
New Jersey	4,161	619	14.9	666	16.0	4,211	679	16.1	729	17.3
New Mexico	806	71	8.8	86	10.6	805	60	7.5	73	9.1
New York	8,124	1,679	20.7	1,795	22.1	8,300	1,711	20.6	1,787	21.5
North Carolina	4,409	125	2.8	173	3.9	4,623	125	2.7	152	3.3
North Dakota	365	23	6.4	28	7.6	359	22	6.2	27	7.5
Ohio	4,989	641	12.8	699	14.0	5,108	641	12.5	691	13.5
Oklahoma	1,587	88	5.5	113	7.1	1,705	115	6.8	132	7.7
Oregon	1,810	281	15.5	305	16.9	1,808	255	14.1	270	15.0
Pennsylvania	5,628	715	12.7	767	13.6	5,786	749	12.9	822	14.2
Rhode Island	505	81	16.1	89	17.7	507	62	12.3	67	13.2
South Carolina	2,050	35	1.7	40	2.0	2,130	49	2.3	63	3.0
South Dakota	412	13	3.1	17	4.2	425	15	3.6	18	4.2
Tennessee	2,931	163	5.5	184	6.3	2,981	178	6.0	205	6.9
Texas	12,496	518	4.1	643	5.1	13,019	586	4.5	701	5.4
Utah	1,540	60	3.9	133	8.7	1,584	65	4.1	134	8.4
Vermont	284	34	12.1	38	13.4	301	43	14.3	46	15.4
Virginia	3,906	146	3.7	175	4.5	4,042	176	4.3	226	5.6
Washington	3,413	615	18.0	653	19.1	3,491	576	16.5	632	18.1
West Virginia	689	64	9.2	69	10.0	691	60	8.7	70	10.1
Wisconsin	2,648	187	7.1	212	8.0	2,761	205	7.4	232	8.4
Wyoming	243	14	5.6	18	7.3	256	14	5.6	17	6.6

[1] Data refer to members of a labor union or an employee association similar to a union.
[2] Data refer to both union members and workers who report no union affiliation but whose jobs are covered by a union or an employee association contract.
NOTE: Data refer to the sole or principal job of full- and part-time wage and salary workers. All self-employed workers are excluded, both those with incorporated businesses as well as those with unincorporated businesses. Updated population controls are introduced annually with the release of January data.
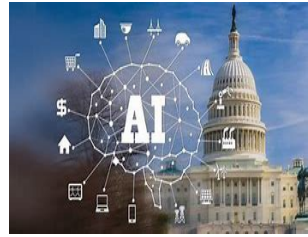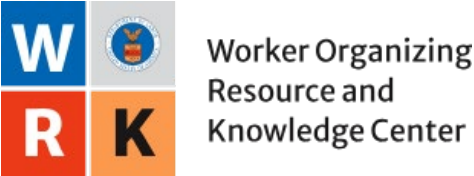
Federal Government
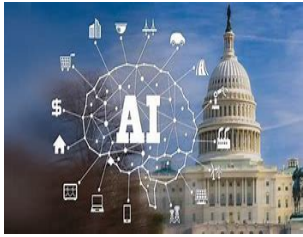
AI Legal and Regulatory – Workforce

Government – Legal and Regulatory
AI Risk Mitigation Measures - Workforce

Defend and Protect - Sea, Air, and Space

Ms. Shalanda D. Young,

43rd Director of the Office of Management and Budged (OMB)

Memorandum for the Heads of Executive Departments and Agencies

Subject: Advancing Governance, Innovation, and Risk Management for Agency Use of Artificial Intelligence

The directive focuses on advancing governance, innovation, and risk management for the use of Artificial Intelligence (AI) within federal agencies. **(See Appendix II. Consolidated Table of Actions)**

It aligns with the AI in Government Act of 2020, the Advancing American AI Act, and **Executive Order 14110**, emphasizing the need to manage AI's risks while harnessing its potential benefits.

Key:
Strengthening AI Governance
Advancing Responsible AI Innovation
Risk Management

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D. C. 2 05 03

THE DIRECTOR

March 28, 2024

M-24-10

MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: Shalanda D. Young

SUBJECT: Advancing Governance, Innovation, and Risk Management for Agency Use of Artificial Intelligence

Artificial intelligence (AI) is one of the most powerful technologies of our time, and the President has been clear that we must seize the opportunities AI presents while managing its risks. Consistent with the AI in Government Act of 2020,[1] the Advancing American AI Act,[2] and Executive Order 14110 on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, this memorandum directs agencies to advance AI governance and innovation while managing risks from the use of AI in the Federal Government, particularly those affecting the rights and safety of the public.[3]

1.   **OVERVIEW**

While AI is improving operations and service delivery across the Federal Government, agencies must effectively manage its use. As such, this memorandum establishes new agency requirements and guidance for AI governance, innovation, and risk management, including through specific minimum risk management practices for uses of AI that impact the rights and safety of the public.

Strengthening AI Governance. Managing AI risk and promoting AI innovation requires effective AI governance. As required by Executive Order 14110, each agency must designate a Chief AI Officer (CAIO) within 60 days of the date of the issuance of this memorandum. This memorandum describes the roles, responsibilities, seniority, position, and reporting structures for agency CAIOs, including expanded reporting through agency AI use case inventories. Because AI is deeply interconnected with other technical and policy areas including data, information technology (IT), security, privacy, civil rights and civil liberties, customer experience, and

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[1] Pub. L. No. 116-260, div. U, title 1, § 104 (codified at 40 U.S.C. § 11301 note), https://www.congress.gov/116/plaws/publ260/PLAW-116publ260.pdf.
[2] Pub. L. No. 117-263, div. G, title LXXII, subtitle B, §§ 7224(a), 7224(d)(1)(B), and 7225 (codified at 40 U.S.C. 11301 note), https://www.congress.gov/117/plaws/publ263/PLAW-117publ263.pdf.
[a] This memorandum accounts for public comments that OMB received following its publication of a draft version of this memorandum on November 1, 2023. OMB has separately published an explanation and response to public comments, available at https://www.regulations.gov/document/OMB-2023-0020-0001.

Appendix II: Consolidated Table of Actions

Responsible Entity	Action	Section	Deadline
Each Agency	Designate an agency Chief AI Officer and notify OMB	3(a)(i)	60 days
Each CFO Act Agency	Convene agency AI Governance Board	3(a)(ii)	60 days
Each Agency	Submit to OMB and release publicly an agency plan to achieve consistency with this memorandum or a written determination that the agency does not use and does not anticipate using covered AI	3(a)(iii)	180 days and every two years thereafter until 2036
Each CFO Act Agency	Develop and release publicly an agency strategy for removing barriers to the use of AI and advancing agency AI maturity	4(a)(i)	365 days
Each Agency**	Publicly release an expanded AI use case inventory and report metrics on use cases not included in public inventories	3(a)(iv), 3(a)(v)	Annually
Each Agency*	Share and release AI code, models, and data assets, as appropriate	4(d)	Ongoing
Each Agency*	Stop using any safety-impacting or rights- impacting AI that is not in compliance with Section 5(c) and has not received an extension or waiver	5(a)(i)	December 1, 2024 (with extensions possible)
Each Agency*	Certify the ongoing validity of the waivers and determinations granted under Section 5(c) and 5(b) and publicly release a summary detailing each and its justification	5(a)(ii)	December 1, 2024 and annually thereafter
Each Agency*	Conduct periodic risk reviews of any safety-impacting and rights-impacting AI in use	5(c)(iv)(D)	At least annually and after significant modifications
Each Agency*	Report to OMB any determinations made under Section 5(b) or waivers granted under Section 5(c)	5(b); 5(c)(iii)	Ongoing, within 30 days of granting waiver

* Excluding elements of the Intelligence Community.
** Excluding elements of the Intelligence Community. The Department of Defense is exempt from the requirement to inventory individual use cases.

OPM U.S. Office of Personnel Management

AI
Risk Management Framework
January 26, 2023

NIST AI 100-1   AI RMF 1.0

Harm to People	Harm to an Organization	Harm to an Ecosystem
• Individual: Harm to a person's civil liberties, rights, physical or psychological safety, or economic opportunity.	• Harm to an organization's business operations.	• Harm to interconnected and interdependent elements and resources.
• Group/Community: Harm to a group such as discrimination against a population sub-group.	• Harm to an organization from security breaches or monetary loss.	• Harm to the global financial system, supply chain, or interrelated systems.
• Societal: Harm to democratic participation or educational access.	• Harm to an organization's reputation.	• Harm to natural resources, the environment, and planet.

NIST NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY U.S. DEPARTMENT OF COMMERCE

AI
Risk Management Framework

NIST AI 100-1   AI RMF 1.0

Fig. 2. Lifecycle and Key Dimensions of an AI System. Modified from OECD (2022) OECD Framework for the Classification of AI systems — OECD Digital Economy Papers. The two inner circles show AI systems' key dimensions and the outer circle shows AI lifecycle stages. Ideally, risk management efforts start with the Plan and Design function in the application context and are performed throughout the AI system lifecycle. See Figure 3 for representative AI actors.

National Institute of Standards and Technology. AI Risk Management Framework (RFM). (2023, January 26). https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf

Crosswalk

Trustworthy & Responsible AI

Resource Center

Document title	Description	Provider
BSA Framework	Crosswalk Between BSA Framework to Build Trust in AI and NIST AI Risk Management Framework	BSA
ISO-IEC-42001	NIST AI Risk Management Framework to ISO-IEC-42001 Crosswalk	Microsoft
FDIS23894	Crosswalk AI RMF (1.0) and ISO/IEC FDIS23894 Information technology - Artificial intelligence - Guidance on risk management *(January 26, 2023)*	NIST
OECD/EU/EO13960	An illustration of how NIST AI RMF trustworthiness characteristics relate to the OECD Recommendation on AI, Proposed EU AI Act, Executive Order 13960, and Blueprint for an AI Bill of Rights *(January 26, 2023)*	NIST
Singapore AI Verify	Crosswalk between NIST AI Risk Management Framework (AI RMF 1.0) and Singapore's AI Verify *(October 10, 2023)*	NIST
A Taxonomy of Trustworthiness for AI	Connecting properties of trustworthiness with risk management and the AI lifecycle, this framework supports usability by connecting the taxonomy more closely to actual product cycles and workflows.*(December 7, 2023)*	CLTC, UC Berkeley

Trustworthy & Responsible AI

Resource Center

March 30, 2023

AI RMF Timeline and Engagements

Oct 19-21, 2021
NIST AI RMF workshop #1

Mar 29-31, 2022
NIST AI RMF workshop #2

Oct 18-19, 2022
NIST AI RMF workshop #3

Jul 29, 2021
RFI seeking input

Dec 13, 2021
AI RMF Concept Paper

Mar 17, 2022
AI RMF 1st Draft

Aug 18, 2022
AI RMF 2nd Draft

Jan 26, 2023
AI RMF 1.0
AI RMF Playbook

- Explainable AI paper released **Sept 29, 2021**

- Comments until **Sept 15, 2021**
- 106 sets of input
- Analysis of responses released on **Oct 15, 2021**.

- Comments until **Jan 25, 2022**
- 59 sets of input
- Listening sessions

- Comments until **Apr 29, 2022**
- 92 sets of input
- Bias in AI paper released **Mar 14, 2022**

- Comments on AI RMF and Playbook until **Sept 29, 2022**
- Call for contributions towards Profiles

NIST — NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, U.S. DEPARTMENT OF COMMERCE

National Institute of Standards and Technology (NIST). Trustworthy & Responsible AI Resource Center. https://airc.nist.gov/home. (2023, March 30). AI RMF Timeline… https://www.nist.gov/itl/ai-risk-management-framework/ai-rmf-development

Worker Organizing Resource and Knowledge Center Relaunched
September 1, 2023

"We also know that unions empower workers to report violations of the law, which is a [key complement to the department's mission](#).

That's why we developed the [Worker Organizing Resource and Knowledge Center](#), or the WORK Center.

Launched just over 1 year ago, the WORK Center provides workers, employers, and the public with a one-stop online shop for resources on labor union organizing and collective bargaining.

The vision for the WORK Center grew from the Biden-Harris administration's [Task Force on Worker Organizing and Empowerment](#).

The task force recognized the gap between historically high worker interest in labor unions and collective bargaining and their lack of knowledge on how to organize a union" (2023, November 14).
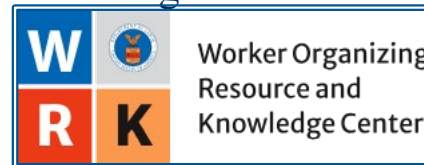
United States Department of Labor Blog (2023, November 14). Worker Organizing Resource and Knowledge Center, https://blog.dol.gov/2023/11/14/find-collective-bargaining-resources-at-the-work-center and www.WORKCenter.gov

Artificial Intelligence and Society

Investments in AI have led to transformative advances now impacting our everyday lives, including mapping technologies, voice-assisted smart phones, handwriting recognition for mail delivery, financial trading, smart logistics, spam filtering, language translation, and more. AI advances are also providing great benefits to our social wellbeing in areas such as precision medicine, environmental sustainability, education, and public welfare.

"The term 'artificial intelligence' means a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments."

NATIONAL ARTIFICIAL INTELLIGENCE ACT OF 2020

United States Department of State. (n.d.). National Artificial Intelligence Act of 2020 (became law on January 1, 2021), https://www.state.gov/artificial-intelligence/

OSD Bias Bounty
Presented by

 CONDUCTOR AI **bugcrowd**

AI
Bias Testing
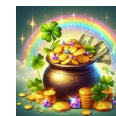**January 29 - March 11, 2024 (closed)**

The Chief Digital and Artificial Intelligence Office (CDAO) Responsible AI (RAI) team is sponsoring **AI bias bounties** for the United States Department of Defense (DoD).

This particular bias bounty program, created and implemented by **ConductorAI** and **Bugcrowd**, seeks to demonstrate how bias may relate to DoD use cases. As policies continue to evolve, the DoD may consider these responses as the basis for further research, analysis, best practices, and policy recommendations.

To encourage involvement, the DoD is providing a **$24,000 pot** that will be distributed to submitters based on a scoring rubric and evaluation from **ConductorAI** and **Bugcrowd** . All members of the public are eligible to participate.

 CDAO

CHIEF DIGITAL AND
ARTIFICIAL
INTELLIGENCE OFFICE

THE BLUEPRINT FOR AN AI BILL OF RIGHTS
RELATIONSHIP TO EXISTING LAW AND POLICY, E.O. 13960, 13985, AND FAIR INFORMATION PRACTICE PRINCIPLES (FIIPs)

Homeland Security- Privacy Policy. (2008, December 29):
Fair Information Practice Principles (FIPPs),
Derived from the 1973 report of an advisory committee to the U.S. Department of Health, Education, and Welfare, Records, Computers, and the Rights of Citizens.[i]

Executive Order 13960. (2020, December 8)
Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government, which sets out principles that govern the federal government's use of AI.

Executive Order 13985. (2021, January 20)
Advancing Racial Equity and Support for Underserved Communities Through the Federal Government.

White House. (n.d.) Office of Science and Technology Policy. https://www.whitehouse.gov/ostp/ai-bill-of-rights/what-is-the-blueprint-for-an-ai-bill-of-rights/ and https://www.whitehouse.gov/ostp/ai-bill-of-rights/relationship-to-existing-law-and-policy/ and https://www.dhs.gov/sites/default/files/2024-01/Fair%20Information%20Principles_12_2008.pdf .

What is the Blueprint for an AI Bill of Rights?

October 4, 2022

RELATIONSHIP TO EXISTING LAW AND POLICY,
E.O. 13960, 13985, AND
FAIR INFORMATION PRACTICE PRINCIPLES (FIIPs)

The Blueprint for an AI Bill of Rights is a set of five principles [to protect humans]:

1. Safe and Effective Systems
2. Algorithmic Discrimination Protections
3. Data Privacy
4. Notice and Explanation
5. Human Alternatives, Consideration, and Fallback

AI Bill of Rights
FACT SHEET: President Biden Issues
Executive Order 14110
on Safe, Secure, and Trustworthy Artificial Intelligence
OCTOBER 30, 2023

Protect Americans from AI-enabled fraud and deception by establishing standards and best practices for detecting AI-generated content and authenticating official content.

The **Department of Commerce** will develop guidance for **content authentication and watermarking to clearly label AI-generated content**. Federal agencies will use these tools to make it easy for Americans to know that the communications they receive from their government are authentic—and set an example for the private sector and governments around the world.

White House. (2023, October 30). Executive order 14110. Fact Sheet: President Biden Issues Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence. https://www.whitehouse.gov/briefing-room/statements-releases/2023/10/30/fact-sheet-president-biden-issues-executive-order-on-safe-secure-and-trustworthy-artificial-intelligence/

Executive Order 14110

on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence

OCTOBER 30, 2023

(i) The **Secretary of Labor shall, within** *180 days* **of the date of this order** and in consultation with other agencies and with outside entities, **including labor unions and workers, as the Secretary of Labor deems appropriate**, **develop and publish principles and best practices for employers that could be used to mitigate AI's potential harms to employees' well-being and maximize its potential benefits.**

The principles and best practices shall include **specific steps for employers to take with regard to AI,** and shall cover, at a minimum:

(A) job-displacement risks and career opportunities related to AI, including effects on job skills and evaluation of applicants and workers;

(B) labor standards and job quality, including issues related to the equity, protected-activity, compensation, health, and safety implications of AI in the workplace; and

(C) implications for workers of employers' AI-related collection and use of data about them, including transparency, engagement, management, and activity protected under worker-protection laws.

World Economic Forum

Future of Jobs Report

193
Member Countries

United States of America

Date of Admission: 24-10-1945

United Nations, *Member States*. https://www.un.org/en/about-us/member-states.

Period: 2022-2023
Source: World Economic Forum
Future of Jobs Survey
Established: 2014
First Edition: 2016

"AI and big data will comprise more than 40% of the technology training [programs] undertaken in surveyed companies operating in the **United States, China, Brazil and Indonesia.**"

35

Appendix A – Analysis Methodology

Survey administered: November 2022 to February 2023

Future Projections: November 2023 – February 2027

| Arabic | Chinese | Czech | Georgian | Hebrew | Japanese | Portuguese | Russian | Serbian | Spanish | Thai | Turkish |

12
Languages
44
Survey Questions

The survey collection process was conducted via Qualtrics with data collection.

World Economic Forum (2023, May), *Future of Jobs Report 2023*. https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf , extracted Figure 2.4 pg. 24

Survey Results - By The Numbers

Future of Jobs 2023 - 2027

11.3 Million

Workers

830

Companies

45

World Region
Economies

22

Country
Acknowledgements

World Economic Forum (2023, May), *Future of Jobs Report 2023*. https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf . pgs. 4, 287-295.

Human-Machine Frontier Survey 2020 and 2023

% of tasks expected to be automated
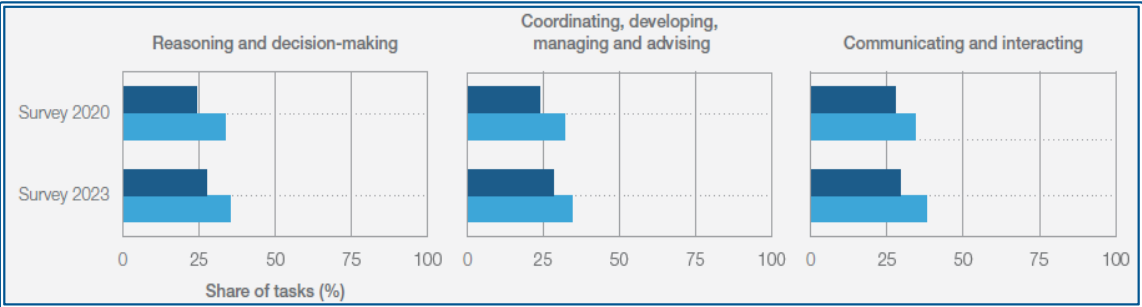
Key:

➢ Information Data Processing

➢ Communicating

➢ Looking for Job-related Info.

➢ Identifying and Evaluating
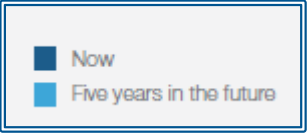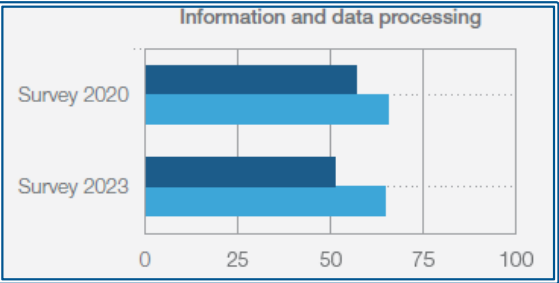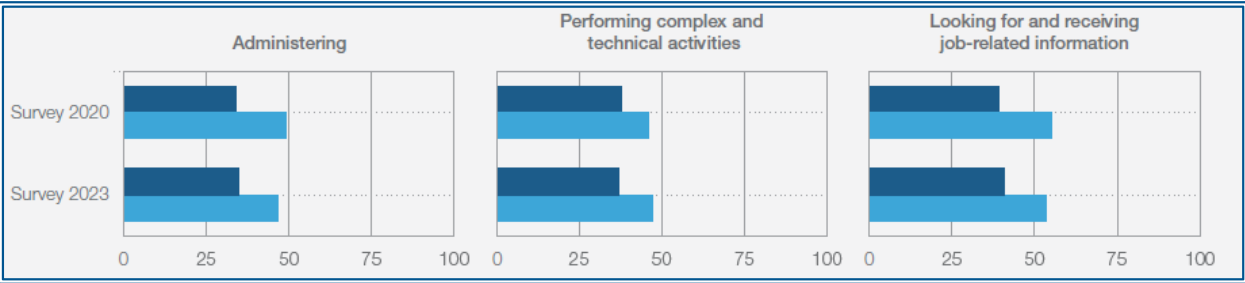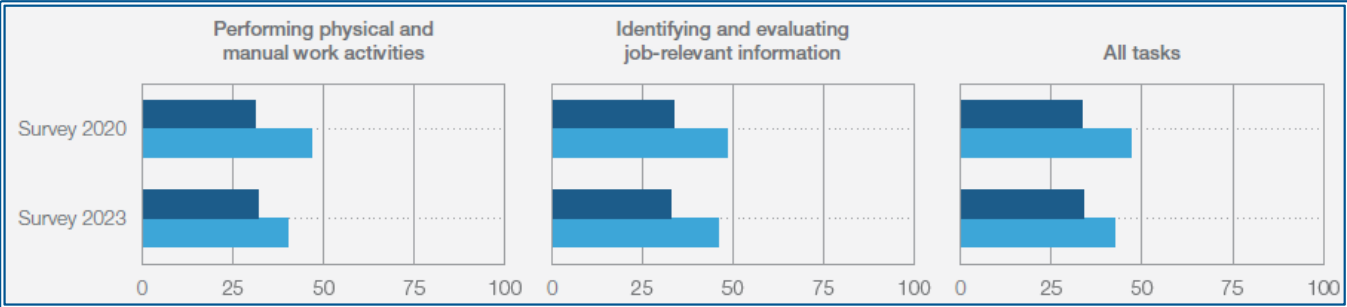
World Economic Forum (2023, May), *Future of Jobs Report 2023*. https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf , pg. 27

Businesses that plan to adopt AI technologies (%)

Key:

➢ Electronics
➢ IT Services
➢ Cybersecurity
➢ Oil and Gas
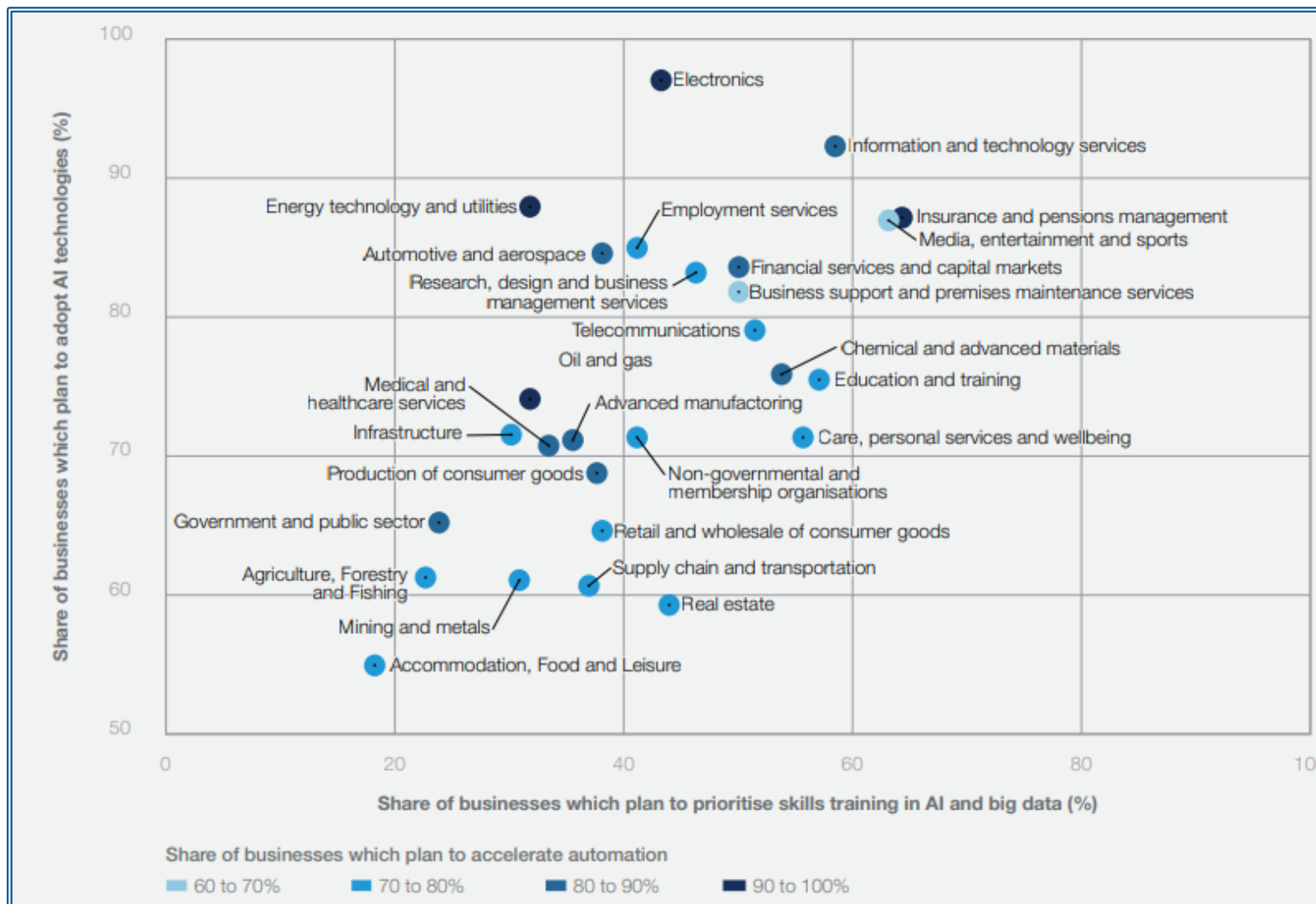
World Economic Forum (2023, May), *Future of Jobs Report 2023*. https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf , pg.46

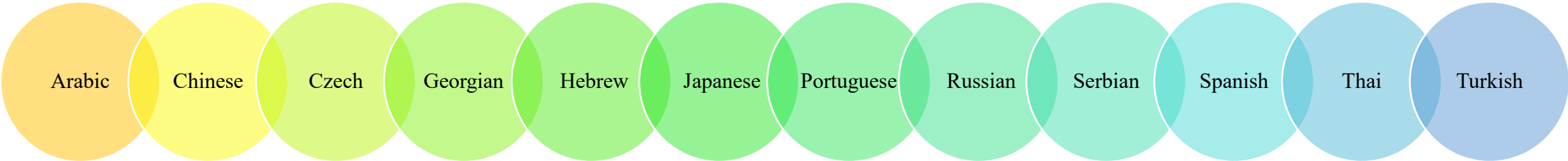# Barriers to Business Transformation 2023-2027

Key:
"… 60% surveyed skills gaps and 53% inability to attract talent …"

1.	Skills gaps in the local labour market	59.7%
2.	Inability to attract talent	53.4%
3.	Outdated or inflexible regulatory framework	41.9%
4.	Skills gaps among the organization's leadership	37.3%
5.	Shortage of investment capital	37.2%
6.	Insufficient understanding of opportunities	32.6%

Churn in 5 Years

"This is the five-year structural [labor]-market churn of surveyed companies that operate in the respective economy or region.

[Working-age Population 25 and Over]

…[Labor]-market churn refers to the pace of reallocation of workers and jobs. Structural churn does not take into account the natural churn of workers moving between jobs for personal reasons..."

For additional details on the calculation of this indicator, please refer to the Methodology section. Period: 2022-2023
Source: World Economic Forum, Future of Jobs Survey"
[Future of Jobs Report, (2023, May)]

226 Million Working Age Population

Key:
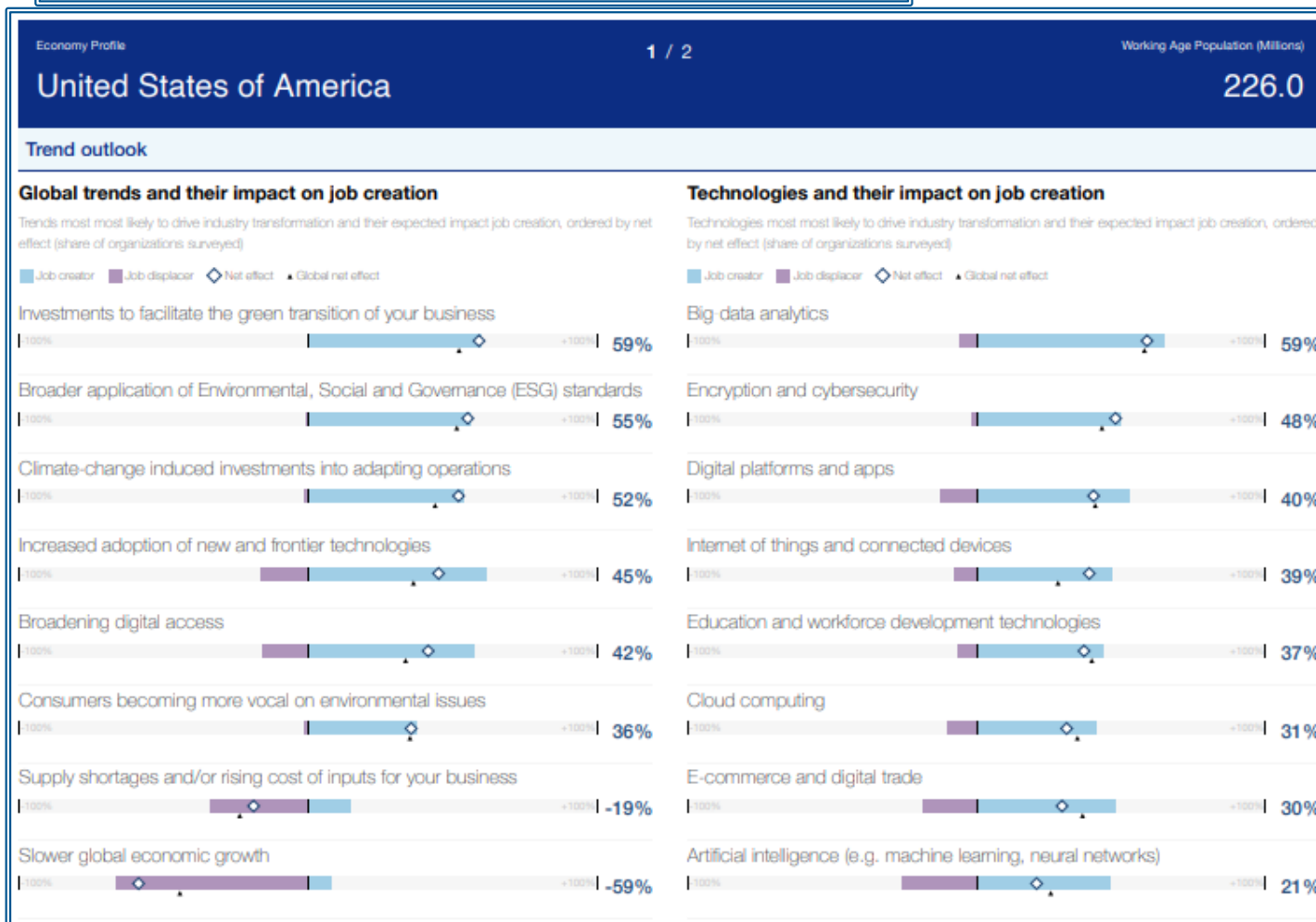
- ➢ AI and Big Data
- ➢ Investment-Green Transition
- ➢ Environmental, Social, and Governance (ESG)-Standards
- ➢ Encryption and Cybersecurity
- ➢ Education-Workforce Development
- ➢ Artificial Intelligence

World Economic Forum (2023, May), Future of Jobs Report 2023. https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf, pgs. 180-181

Key:

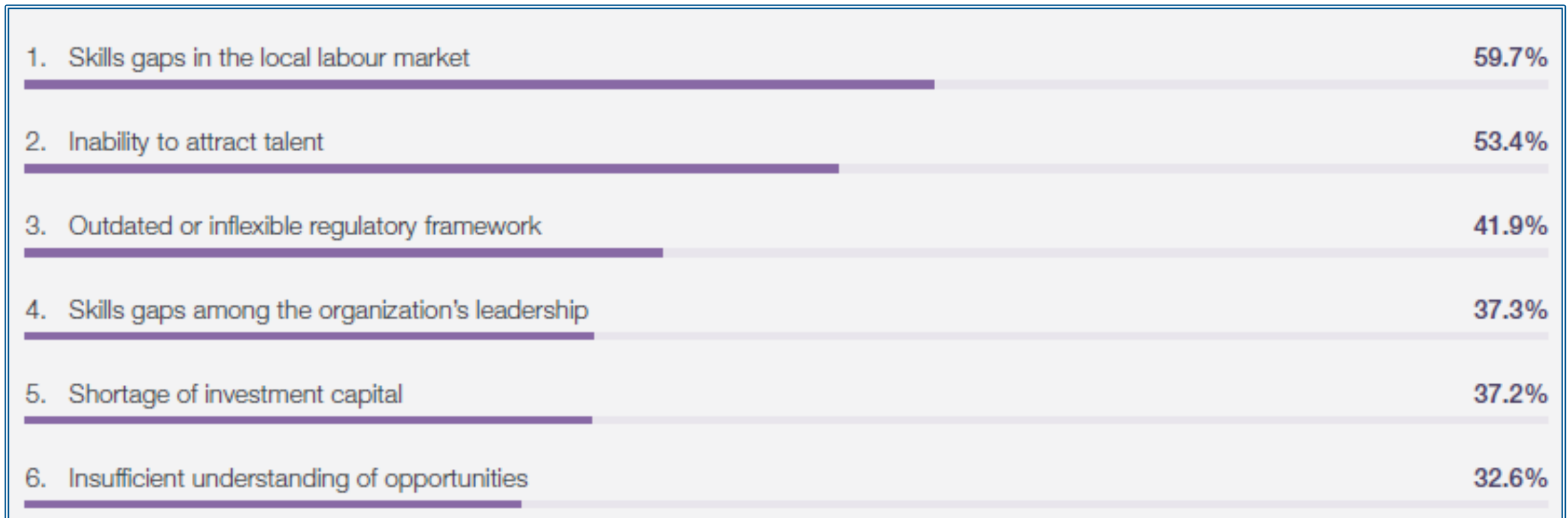➤ Secondary Education

➤ Labor Force

➤ AI and Machine Learn

➤ Data Analysts and Scientists

Economy and Global
Skills – Reskilling – Training Funding

Key:
- Cognitive skills
- Self-efficacy

Key:
- Training Funding by Organization
- Free-of-Cost Training

Key:
- AI and Big Data
- Analytical and Creative Thinking

Skill outlook

Core skills
Skills needed to perform well in key, stable roles within the company (share of organizations surveyed)

■ Skills, knowledge and abilities   ■ Attitudes

25%	13%	15%	24%	11%

	ECONOMY	GLOBAL
Cognitive skills	25%	26%
Engagement skills	6%	6%
Management skills	13%	12%
Physical abilities	2%	3%
Technology skills	15%	16%
Ethics	3%	3%
Self-efficacy	24%	23%
Working with others	11%	11%

Training funding
Preferred sources of funding for training, upskilling and reskilling efforts (share of organizations surveyed)

	ECONOMY	GLOBAL
Co-funding across the industry	8%	16%
Free-of-cost training	25%	28%
Funded by government	21%	22%
Funded by my organization	95%	87%
Public-private hybrid funding	24%	24%

Reskilling skill focus
Skills most prioritized for reskilling and upskilling in the next five years (share of organizations surveyed)

■ Skills, knowledge and abilities   ■ Attitudes   ▲ Global average

AI and big data	47%
Analytical thinking	47%
Creative thinking	46%
Resilience, flexibility and agility	41%
Leadership and social influence	37%
Curiosity and lifelong learning	35%
Empathy and active listening	27%
Talent management	27%
Technological literacy	26%
Design and user experience	26%

Skill stability — **58%**
Skills required by the workforce that are expected to remain the same (share of all skills required)
Global 56%

World Economic Forum (2023, May), Future of Jobs Report 2023. https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf, pg. 186.

Economy and Global Workforce Strategy

Key:

➢ Talent Development

➢ DEI Training

➢ Improve Talent Progression

Workforce strategy outlook

Talent outlook in 2027

Expected change in talent availability, development and retention in the next five years (share of organizations surveyed)

Improving · Worsening · Global average · Global average

Talent availability when hiring
41% | 37%

Talent development of existing workforce
3% | 77%

Talent retention of existing workforce
28% | 46%

Key components of DEI programmes

Most common components of DEI programmes (share of organizations surveyed)

		ECONOMY	GLOBAL
1.	Run comprehensive DEI training for managers	64%	42%
2.	Run comprehensive DEI training for staff	51%	36%
3.	Enable inclusion and accessibility across physical and virtual spaces	47%	33%
4.	Set DEI goals, targets or quotas that exceed public requirements	45%	26%
5.	Embed DEI goals and solutions across the supply chain	34%	23%

Business practices to improve talent availability

Top practices with the greatest potential to improve talent availability (share of organizations surveyed)
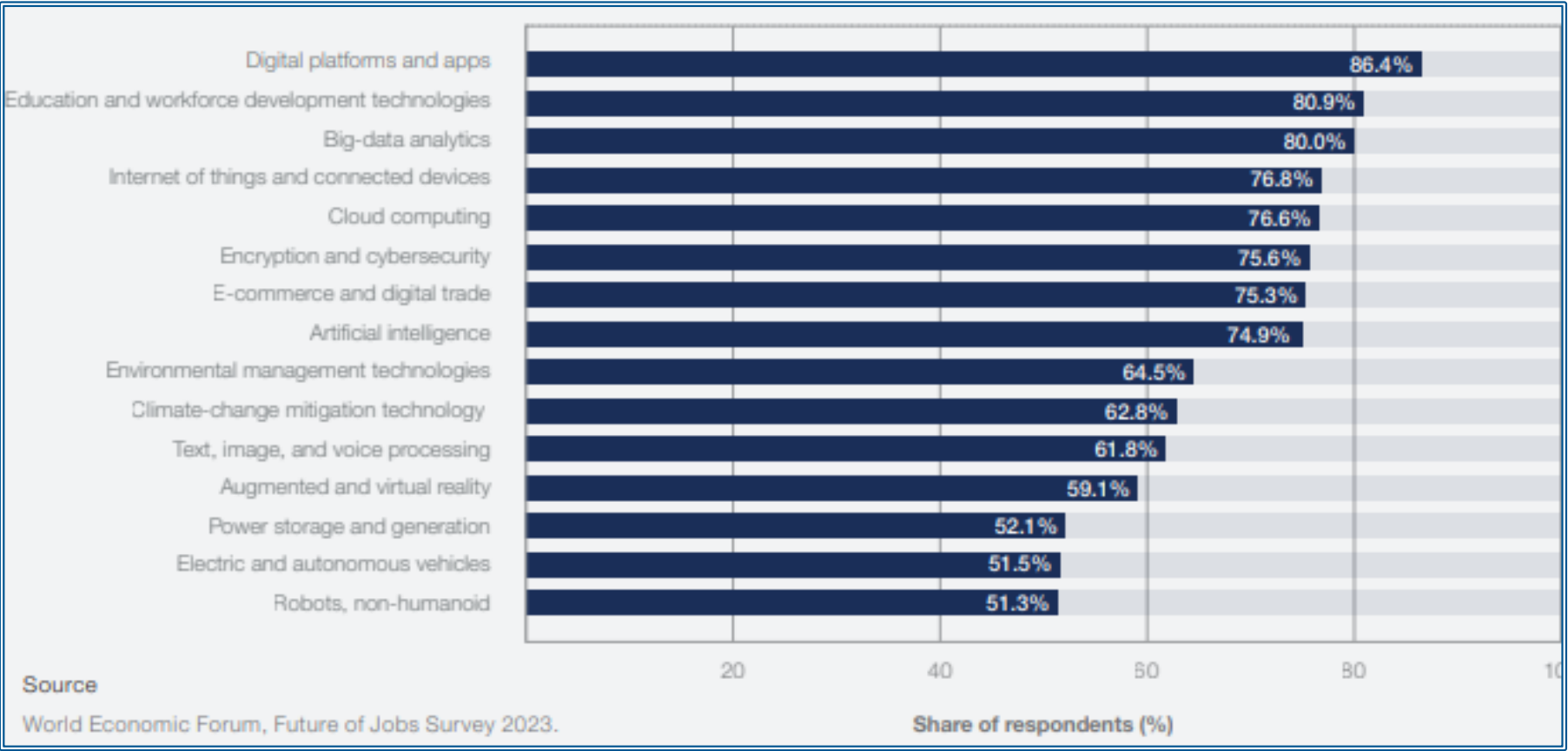
		ECONOMY	GLOBAL
1.	Improve talent progression and promotion processes	54%	48%
2.	Offer higher wages	32%	35%
3.	Provide effective reskilling and upskilling	31%	34%
4.	Better articulate business purpose and impact	29%	24%
5.	More diversity, equity and inclusion policies and programmes	27%	18%
6.	Offer more remote and hybrid work opportunities within countries	23%	21%
7.	Support employee health and well-being	19%	18%
8.	Improve people-and-culture metrics and reporting	17%	18%
9.	Tapping into diverse talent pools	15%	10%
10	Improve internal-communication strategy	13%	19%

Technology Adoption
2023 - 2027

Technologies ranked by the share of organizations surveyed who are likely or highly likely to adopt this technology over the next 5 years.

Technology	Share
Digital platforms and apps	86.4%
Education and workforce development technologies	80.9%
Big-data analytics	80.0%
Internet of things and connected devices	76.8%
Cloud computing	76.6%
Encryption and cybersecurity	75.6%
E-commerce and digital trade	75.3%
Artificial intelligence	74.9%
Environmental management technologies	64.5%
Climate-change mitigation technology	62.8%
Text, image, and voice processing	61.8%
Augmented and virtual reality	59.1%
Power storage and generation	52.1%
Electric and autonomous vehicles	51.5%
Robots, non-humanoid	51.3%

Share of respondents (%)

Source
World Economic Forum, Future of Jobs Survey 2023.

Key:

➢ Digital platforms and apps
➢ Education and Workforce Development
➢ Artificial Intelligence
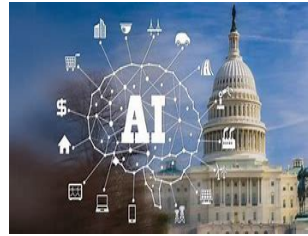➢ Robots, non-humanoid

Recommendations

1. Public Announcement-Site – Government Measures

2. Enhance Government Oversight

3. Communication

   Consortium for Enhanced Collaboration, "**Evidence Act**"

Recommendations

1. Provide public service announcements on the measures the U.S. Government has taken to educate the American public and the workforce on the safe and secure AI and cybersecurity (White House, 2024). Human capabilities lead to improved preventative measures.

2. Research shows that subject matter knowledge increases the likelihood of successful problem resolutions "…experiential learning offers a way to ensure we are imparting not just rote learning and certifications but providing our people the knowledge, skills, and experience to effectively control the efforts we charge them to lead" *Learning from experience: Acquisition professional education for this century* (SYM-AM-20-070) Pickar, C. (2020).

3. Enhance government oversight of statutory and regulatory policies, standards, and procedures to safeguard and preserve the rights of the workforce. Create a consortium for enhanced collaboration. See the Evidence-Based Policymaking Act of 2018 (Evidence Act). Naval Postgraduate School, Acquisition Research Symposium. nps.edu. Pub. L. No. 115-435, 132 Stat. 5529 (Jan. 14, 2019). The Evidence Act adopts as its definition of evidence "information produced as a result of statistical activities conducted for a statistical purpose." It adopts as its definition of statistical purpose "the description, estimation, or analysis of the characteristics of groups, without identifying the individuals or organizations that comprise such groups and includes the development, implementation, or maintenance of methods, technical or administrative procedures, or information resources that support" those actions. Pub. L. No. 115-435, § 101(a)(1); 44 U.S.C. § 3561(6), (12). OMB's June 2019 update to Cir. No. A-11 contains these definitions. The guidance also states that in the context of improving organizational and agency performance, "evidence" can be viewed more broadly, in line with OMB's definition.

White House. (2024, January 29). Fact Sheet: Biden-Harris Administration Announces Key AI Actions Following President Biden's Landmark Executive Order. https://www.whitehouse.gov/briefing-room/statements-releases/2024/01/29/fact-sheet-biden-harris-administration-announces-key-ai-actions-following-president-bidens-landmark-executive-order/

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Pub. L. No. 115-435, 132 Stat. 5529 (Jan. 14, 2019). The Evidence Act adopts as its definition of evidence "information produced as a result of statistical activities conducted for a statistical purpose." It adopts as its definition of statistical purpose "the description, estimation, or analysis of the characteristics of groups, without identifying the individuals or organizations that comprise such groups and includes the development, implementation, or maintenance of methods, technical or administrative procedures, or information resources that support" those actions. Pub. L. No. 115-435, § 101(a)(1); 44 U.S.C. § 3561(6), (12). OMB's June 2019 update to Cir. No. A-11 contains these definitions. The guidance also states that in the context of improving organizational and agency performance, "evidence" can be viewed more broadly, in line with OMB's definition.

Symantha "Sam" Loflin
BIO

Symantha "Sam" Loflin has an M.S. in Program Management and a certification in Advanced Acquisition Studies from the Naval Postgraduate School (NPS), where she was a contributor to the 18th, 19th, and 20th Annual NPS Acquisition Research Symposium. She also holds a B.S. in Finance from the University of Houston.

Sam is a Case Manager and Researcher at Tanner and Associates, PC. She has over 20 years of acquisition experience supporting DCMA, DOD, NASA, and the military services. Additionally, she recently served as an acquisition program manager on the Coronavirus Task Force that focused on building the industrial base for personal protective equipment.

Sam's career began at NASA, supporting the Space Shuttle, ISS, and the Constellation Programs in Houston.

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United States Department of Labor Blog (2023, November 14). Worker Organizing Resource and Knowledge Center, https://blog.dol.gov/2023/11/14/find-collective-bargaining-resources-at-the-work-center

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