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Placing a Value on Employee Well-Being

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Abstract

A MITRE team is applying Social Return on Investment (SROI) principles to inform government workplace Diversity, Equity, Inclusion, and Accessibility (DEIA) investment decisions. An Investment Value Management Framework (IVMF) guides government agencies in making initial DEIA investment decisions by comparing alternative improvement opportunities and managing selected investments over the lifecycle on an SROI basis. The team is prototyping the capability of the IVMF, which includes process guidelines and a modeling platform, to estimate key SROI elements, including cost, benefit, uncertainty, and risk. The team hypothesizes that SROI application of the IVMF can be tailored to support robust and objective DEIA investment evaluation and management. The IVMF offers default corrective actions in an early warning system, which can be tailored by model users, based on magnitude of expected versus actual SROI variance.

Keywords

Benefits, cost, risk, government, diversity, equity, inclusion, accessibility, return on investment, social return on investment, strategy, spending, uncertainty

Executive Summary

Government workplace Diversity, Equity, Inclusion, and Accessibility (DEIA) initiatives make “diversity a national strategic imperative,” and “strengthen the workforce” to reflect the diversity of the nation and create equity for employees and greater opportunities for historically underserved communities¹. Workforce diversity involves modifications in recruiting and hiring to ensure that the workforce composition more accurately reflects the variety of race, gender, and sexual orientation that exists within the population. Workplace inclusion involves actions to embrace “the unique strengths and facets of identity for all individuals so that they feel welcomed, valued, and supported”². Workplace equity refers to fairness of access, opportunity, and resources available to all employees. Agencies now seek ways to assess DEIA investment value and inform decisions regarding allocation planning, regulatory compliance, employee engagement, customer experience, and mission outcomes.

Business benefits of inclusion and engagement may include increased productivity, lower absenteeism, lower turnover, improved employee well-being, and fewer safety incidents^{3,4,5,6}. Studies acknowledge relationships between engagement and inclusion and productivity, performance, sense of well-being, turnover, absenteeism, and attrition. Increased engagement, for example, has reduced absenteeism in some cases by over 40% and turnover by over 50%, creating opportunities for organizations to become more profitable, as demonstrated by tenfold increase in sales as cited by Aldana (2022)⁷.

¹ Office of the White House, "Executive order on diversity, equity, inclusion, and accessibility in the federal workforce," 25 June 2021. [Online]. Available: <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/06/25/executive-order-on-diversity-equity-inclusion-and-accessibility-in-the-federal-workforce/>. [Accessed 2022].

² United Nations Global Impact, "Diversity, equity, & inclusion: Key action areas for investors," 2022. [Online]. Available: <https://www.unpri.org/human-rights/diversity-equity-and-inclusion-key-action-areas-for-investors/9393.article>. [Accessed 2022].

³ Deloitte, "Waiter, is that inclusion in my soup? A new recipe to improve business performance," 2013. [Online]. Available: <https://www2.deloitte.com/content/dam/Deloitte/au/Documents/human-capital/deloitte-au-hc-diversity-inclusion-soup-0513.pdf>. [Accessed 2022].

⁴ S. Mattke, H. H. Liu, J. P. Caloyeras, C. Y. Huang, K. R. Van Busum, D. Khodyakov, V. Shier, E. Exum and M. Broderick, "Do workplace wellness programs save employers money?," 2014. [Online]. Available: https://www.rand.org/pubs/research_briefs/RB9744.html. [Accessed 2022].

⁵ Global Wellness Institute, "The future of wellness at work," 2016. [Online]. Available: https://globalwellnessinstitute.org/wp-content/uploads/2018/06/GWI_2016_Future_of_Wellness_at_Work.pdf. [Accessed 2022].

⁶ McKinsey & Company, "Delivering Through Diversity," 2018. [Online]. Available: https://www.mckinsey.com/~media/mckinsey/business%20functions/people%20and%20organizational%20performance/our%20insights/delivering%20through%20diversity/delivering-through-diversity_full-report.pdf. [Accessed 2022].

⁷ D. Aldana, "Wellness ROI vs VOI: The Best Employee Well-being Programs Use Both," 2022. [Online]. Available: <https://www.wellsteps.com/blog/2020/01/02/wellness-roi-employee-well-being-programs/>. [Accessed 2022].

While expected benefits of DEIA investment are significant, so too are the costs, risks, and uncertainties. While the White House (2021)¹ indicates that costs of implementing President Biden’s Executive Orders 13985 and 14035 will be too minimal for consideration, the accompanying list of on-going requirements for technology, process, and people would suggest otherwise.

Leveraging prior MITRE research which applied commercial industry ROI principles to the federal government⁸, a MITRE team created an IVMF, which guides government agencies in applying Social Return on Investment (SROI) principles illustrated in Figure 1 - Key Elements of the IVMF. to inform initial DEIA investment decisions by comparing alternative improvement opportunities and subsequently monitoring lifecycle achievement of initial ROI expectations considering costs, benefits, uncertainties, and risks.

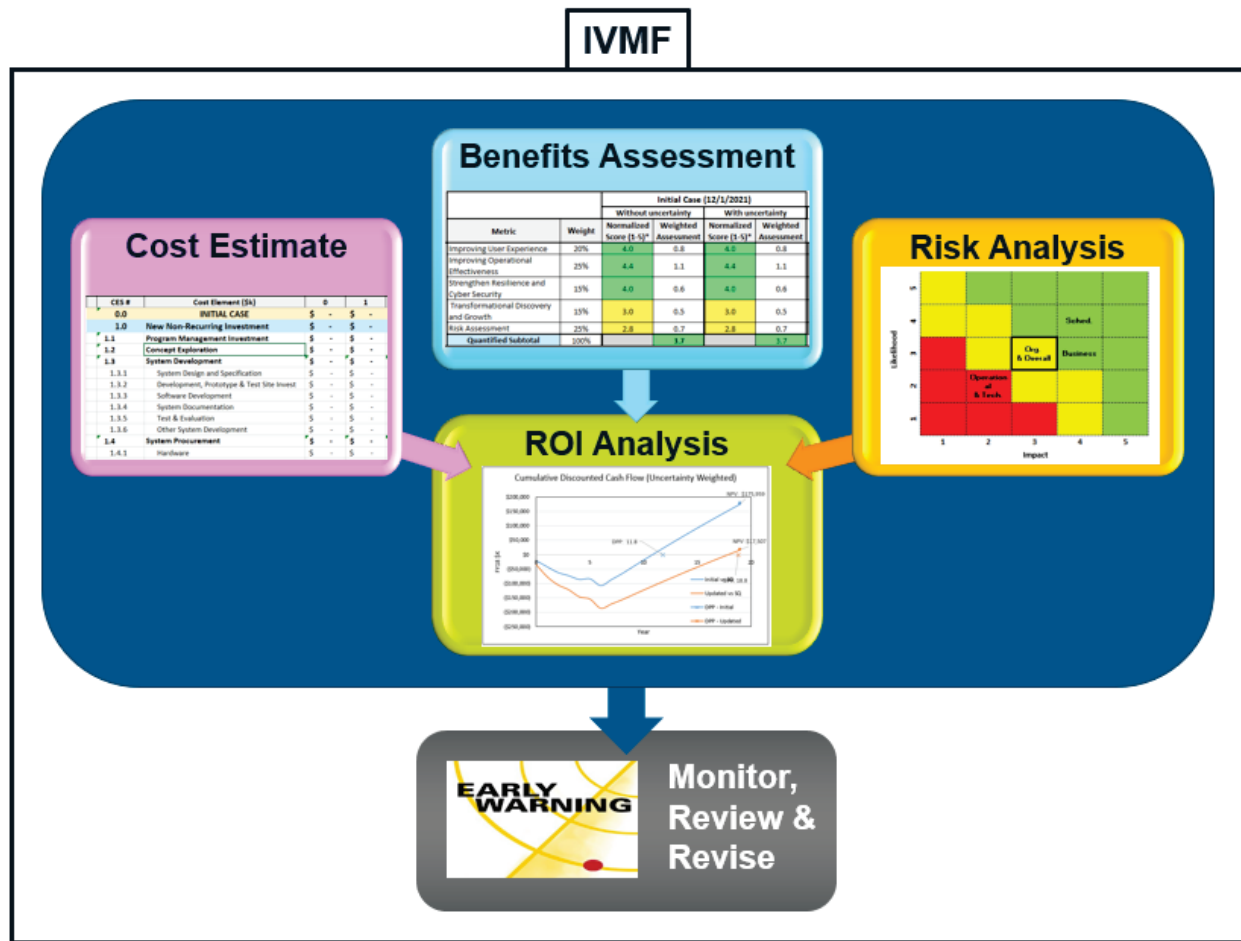


Figure 1 - Key Elements of the IVMF.

⁸ K. S. Buck et. al., "Applying Return-on-Investment (ROI) Analysis to the Full Investment Management Lifecycle: FY02 Army MOIE Findings," The MITRE Corporation, 2002.

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The Cost of Workplace DEIA

A review of the USAspending.gov database⁹ reveals the general nature of DEIA expenditures federal agencies incurred for 2021-2022 (see Figure 2 and Figure 3 – DEIA Spending of Top 10 Agencies by Category. Data source: USAspending.gov). USAspending.gov shares how and what the federal government spends every year. Expenditures have increased from 2021 in response to Executive Orders 13895 and 14035 released in January and June 2021, respectively. The agencies with the greatest expenditures include National Institutes of Health, Centers for Medicare & Medicaid and the Office of the Assistant Secretary of Administration & Management. The top spending DEIA investment areas include Consultation Services, Accessibility/ Disability Support; Strategic Planning/Compliance support, Professional, Analytical & Technical Services, and Training Workshops. These areas provide a comprehensive description of the types of DEIA investments agencies made to advance their goals and objectives.

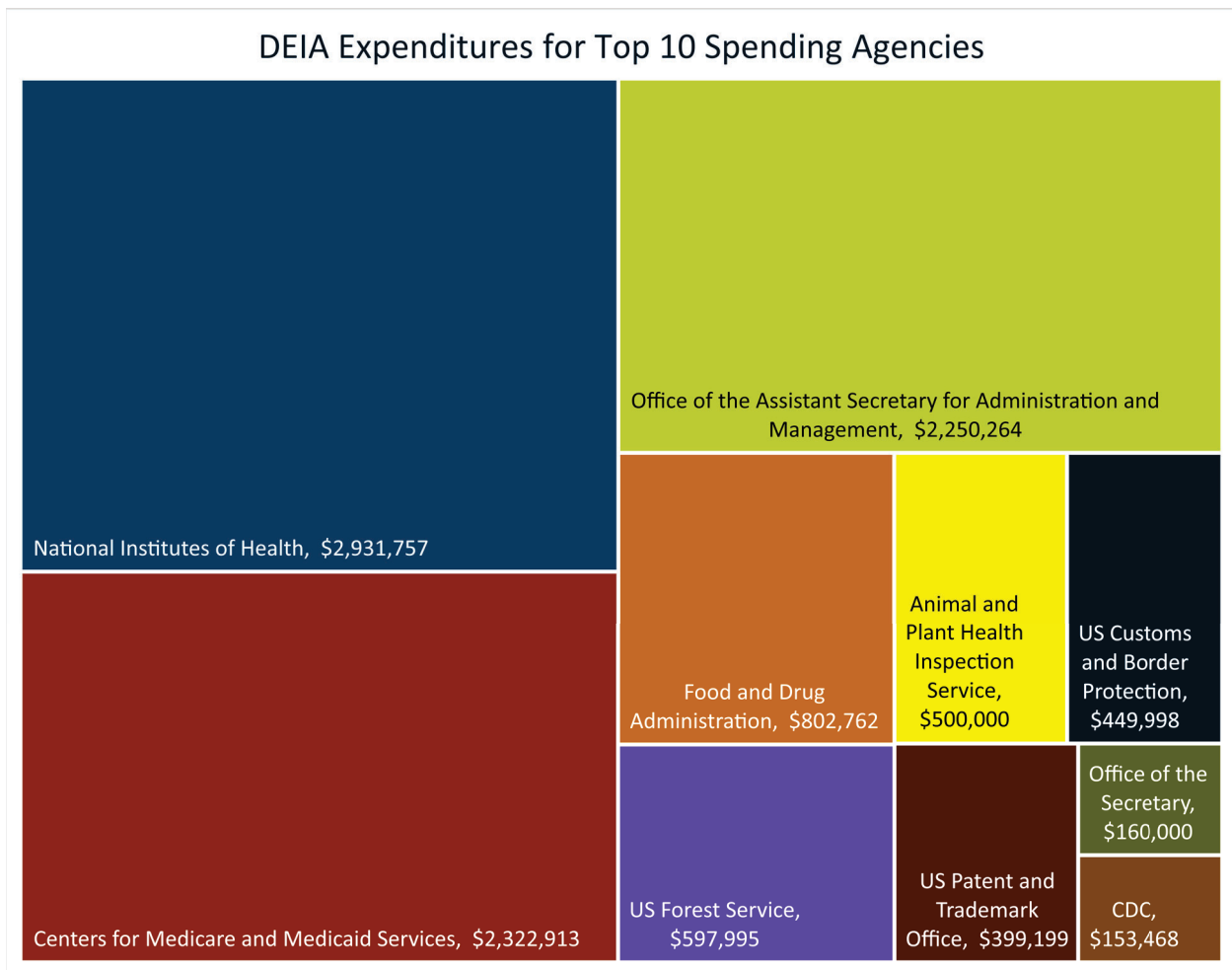


Figure 2 - DEIA Expenditures by Agency (Top 10). Source: USAspending.gov

⁹ "USAspending.gov," [Online]. Available: <https://www.usaspending.gov/>. [Accessed 2022].

Standards for government workplace DEIA are impacting how agencies will conduct business and operations moving forward. International Standard Organization (ISO) 30415, for example, provides guidelines with significant cost implications for creating an “inclusive culture; human resource lifecycle management; design, development, and delivery of products and services; supply chain management; and stakeholder management and involvement”¹⁰.

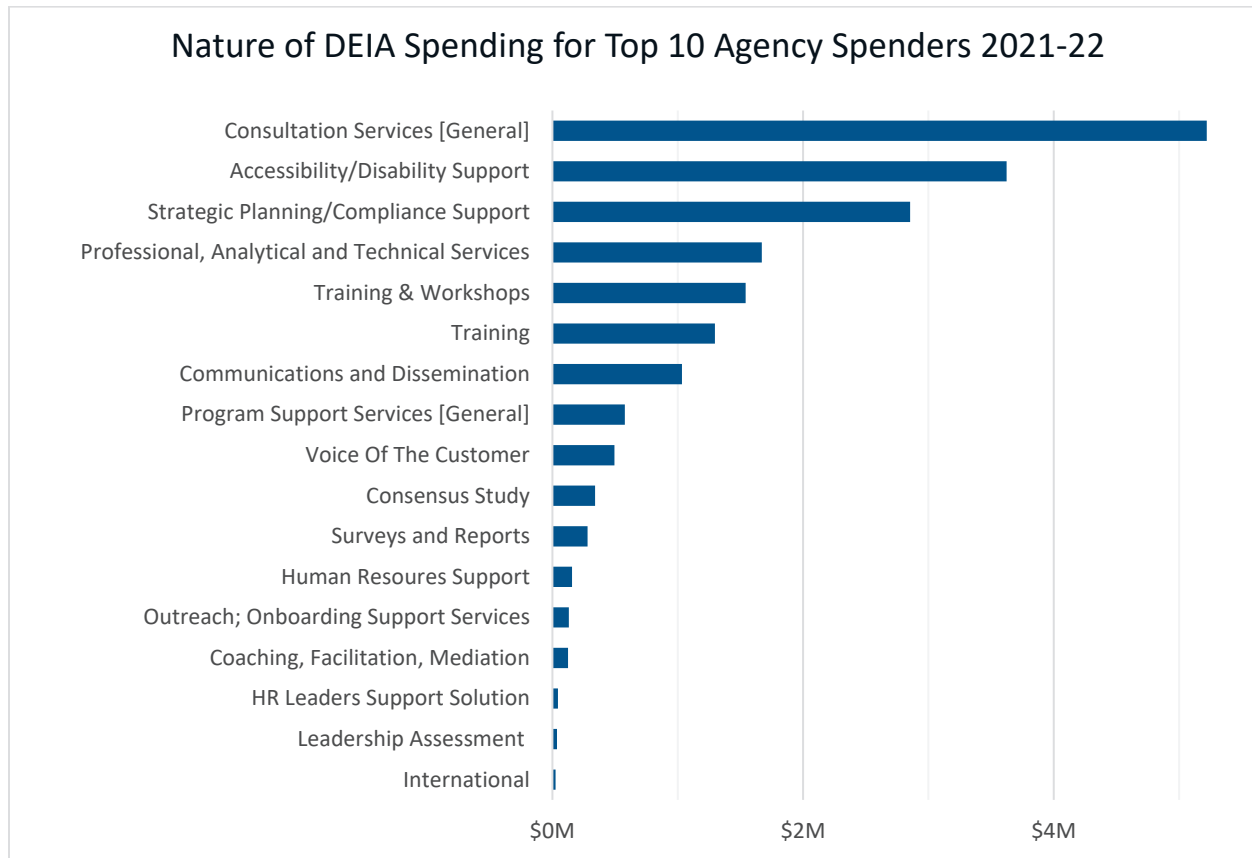


Figure 3 – DEIA Spending of Top 10 Agencies by Category. Data source: USAspending.gov

While DEIA cost data is limited as agencies mobilize to implement changes, White House and agency-specific guidance detail people, process, and technology requirements that the team leveraged to produce a Work Breakdown Structure (WBS) (see excerpt in Table 1). A WBS is used to design and integrate scope, schedule, and cost. The types of recurring and non-recurring cost impacts that agencies can expect include recruitment and hiring, increased pay and benefits for disadvantaged groups, facilities build-out/modification, IT infrastructure expansion, process development and implementation, workforce training, regulatory compliance, reporting, and litigation.

¹⁰ International Standard Organization 30415, "Guideline on diversity and inclusion," 2021. [Online]. Available: <https://www.tuvsud.com/en/services/auditing-and-system-certification/iso-30415-diversity-and-inclusion>. [Accessed 2022].



Table 1 - DEIA Work Breakdown Structure (Excerpt)

WBS ID	WBS Item Name	Description
1	DEIA INVESTMENT ANALYSIS	All costs to the government to implement and make fully operational the requirements to achieve and initially sustain DEIA initiatives.
1.0	Non-Recurring Costs	The initial investment cost to implement DEIA initiatives
1.i	Stand-up or Refinement of DEIA	Initial cost to either standup the DEIA program or refine existing DEIA programs
1.i.1	Program Management	All cost associated with standing up a program management office or upgrading it to meet DEIA requirements.
1.i.1.1	Recruit and Hire	Cost associated with recruiting and hiring staff to include a Chief Diversity Officer and additional EEO personnel, etc.
1.i.1.2	Define program governance	Cost associated with defining and setting up DEIA program governance
1.i.1.3	Setup tools and standards for managing the program	The cost associated with setting up tools and standards for managing the program. For example, using tools and standards to capture DEIA inputs for agency's learning agenda and annual evaluation plan, budget, regulatory agenda, human capital operating plan, and overall strategic plan.
1.i.1.4	Planning & Tracking	The overall cost associated with planning and tracking PMO related activities
1.i.1.4.1	Financial planning & tracking management	The cost associated with setting up or refining financial planning, budgeting & tracking management system for the DEIA Program
1.i.1.4.2	Risk & tracking management plans	The cost associated with setting up or refining a DEIA program risk tracking mechanism
1.i.1.4.3	Setting quality control standards and tracking implementation	The cost associated with setting up or refining a quality control standards for the DEIA program
1.i.1.4.4	Setting tracking and change control procedures	The cost associated with setting up or refining change control procedures for the DEIA program
1.i.1.4.5	Evaluation Plan	The cost associated with developing or refining an evaluation plan--a plan that describes how DEIA program will be monitored and evaluated and how the evaluation results will be used to improve the DEIA program and support decision making
1.i.1.4.6	Human Capital Operating Plan	The cost associated with developing or refining a human capital operating plan
1.i.1.5	Setting performance measures	The cost associated with setting up and managing DEIA performance measures
1.i.2	DEIA Policies & Procedures	The overall cost associated with defining and developing DEIA related policies and procedures for the overall organization to include placing a mechanism for quarterly reviews; to address workplace harassment and safety, to embed leadership buy-in and engagement, etc. For example, establishing policies and procedures to regularly identify & address barriers to full workplace participation
1.i.2.1	Planning & Research	The cost associated with putting a team together, drawing up a plan to include phases, timeline, etc., and identifying the main stakeholders for the consultation process
1.i.2.2	Development	The cost associated with documentation of all policy and procedure statements, presenting draft policy and procedure statement to appropriate stakeholders, organizing policy team to review the feedback and drawing up implementation and communication strategy
1.i.2.3	Review	This cost is associated with review of draft policy and procedure documents as well as recommendations and approvals
1.i.2.4	Implementation	The cost associated with communicating the policies and procedures and ensuring that those impacted by them comprehend the content



Table 2 – Cost Estimating Structure

DEIA Investment Analysis CES			
1.0	Non-Recurring Costs	2.0	O&M - Recurring Costs
1.1	Standup or Update DEIA Initiatives	2.1	Program Management
1.1.1	Program Management	2.2	Review & maintain Policies & Procedures
1.1.2	DEIA Policies & Procedures	2.3	Legal and Compliance Process
1.1.3	Legal & Compliance	2.3.1	Complaints and Litigation
1.1.3.1	Refine complaints & litigation process	2.3.1.1	Grievance Investigation and Resolution
1.1.3.1.1	Grievance Investigation and Resolution	2.3.1.2	Civil Litigation
1.1.3.1.2	Civil Litigation	2.3.1.3	Regulatory Compliance Investigations and Audits
1.1.3.1.3	Regulatory Compliance Investigations and Audits	2.3.2	Refine or update connection to EEO
1.1.3.2	Refine or update connection to EEO	2.4	Review and maintain strategic plan
1.1.4	Strategic Plan for DEIA initiatives	2.5	Maintain business process improvement
1.1.5	Acquisition/Procurement	2.5.1	Change management
1.1.5.1	Hardware/Software/Applications	2.5.2	Business transformation
1.1.5.2	Services	2.6	Sustain stakeholder/leadership engagement plan
1.1.5.3	Other	2.7	Upgrade development/infrastructure
1.1.6	Business Process Improvement	2.7.1	Information Systems
1.1.6.1	Change Management	2.7.2	HW/SW/Applications
1.1.6.2	Business Process Transformation	2.7.3	Other
1.1.7	Stakeholder/Leadership Engagement	2.8	Maintenance
1.1.7.1	Identify stakeholders/leaders/partners	2.8.1	DEIA Website
1.1.7.2	Establish engagement mechanism	2.8.2	Data ecosystem operations
1.1.8	Development/Infrastructure Modernization	2.8.3	HR operations to meet DEIA related requirements
1.1.8.1	Information Systems	2.8.3.1	Recurring/sustainment training
1.1.8.2	DEIA Website	2.8.3.2	Recruitment process
1.1.8.3	Data Structure	2.8.3.3	Talent attraction & retention process
1.1.8.4	HR Structure	2.8.3.4	Human capital operating plan
1.1.8.4.1	Training Development	2.8.3.5	Work life-balance program
1.1.8.4.2	Recruitment development	2.8.3.6	Referral program
1.1.8.4.3	Talent Attraction & Retention Development	2.8.3.7	Employee support services
1.1.8.4.4	Human Capital Development	2.8.3.8	Other maintenance
1.1.8.4.5	Work life-balance Program Development	2.8.4	Resource channel operations
1.1.8.4.6	Referral Program Development	2.8.5	Communications channel operations
1.1.8.4.7	Employee Support Service Development	2.8.6	Maturity model
1.1.8.4.8	Other	2.8.7	Overall infrastructure to address DEIA
1.1.8.5	Resource Channel	2.8.8	Facilities, Lease & Maintenance
1.1.8.6	Communications Channel		
1.1.8.7	Maturity Model		
1.1.8.8	Overall Infrastructure		
1.1.8.9	Facilities		
1.1.9	Implementation & Deployment		
1.1.9.1	Deploy DEIA Website		
1.1.9.2	Implement data structure		
1.1.9.3	Implement DEIA HR structure		
1.1.9.4	Implement resource channel		
1.1.9.5	Implement communications channel		
1.1.9.6	Deploy a maturity model		
1.1.9.7	Implement practice, policies & procedures		
1.1.9.8	Implement overall structure to address DEIA		

Many workplace DEIA requirements are similar in nature to those for government offices implementing large-scale process improvement efforts, and the team explored estimating DEIA-specific costs as analogies to benchmarks MITRE collected for different sponsor engagements. For example, technology investments in computer storage and bandwidth (for which data is readily available from past sponsor engagements) may support estimating certain costs associated with implementing a professional networking platform or a real-time crisis hotline. Costs that cannot be estimated using analogies or rules-of-thumb can be grouped into a general cost category and approximated as a percentage uplift over other costs that the team has been able to estimate. For purposes of SROI analysis, the team created a Cost Estimating Structure (CES) based on the WBS (see Table 2) that will enable ROI calculation. A CES enables agencies to better estimate and manage their costs to improve program management and execution¹¹.

The Benefit of Workplace DEIA

Prior MITRE research applied commercial industry ROI principles to analyze and manage government ROI⁸, including cost, benefit, risk, and uncertainty. As illustrated in Figure 4, MITRE's ROI analysis methods consider investment implications that can be readily monetized and those that cannot. How the two different types of implications are modeled, however, is different. Cost savings and avoidance that directly benefit external stakeholders such as taxpayers are readily monetized, or expressed in units of currency such as dollars, and included in ROI calculations that produce such financial metrics as Discounted Payback Period (DPP) and Internal Rate of Return (IRR). For example, increasing labor supply by increasing diversity given that "47% of millennials are actively looking for diversity in the workplace when sizing up potential employers" can mean considerable monetizable cost savings in recruitment efforts². If these savings are transferred to external stakeholders, they can be evaluated within the monetary ROI calculation. Other benefits expected from workplace DEIA investment, however, such as increased employee satisfaction, cannot be monetized as a direct benefit to external stakeholders. These types of benefits are evaluated by applying other analytic methods, such as Multi-Attribute Utility Theory (MAUT). MAUT represents preferences of decision makers and compares multiple alternatives that have strengths or weaknesses regarding multiple objectives of interest.

¹¹ Government Accountability Office (GAO), GAO-20-195G, "Cost Estimating and Assessment Guide: Best Practice by Developing and Managing Program Cost," 2020. [Online]. Available: <https://www.gao.gov/assets/gao-20-195g.pdf>. [Accessed 2022].

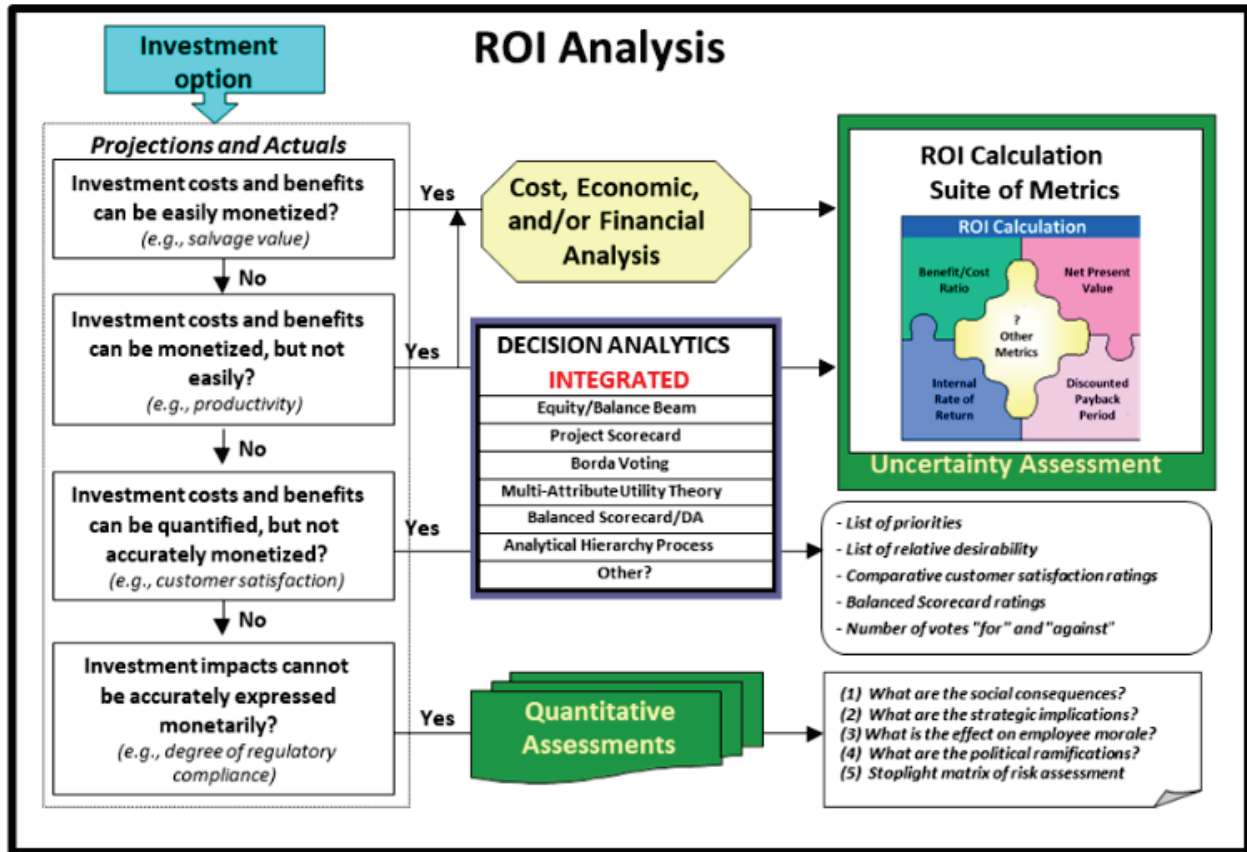


Figure 4 - Elements of ROI Analysis for Government Investments. Source:K. Buck et.al. (2002) [8].

Since non-monetizable benefits may be expressed in varying units of measure (e.g., %, or hours), the team normalizes all non-monetary benefits assessments on a quantitative scale between 1 and 5, where 1 represents very negative benefit impact and 5 represents very positive benefit impact (see Figure 5).

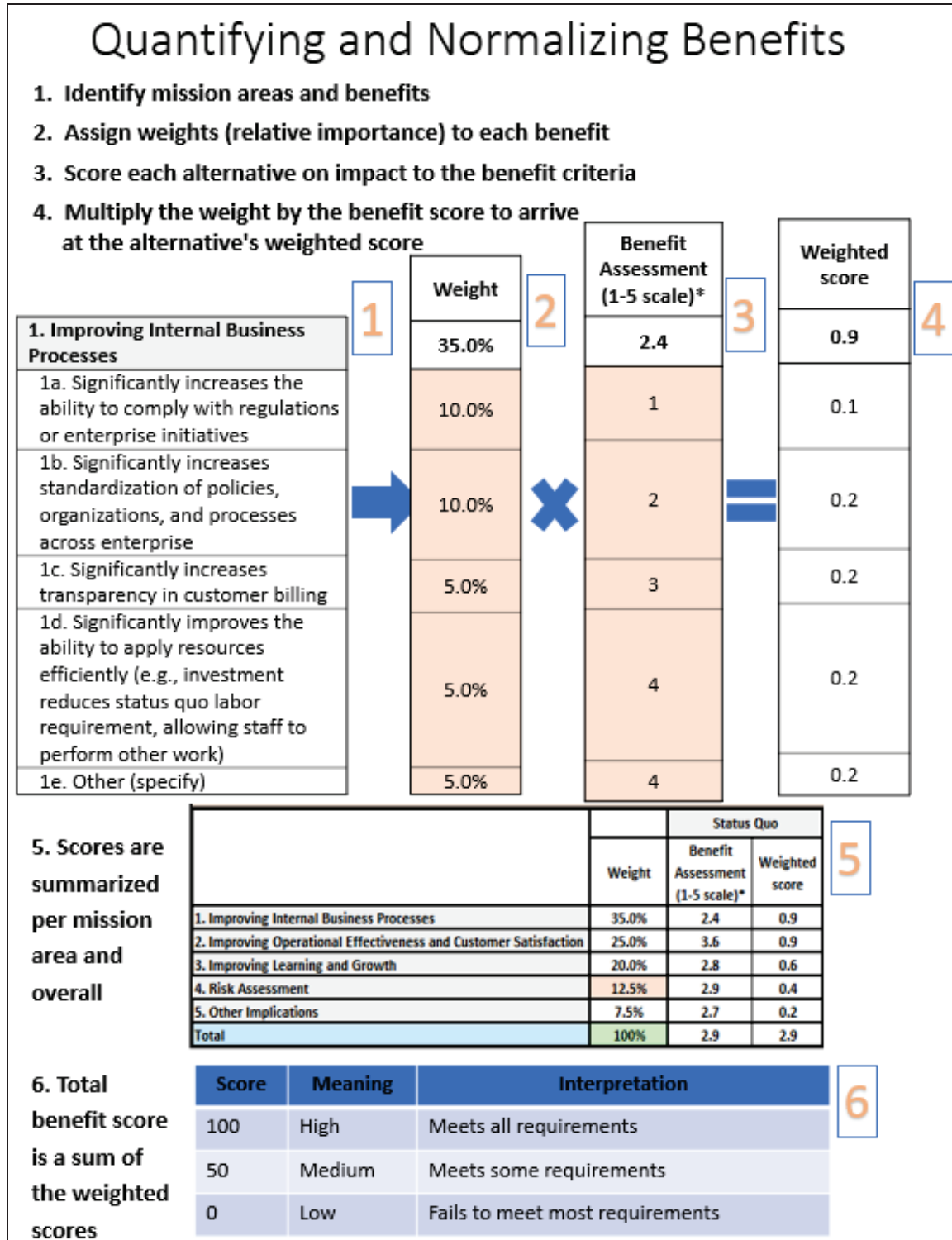


Figure 5 - Quantifying and Normalizing Benefit Assessment

All benefits associated with an investment are not necessarily of equal importance to the decision maker. Figure 5 illustrates the process of weighting raw benefits scores to account for decision-maker priorities for benefits. While some non-monetizable benefits implications can be expressed in objective and quantifiable terms, such as the % increase of IT system availability, some must be subjectively assessed by Subject Matter Experts (SMEs). In these cases, Likert scoring is applied, again using a 1-to-5 scale. To overcome mathematical limitation of ordinal scales that can be a limitation to Likert scoring, the Likert scale must meet the below criteria¹². This process allows for summation and averaging of Likert scores.

- Use a 3- or 5-point scale
- Clear extremes and neutral with equal distance between scores
- Must assume agree and disagree are equal distance between a neutral score and the appropriate ends of the scale

In the IVMF, both monetizable investment implications incorporated within the financial ROI calculation and non-monetizable implications are reported to inform investment selection and monitoring decisions.

Organizations, including federal agencies are collecting data on employee engagement, satisfaction, and workplace inclusivity, including perceptions of fairness, openness, and supportiveness. In addition, they record and analyze data on well-being program participation, attrition, and absenteeism. Yet DEIA measures are not always measured consistently nor applied effectively to inform workforce investments¹³. Within the IVMF, benefits assessment begins with a process to derive performance and process metrics for comparing investment options and managing investments selected over time. In 2022, the team partnered with MITRE social justice researchers Abuzaakouk et al. (2022)¹⁴ who analyzed data from the Office of Personnel Management (OPM) Federal Employee Viewpoint Survey (FEVS)¹⁵ and Equal Employee Opportunity Commission (EEOC) public sector complaints process¹⁶ and other data sources to confirm

¹² R. Fricker, "Coding and weighting survey data," 2012. [Online]. Available: <http://faculty.nps.edu/rdfricke/OA4109/Lecture%208-1%20--%20Coding%20and%20Weighting%20Survey%20Data.pdf>. [Accessed 2022].

¹³ Government Accountability Office (GAO), "State Department: Additional Actions Needed to Improve Workplace Diversity and Inclusion," 2021. [Online]. Available: <https://www.gao.gov/products/gao-22-105182>. [Accessed 2022].

¹⁴ A. AR. Abuzaakouk, B. Wilken, B. Pysher, E. K. Karpinski and K. S. Buck, "Assessing the relationship of the federal employee viewpoint survey (FEVS) new IQ scores with the number of EEOC equal employee opportunity complaints counseling sessions," The MITRE Corporation, 2022.

¹⁵ Office of Personnel Management (OPM), "Federal Employee Viewpoint Survey Data Reports," 2022. [Online]. Available: <https://www.opm.gov/fevs>. [Accessed 2022].

¹⁶ U.S. Equal Employment Opportunity Commission (EEOC), "Enforcement and Litigation Statistics," 2021. [Online]. Available: <https://www.eeoc.gov/statistics/enforcement-and-litigation-statistics>. [Accessed 2022].

correlations between workplace DEIA initiatives and increased employee inclusion and satisfaction, and reduction in EEOC complaints.

Building on these findings, additional research was undertaken to measure and link organizational goals with DEIA-related operational and process improvements to quantify benefits that drive DEIA SROI (see Table 3 - Defining Metrics to Quantify DEIA Benefits Table 3, which is an excerpt of a larger table). Customer service and organizational resilience were two of the goals identified across federal agencies. The initiative strategies identified in the table are focal for achieving the identified goals. Measurements of operational and business performance, including measures of effectiveness (MOEs) and of performance (MOPs) were then identified by the team that would assess progress of agencies in accomplishing initiative strategies. MOPs assess progress in delivering outputs that support achievement of outcomes (MOEs). Leveraging Information Technology Infrastructure Library (ITIL) service management guidelines¹⁷, the team then identified supporting measures (eMOEs and eMOPs) that would assess organizational progress in establishing and implementing processes to enable operational and business performance.

¹⁷ L. Rath, "ITIL Guide and Tools: Network Admin Tools," 2022. [Online]. Available: <https://www.netadmintools.com/itil-guide#wbounce-modal>. [Accessed 2022].



Table 3 - Defining Metrics to Quantify DEIA Benefits (Excerpt)

Goals	Initiative Strategies	MOE Measures of Effectiveness	eMOE Enabling Measures of Effectiveness Create, refine, and implement...	MOP Measures of Performance	eMOP Enabling Measures of Performance % improvement from prior period in...
Customer Service	Provide equity in customer service	Increase customer satisfaction index for disadvantaged groups	...customer service processes to address the needs of disadvantaged groups	% reduction in monetary benefits awarded for DEIA complaints	...creating or refining existing customer service policies to address requirements for equity in customer services
			...creating or refining complaint processes		...complying with enhanced customer service policies that promote equity
Organizational Resilience	Increase employee satisfaction	Design equitable systems		% completion with technology infrastructure, tools, and supports needed to drive ease of access and usability	
			...equitable pay policies	% increase in degree of pay equity for disadvantaged groups	...creating/refining equitable pay policies
		Improve health of disadvantaged employees	...employee health awareness and improvement initiatives	% improvement in average health assessment overall and by disadvantaged group	...complying with equitable pay policies
		Improve trust in leaders	...processes and systems to identify and monitor root causes of employee complaints by type and disadvantaged group and overall	% reduction in quantity of employee complaints	...establishing and implementing employee health awareness and improvement initiatives
			... processes and systems to recognize employees who exemplify impact in achieving organizational goals and priorities	% improvement in Leaders LEAD Employee Engagement Index	...establishing and maintaining complaint reporting, analysis, and follow-up processes and systems that provide detailed breakouts by disadvantaged group and overall
			...processes and systems for senior leaders to directly communicate with employees regarding organizational goals and priorities		...quantity and value of awards recognizing accomplishments by disadvantaged group and overall
		...processes and systems for supervisors to communicate organizational goals and priorities to employees	% improvement in Supervisors Employee Engagement Index	...quantity and quality of senior leader direct engagements with employees	
		...quantity and quality of supervisor direct engagements with employees			

Once performance and process metrics are derived for a given investment option, they are then abstracted for summary level benefits assessment within the IVMF. Table 4 shows an excerpt of the benefits table. Input cells for both weights and Likert scoring are peach-colored, and category-average scores are shaded in spotlight colors—high averages are green, low scores are red, and medium scores are amber.



Table 4 - Defining Metrics to Quantify DEIA Benefits (Excerpt)

EXCERPT NUMBERS ARE NOTIONAL	Weight	Status Quo		Investment - Initial		Investment - Updated	
		Benefit Assessment (1-5 scale)*	Weighted score	Benefit Assessment (1-5 scale)*	Weighted score	Benefit Assessment (1-5 scale)*	Weighted score
Increase Equity in Customer Service	14.0%	3.0	0.43	3.5	1.61	3.8	6.79
Increase customer satisfaction index for disadvantaged groups	14.0%	3.0	0.43	3.5	1.61	3.8	6.79
Reduction in monetary benefits awarded for DEIA complaints	4.0%	3	0.12	3	0.36	4	1.44
Improvement in creating or refining existing customer service policies to address requirements for equity in customer services	4.0%	4	0.16	5	0.80	5	4.00
Improvement in complying with enhanced customer service policies that promote equity	3.0%	3	0.09	3	0.27	3	0.81
Improvement in reducing complaint resolution wait time for disadvantaged groups and overall	3.0%	2	0.06	3	0.18	3	0.54
Increase Employee Satisfaction	15.0%	2.5	0.36	3.0	1.07	3.1	3.33
Design equitable systems	4.0%	3.0	0.12	3.0	0.36	3.0	1.08
Completion with technology infrastructure, tools, and supports needed to drive ease of access and usability	1.0%	3	0.03	3	0.09	3	0.27
Increase in degree of pay equity for disadvantaged groups	1.0%	4	0.04	3	0.12	3	0.36
Improvement in creating/refining equitable pay policies	1.0%	3	0.03	3	0.09	3	0.27
Improvement in complying with equitable pay policies	1.0%	2	0.02	3	0.06	3	0.18
Improve health of disadvantaged employees	4.0%	2.5	0.10	3.0	0.30	3.0	0.90
Improvement in average health assessment overall and by disadvantaged group	2.0%	3	0.06	3	0.18	3	0.54
Improvement in establishing and implementing employee health awareness and improvement initiatives	2.0%	2	0.04	3	0.12	3	0.36
Improve trust in leaders	7.0%	2.0	0.14	2.9	0.41	3.3	1.35
Reduction in quantity of employee complaints	1.0%	2	0.02	3	0.06	3	0.18
...establishing and maintaining complaint reporting, analysis, and follow-up processes and systems that provide detailed breakouts by disadvantaged group and overall	1.0%	1	0.01	2	0.02	3	0.06
Improvement in Leaders Lead Employee Engagement Index	1.0%	2	0.02	3	0.06	3	0.18
...quantity and value of awards recognizing accomplishments by disadvantaged group and overall	1.0%	2	0.02	3	0.06	4	0.24
...quantity and quality of senior leader direct engagements with employees	1.0%	2	0.02	3	0.06	3	0.18
Improvement in Supervisors Employee Engagement Index	1.0%	2	0.02	3	0.06	4	0.24
...quantity and quality of supervisor direct engagements with employees	1.0%	3	0.03	3	0.09	3	0.27

Internally focused benefits assessment (e.g., employee satisfaction), in and of itself, is important but insufficient to determine outcomes as experienced by stakeholders external to the organization (e.g., other agencies, citizens, etc.). The contribution of investment outputs experienced internal to the organization can inform the nature and magnitude of ultimate outcomes if strong correlations can be identified between benefits to employees of DEIA workplace initiatives and impacts experienced by external stakeholders (see Figure 6). For example, employees may be satisfied, but evidence has not confirmed a strong, direct correlation between employee and customer satisfaction. The MITRE team is further investigating and analyzing available data to credibly relate measurement of benefits internal to the organization to program impact on customer service and experience of external stakeholders (e.g., customers).

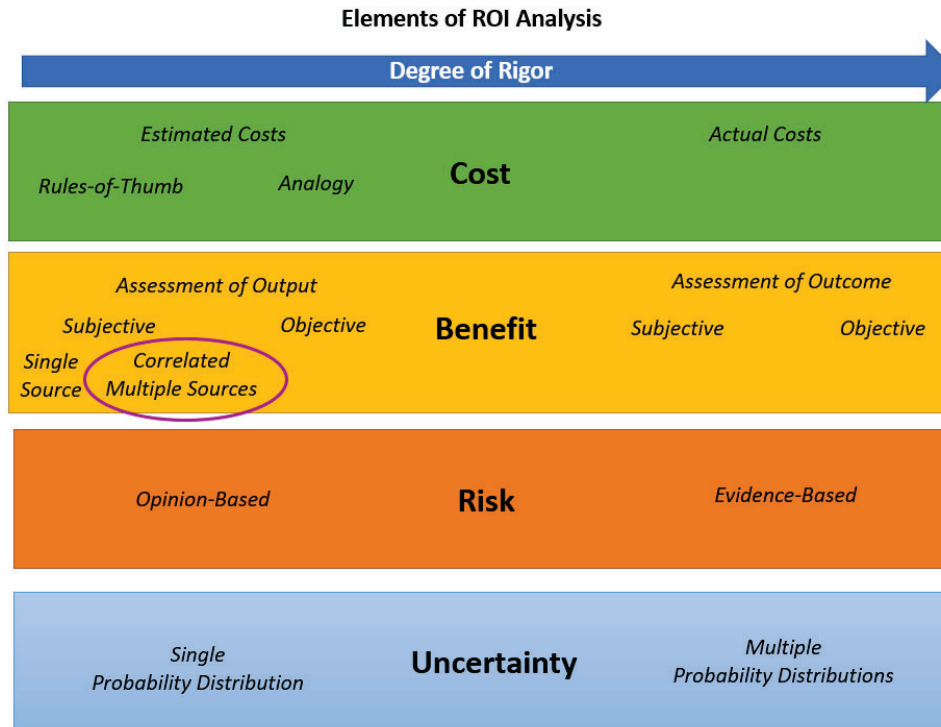


Figure 6 - Elements and Rigor of ROI Analysis

Workplace DEIA Investment Uncertainty and Risk

As federal agencies begin implementing DEIA workplace initiatives to comply with regulation, there is limited experiential data available for estimating costs and benefits. The IVMF identifies critical ROI drivers for uncertainty, risk, in addition to cost and benefit. Uncertainty may significantly influence investment selection and management decisions. Model users identify ranges of uncertainty and probabilities associated with cost and benefit estimates, and the IVMF produces ROI results that reflect the impact of uncertainty.

Federal agencies are typically required to identify and assess risks associated with major initiatives such as workplace DEIA investment along typical program office risk categories. The IVMF creates 5 x 5 risk matrix results for investment options that can support initial investment selection and on-going management of selected investments (see Figure 7). The scoring of the 5 x 5 matrix has been inverted from typical matrices so that benefit and risk scoring align. Individual risks are averaged for each category and overall to create the high-level risks scores. The Risk Likert Scales takes the same approach and considerations that were applied to the Benefit Section Likert Scores. This allows for the averaging and summation of the 1 to 5 rankings. As was the case for benefits scoring, the same criteria for summation and averaging of Likert scores applies to the risk Likert scales—using a 3- or 5-point scale, clear extremes and neutral with equal distance between scores, and assumption that “agree” and “disagree” are equal distance between a neutral score and the appropriate ends of the scale.

Analyze Risk

1	Business/Programmatic: The investment poses minimal risk that could adversely affect the program's viability and budget.
	Funding is timely and will not delay initiation of target environment and application migration; Ample funding levels to sustain/operate target environment.
	New acquisitions, contracts, SLAs, relationships between customers and service providers are not obstacles to timely achievement of end state; Investment in refresh/maintenance of existing environment is not required.
	Operational: The the ability to perform the mission is minimally affected by the investment risks.
	Service levels and system performance (consider application performance, network latency, etc.) will be unaffected by changes in operating environment.
	Sufficient levels of data security.
	Change in operating procedures will not require additional training.
	Technical: Minimal risk affecting transition to new investment or investment's ability to provide required capabilities.
	Limited constraints in the environment that could impede transition to new investment.
	Target environment meets all requirements and provides capacity/flexibility for future needs.
	Schedule: Sufficient time allocated to perform the defined tasks; Minimal risk of errors in schedule estimation, programmatic schedule decisions, or external impacts and constraints.
	Target environment (including facilities, people, systems and enabling contracts and SLAs) can be established in the designated timeline.
	Organizational: Minimal risk affecting ease of change implementation within and organization; Includes ability to provide personnel and skills required to implement the change.
	Establishing effective relationships/roles among stakeholders will require minimal effort.
	Sufficient personnel resources with the required skills available to establish, transition to, operate and sustain the target environment.
	Stakeholders are not resistant to relinquishing control.



1. Identify categories and risks
2. Assign weights (relative importance) to each risk
3. Determine the likelihood and impact for each risk
4. The risk score is a product of likelihood by impact
5. An alternative's weighted risk score is a summation of each risk's weighted score

	Risk Weight	Likelihood <small>1=near certainty, 2=highly likely, 3=likely, 4=unlikely, 5=remote</small>	Impact <small>1=catastrophic, 2=severe, 3=moderate, 4=minimal, 5=negligible</small>	Risk Score	Weighted Risk Score
Business/Programmatic: The investment poses minimal risk that could adversely affect the program's viability and budget.	10.0%	4	1	4.0	0.4
Funding is timely and will not delay initiation of target environment and application migration; Ample funding levels to sustain/operate target environment.	5.0%	3	1	3.0	0.2
New acquisitions, contracts, SLAs, relationships between customers and service providers are not obstacles to timely achievement of end state; Investment in refresh/maintenance of existing environment is not required.	5.0%	5	1	5.0	0.1

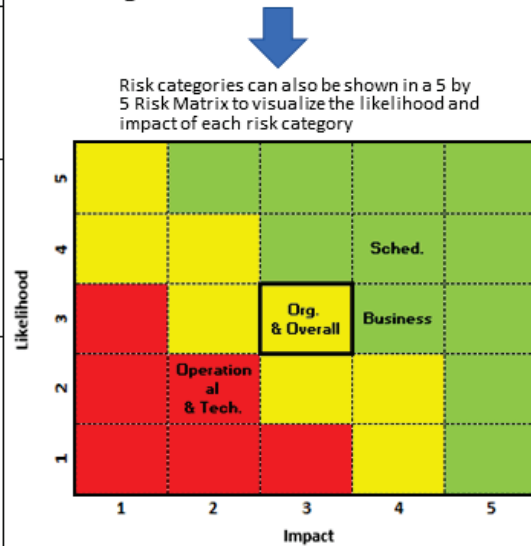


Figure 7 – IVMF Risk Assessment and Monitoring

DEIA SROI

The IVMF optimizes selection, elimination and balancing of government workplace DEIA investments based on priorities, costs, benefits, uncertainty, and risks. Initial investments are selected and compared to other candidates. Selected investments are monitored, and an Early Warning System (EWS) is applied on an on-going basis to determine if the initial SROI expectations are in fact observed. Corrective actions may be recommended, leading to selection of new data sources, modifications of the thresholds used to evaluate SROI, or even retirement of the current investment. The IVMF offers default corrective actions, which can be tailored by model users, based on magnitude of expected versus actual variance.

The team piloted the IVMF by evaluating the SROI of civic-minded investments in public-private partnerships to incentivize business continuity in the aftermath of disasters, such as hurricanes¹⁸. SROI is relevant when investment costs and benefits are difficult to objectively quantify. It systematically incorporates social, economic, and environmental considerations into investment decision-making processes¹⁹.

Future Steps

Further research of workplace investment impact on customers, not just employees, and incorporating cost data is necessary to evaluate the effectiveness of modeling SROI analysis for DEIA investment decision-making. While the current research created a template for DEIA investment evaluation and monitoring, as well as an opportunity to incorporate some aspects of benefits analysis, additional research must be conducted to produce data for comprehensive benefits assessment and the incorporation of cost, uncertainty, and risk consideration.

Future steps with this research will validate the feasibility and utility of applying the IVMF to select and monitor large-scale government DEIA investments across the dimensions of cost, benefit, risk, and uncertainty. The challenges to overcome include lack of cost-related data, the necessity of relying on subjective assessments, and credibly assessing the impact of investments that positively affect employee attitude, behavior, and sense of belonging on customer and other stakeholder satisfaction. Future efforts will be prioritized according to early adoption of IVMF by government sponsors. With the newness of DEIA workplace enhancement mandates, it is likely that initial support requests will be at the agency level and will focus on baselining current DEIA workplace culture and processes and designing program structures and systems.

Research will be conducted in incremental phases, first expanding the benefits assessment capability within IVMF to evaluate correlation between employee satisfaction resulting from DEIA investments and customer satisfaction. While the

¹⁸ K. S. Buck, The MITRE Corporation, 2019.

¹⁹ M. Salverda, "Social Return on Investment. BetterEvaluation," n.d.. [Online]. Available: <http://betterevaluation.org/approach/SROI>. [Accessed 2022].

research team will continue investigating other data sources, a survey will also be administered to a small population of MITRE organizations and MITRE sponsor organizations representing opposing extremes of DEIA investment.

Additionally, surveys will be conducted within and external to MITRE to assess relative magnitude of investments and other expenditures for organizations who have undertaken DEIA improvement initiatives. The results of these surveys will support ROI analysis based on subjective assessment of cost implications (e.g., a relatively minimal investment of upfront capital expenditure to produce and distribute DEIA materials to employees results in a moderate degree of improvement in employee sense of belonging).

The IVMF is available for agencies actively seeking to design, plan, execute and sustain DEIA investments and can serve as a customized tool tailored specific to their organization. Agencies can estimate costs based on actual DEIA initiative specifications. Performance (e.g., correlation between employee and customer satisfaction) will be baselined prior to investment in strategic, operational and process improvements, and will be subsequently reassessed several months after the investments have been made. The observational data collected will then be leveraged to automate investment selection and monitoring evaluations within the tailored IVMF.

MITRE's mission-driven teams are dedicated to solving problems for a safer world. Through our public-private partnerships and federally funded R&D centers, we work across government and in partnership with industry to tackle challenges to the safety, stability, and well-being of our nation.

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