Building Competitive Cities: Ties: From Efficient Public Services to Quality of Life for All

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LIMPEZA URBANA
Parceria para Cidades
+ Inteligentes e Sustentáveis

Focus on Public Value:
Resiliency, Sustainability, Equity

> **Queremos criar um novo sector, autónomo dos resíduos, que valorize e potencie os serviços de limpeza urbana, como dinamizadores de política públicas sustentáveis e inteligentes**
>
> Luís Almeida Capão, presidente da direção

> **We want to create a new sector, autonomous from waste, that values and enhances urban cleaning services , as promoters of sustainable and intelligent public policies**
>
> Luís Almeida Capão, chairman of the board

Defining Intelligent City

- Functions on data acquisition, analysis, and feedback loops.
- Involves system-level integration of multiple assets or components.
- Uses technology to improve outcomes, well-being, and quality of life.
- Helps employees work smarter
- Puts citizens in the center
- Acts in real time
- Protects privacy, security and transparency.
- Adopts a new culture and organization

Operational Excellence

Data to Actionable Intelligence: Where to Start

Solving Practical
Problems

Chicago Rats

"Theory of Change" for Advancing Agency-wide Data Culture

Availability: Have the agency's data assets been inventoried and listed so that staff and public have a sense of what is available	**Accessibility**: Can people actually use the data in an intuitive way to answer key business questions?
Awareness: Do people know the full extent of the evidence base that can inform their decisions?	**Capacity:** Do staff have the skills needed to extract meaning from the data?

USAID from IBM Center for The Business of Government Jane M. Wiseman Ash Center for Democratic Governance and Innovation Harvard Kennedy School Data-Driven Government: The Role of Chief Data Officers

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The Value of Combining Data for Action

Third Party Data: Cell phone, LPR

Personalized Alerts

Cameras, Video Analytics

Decision Support/ Dashboard
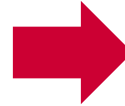
Data Warehouse
- Accounts
- Permits

Data and Operational Excellence--Collection

Driver Instructions

Efficiency: AVL, GPS , turn-by -turn

Routing Efficiency

Digitized routes, tickets, inspections

Routes tailored to meet strett, traffic and waste conditions

Truck/Machine health

Machine Sensors allow predictive maintenance; fuel consumption

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Additional Areas of Actionable Data

Enhanced Safety

Which trucks or routes are producing the most workplace injuries

Allocation of resources

Better allocation of resources for bins, recylcing

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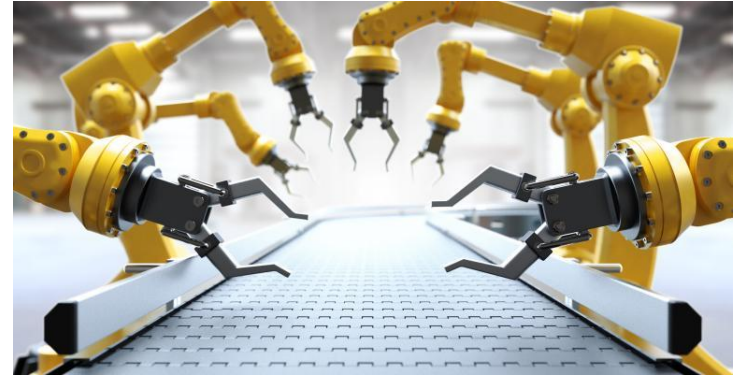
Using Solid Waste Assets to Aid City Services

Trucks as camera and **sensor platforms:** road services, other violations

Securing data to allow for **digital twinning** and planning

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AI, Drones and the Future

TrashBot for AI and Waste Diversion--Developing

Officials from Boise, Idaho procured drones to monitor their landfills.

AI-equipped robot in San Antonio removes contaminants from the organics stream headed to composting
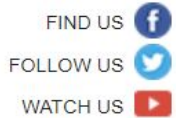
Residents at the Center

UX Focus Enhances User Experiences

- User-Centered Campaigns
- Customer Relation Management Platforms
- Curated, Structured Feedback Loops
- Nudges–Use And Payment
- Improved call center responses-handling complaints
- Visual confirmation to avoid needless trips

Bulk Pick-Up: A Digital Process

THE CITY OF
COLUMBUS
ANDREW J. GINTHER, MAYOR

REFUSE COLLECTION

FIND US
FOLLOW US
WATCH US

Some large items cannot be thrown away because they are too big to fit in your trash container. Residents should contact the City's 311 Customer Service Center to schedule bulk items by calling 311 or 614-645-3111, or online at www.311.columbus.gov.
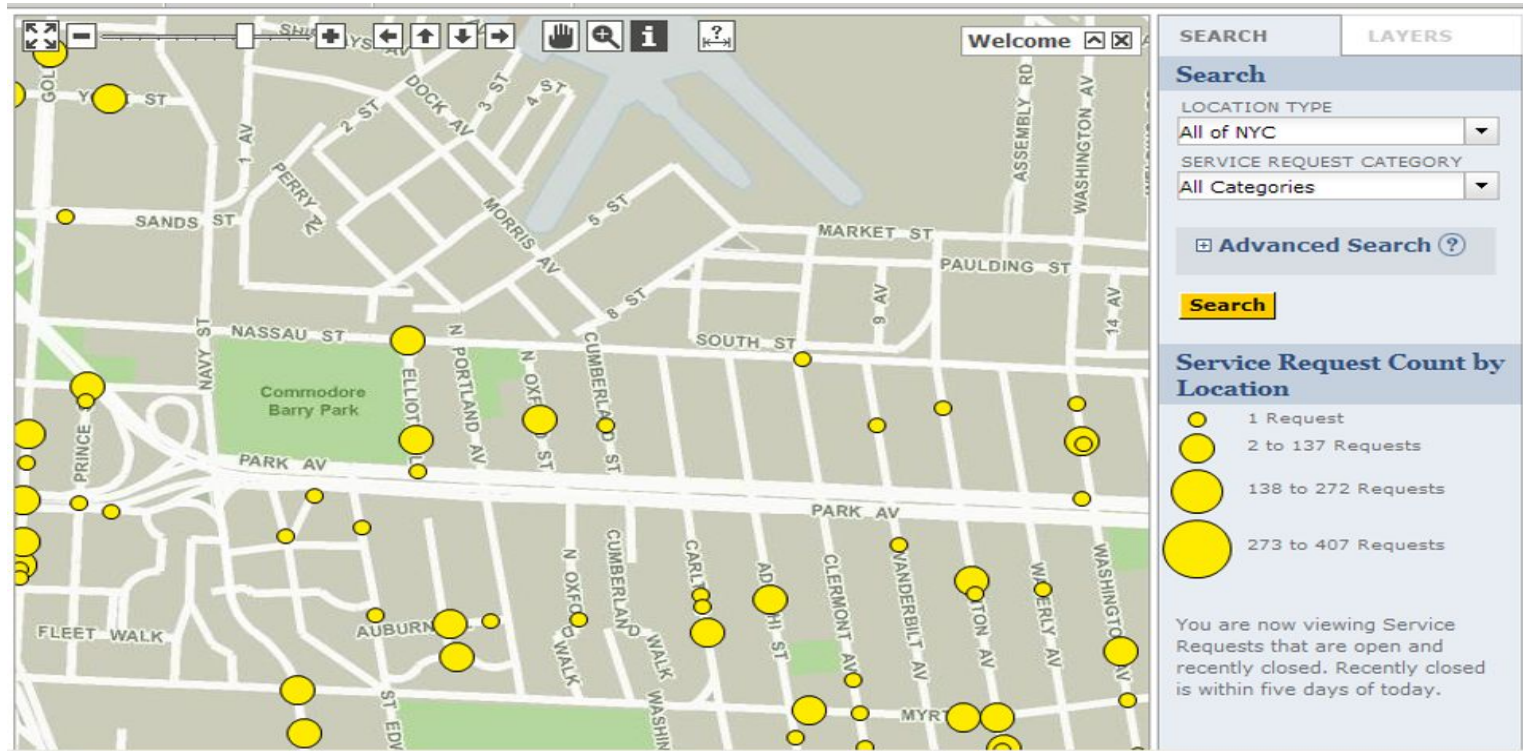
BULK COLLECTION

NO BULK ITEMS WILL BE COLLECTED UNLESS THE RESIDENT SCHEDULES COLLECTION ONLINE OR CALLS 645-3111
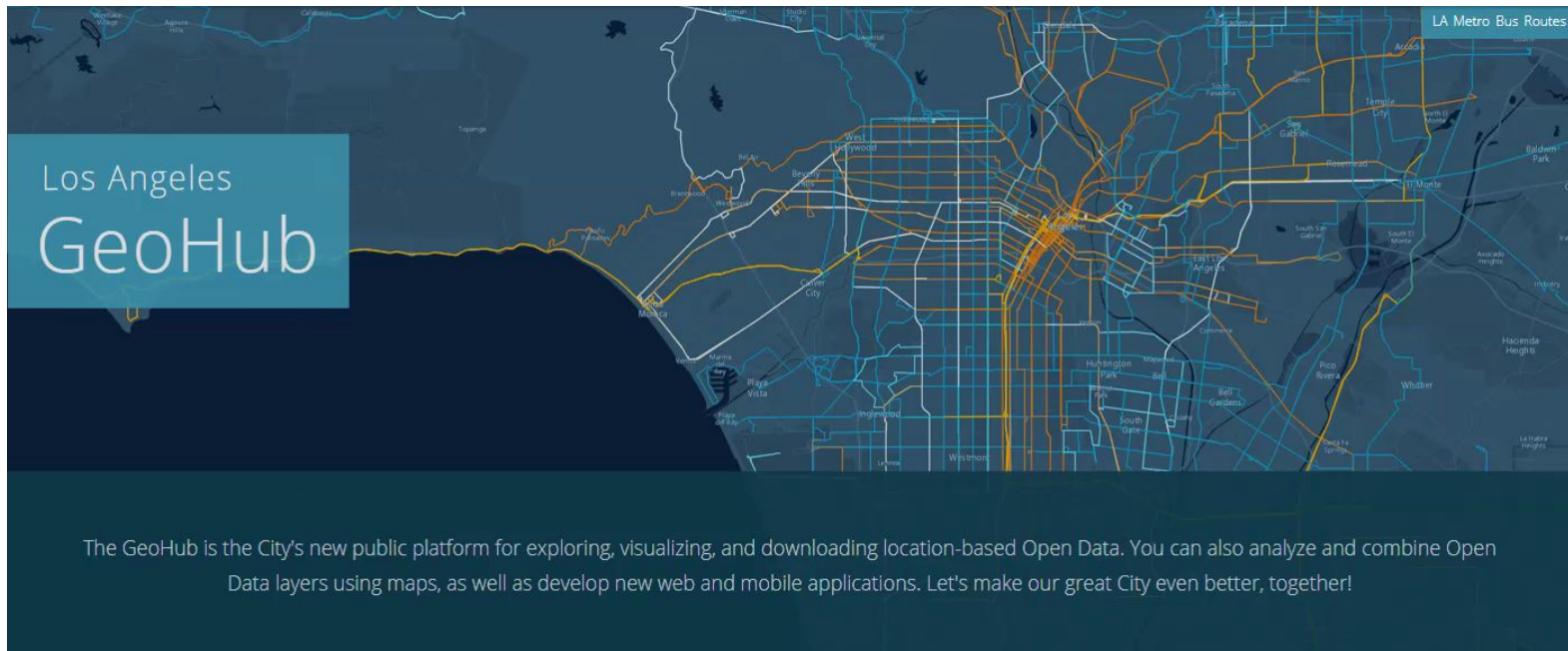
- Resident uses app to make request
- Data configures the route
- Notifies the residents
- Curbside photo used if there is a complaint

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Engagement Through Transparency and Business Intelligence

Maps and Data Viz Platforms Aid Collaboration

Los Angeles
GeoHub

LA Metro Bus Routes

The GeoHub is the City's new public platform for exploring, visualizing, and downloading location-based Open Data. You can also analyze and combine Open Data layers using maps, as well as develop new web and mobile applications. Let's make our great City even better, together!
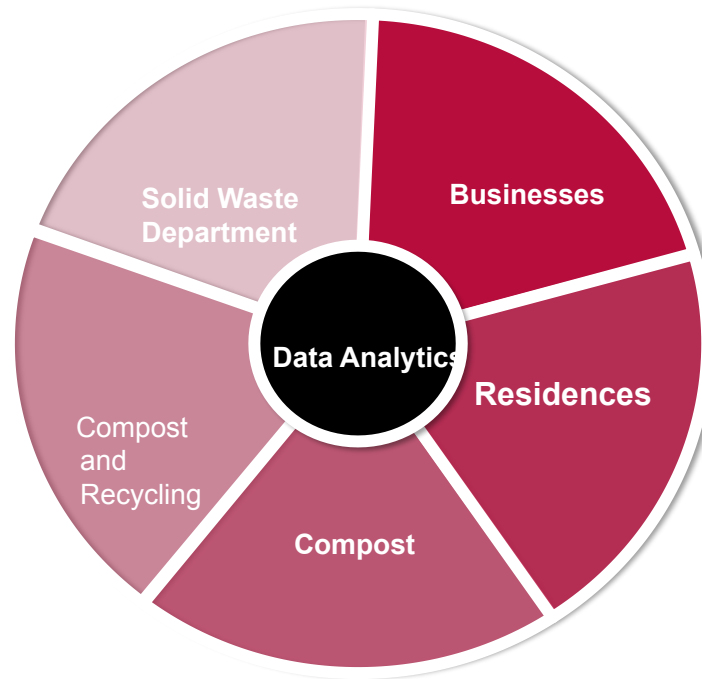
Collaboration   **Visualize Equity**   **Benchmark Blocks**

Environmental Goals Through Systems: Not Agencies or Activities

Efficiency and Sustainability Require a Data System

Diagram: Central circle labeled "Data Analytics" surrounded by segments: Solid Waste Department, Businesses, Residences, Compost, Compost and Recycling

Performance Aligned With Incentives

- Prices drive behaviors
- Pricing too low is a subsidy for waste
- Pricing correctly produces new revenues
- Pricing should flex by event and use
- **Measure and reward sustainability and recycling**
- **True for individuals and institutions:**
  - **A model that pays for landfill tonnage will get more tonnage.**

Nudging by Billing for Extra Bags in Spokane

Container Placement at the Street

Place carts:

- Three (3) feet apart
- At least three (3) feet from cars, trees, mailboxes, fences
- Cart wheels as close to the curb as possible
- Cart lids opening toward street

When possible, trucks with robotic arms will lift, empty and replace the carts without the drivers leaving the trucks, reducing safety hazards and traffic congestion.

Drivers use tablet to snap a photo of the extra bags, then their clerks take that info and send a bill to the customer. They bill about $2m extra per year at the curb.

Extra Garbage Notice:
There is an additional charge for each extra bag or container. So quickly Reduce Your Garbage Costs! Recycling and yard waste collection can help reduce your garbage enough that you may be able to order a smaller size and lower your garbage bills.
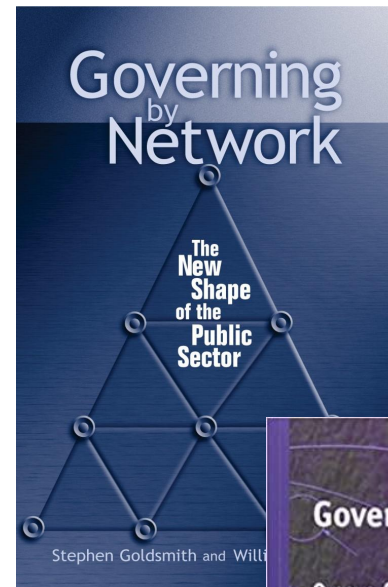
Environmental Goals Require Partnerships

1 Government **can't solve complex horizontal problems with vertical solutions**, nor by simply accomplishing bureaucratic activities better.
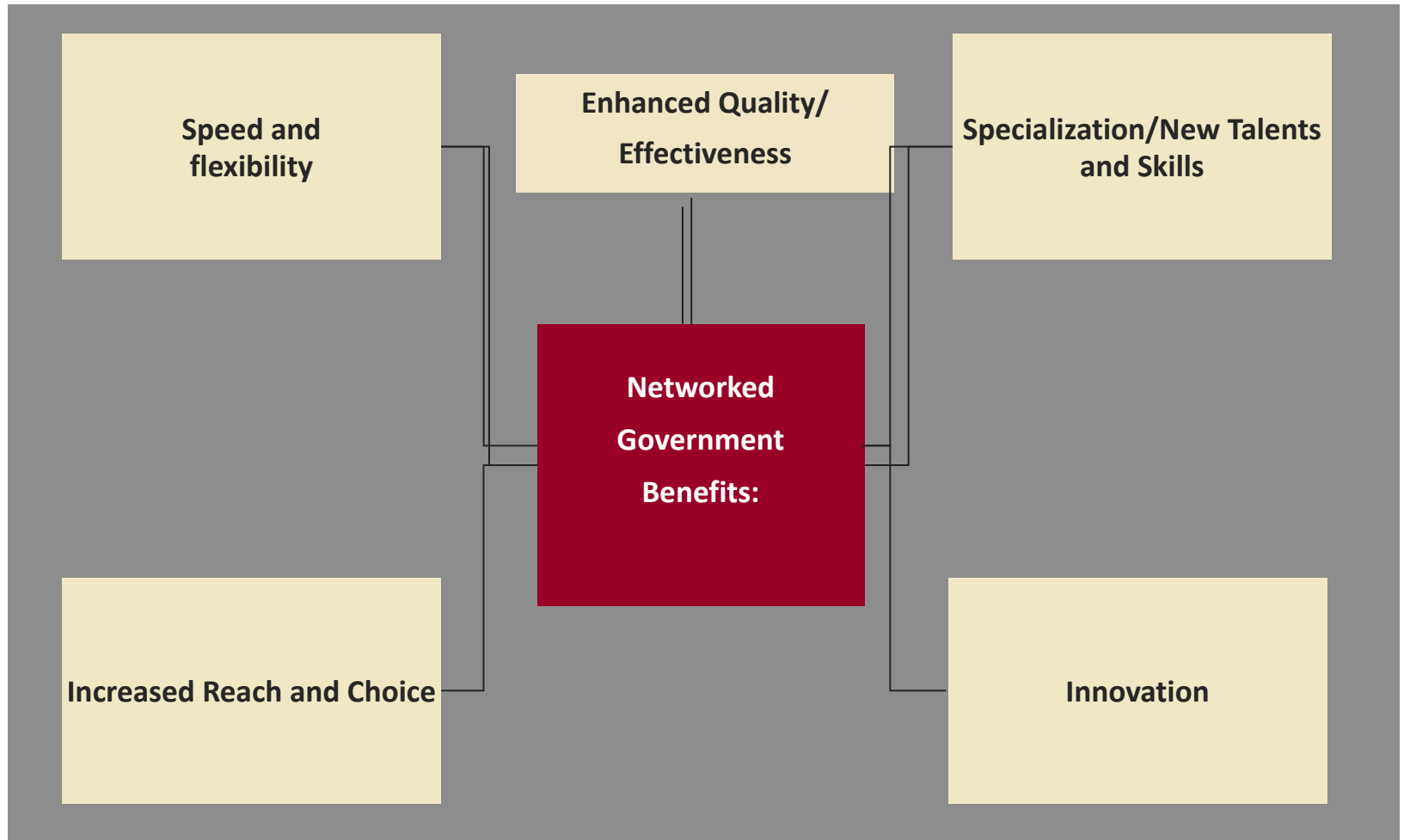
2 The **role of government is being transformed** from direct service provider to generator of public value.
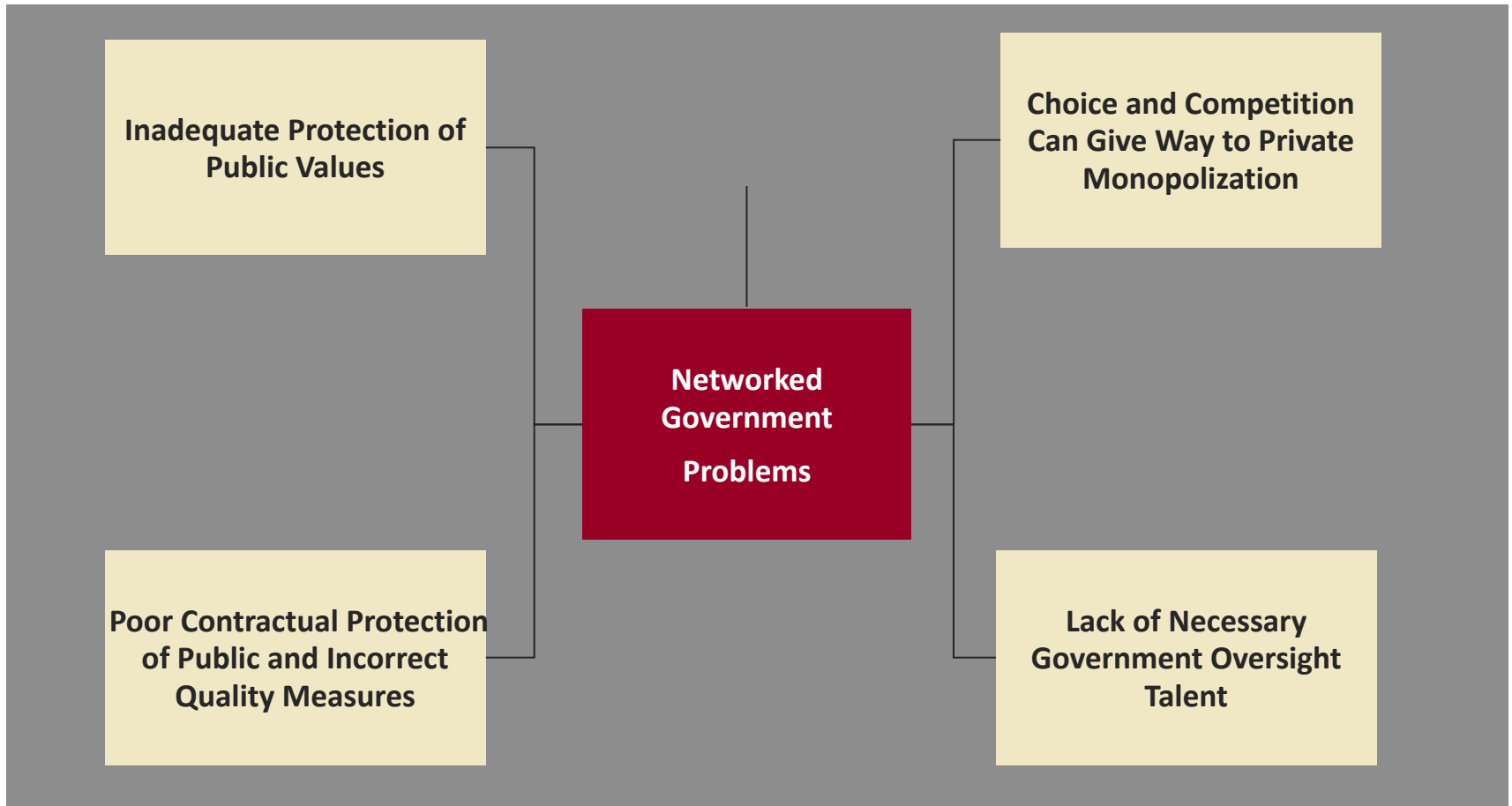
3 We won't get the results taxpayers deserve nor citizens require until we figure out how to **better manage a government** that does less itself and more through third parties.

Benefits of Public Private Partnerships

Speed and flexibility

Enhanced Quality/ Effectiveness

Specialization/New Talents and Skills

Networked Government Benefits:

Increased Reach and Choice

Innovation

Challenges Of Networked Model

Networked Government Problems

- Inadequate Protection of Public Values
- Choice and Competition Can Give Way to Private Monopolization
- Poor Contractual Protection of Public and Incorrect Quality Measures
- Lack of Necessary Government Oversight Talent

Professor Stephen Goldsmith,
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