OCTOBER 18, 2023

State of Cities:

Generative AI in Local Governments

Bloomberg Philanthropies

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Executive Summary

Generative AI (Gen AI) promises to revolutionize the way cities work and, with strategic implementation, has the potential to vastly improve local governments' efficiency, its capacity to innovate, and, most importantly, its efforts to improve residents' lives. Getting there, however, necessitates a better understanding of how this new technology is already being put to work, where it presents the best opportunities, and what pitfalls could get in the way of progress. This research, which included a two-survey process including 100 Mayors and city staff from around the world, addresses these questions and key trends in today's evolving Gen AI landscape, including:

MAYORS' INTEREST IN GENERATIVE AI

- 96% of surveyed mayors expressed interest in using Gen AI.
- Their biggest questions center around the technology's implementation, impact on city services and efficiency, and its ethical, legal, and social implications.

CITIES' USE OF GENERATIVE AI

- While only 2% of surveyed cities are actively implementing Gen AI, 69% are exploring or testing the technology.
- 22% of surveyed cities have designated a Gen AI lead, 13% have developed policies and guidelines around its use, and 11% have provided Gen AI training to staff.
- Cities see the most potential in leveraging Gen AI to address traffic and transportation (34%), infrastructure (24%), public safety (21%), environment and climate (21%), and education (18%).
- Most cities reported exploring the use of Gen AI for data analysis (58%), citizen-service assistance (53%), and drafting memos, documents & reports (47%).
- Four in five cities reported that security and privacy (81%), and accountability & transparency (79%) are the key ethical principles guiding their exploration and use of generative AI.

OPPORTUNITIES AND BARRIERS

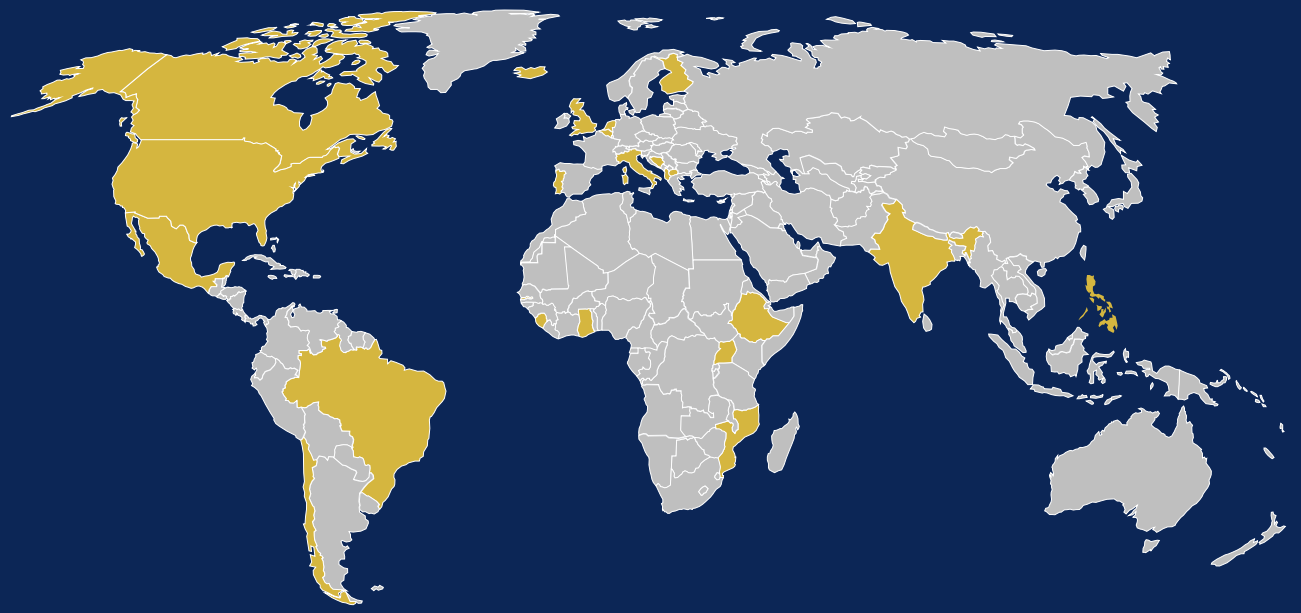
- Opportunities for use of generative AI among cities include improving citizen engagement (81%), enhancing data-driven policymaking (76%), and optimizing service delivery (74%) and administrative processes (70%).
- Cities reported multiple barriers to Gen AI adoption, with 74% citing insufficient technical expertise, 72% indicating a lack of awareness, and 70% referencing budget constraints.

AREAS OF COLLABORORATION

- Cities expressed strong willingness to collaborate and share expertise in using Gen AI to tackle urban challenges, in advancing Gen AI knowledge, and in developing best practices and policies for responsible use of Gen AI.

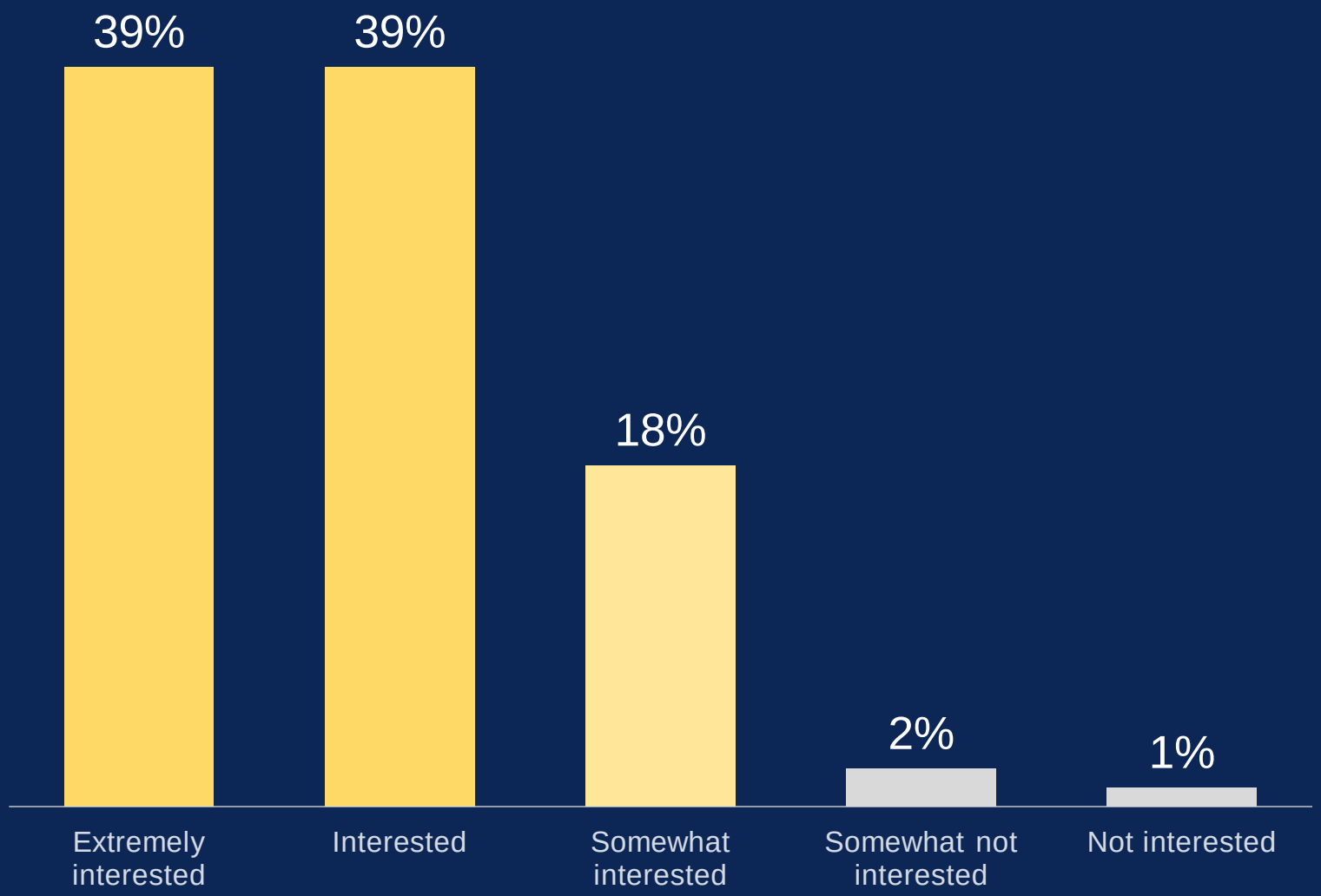
2 Mayors' interest in generative AI

80 mayors across the globe participated in the research



Adama, Ethiopia
Allentown, Pennsylvania, USA
Amherst, New York, USA
Banjul, The Gambia
Baton Rouge, Louisiana, USA
Butuan City, Philippines
Charleston, South Carolina, USA
Chattanooga, Tennessee, USA
Columbia, South Carolina, USA
Dubuque, Iowa, USA
Durham, North Carolina, USA
Elizabeth, New Jersey, USA
Fargo, North Dakota, USA
Fort Collins, Colorado, USA
Freetown, Sierra Leone
Gezer, Israel
Glasgow, Scotland
Greater Manchester, United Kingdom
Hampton, Virginia, USA
Helsinki, Finland
Hermosillo, Sonora, México
Highland Park, Illinois, USA
Huntington, West Virginia, USA
Jackson, Mississippi, USA
Kansas City, Kansas, USA
Kitchener, Ontario, Canada
Knoxville, Tennessee, USA
Kumasi, Ghana
Lancaster, Pennsylvania, USA
Lansing, Michigan, USA
Lincoln, Nebraska, USA
Liverpool, England
Maipú, Región Metropolitana, Chile
Masaka, Uganda
Missoula, Montana, USA
Mogi das Cruzes, São Paulo, Brasil
Moncton, New Brunswick, Canada
Monterrey, Nuevo León, México
Montevideo, Uruguay
Nansana Municipality, Uganda
New Bedford, Massachusetts, USA
New Orleans, Louisiana, USA
Oklahoma City, Oklahoma, USA
Paterson, New Jersey, USA
Providence, Rhode Island, USA
Quelimane, Mozambique
Quillota, Valparaíso, Chile
Raleigh, North Carolina, USA
Regina, Saskatchewan, Canada
Renca, Chile
Reykjavik, Iceland
Rochester, Minnesota, USA
Rourkela, India
Sacramento, California, USA
San Bernardino, California, USA
San Francisco, California, USA
San Pedro Garza García, Monterrey, México
Sandy Springs, Georgia, USA
Santa Fe, New Mexico, USA
Sarajevo, Bosnia and Herzegovina
Scottsdale, Arizona, USA
Scranton, Pennsylvania, USA
Sintra, Portugal
Skopje, Macedonia
South Yorkshire, United Kingdom
St. Louis, Missouri, USA
St. Petersburg, Florida USA
Stamford, Connecticut, USA
Tacoma, Washington, USA
The Hague, Netherlands
Tirana, Albania
Torino, Italy
Tulsa, Oklahoma, USA
Turku, Finland
Vancouver, Washington, USA
West Palm Beach, Florida, USA
West Sacramento, California, USA
White Plains, New York, USA
Youngstown, Ohio, USA

78% of Mayors said they are interested or extremely interested in using generative AI



> *(I am) interested in how AI might help us predict where house fires might occur, how we might lower healthcare claims, and predict street violence…*

Key questions from Mayors about generative AI in cities centered around its implementation, impact on city services and efficiency, and ethical, legal, and social implications

IMPLEMENTATION AND ADOPTION OF GENERATIVE AI IN CITIES

- Exploring opportunities and challenges in adopting generative AI
- Identifying the sectors and services where AI can be applied
- Ensuring data privacy and addressing risks associated with implementation
- Building governance and policies for responsible use of generative AI

WORKFORCE TRANSFORMATION AND JOB IMPACTS

- Assessing the impact of AI on current jobs and future job growth
- Addressing concerns about unemployment, displacement, and skill requirements
- Redefining roles to focus on more meaningful aspects of work with AI support
- Balancing labour group resistance with the potential benefits of automation

IMPACT ON CITY SERVICES AND EFFICIENCY

- Enhancing communication and effectiveness of city services through AI
- Improving customer service while ensuring information security
- Optimizing resource allocation and decision-making through data analysis
- Creating efficiencies in delivering city services and improving quality of life

ETHICAL, LEGAL, AND SOCIAL IMPLICATIONS OF GENERATIVE AI IN CITIES

- Examining legal frameworks for using generative AI in government settings
- Addressing ethical considerations, privacy concerns, and bias mitigation
- Promoting transparency, accountability, and democratic governance in AI use
- Evaluating the socio-economic implications of generative AI adoption

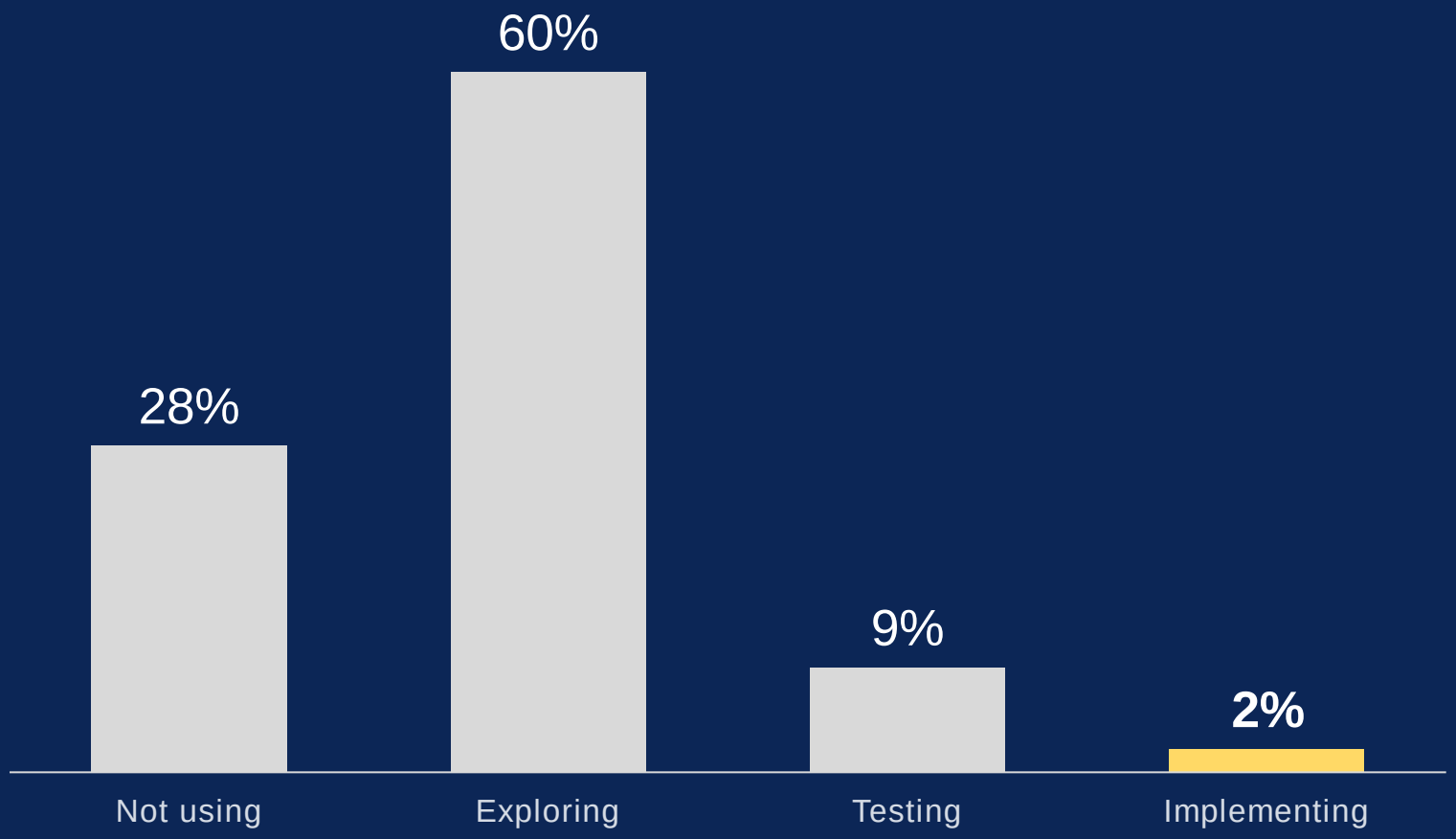
Note: Results from thematic analysis of narratives shared by 82 mayors across the globe

3 Cities’ use of generative AI

53 of responding cities provided further details on their generative AI plans and priorities

Adama, Ethiopia
Allentown, Pennsylvania, USA
Amherst, New York, USA
Banjul, The Gambia
Butuan City, Philippines
Charleston, South Carolina, USA
Chattanooga, Tennessee, USA
Dubuque, Iowa, USA
Fargo, North Dakota, USA
Freetown, Sierra Leone
Glasgow, Scotland
Greater Manchester, United Kingdom
Helsinki, Finland
Hermosillo, Sonora, México
Huntington, West Virginia, USA
Kansas City, Kansas, USA
Kitchener, Ontario, Canada
Knoxville, Tennessee, USA
Kumasi, Ghana
Lancaster, Pennsylvania, USA
Lansing, Michigan, USA
Maipú, Región Metropolitana, Chile
Masaka, Uganda
Missoula, Montana, USA
Mogi das Cruzes, São Paulo, Brasil
Moncton, New Brunswick, Canada
Monterrey, Nuevo León, México
Montevideo, Uruguay
Nansana Municipality, Uganda
New Bedford, Massachusetts, USA
Paterson, New Jersey, USA
Providence, Rhode Island, USA
Quelimane, Mozambique
Raleigh, North Carolina, USA
Regina, Saskatchewan, Canada
Reykjavik, Finland
San Bernardino, California, USA
San Francisco, California, USA
San Pedro Garza García, Monterrey, México
Santa Fe, New Mexico, USA
Sarajevo, Bosnia and Herzegovina
Scranton, Pennsylvania, USA
South Yorkshire, United Kingdom
St. Louis, Missouri, USA
St. Petersburg, Florida USA
Stamford, Connecticut, USA
The Hague, Netherlands
Tirana, Albania
Torino, Italy
Tulsa, Oklahoma, USA
Turku, Finalnd
West Sacramento, California, USA
White Plains, New York, USA

City halls are at different stages of leveraging AI, with only **2%** actively implementing the technology, while **69%** are still exploring or testing



- ***Not using*** *indicates that the city has not yet started exploring or using Generative AI*
- ***Exploring*** *implies that the city is in the initial phase of researching and learning about Generative AI*
- ***Testing*** *implies that the city is actively experimenting with Generative AI*
- ***Implementing*** *implies that the city has integrated Generative AI into some or all of its operations*

*Note: total percentages do not equal 100% due to accuracy in rounding

> *we are just beginning our exploration on appropriate uses of (generative) AI*

71% of cities are exploring, testing or implementing the use of generative AI, **yet most cities have not developed their capabilities and policies**

22%

cities have designated a generative AI lead[1]

13%

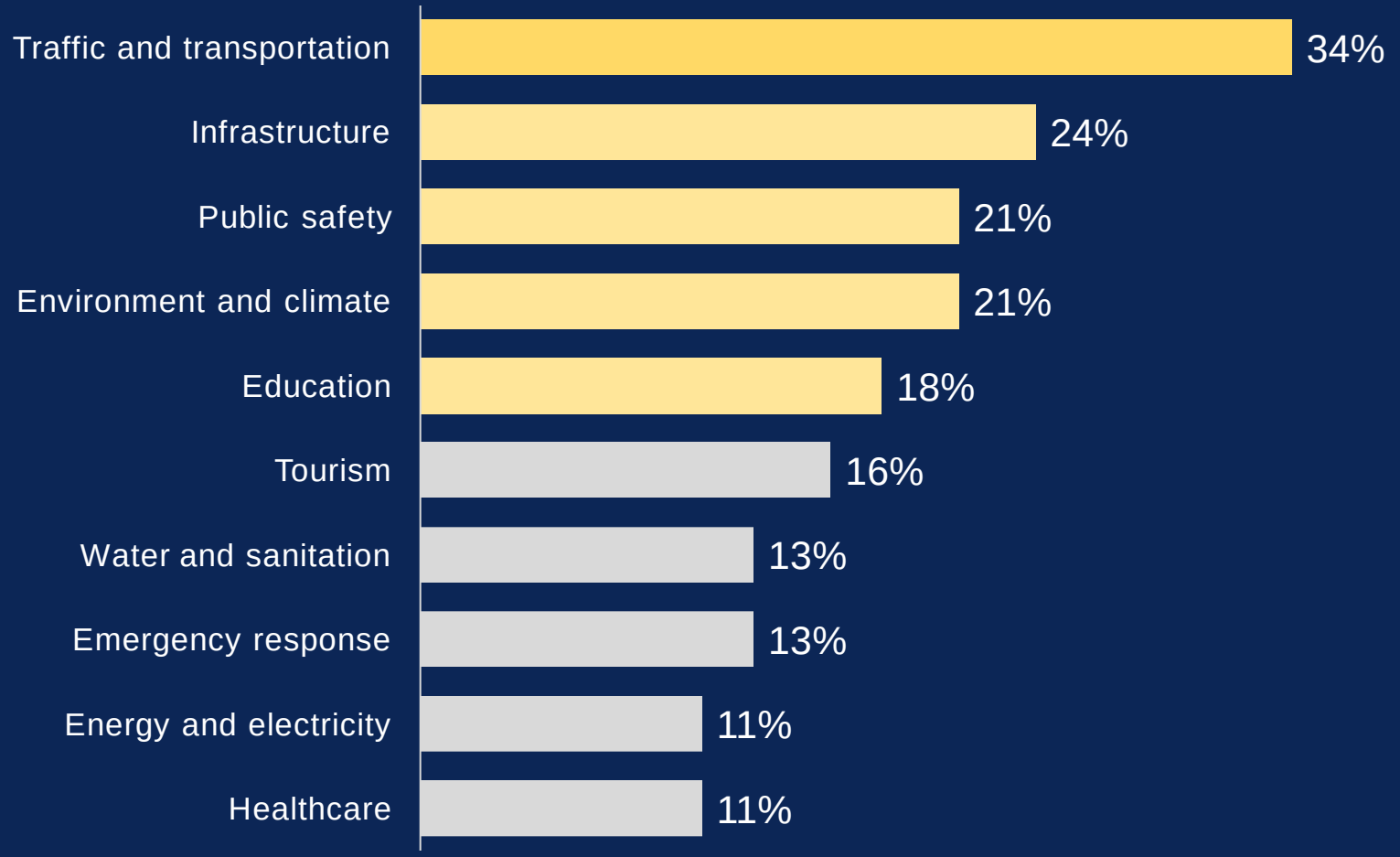
cities have set policies/ guidelines around generative AI use

11%

cities have provided training to their staff on generative AI[1]

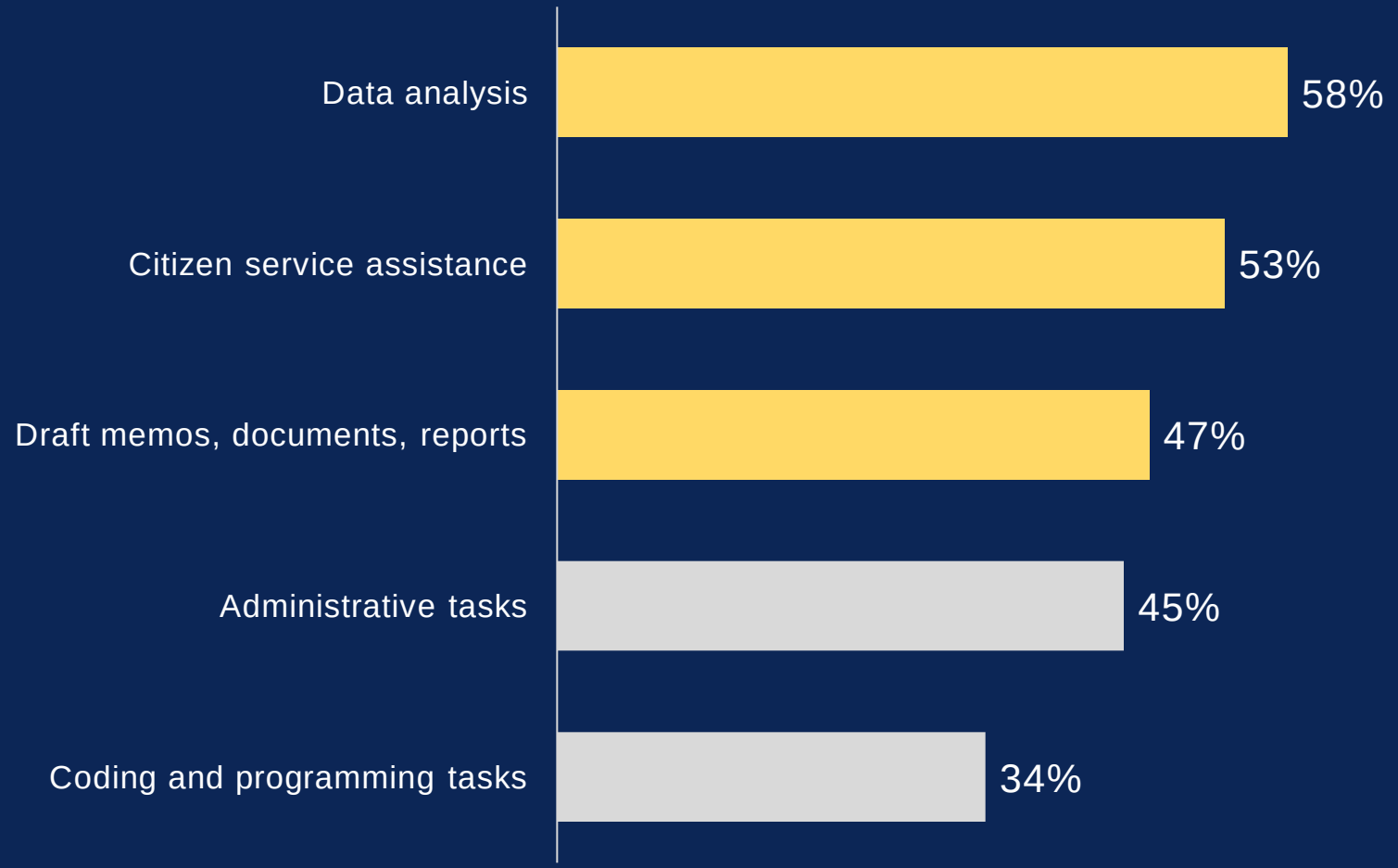
1 Based on responses from 50 out of the 53 cities

34% of cities reported being interested in leveraging generative AI for **traffic and transportation** followed by infrastructure, public safety, environment and climate, and education sectors



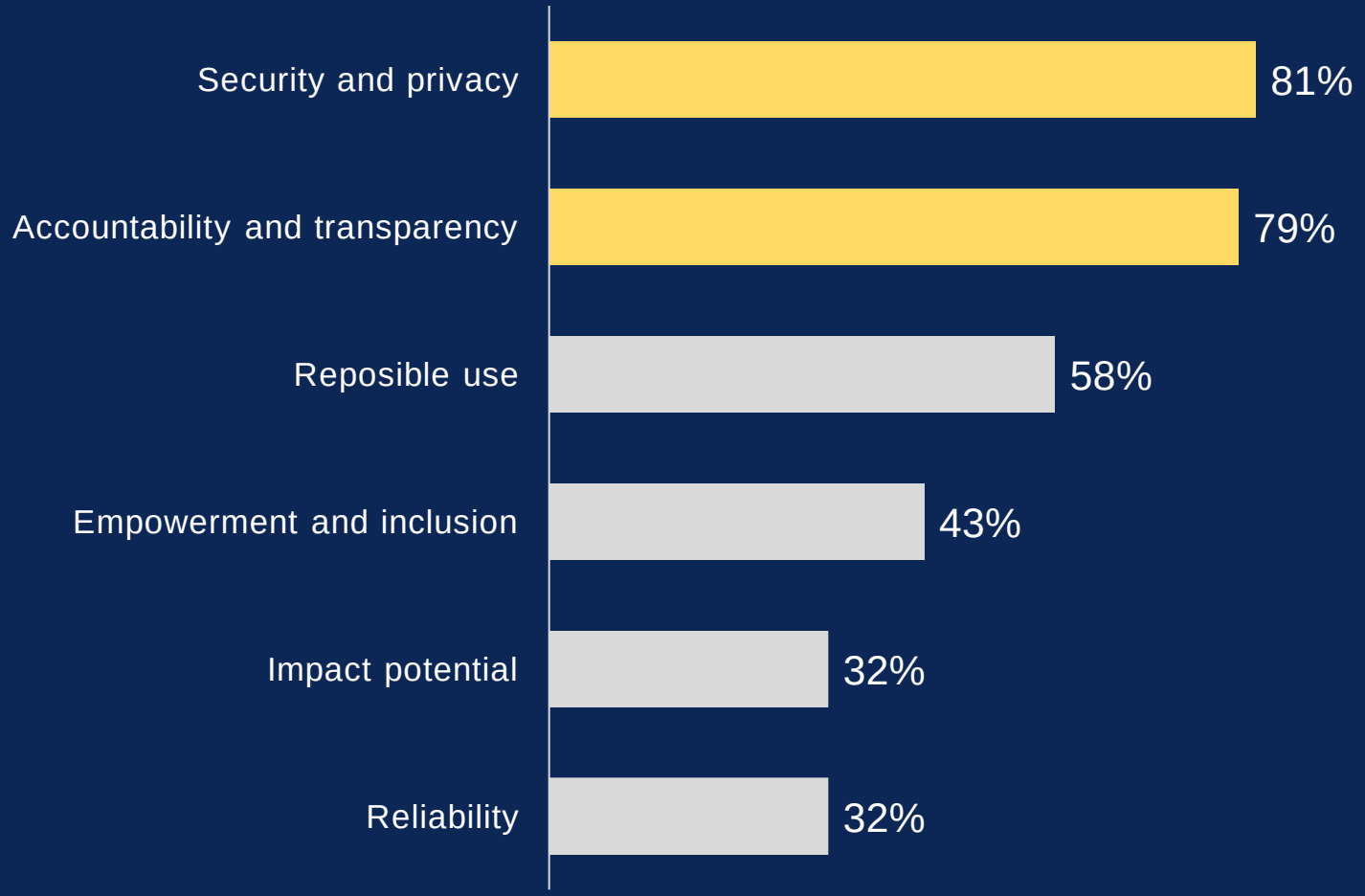
> *(We have) explored generative AI ancillary to other projects. Examples include "smart" technologies such as parking, transportation, SCADA for water and water resource recovery and public safety.*

Cities most commonly reported exploring the use of generative AI for **data analysis (58%)**, **citizen service assistance (53%)** and **drafting memos, documents and reports (47%)**



> *(We are) leveraging generative AI to help in conveying technical information to residents in a way they can understand.*

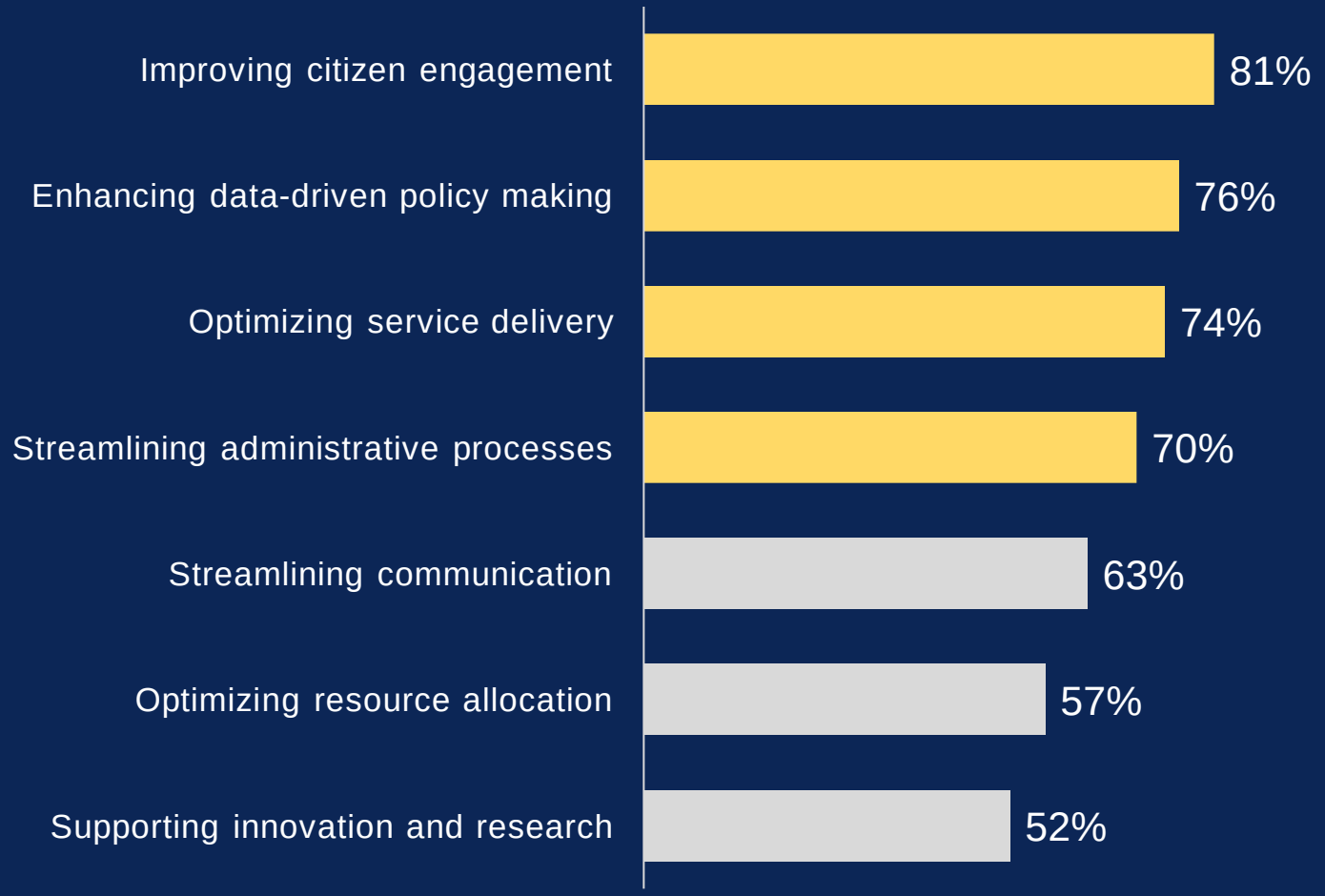
A large majority of cities reported that **security and privacy (81%)**, and **accountability & transparency (79%)** are the key ethical principles which guide their exploration and use of generative AI



> *There are concerns regarding potential impacts on our cyber security status which is something of great importance to us.*

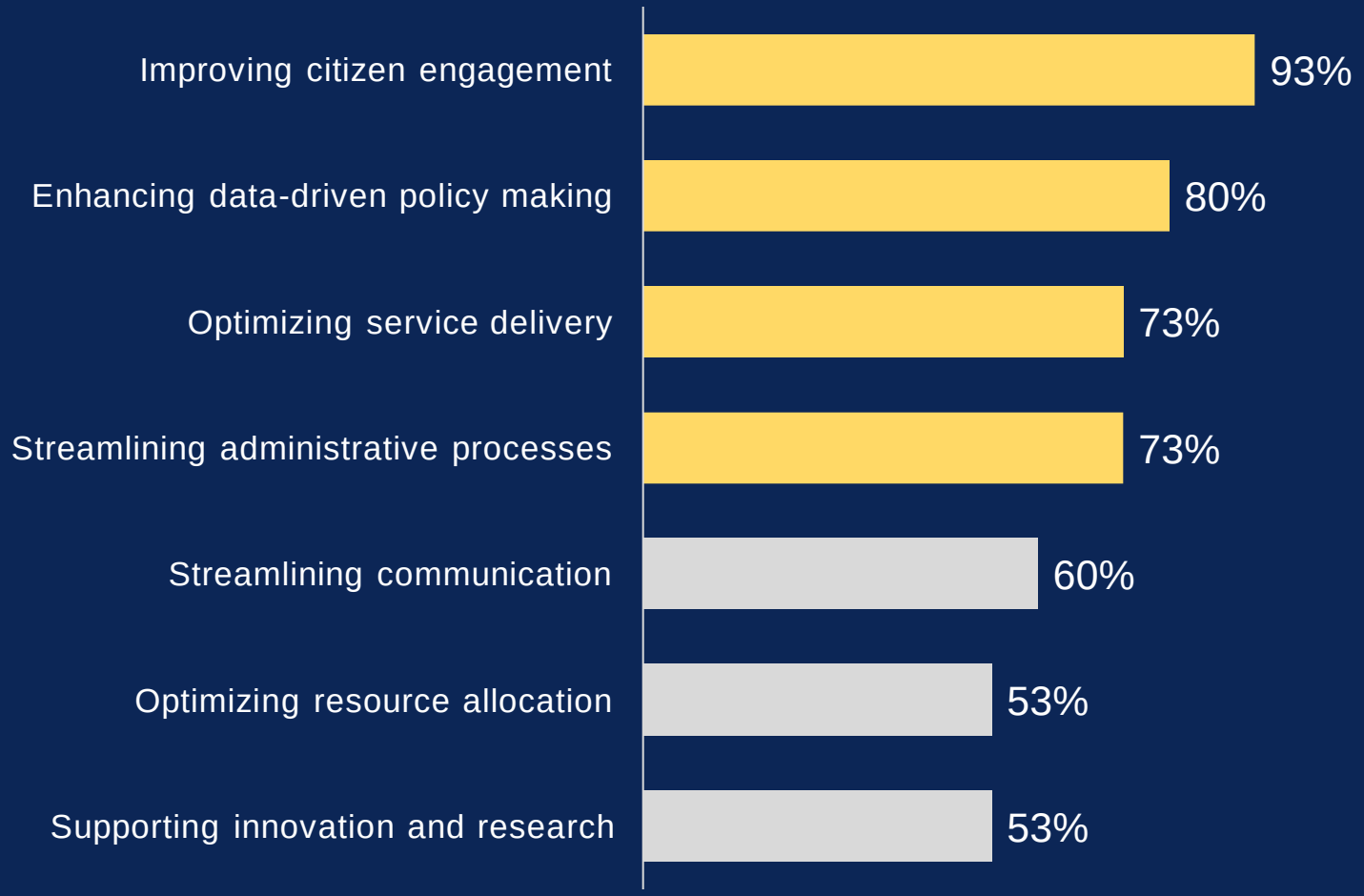
4 Opportunities and barriers

Opportunities for use of generative AI among cities include **improving citizen engagement (81%)**, **enhancing data-driven policymaking (76%)**, **optimizing service delivery (74%)** and **administrative processes (70%)**



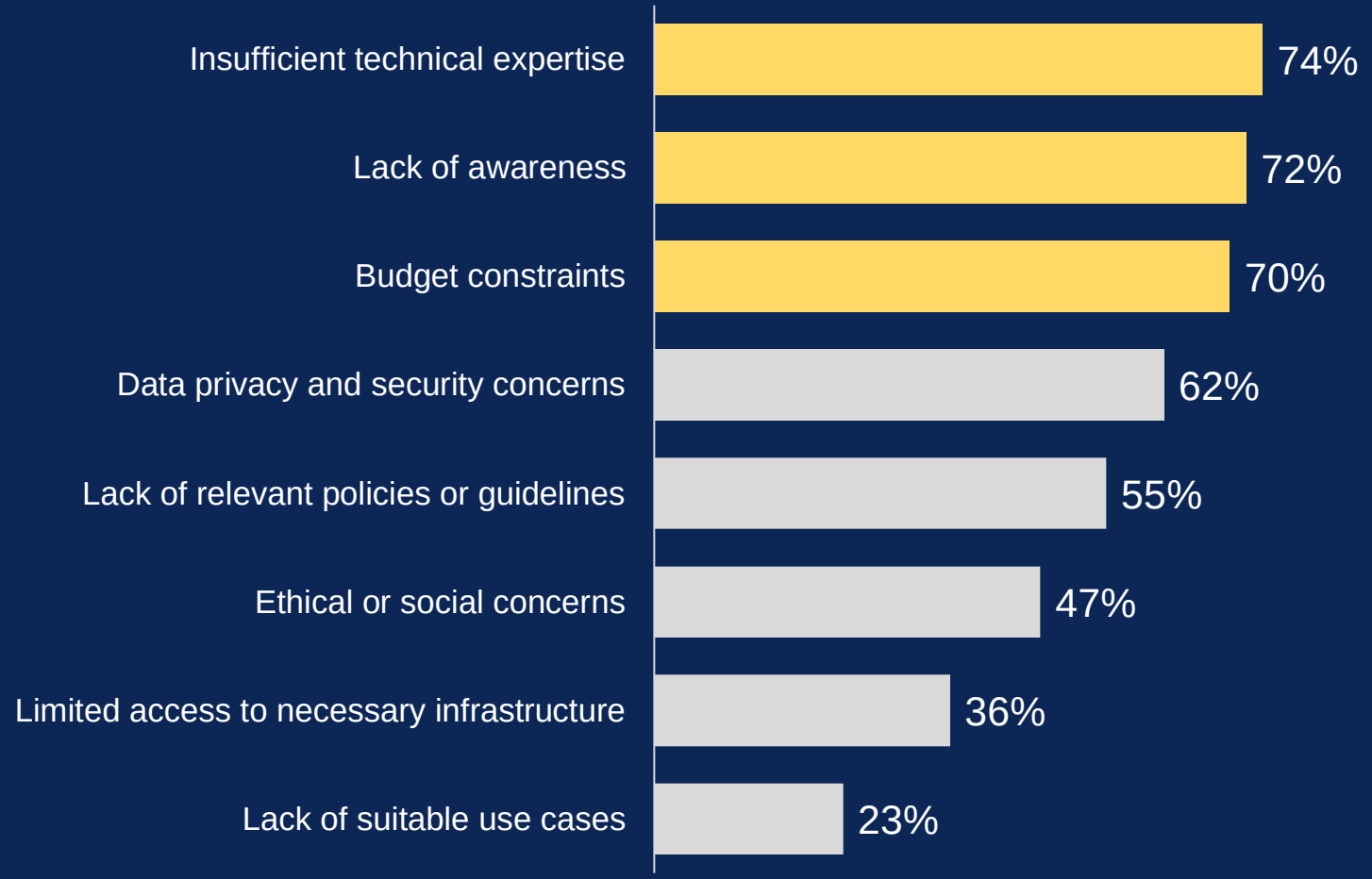
> *Improving our service delivery and increasing staff efficiency is our top priority.*

Among cities **not using** generative AI, opportunities for desired future use include **improving citizen engagement (93%)**, **enhancing data-driven policymaking (80%)** and **optimizing service delivery and administrative processes (73%)**



> *Improving our service delivery and increasing staff efficiency is our top priority.*

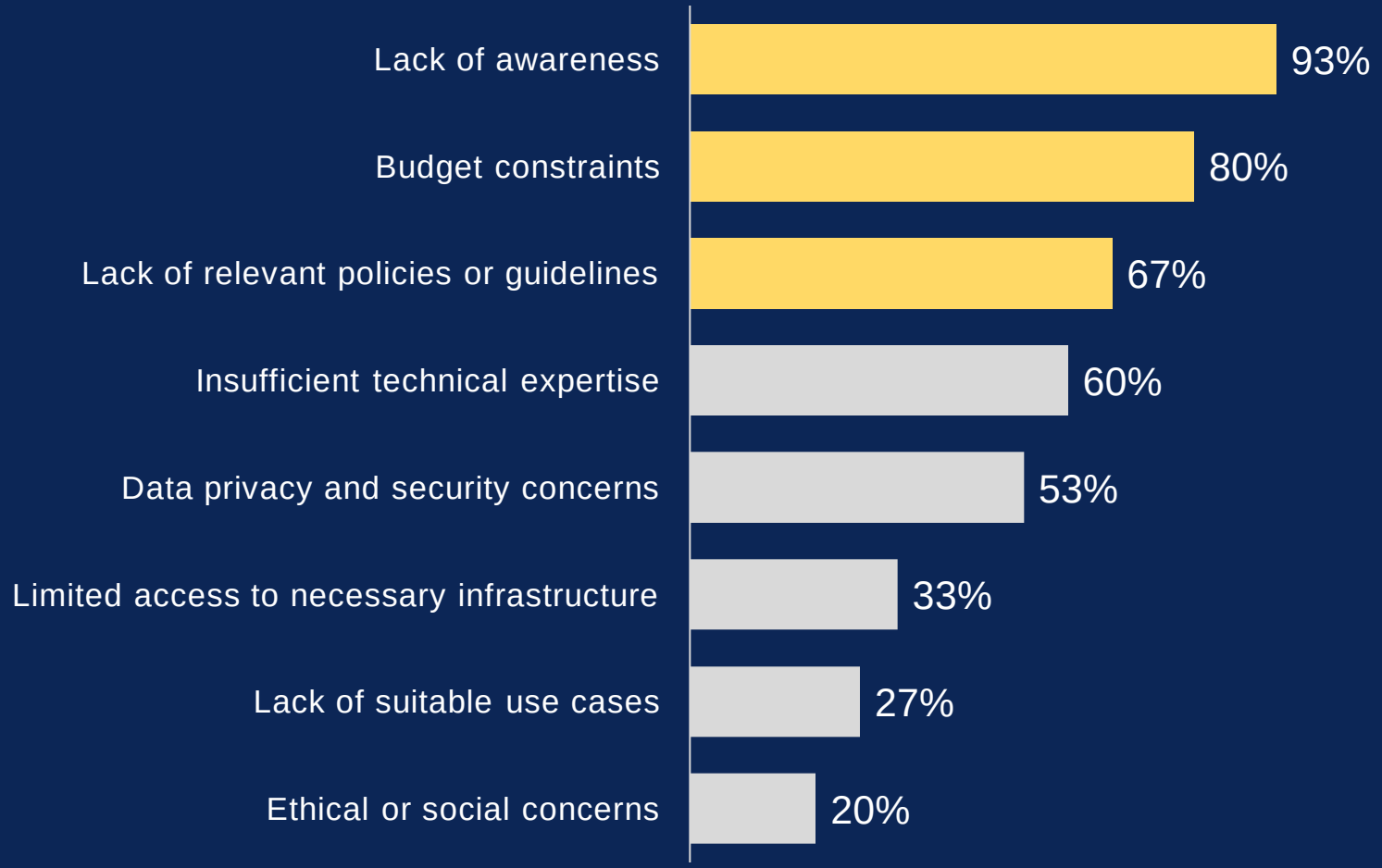
Cities reported multiple barriers to the adoption of generative AI, citing **insufficient technical expertise (74%)**, **lack of awareness (72%)** and **budget constraints (70%)**



Note: 15 cities out of 53 reported not using generative AI

> *…generative AI has the potential to transform an entire industry so in order for me to progress rapidly in the upcoming years an in-depth knowledge of AI is vital because we are entering a period of generational change.*

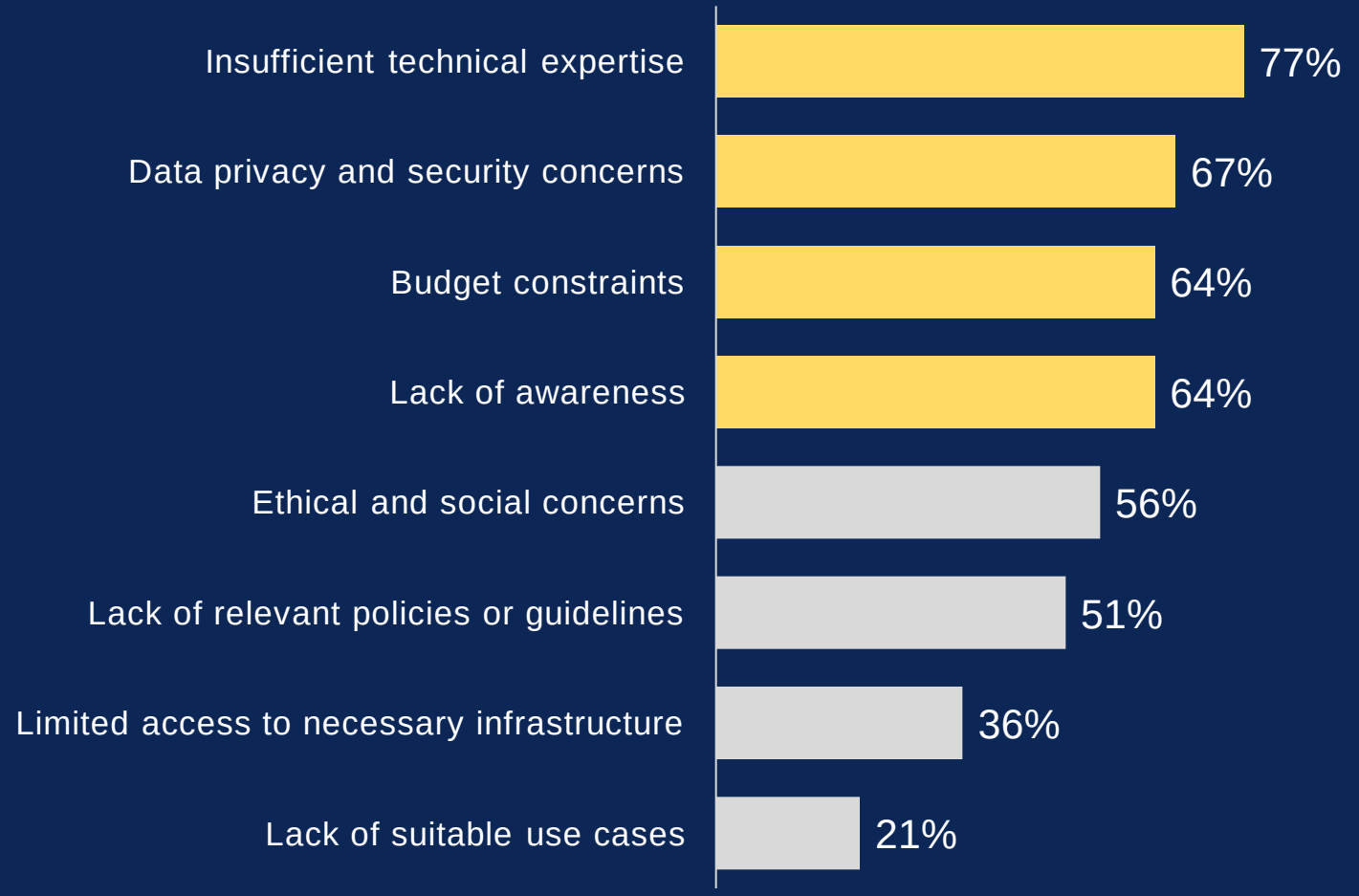
Cities **not using** generative AI reported multiple barriers, citing **lack of awareness (93%)**, **budget constraints (80%)** and **lack of relevant policies or guidelines (67%)**



Note: 15 cities out of 53 reported not using generative AI

> *…the biggest question is how can it add value to the community. Another is the ethical considerations of AI. And also, what will the impact of AI be on the economy and jobs.*

Cities exploring, testing or implementing generative AI reported **insufficient technical expertise (77%)**, **data privacy and security concerns (67%)**, **budget constraints (64%)** and **lack of awareness (64%)** as key barriers



Note: 38 cities out of 53 reported exploring, testing or implementing generative AI

> *…generative AI has the potential to transform an entire industry so in order for me to progress rapidly in the upcoming years an in-depth knowledge of AI is vital because we are entering a period of generational change.*

5 Areas of collaboration

Cities expressed a strong willingness to collaborate and share expertise in tackling urban challenges, advancing generative AI knowledge and developing best practices and policies for responsible use of generative AI

Key areas cities indicated as opportunities for collaboration and expertise sharing in generative AI included:

COLLABORATIVE SOLUTIONS FOR URBAN CHALLENGES

- Smart security and traffic management
- Sharing and analyzing urban datasets
- Resident engagement and input

DEVELOPING USE CASES AND BEST PRACTICES

- Transport service optimization
- Automated customer service and support
- Crime and safety analysis

ADVANCING KNOWLEDGE AND EXPERTISE IN AI

- Personalizing citizen experiences
- Expanding labour productivity
- Emerging new business models

POLICY, GOVERNANCE, AND RESPONSIBLE USE

- Maintaining integrity and source of truth
- Ethical use and clear policies
- Transparency, security, and impacts on the future of cities

Note: Results from thematic analysis of narratives shared by cities in a survey conducted across 53 cities across the globe

6 Methodology

Methodology

OBJECTIVE

The primary objective of this research is to gain comprehensive insights into the perspectives, practices, and readiness of city administrations across the globe in relation to Generative Artificial Intelligence (generative AI) adoption and integration.

SURVEY DESIGN

The research process was conducted in collaboration with the Centre for Public Impact in two phases, each with a distinct focus:

- **Phase 1: Mayoral survey:** The first phase involved reaching out to 100 mayors across the globe with a structured survey instrument. This survey sought to understand mayors' interest in generative AI, their questions about generative AI opportunities and usage, and their recommendations for contact persons within their respective cities who could provide further insights. The survey was designed to gather initial information about generative AI awareness and interest at the mayoral level.
- **Phase 2: City-staff survey:** The second phase targeted city staff members within cities that responded to the mayoral survey. A comprehensive survey instrument was administered to gather more detailed information about the city's generative AI activities. This included inquiries about the presence of a generative AI integration lead, the current status of generative AI exploration and usage, specific applications in different sectors, existing guidelines and policies, training initiatives, opportunities, barriers, ethical principles guiding usage, and ongoing generative AI projects. The survey also explored potential areas of collaboration and future opportunities.

DATA COLLECTION

Both the surveys were distributed electronically and collected responses were stored securely. The data collection period spanned mid Sep to mid Oct 2023. Contact information for city staff members (for Phase 2 survey) was obtained from the mayoral survey responses. The response rates for Mayoral survey was 82% and for the City Staff survey was 65%. All data were collected and stored in compliance with ethical guidelines, ensuring the confidentiality and privacy of survey participants while data analysis was conducted.

DATA ANALYSIS

Data analysis encompassed both descriptive and qualitative approaches. Quantitative data from both survey phases were subjected to statistical techniques, leading to the computation of descriptive statistics such as frequencies and %ages. These statistics were employed to summarize responses to multiple-choice questions. Concurrently, qualitative analysis involved a sensemaking approach applied to narrative responses obtained from the surveys to discern recurring themes, in particular to two questions: *"What questions do you have about the opportunities and impact of Generative AI on cities?"* from the mayors, and *"What aspects of Generative AI do you want to collaborate on or get expertise from other cities?"* from city staff.

REPORT STRUCTURE

The results of this research are organized into four main sections:

- **Mayors' Interest in generative AI:** This section presents findings related to mayors' levels of interest, questions, and initial recommendations regarding generative AI.
- **Cities' Use of generative AI:** Here, we delve into the status of generative AI integration within cities, including the presence of designated leads, sectors of application, specific use cases, and the presence of guidelines and policies.
- **Opportunities and Barriers:** This section highlights opportunities identified by city staff members for generative AI usage, as well as the barriers and challenges they face or anticipate.
- **Areas of Collaboration:** The final section discusses potential areas of collaboration and knowledge-sharing among cities in the context of generative AI integration

LIMITATIONS AND ETHICAL CONSIDERATIONS

The survey responses are subject to self-reporting bias, and the representativeness of the sample is dependent on the willingness of mayors and city staff to participate. And thus, findings are based on the responses of participating cities and may not be generalized to all cities worldwide.