

CPBM Research Subcommittee

Research Pipeline Assessment

CPBM Research Pipeline Master Sheet

Main Category	TAM	Risk & Resilience	Environment & Health	Performance Management	System Operations & Safety	Organizational Management	Workforce & DEI	Data & Information	Emerging Technologies	Active Transportation	Public Transportation
(Key words to guide alignment of major category)	(Infrastructure, Maintenance Management, Preservation, Renewal, Life Cycle Management, Asset Valuation)	(BIM, Climate Change, Extreme Weather, Pandemic, Emergency Management)	(GHG, Inclusion, Safety/Well Support, Health Access)	(Performance-Based Planning & Programming Metrics, Target Setting, Resource Allocation)	(Traffic Operations, TAM, Traffic Engineering, Safety)	(Process Improvement, Leadership, Public/Private Partnerships, Funding, Legislation, RIA Communication)	(Knowledge Management, Competency, Diversity, Equity, Inclusion)	(Data Collection, Analytics, Visualization, Reporting)	(EVs, CAVs, AVs, LiDAR, 5G, etc.)	(Bike/Ped, Non-Motorized)	(Transit, Transit Services)
CONCEPTS (current candidate research projects)											
EM - Carbon Reduction/Resilience- Measuring performance and goals on resiliency and reducing emissions from the transportation system		X	X	X							
EM - Developing tools for estimating the GHG impacts of projects for target setting, project prioritization, and potentially tracking performance over time		X	X	X							
ERM - 20-44 Implementation (rolling deadline) - Looking for an implementation project from existing research projects or one in progress (potentially 08-151 / 23-157)		X		X							
ERM - Incorporating uncertainty into forecasting, target setting, and monitoring		X		X							
ERM - Risk based approach in programming - machine learning for bundling group projects		X		X					X		
QM - Effectiveness of improvement efforts				X				X			
QM - Evaluation of process improvement techniques				X				X			
QM - Feedback mechanisms - How well are we doing (UDOT)				X				X			
QM - Linking performance management, risk, process improvement		X		X				X			
QM - Scenario Planning				X				X			
QM - Implementation of new electric vehicles, charging stations, how it has been pushed to go quickly prior to start of funding, setting up for the future, building a network of charging stations, making sure it is set up well as it is rolled out quickly								X	X		
QM - Knowledge Management								X	X		
QM - Vision for transport tables/boards								X		X	X
SMET - Accessing, assessing, and using quality non-motorized pedestrian and bike) and transit data for planning and operational needs			X					X			
SMET - Assessing the impacts of technology deployments and pilot system performance, including operational efficiency and safety					X			X			
SMET - Incident Response preparedness from digital performance perspective					X			X			
TAM - Examples of the integration of TAM/TAMSM	X	X		X							
TAM - Impacts of Evion deterioration curves for bridges and pavement	X										
TAM - Impacts of UAS on bridge programs TAM	X										
TAM - Service life for mechanized construction	X										
TAM - Synthesis of the use of cost estimation TAM systems	X							X			
TAM - Workforce development for asset management through University curriculum development	X							X			
PROGRAMMED											
ALL - NCHRP 23-34 Advancing Comprehensive Performance Measurement of Transportation Outcomes				X							
ERM - NCHRP 23-35 Developing New Performance Metrics for Asset Management		X									
ALL - NCHRP 23-37 Guide for Effectively Linking Performance Measures, Risk Management, and Process Improvement		X									
TAM - NCHRP 23-38 Incorporating BIM Management into Maintenance Practice	X	X				X					
SMET - NCHRP 23-41 Using Emerging Technologies to Capture, Process, and Optimize Asset Inventory and Condition Data	X							X	X		
ACTIVE											
ALL - NCHRP 08-107 A Guide for Creating Effective Visual Aids								X			
ALL - NCHRP 08-108 Analysis and Assessment of the National Performance Management Data						X		X			
TAM - NCHRP 08-109 Equity, Diversity, and Inclusion) and Other Indicators to Improve TAM Impact and Outcomes	X							X			
ERM - NCHRP 23-32 Development of the AASHTO Highway Asset Risk & Resilience Manual- Phase 1 Management Operations (TRAO)	X	X			X						
TAM - NCHRP Synthesis 20-05/Topic 52-01 Highway Infrastructure Inspection Practices for the Digital Age	X							X	X		
TAM - NCHRP 13-06A Guide for the Formulation of Long-Range Plans and Budgets for Replacement of Highway Operations Equipment	X				X						
SMET - NCHRP 14-42 Determining the Impact of Connected and Automated Vehicle Technology on State DOT Maintenance Programs	X								X		
TAM - ACRP 09-21 Guidelines for the Effective Transition of Asset Data from Design/Construction to Operations and Maintenance	X							X			
ALL - NCHRP 08-137 Further Enhancements and Content for the AASHTO Transportation Asset Management Guide	X							X			
TAM - NCHRP 08-136 Guidance on Using Performance-Based Management Approaches for Maintenance	X							X			
RECENT											
TAM - NCHRP Synthesis 20-05/Topic 52-02 Using Bridge Element Data in Asset Management Decision Making	X							X			
QM - NCHRP 02-25 Attracting, Retaining, and Developing the Transportation Workforce: Design, Construction and Maintenance								X			
TAM - NCHRP 23-08 A Guide for Incorporating Maintenance Costs into a Transportation Asset Management Plan	X										
ERM - NCHRP 23-09 Scoping Study to Develop the Basis for a Highway Standard to Conduct an All-Hazards Risk and Resilience Analysis		X									
ALL - NCHRP 20-24(1/2) Performance Management Implementation Concerns, Issues and Challenges						X					
SMET - NCHRP 08-127 Emerging Issues: Impact of New Disruptive Technologies on the Performance of DOTs						X			X		
ALL - NCHRP 23-07 Effective Methods for Setting Transportation Performance Targets					X						
ERM - NCHRP 20-127 Business Case and Communications Strategies for State DOT Resilience Efforts		X				X					
TAM - NCHRP 02-26 Implementation of Life Cycle Planning Analysis in a Transportation Asset Management Framework	X										
TAM - NCHRP 03-140 Guidelines for Applications of RFID and Wireless Technologies in Highway Construction and Asset Management	X										
ALL - NCHRP 08-113 Integrating Effective Transportation Performance, Risk, and Asset Management Practices (NCHRP Research Report 985)	X	X			X					X	
TAM - NCHRP Project 08-115 NCHRP Report 956 - Guidebook for Data and Information Systems for TAM	X							X			
ERM - NCHRP 08-118 Risk Assessment Techniques for Transportation Asset Management	X	X									
TAM - NCHRP Synthesis 20-05/Topic 51-05 Collaborative Practices for Performance-Based Asset Management between State Transportation Agencies and Metropolitan Planning Organizations	X				X						
TAM - NCHRP 23-06 A Guide to Computation and Use of System Level Valuation of Transportation Assets	X										
TAM - NCHRP 20-45/Task 77 Lessons Learned and Impacts to Date of State DOT Implementation of New Federal Transit Asset Management and Public Transportation Agency Safety Requirements	X					X					X
ALL - NCHRP 20-116 A Pandemic Playbook for Transportation Agencies (NCHRP Research Report 963/TCRP Research Report 225)		X				X					
ALL - TCRP Project A-42 Minuteman - A Bus Transit Service Reliability Guidebook (TCRP Research Report 215)	X										X
ALL - NCHRP Synthesis 20-05/Topic 51-19 Performance Metrics for Public-Private Partnerships (NCHRP Synthesis 543)					X						
SMET - NCHRP Project 08-114 Guidebook for Managing Data from Emerging Technologies for Transportation						X		X	X		
SMET - NCHRP Synthesis 561 Use of Vehicle Probe and Cellular GPS Data by State Departments of Transportation								X	X		
ERM - NCHRP Research Report 975 Transportation System Resilience: Research Roadmap and White Paper		X									
ERM - NCHRP Research Report 976 Resilience Primer for Transportation Executives		X									
ALL - NCHRP 17-43 Guidelines for the Development and Application of Crash Modification Factors (NCHRP Research Report 991)					X			X			
ALL - NCHRP 17-78 Reliability of Crash Prediction Models: A Guide for Quantifying and Improving the Reliability of Model Results (NCHRP Research Report 983)					X			X			
ALL - ACRP Research Report 222 Collecting and Sharing of Operations and Safety Data					X			X			
SMET - NCHRP Synthesis 559 Emerging Challenges to Priced Managed Lanes					X			X			
ALL - TCRP Research Report 228 Resource Guide for Improving Diversity and Inclusion Programs for the Public Transportation Industry (2021)								X			X
ALL - NCHRP 08-105 Measuring the Effectiveness of Public Involvement in Transportation Planning and Project Development					X						
ALL - NCHRP 25-54 Reducing Greenhouse Gas Emissions: A Guide for State DOTs		X	X								
ERM - NCHRP Research Report 986 Implementation of the AASHTO Guide for Enterprise Risk Management		X									
ALL - NCHRP Research Report 992 Guide to Pedestrian Analysis			X								
QM - NCHRP 08-125 Attracting, Retaining, and Developing the Transportation Workforce: Transportation Planners (NCHRP Research Report 980)								X			
QM - NCHRP Research Report 1008: Attracting, Retaining, and Developing the 2030 Transportation Workforce: Design, Construction, and Maintenance								X			
ERM - NCHRP 20-117 Maintaining System Resilience Concepts in a Transportation Agency: A Guide		X						X			

Organizing Elements

CPBM Subcommittees

- **EM** – Emerging Measures
- **ERM** – Enterprise Risk Management
- **OM** – Organization Management
- **SMET** – System Mobility and Emerging Technologies
- **TAM** – Transportation Asset Management
- **All** – Covers multiple topics

Relevant Topics

- **TAM** (Infrastructure, Maintenance Management, Preservation, Renewal, Life Cycle Management, Asset Valuation)
- **Risk & Resilience** (ERM, Climate Change, Extreme Weather, Pandemic, Emergency Management)
- **Environment & Health** (GHG, Emissions, Bike/Ped Support, Health Access)
- **Performance Management** (Performance-Based Planning & Programming, Metrics, Target Setting, Resource Allocation)
- **System Operations & Safety** (Traffic Operations, TSMO, Traffic Engineering, Safety)
- **Organizational Management** (Process Improvement, Leadership, Public/Private Partnerships, Funding, Legislation, IIJA, Communication)
- **Workforce & DEI** (Knowledge Management, Competencies, Diversity, Equity, Inclusion)
- **Data & Information** (Data Collection, Integration, Analysis, Visualization)
- **Emerging Technologies** (EVs, CAVs, AI/ML, LiDAR, RFID, Wireless)
- **Active Transportation** (Bike/Ped, Non-Motorized)
- **Public Transportation** (Transit, Transit Agencies)

Projects X Stage X Subcommittee

	Concept	Programmed	Active	Recent	Total
EM	2				2
ERM	3	1	1	7	12
OM	8			3	11
SMET	3	1	1	4	9
TAM	6	1	6	9	22
ALL		2	3	13	18

Funding X Stage X Subcommittee

	Concept	Programmed	Active	Recent	TOTAL
EM					
ERM		\$500,000	\$4,000,000	\$3,076,200	\$7,576,200
OM				\$1,700,000	\$1,700,000
SMET		\$500,000	\$450,000	\$740,000	\$1,690,000
TAM		\$500,000	\$2,170,000	\$2,455,000	\$5,125,000
ALL		\$875,000	\$1,375,000	\$5,336,617	\$7,586,617
TOTAL		\$2,375,000	\$7,995,000	\$13,307,817	\$23,677,817

Topics X Projects X Subcommittee

	TAM	Risk/Resil.	Env.&Health	Perf Mgt	SO & Safety	OM	Workf&DEI	Data&Info	EmergTech	Active	Transit	TOTAL
ALL	3	4	2	8	3	3	1	6	0	1	2	33
EM	0	2	2	2	0	0	0	0	0	0	0	6
ERM	1	12	1	2	0	2	0	0	1	0	0	19
OM	0	1	0	4	0	7	4	1	1	0	0	18
SMET	2	0	1	0	3	1	0	4	7	1	1	20
TAM	21	2	0	2	2	2	2	5	3	0	1	40
TOTAL	27	21	6	18	8	15	7	16	12	2	4	

Discussion

- Are we delivering on the what we planned?
- Where do we need more concepts?
- How many concepts need to be developed into full project candidates?
 - Which concepts should be chosen?

Active projects

ACTIVE

ALL - NCHRP 08-167 A Guide for Creating Effective Visualizations

ALL - NCHRP 08-168 Analysis and Assessment of the National Performance Management Data

TAM - NCHRP 08-169 EDI (Equity, Diversity, and Inclusion) and Other Indicators to Improve TAM Impact and Outcomes

ERM - NCHRP 23-32 Development of the AASHTO Highway Asset Risk & Resilience Manual: Phase 1 Management Operations (TSMO)

TAM - NCHRP Synthesis 20-05/Topic 52-01 Highway Infrastructure Inspection Practices for the Digital Age

TAM - NCHRP 13-06A Guide for the Formulation of Long-Range Plans and Budgets for Replacement of Highway Operations Equipment

SMET - NCHRP 14-42 Determining the Impact of Connected and Automated Vehicle Technology on State DOT Maintenance Programs

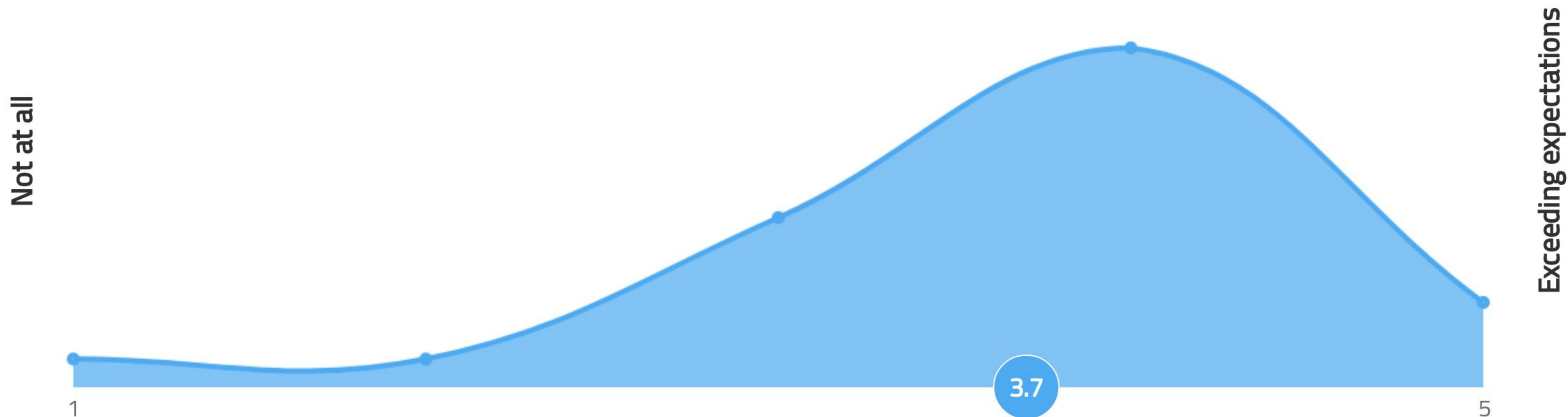
TAM - ACRP 09-21 Guidelines for the Effective Transition of Asset Data from Design/Construction to Operations and Maintenance

ALL - NCHRP 08-137 Further Enhancements and Content for the AASHTO Transportation Asset Management Guide

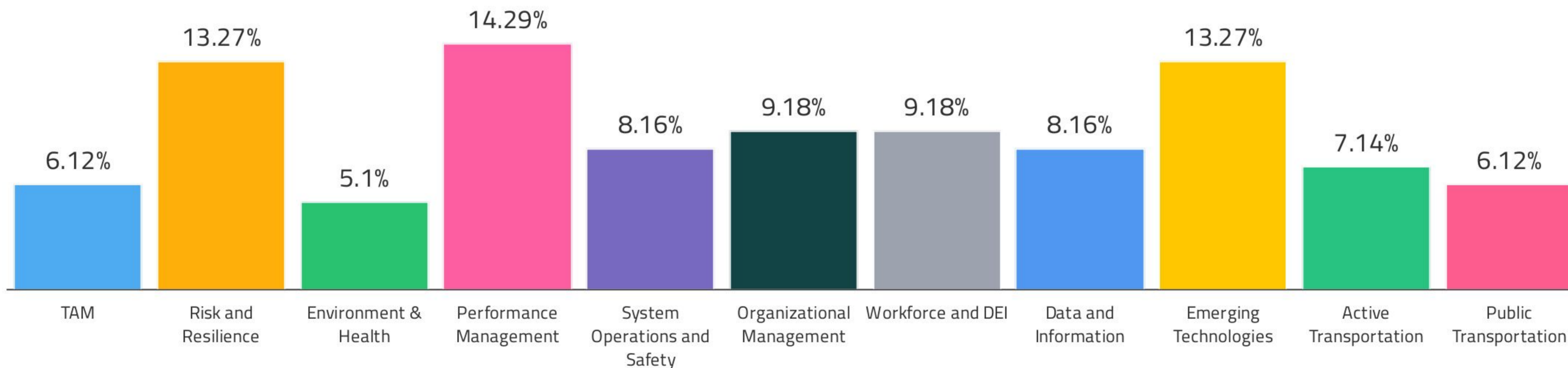
TAM - NCHRP 08-136 Guidance on Using Performance-Based Management Approaches for Maintenance

Straw Poll - Are we delivering on what we planned?

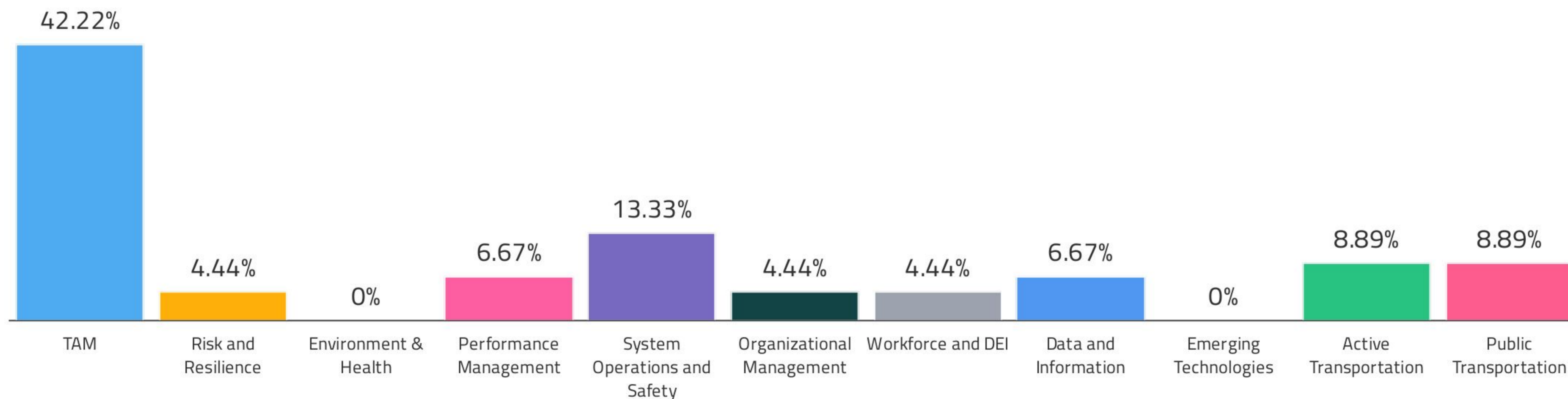
Are we delivering on what we planned



Straw Poll - which topic do you think we need more concepts in?



Straw Poll - which topic do you think we have done enough research concepts in?



Are there additional topics (not captured) where we need concepts? (open-ended)

- Public Value
- Leadership support
- Emerging areas
- ROI of investments
- Emerging performance areas
- Organizational focus and alignment
- Intersection of Strategic Planning and Performance Management
- Cross category collaboration
- Ports and Freight Movement Measures
- Less sad faces
- More Asset Management
- Politics (and it's impact on organizational and system performance efforts)
- Workforce / Culture
- Benefit cost analysis
- AI-ML.Standards i.e. Before and After Analysis. National Data Sets.Analytics
- Review of plan goals, we're they met, etc.
- Emerging areas
- Public value
- Multi-modal person trips
- Equity and social impact
- ROI
- Recommend separating risk from resilience. Risk-specific research can be a stand-alone topic since it's a tool that can be applied in any context.
- Customer Experience
- Administrative



What program element / requirement should be integrated into the research pipeline and process? For instance: A state DOT engagement should be included in all projects with research for the committee, for example a research roadmap

- State DOT engagement, interim reporting of findings/observations, pilot implementations
- Targeted marketing for completed research
- NCHRP needs to fundamentally change the way they are doing business...very difficult to work within outdated concepts and rules
- Collaboration with other bodies that are working on similar topics, such as PIARC, ITS America, etc.
- Pilot implementation post report as a next phase of the research.
- Digital research products
- Utilize pool funds more for research that state DOTs want to retain more control
- Reduce cost of research projects
- We need other ways to execute research beyond NCHRP. Their processes are too ossified for many of our needs.
- More options for faster turn around research
- Means of providing on-going support of reports/materials/findings
- Alternative research avenues- faster, more with the times, more relevant
- Concrete implementation. Or a truly useable and timely:relevant product
- Maybe fewer research with more strategic focus overall
- Revisiting 'hook' (need to use) to provider of researcher if product is created
- The current process is expensive (a racket) .cost are significant with limited output.
- I like that research should have a final product that can be used and not just a report but an example or tool
- Projects directly impacting a Committee/Subcommittee, such as creation of research maps and strategic plans should be contract directly through AASHTO and not NCHRP
- The number of DOTs on panels needs to be increased, at least for DOT sponsored projects
- Increased accountability
- Shorter time lines for results to be made available..
- Too much duplicate and overlapping research..tax dollars wasted ..

Straw Poll: How many concepts should be developed into full project candidates?

