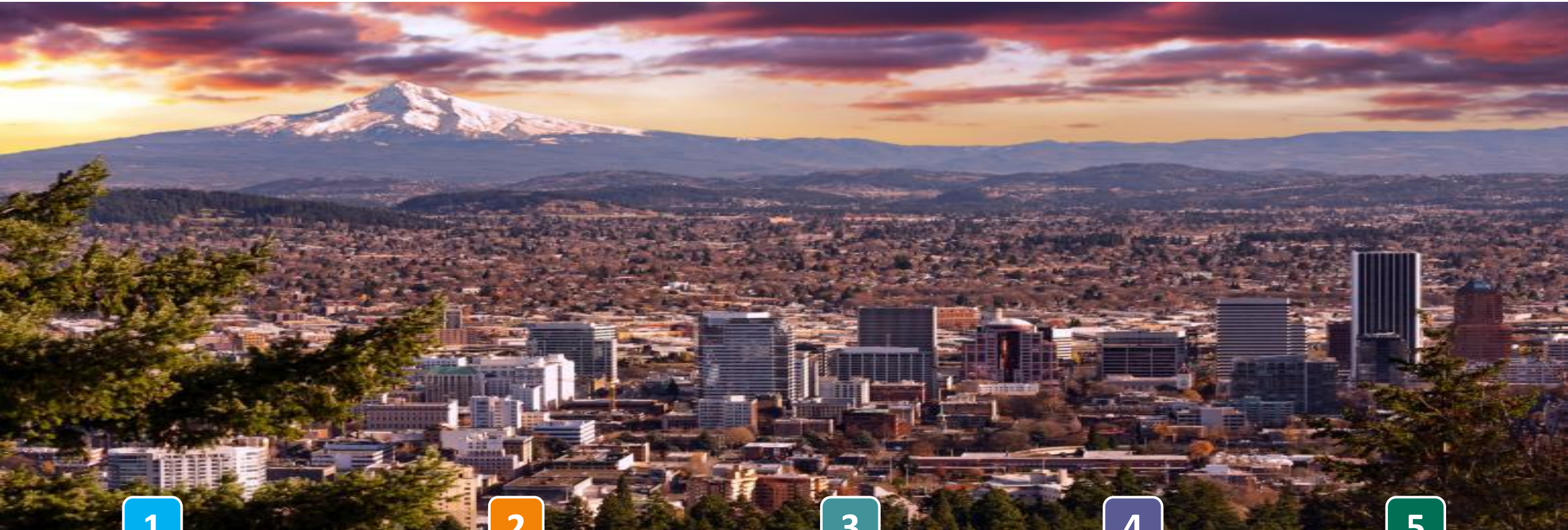# Global Smart City Trends in Transportation

Ruthbea Yesner Clarke,

Global Director, IDC Smart Cities Strategies

Agenda

1 Smart City Transportation Trends

2 A Strategic Approach

3 Funding Models & Partnerships

4 Innovation Examples

5 Concluding Remarks

Smart City Transportation Trends

IDC's Definition of Smart Cities

"The digital transformation of an urban ecosystem to meet environmental, financial and social outcomes."

Cities, towns, counties or states (stadiums and airports) that use data and technology to enable this urban transformation.

"It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change."

– Charles Darwin

Smart Cities Use Technology to.....

...provide solutions to business problems, outcomes, and measurable goals

- Tying IT investments to city-wide outcomes

- With trusted partners that will allow experimentation and co-innovation

- At affordable cost, with lowered risk, to improve operations

- Using Open Data, Open IT, Open APIs

Key Challenges to Address

Competing Globally for Talent and Industry

Coping with growth in urban populations

Managing growth in energy needs

Addressing fears around climate change

Hope and complexity from Tech innovation

Increasing Economic Inequality

Bridging the Digital Divide
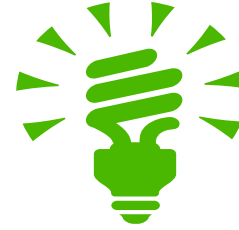
IDC
Analyze the Future

Transportation Has a Direct Effect

Competing Globally for Talent and Industry

Traffic Worldwide up 13% since 2008

1.7 B Vehicles on Roads by 2035

Cities Generate 50-60% of GHG

By 2020, 75% shipped cars with be "Connected"

9 Richest People Own More than 3.6 B People

US Wealthiest Country, High Inequality

There Are Further Complexities

- Long to-do lists and many "top" priorities

- Tight budgets

- Many stakeholders, partners and suppliers

- New types of RFP development

- Mix of old and new IT environments

- Public pressure (residents, tourists, businesses) and political cycles

And Urban Transportation-Specific Challenges

- Pace of infrastructure slower than pace of technology and community needs

- Must build in innovation and risk

- Undoing planned segregation

- Last mile connectivity issues

- Cannot rip and replace, so must use Smart City innovations

- Early days on proven models for piloting, funding, scaling and sustaining initiatives

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Analyze the Future

# It's Not All Doom and Gloom!

- Mixed use local neighborhoods with proximity to services
- ACES: Autonomous, Connected, Electric and Shared Vehicles
- Many more options for urban transportation
- Changes in journey planning assistance
- Changes in preferences and behaviors of residents
- Smart City innovation transforming the ecosystem

And It's All Interconnected Eventually

NYC potentially managing and collection data on
2 -3 million devices
For a city of 100,000 that could mean 25,500 city devices

Networked LED Street lighting
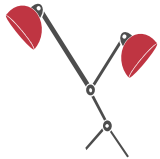
35,000 Street lights

Smart Buses

5,748 public buses

Smart Traffic

12,700 signalized intersections

Connected Officers

9,000 CCTV
500 LPRs
600 sensors
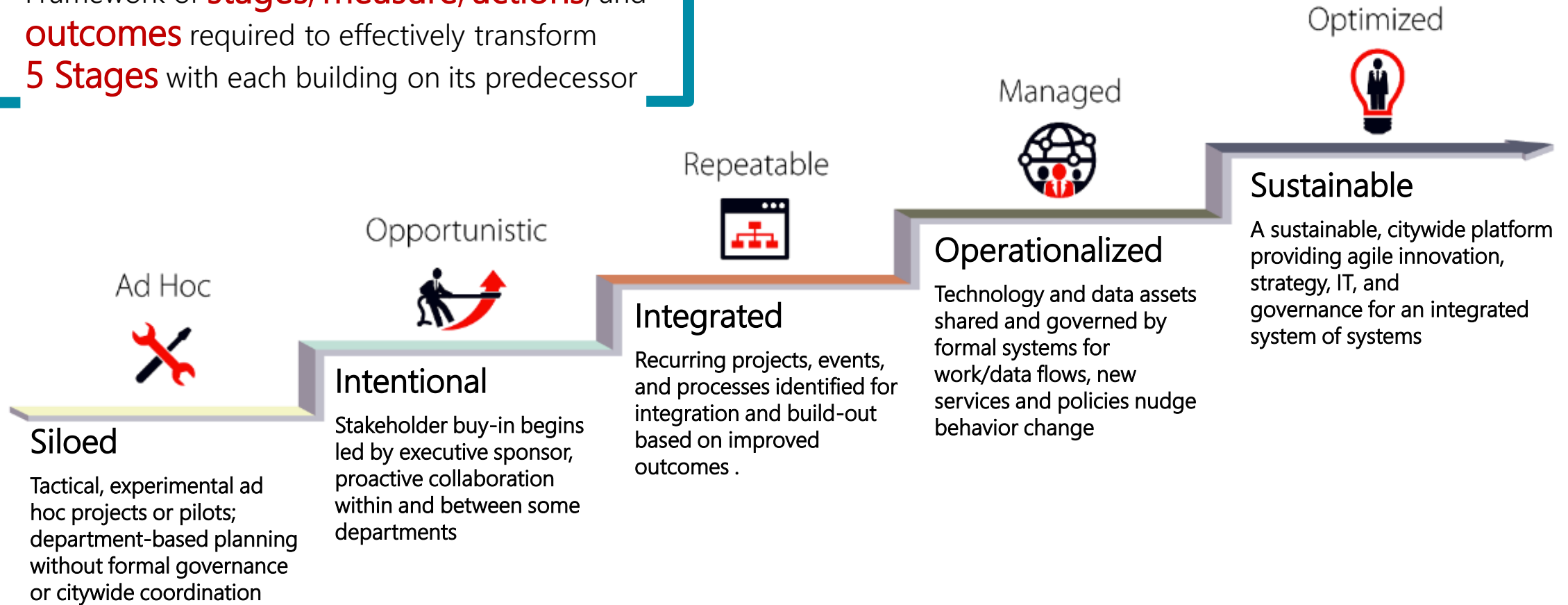**35,000 officers with tablets**

Connected People

96% have cell phones; 80% smartphones

A Strategic Approach

IDC's Maturity Model: A Framework To Guide Action

Framework of **stages, measure, actions**, and **outcomes** required to effectively transform **5 Stages** with each building on its predecessor

Ad Hoc

Siloed

Tactical, experimental ad hoc projects or pilots; department-based planning without formal governance or citywide coordination

Opportunistic

Intentional

Stakeholder buy-in begins led by executive sponsor, proactive collaboration within and between some departments

Repeatable

Integrated

Recurring projects, events, and processes identified for integration and build-out based on improved outcomes .

Managed

Operationalized

Technology and data assets shared and governed by formal systems for work/data flows, new services and policies nudge behavior change

Optimized

Sustainable

A sustainable, citywide platform providing agile innovation, strategy, IT, and governance for an integrated system of systems

Five Dimensions and 19 Best Practice Areas

Vision
- Strategy
- Leadership
- Business Case
- Budgeting

Culture
- Innovation
- Citizen Engagement
- Transparency

Process
- Governance/ Controls
- Partnerships
- Organization Structure
- Measurement

Technology
- 3rd Platform Architecture
- IoT Adoption
- Citizen Data Architecture
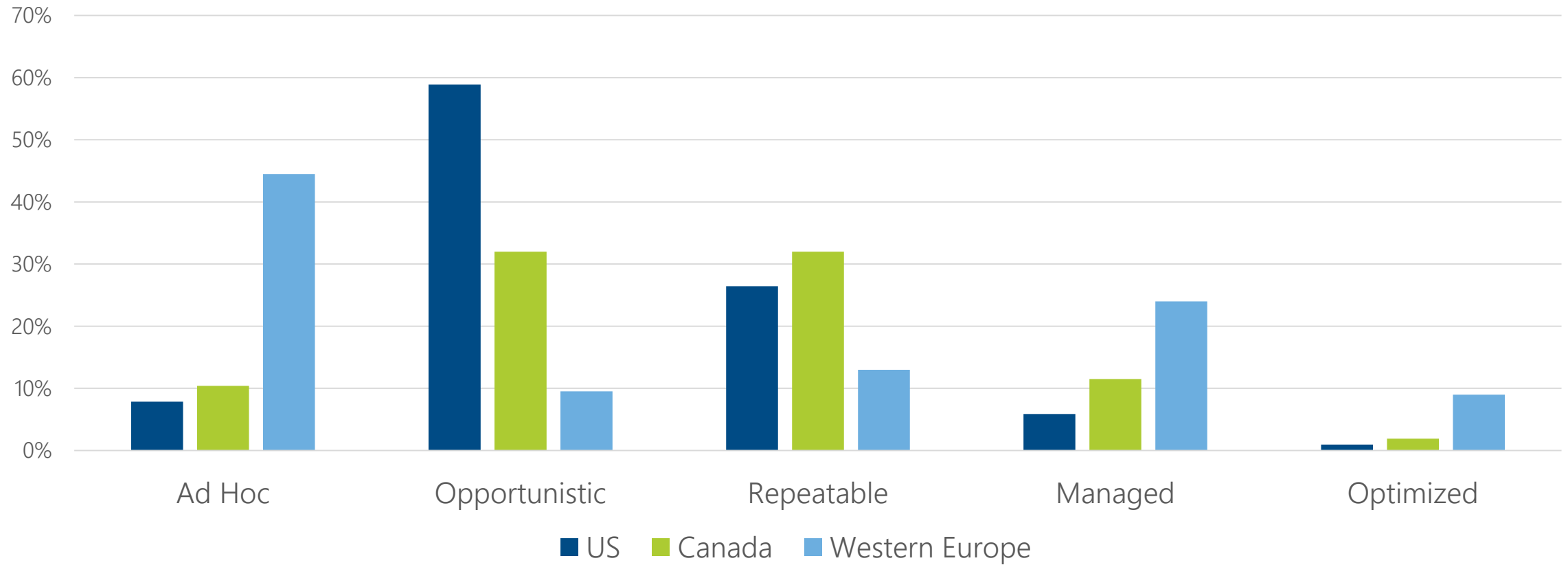- Innovation Accelerators Adoption

Data
- Citizen Data Protection
- Open Data
- Data Discovery & Analysis
- Data Sharing

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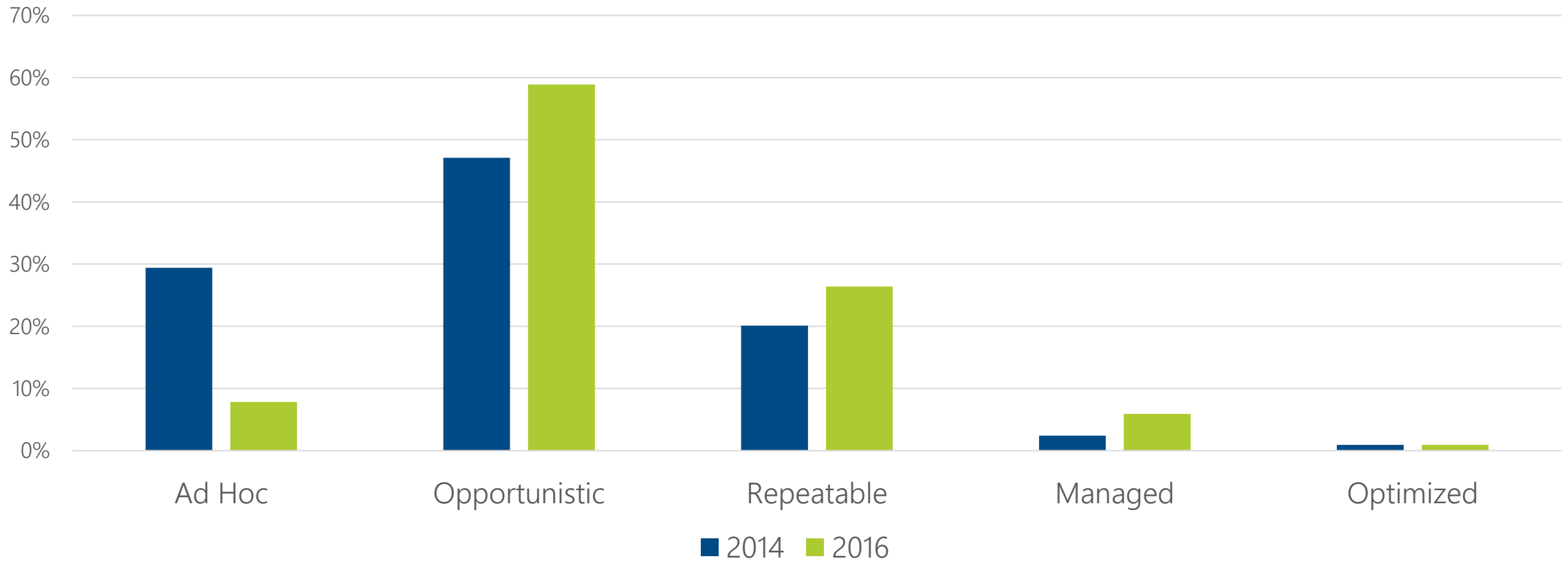
How Western Europe, US, Canada Compare

Maturity of Cities by Region

Legend: US (dark blue), Canada (green), Western Europe (light blue)

Categories: Ad Hoc, Opportunistic, Repeatable, Managed, Optimized

IDC — Analyze the Future

US Maturity Growth Over Time

Chart Title

	Ad Hoc	Opportunistic	Repeatable	Managed	Optimized
2014					
2016					

A Common Toolset as a Starting Point
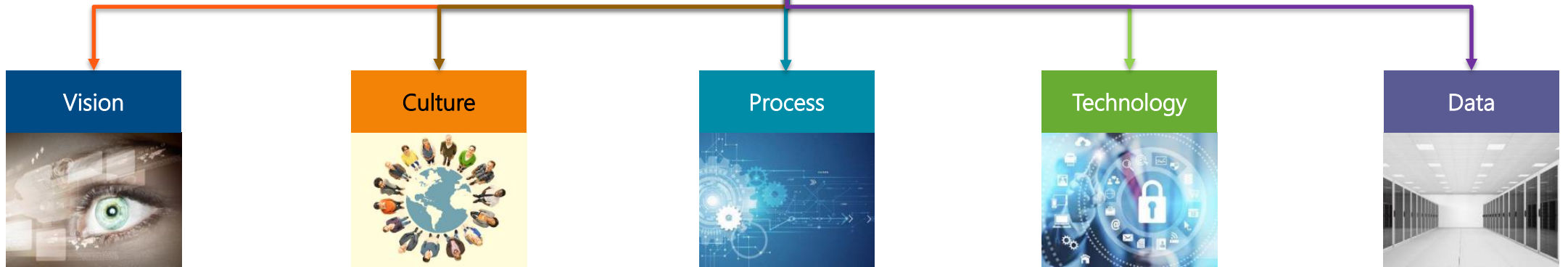
Vision

A common vision focused on city-wide outcomes that guides planning and execution across departments

Culture

Transparent engagement principles that foster innovation

Process

Standard governance policies and guidelines that ensure stakeholder accountability and process integrity

Technology

Standard-based components that support cost-effective re-usability, agility and scalability

Data

Layered architecture that provides secure and integrated access to data across silos

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Funding Models and Partnerships

Many Partners in Smart City Initiatives
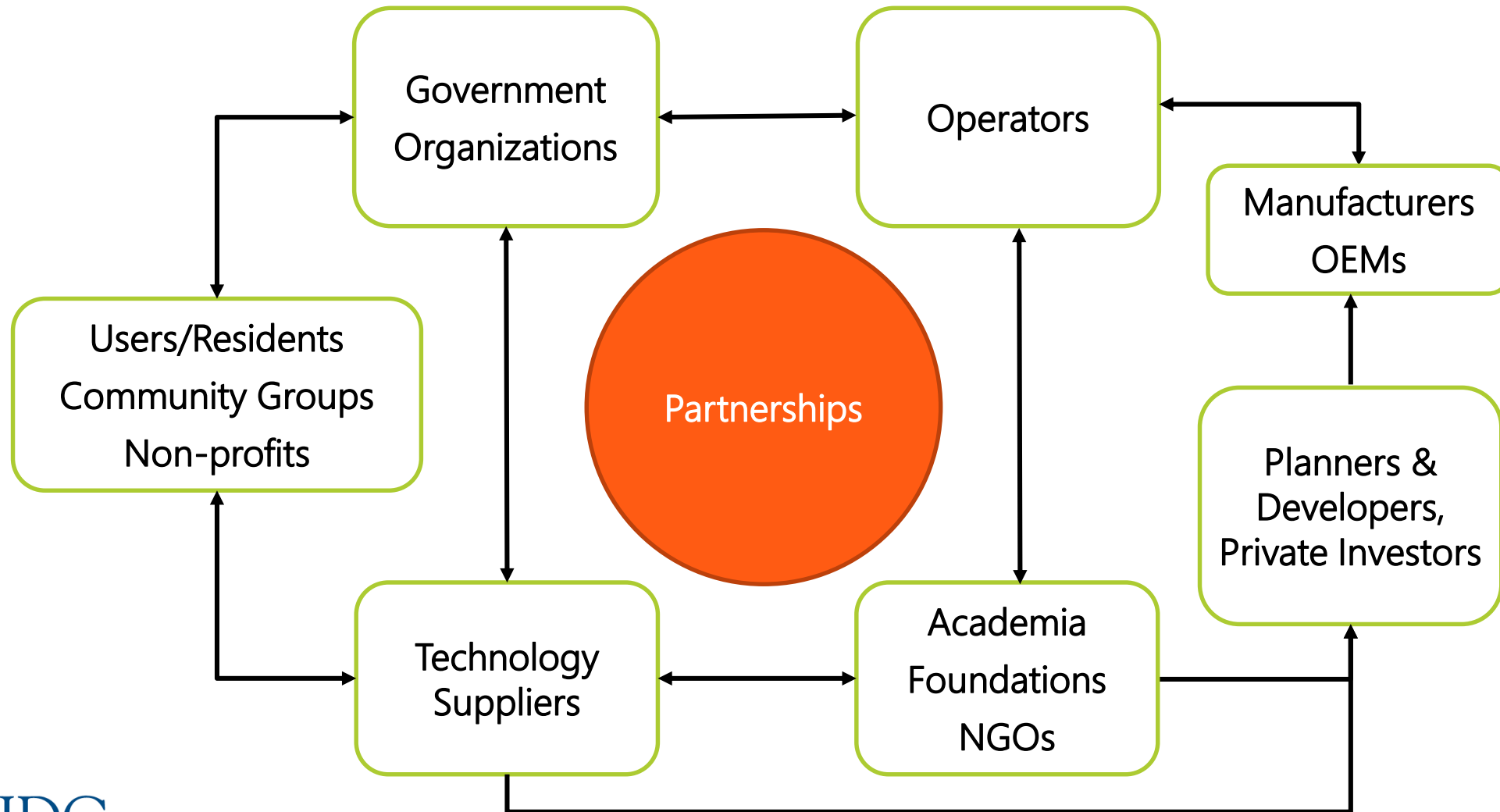
Many New Providers in Transportation

April 2016

Source: Spoke Intelligence, Liz Slocum Jensen
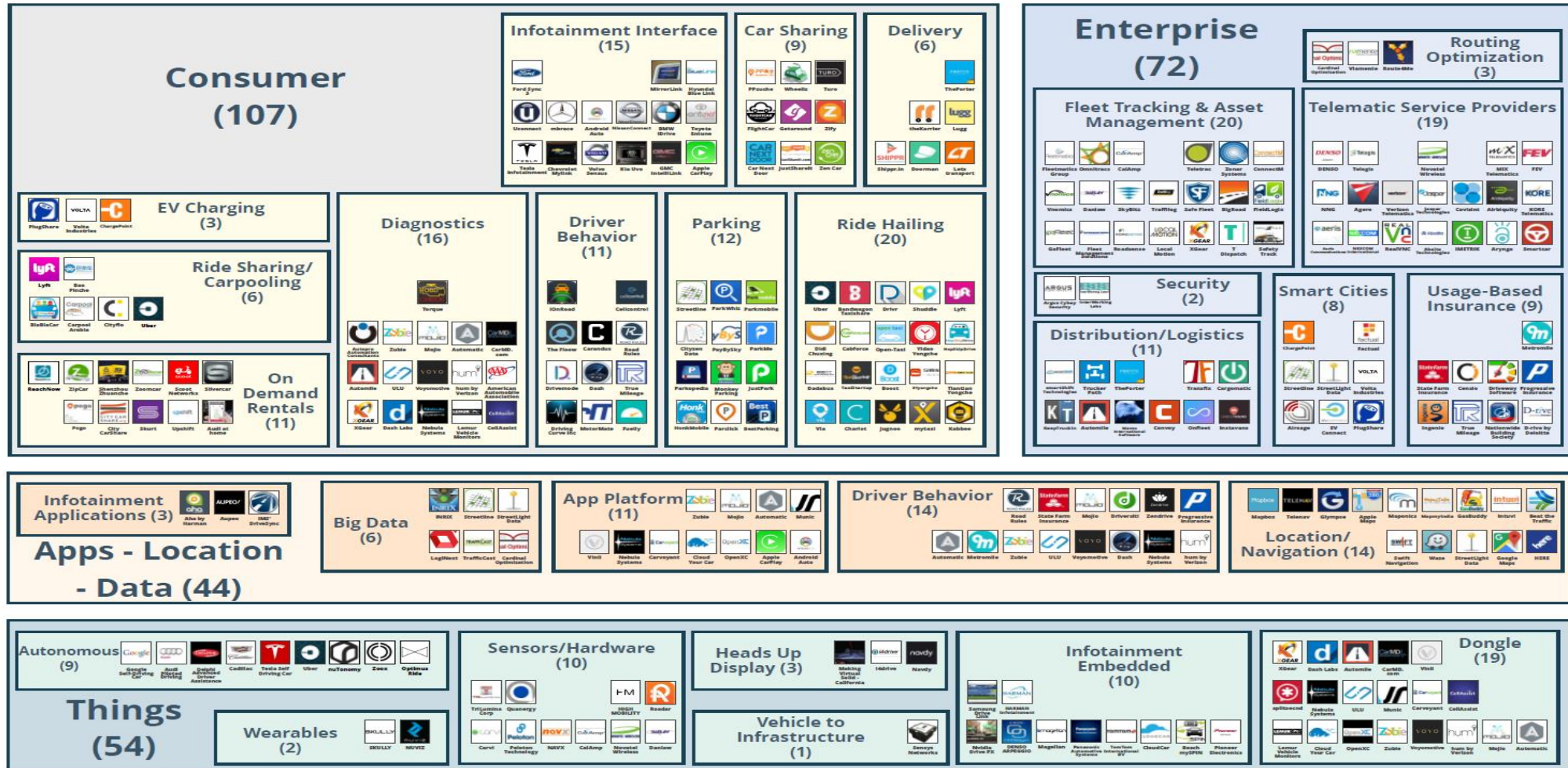
Current Ways Cities Are Funding Projects

Funding Smart City Initiatives
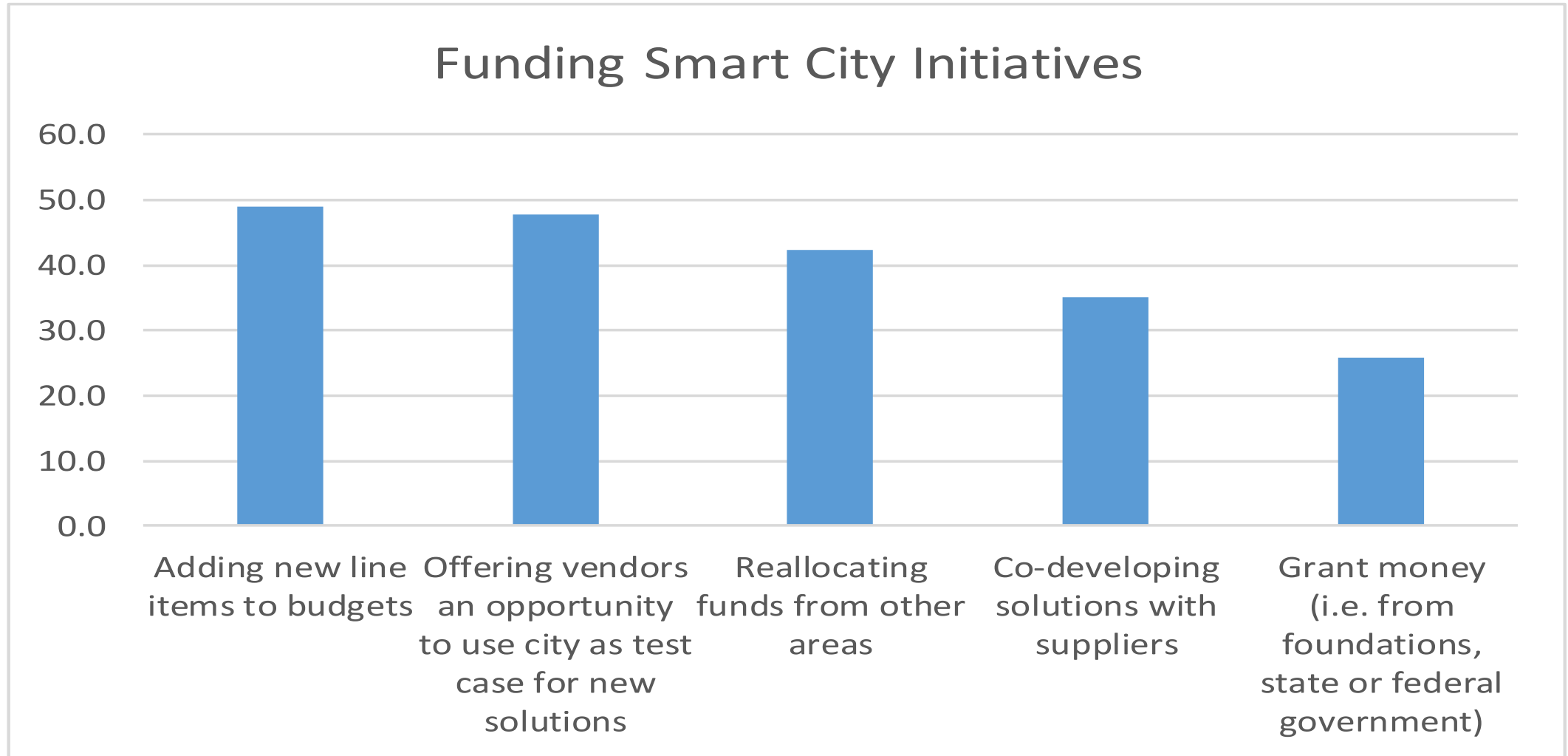
Attributes of Different Models

	Finance Only	Maintain & Operate	Design-Build-Finance-Maintain Operate	Joint Venture	Design-Build-Own-Operate	Concession
Ability to control	High	Moderate	Moderate-Low	Low	Low	Low
Duration of contract	Varies	2-5 years	5+ years	5+ years	5+ years	20+ years
Shares risks	Moderate-low	Moderate-low	Moderate	High	Moderate	High
Attract investment and retain knowledge	Very Low	Moderate-Low	Moderate-High	Moderate-High	High	High
Long-term, complex contractual governance	Low	Moderate	Moderate-High	High	Moderate	Low
Requires payback partners	Varies	Yes	Varies	No	No	No
Immediate, direct access funding	Yes	No	Yes	Yes	No	Yes

Innovations In Funding and Partnerships

1. Innovation:
   - Innovation centers/ Co-Creation models
   - **Models to de-risk innovation**
2. **Revenue sharing models**
3. **New data services**
4. **Policy as transportation nudge**
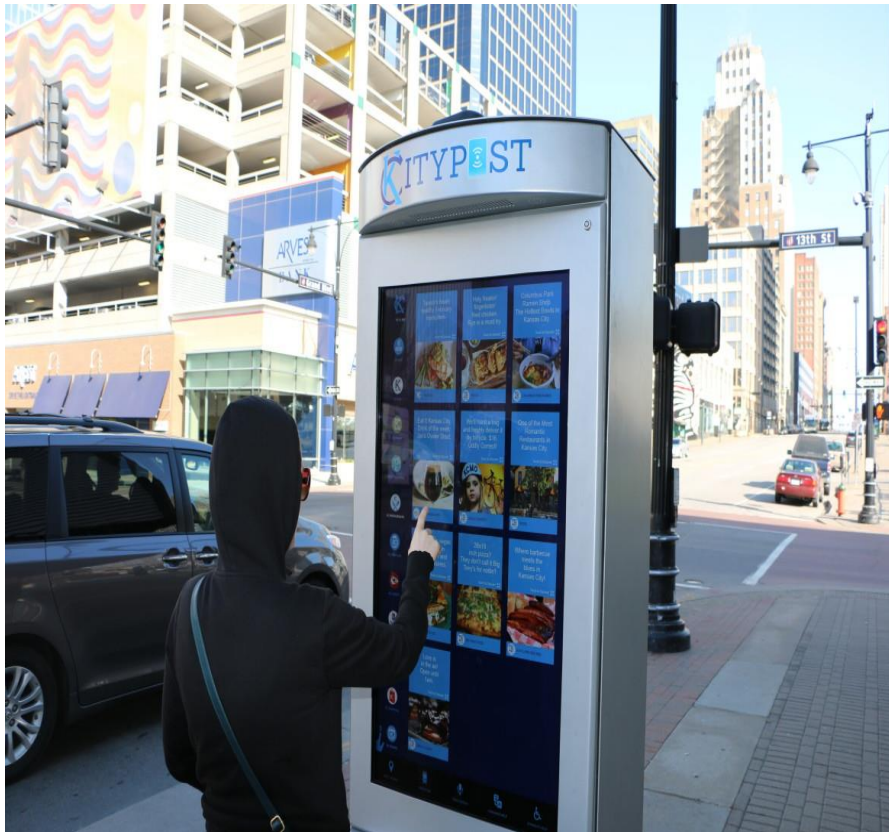5. New types of concessions
6. Citizen involvement

Innovation Examples

Revenue Sharing Models

City Post in Kansas City

The Companies Behind LinkNYC

Alphabet
Google's parent company that founded Sidewalk Labs in June 2015.

NYC Department of Information Technology & Telecommunications
Asked for ideas in 2014 on how to reimagine the payphone of the future. Intersection won the bid with its pitch for LinkNYC.

Sidewalk Labs
An urban development startup led by former Bloomberg LP president Dan Doctoroff. Lead the creation of Intersection and remains a minority investor.

Control Group
Helps consult on tech implementation and advertising.

Titan
Was formerly the advertising firm that sold ads for the New York City phone booths LinkNYC is replacing.

Intersection
"An urban experience, technology, and media company" that was formed by the merger of Control Group and Titan. Sidewalk Labs CEO Dan Doctoroff serves as chairman.

CIVIQ Smartscapes
Builds the physical Link towers.

Qualcomm
Wireless partner for LinkNYC.

Antenna
Designed the Link tower.

CityBridge
The consortium of companies behind LinkNYC.

LinkNYC

SOURCES: PRNewsWire.com; link.nyc; blog.controlgroup.com; intersection.com

TECH INSIDER

New Data Services

Transport for London

LONDON DATASTORE

Moving forward with platforms to test
the data economy and value of data
for new data services for the public

Copenhagen City Data Exchange

Models that De-Risk Innovation

BOSTON REDEVELOPMENT AUTHORITY

Pre-RFI and RFP
engaging the ecosystem of players
to develop the right kind of RFP

Policy as Transportation Nudge

**Car- Free Zones in
Oslo and Paris**

Nudge users to desired behaviors
using policies to impact ecosystem
from parking to no-car zones

**Restricted parking at
new GE headquarters**

Concluding Remarks

Guidance

| DEVELOP A VISION WITH STRATEGIC GOALS	MUST HAVE STRONG , HIGH LEVEL CITY LEADERS INVOLVED	NEW AND IMPROVED RFPS REQUIRED	PROCESS, GOVERNANCE AND POLICY MATTER

- It all starts with a vision for your city; the strategy guides all decisions
- Create your legal department
- If you can make money, you can find money
- Don't promise your data in return for free stuff
- The Smart City team should help agencies/ departments test new initiatives/ new technologies as a Center of Excellence
- Pilots that are "quick wins" must be publicly noticeable and concretely measurable
- No city can do it without trusted partners

Let's Look Beyond Our Limits
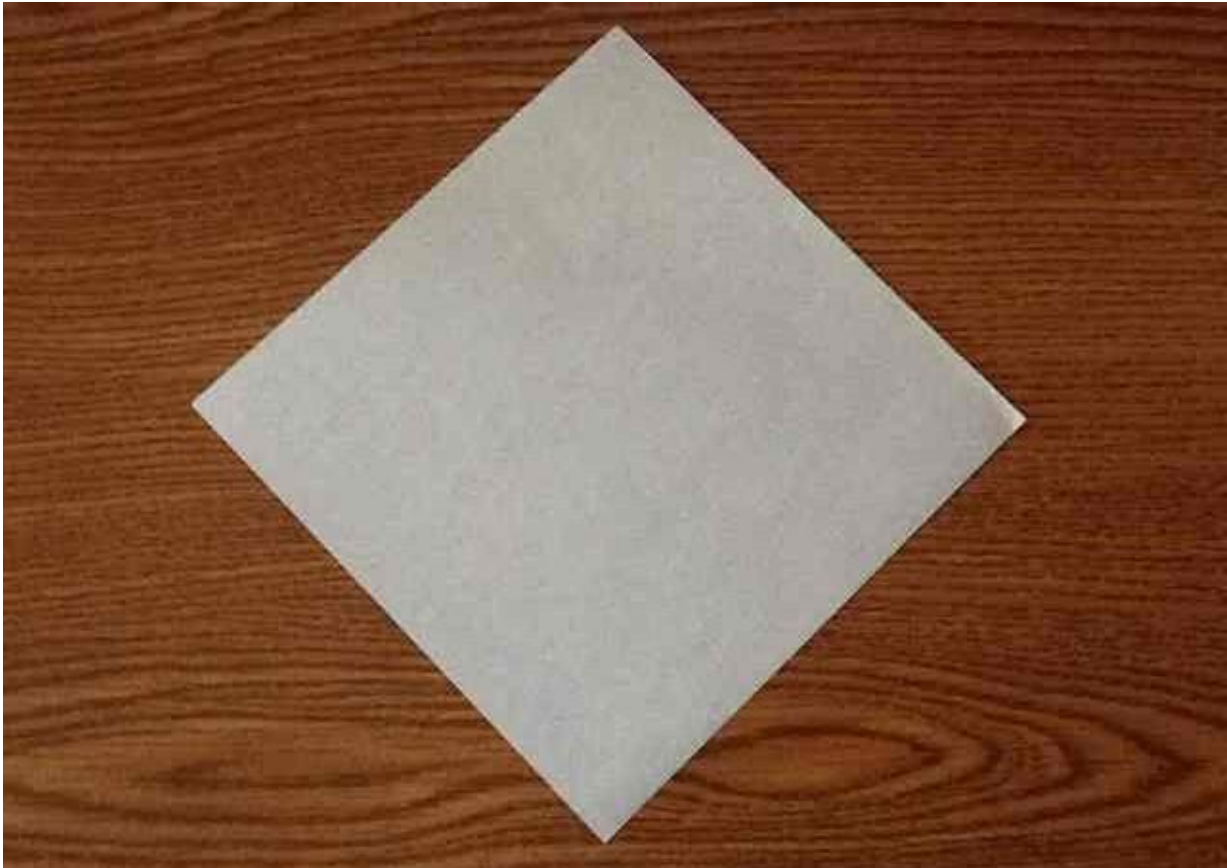
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