GovWin+Onvia
from Deltek

SMART CITIES AND COUNTIES

Technology Adoption and
Smarter Solutions in Local Government

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EXECUTIVE SUMMARY

Smart Cities and Counties is a growing area of focus for a broad array of technology-oriented and consulting firms selling to the state, local and education (SLED) marketplace. In this report, we take a comprehensive look at nearly 300 different smart solutions being purchased, reflecting over 70,000 purchases in the last three years, with the majority (59%) coming from cities and a sizable 41% originating from counties. We profile the various types of purchases involved, who is making them, which governments are out-ranking others, and what trends are leading in this space. The following is a summary of several of the key findings:
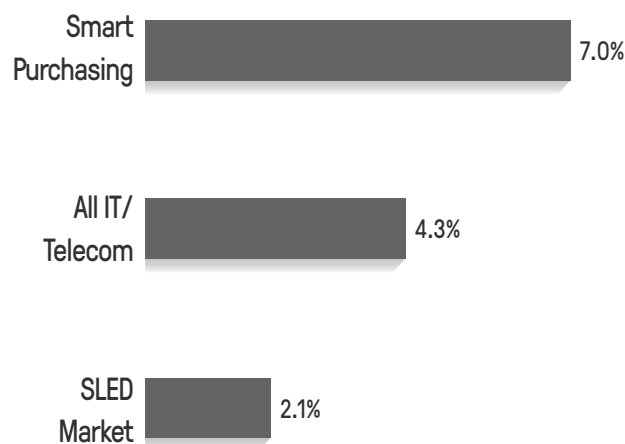
TOP 5 CITIES OVERALL

1	City of New York, NY
2	City of Washington D.C.
3	City of Los Angeles, CA
4	City of Austin, TX
5	City of Columbus, OH

TOP 5 COUNTIES OVERALL

1	Los Angeles County, CA
2	Harris County, TX
3	King County, WA
4	Orange County, CA
5	Montgomery County, MD

SMART PURCHASES GROWING 3X THE ENTIRE SLED MARKET

- Smart Purchasing: 7.0%
- All IT/Telecom: 4.3%
- SLED Market: 2.1%

SMART & BIG DATA IS THE LARGEST OF THE FIVE SEGMENTS

- 30.3%
- 19.5%
- 19.4%
- 19.4%
- 11.5%

■ Smart Transportation
■ Smart Emergency Response
■ Smart & Big Data Resources
■ Smart Citizen Engagement
■ Smart Connected Facilities
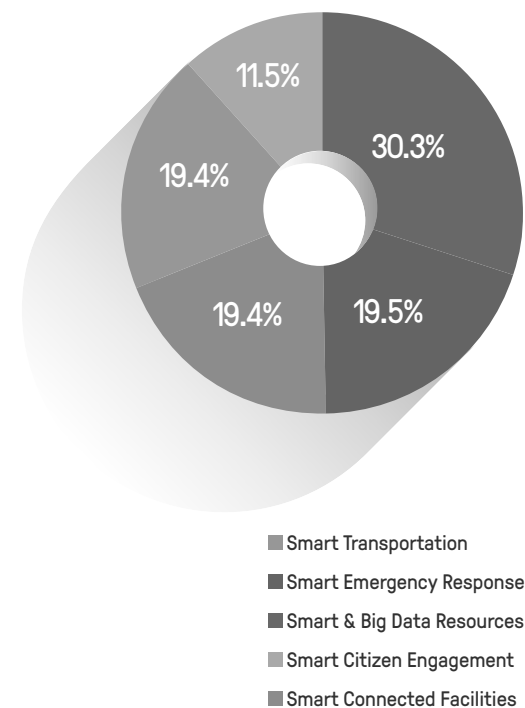
INTRODUCTION

This report summarizes our analysis of the market for Smart Cities and Counties and provides insights and guidance for contractors and vendors.

BACKGROUND

GovWin+Onvia has been doing research on the Smart Cities movement since 2015 and has worked with the Smart Cities Council on in-depth analysis of a number of specific solutions cities are using with previous reports and blogs. For this report, we extended our research to allow for easier ranking of individual governments, with a larger list of products and services, three years of data, and analysis of both city and county governments.

OBJECTIVES

The insights in this report regarding technology spending and investments happening at the city and county level will aid government contractors in their planning and marketing decisions. Specifically, this will involve the following information:

- Analysis of each of five major categories of smart city/county investments
- Combined analysis of the categories
- Analysis of growth rates for smart city and county purchasing
- Ranking of top cities and counties

AREAS EXAMINED

Our five categories of investment are generally consistent with the definitions used by the Smart Cities Council (which they define as areas of responsibility, and technology enablers). The categories are defined as follows:

SMART TRANSPORTATION

Mass transit, car and bike sharing, and digital intelligent transportation solutions such as sensors, vehicle location systems, intelligent stop lights, electronic signs and real-time traffic management.

SMART EMERGENCY RESPONSE

Emergency management, disaster planning and preparedness, mass notification, power backup systems, etc.

SMART & BIG DATA RESOURCES

Big data, BI/analytics and data science, management-related software, cyber, and the computing resources required to manage that data (including cloud and servers).

SMART CITIZEN ENGAGEMENT

Systems and tools aimed at helping government serve the public directly, such as website design and operation, e-permitting, public outreach software, etc.

SMART CONNECTED FACILITIES

Connecting and optimizing buildings and facilities, including high speed fiber, networks, wireless and telecom.

METHODS USED

Our research team utilized GovWin+Onvia's government market intelligence database to perform this analysis, including the following datasets:

- Purchasing events (Bids, RFPs and awards) happening in the previous three years (mid 2015-mid 2018)
- Total population of each city and county
- Expenditures by government

TOP 20 AND TOP 50 RANKING OF CITIES AND COUNTIES

In order to highlight governments with the highest rates of purchasing, the combined list of the top 20 cities and counties was provided for each category. Additionally, in the final section we rank the top 50 cities and top 50 counties.
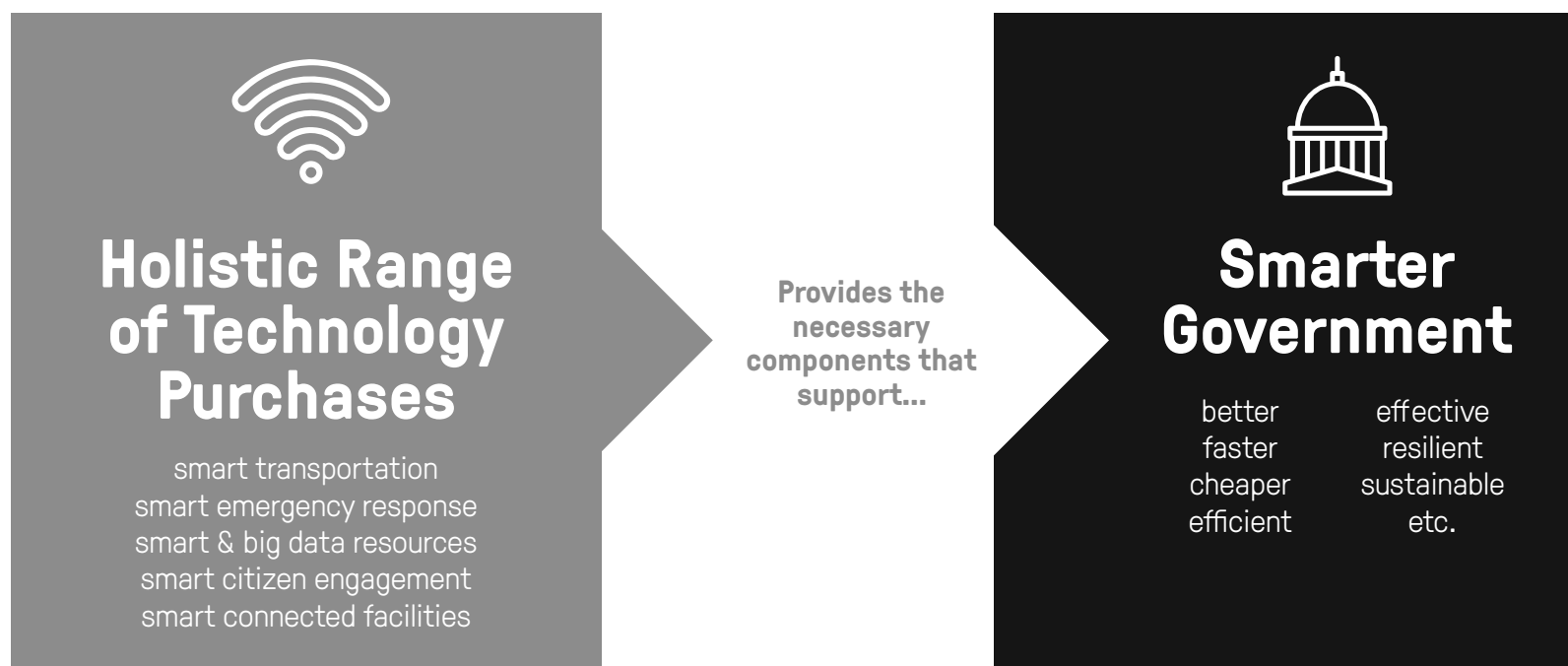
SMART PURCHASING: A CONCEPTUAL FRAMEWORK

The original concept of groundbreaking and well-publicized "smart cities" initiatives has evolved somewhat to include investment at other levels of government, including counties, and recognition that government should be thinking "smarter" about the use of technology for the continuous improvement of services at every level.

The framework used for this study takes a broader view of "smart city" or "smart county" purchases

and investments that help governments move along the "smart" continuum, becoming a "smarter government" even if they are not part of an official "smart" initiative. We include a broad range of purchases in the five identified target areas relating to smart transportation, smart emergency response, smart & big data resources, smart citizen engagement and smart connected facilities.

Smarter government can be defined as government that is committed to adopting innovative technology solutions that tend to result in better, faster, cheaper, more efficient and effective, resilient and sustainable services. Governments that move in this direction tend to experience multiple benefits including faster growth, higher voter/resident satisfaction, and a more competitive position relative to other peer governments within a region.

Holistic Range of Technology Purchases

smart transportation
smart emergency response
smart & big data resources
smart citizen engagement
smart connected facilities

Provides the necessary components that support...

Smarter Government

better   effective
faster   resilient
cheaper   sustainable
efficient   etc.

SUMMARY OF CATEGORIES AND PURCHASES

IDENTIFICATION OF PURCHASES/ OPPORTUNITIES

In this analysis we first identified hundreds of types of opportunities that were related to the two sets of priority areas noted by the Smart Cities Council (areas of responsibility for spending and technology enablers). Our industry-leading Smart Tag system (not to be confused with the topic of Smart Cities), is based on a proprietary ontology that classifies procurement data into one of over 4,000 tags or categories. We chose to focus on core government functions that are expected to be provided by every city and county, for ease of comparing and ranking governments. Utilities-oriented uses (i.e. power, water, garbage, etc.) were excluded based on not every utility being public

and many falling under a fully independent special district status, and educational uses were excluded based on the vast majority of schools not falling under a city or county.

PURCHASE OCCASIONS, NOT JUST BIDS

Secondly, our team selected a comprehensive array of purchases, including bids and RFPs as well as awards that were not done through a traditional bid (i.e. below-threshold purchases, co-op or other purchases through an existing contract, etc.) As a reference point, our database has well over three million SLED records in the last three years. When cities and counties are identified and only the five categories are selected, there were still over 70,000 smart purchase occasions at the city or county level.
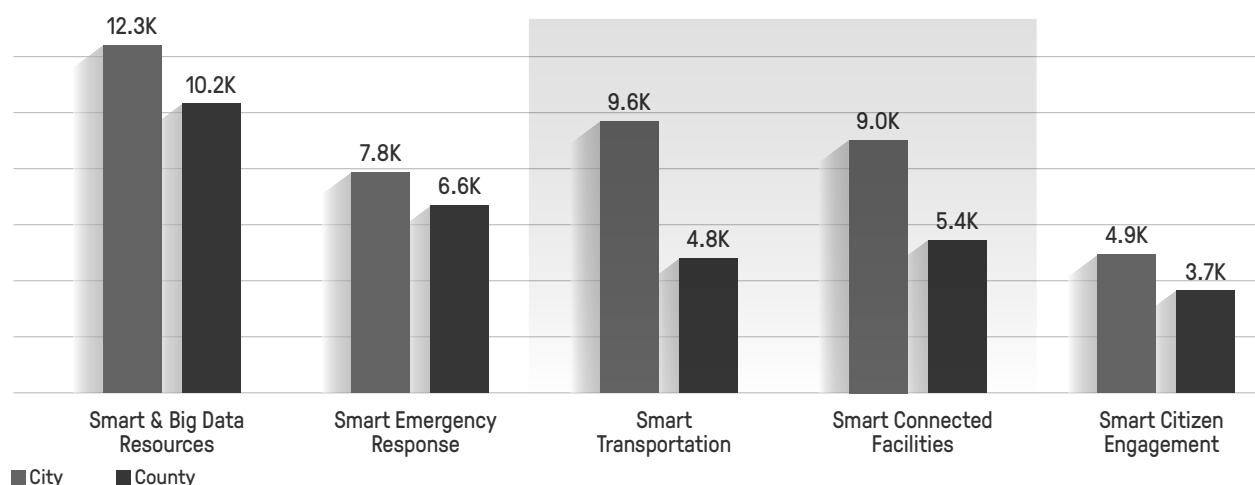
CITY VERSUS COUNTY

Cities represented the majority (59%) of the purchases in our three-year sample, with around 43,500 total purchase occasions versus around 30,600 for the counties.

INFRASTRUCTURE NEEDS GREATER IN CITIES

Cities and counties buy similar amounts of these items in three out of the five areas. Transportation and connected facilities were exceptions where cities tended to have much greater needs. Vendors that are not infrastructure/telecom-focused should keep in mind the similarities and not assume major differences exist in buying patterns.

Category of Smart Purchase Occasions	Smart Tags	Smart Purchases	Share
Smart Transportation	98	14,383	19.4%
Smart Emergency Response	59	14,465	19.5%
Smart & Big Data Resources	54	22,452	30.3%
Smart Citizen Engagement	42	8,520	11.5%
Smart Connected Facilities	36	14,381	19.4%
TOTAL Smart Purchases	**289**	**74,201**	**100.0%**

NUMBER OF PURCHASES

Bar chart comparing City and County purchases:
- Smart & Big Data Resources: City 12.3K, County 10.2K
- Smart Emergency Response: City 7.8K, County 6.6K
- Smart Transportation: City 9.6K, County 4.8K
- Smart Connected Facilities: City 9.0K, County 5.4K
- Smart Citizen Engagement: City 4.9K, County 3.7K

■ City ■ County

FASTER GROWTH OF SMART OPPORTUNITIES

TRACKING THE SUB-SET OF BIDS FOR MORE ACCURATE GROWTH RATES

In order to accurately measure how fast smart purchasing is growing in cities and counties, we focused only on the new bids and RFPs that were issued each year in the three-year period and compared them against all bids issued by SLED governments over this time within IT and also within the larger IT/public safety/transportation cluster.

In addition to the non-bid opportunities, contractors and vendors can expect around 14,000 new bids to be issued each year in the industry tags we identified for this study.

"SMART" BIDS GROWING FASTER

The growth rates for smart purchases at the city and county levels averaged 7% per year and ranged from 3% to 10%.

In contrast, the benchmark growth rate for the entire IT/telecom category was 4.3%. This was very close to the larger industry grouping of tech/public safety/transportation. And, across all industries, the entire SLED market grew by just 2.1% per year over this same period (which was slowed by the lack of growth in the large construction vertical).

AVG. ANNUAL GROWTH IN ADVERTISED BIDS & RFPS

Smart Purchasing	7.0%
All IT/Telecom	4.3%
SLED Market	2.1%
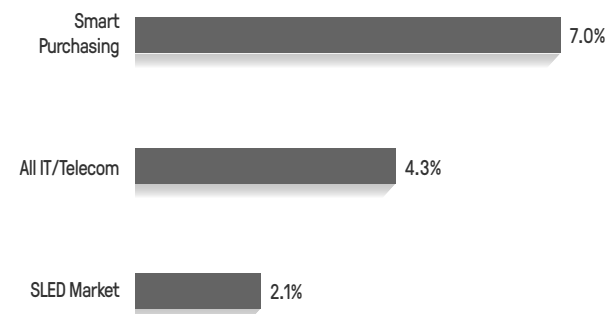
Subgroup of Smart Bids/RFPs Only	FY 2016	FY 2017	FY 2018	Two-Yr Chg.	CAGR
Smart Transportation	2,636	2,905	3,175	20.5%	9.8%
Smart Emergency Response	2,419	2,493	2,891	19.5%	9.3%
Smart & Big Data Resources	2,962	3,138	3,387	14.3%	6.9%
Smart Citizen Engagement	1,481	1,506	1,670	12.7%	6.2%
Smart Connected Facilities	2,730	3,070	2,869	5.1%	2.5%
TOTAL Smart Purchases	**12,228**	**13,112**	**13,991**	**14.4%**	**7.0%**
Benchmark: IT/Telecom Category	35,668	37,760	38,817	8.8%	4.3%
Benchmark: Tech/Public Safety/Transportation	100,222	106,528	108,904	8.7%	4.2%

Note: Benchmark includes other levels of SLED government as well as cities & counties
Note: Fiscal Years shown are based on a 12 month period ending in June of the stated year (i.e. FY 2018 = July 1 2017 – June 30, 2018)

ANALYSIS OF THE
FIVE SMART CATEGORIES

SMART TRANSPORTATION, PROFILE

BACKGROUND/DEFINITION

Smart Transportation encompasses both innovative technology applied to the transportation function as well as the "smart" element of sustainability for a community. Because of the prohibitively high cost of building and widening roads and highways, enhancing the existing infrastructure through intelligent transportation systems (ITS) such as smart intersections, as well as adding more mass transit options, becomes critical to maintaining competitiveness as a "place to live and work."

Improving mass transit helps local employers recruit and retain staff and has the added benefit of helping reduce air pollution. Smart Transportation includes a long list of transit-oriented and IT/technology devices and solutions to allow more efficient management of traffic and also reduce single occupancy vehicle use where possible (whether through bus or train commute choices, car sharing, bike sharing, etc.).

OVERALL SUMMARY/PROFILE OF CATEGORY

Within this particular category is a market comprised of around 4,800 purchases each year, of which 67% are from cities and 33% are from counties. These opportunities have been growing at a rate of 9.8% on average per year since 2015. They include a wide range of purchase values, with around 16-17% valued at $1M or more (see chart).
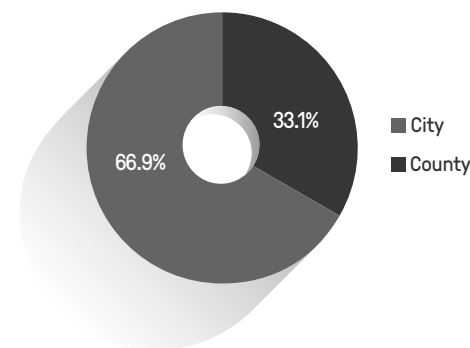
CASE STUDY

The City of Norfolk, VA recently awarded an Advanced Traffic Management System in 2017 for $685 thousand. The Advanced Traffic Management System involves software and hardware upgrades. Specifically, Norfolk was interested in traffic surveillance, vehicle detection systems, and improving communication equipment. Traffic management systems allow for enhanced management of transportation ecosystems impacting public transportation, roadway congestion and traffic safety.

+9.8% Avg. Annual Growth in Purchase Activity (2015-18)

SMART TRANSPORTATION

- City 33.1%
- County 66.9%

SMART TRANSPORTATION - SHARE OF AWARDS BY SIZE

	City	County
Less than $25k	17.5%	19.5%
$25k-$99k	26.2%	21.1%
$100k-$499k	29.5%	33.9%
$500k-$999k	9.0%	9.4%
$1M or more	17.8%	16.1%

■ City ■ County
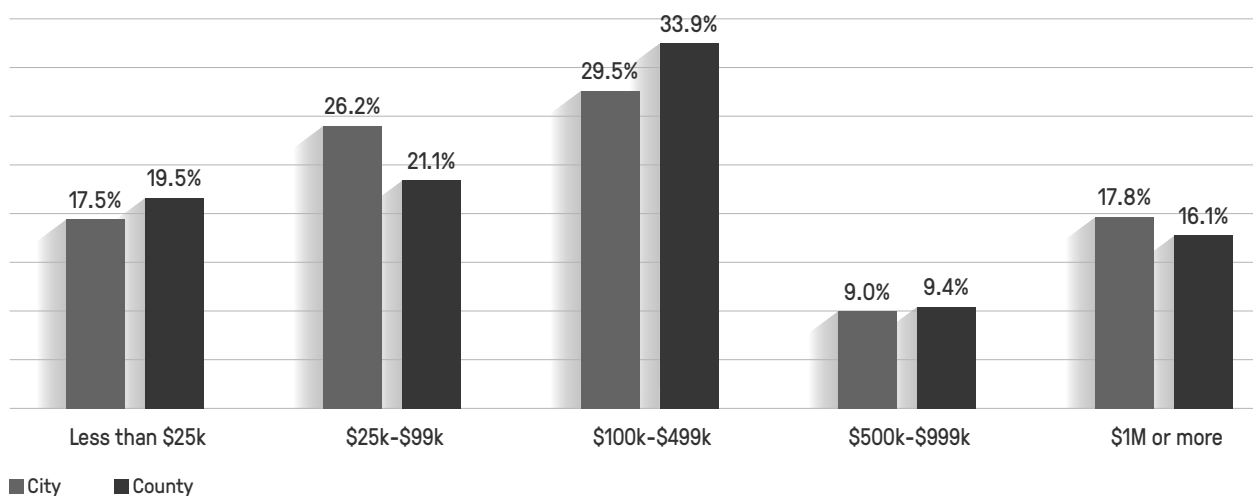
SMART TRANSPORTATION, PROFILE CONTINUED

SUMMARY OF INDUSTRY TRENDS

Smart Transportation is a booming industry as regional transportation infrastructure is stressed more than ever. Cities and counties in California, Texas, Florida, Illinois, and New York are seeing the most procurement in this field, accounting for a combined 52% of projects solicited. Major areas to look out for in this area include traffic management, mobile ticketing, and location services.

Intelligent Transportation Systems are some of the most sought after smart technologies in major metropolitan areas. However, much more common technologies that are procured throughout the country include mapping for fixed-route services, improved data communication, and automated fleet management services. Real-time information services, data sharing, and mobile systems are key components of many of these procurements that seek to more quickly address transit challenges.

Some of the most lucrative contracts in Smart Transportation revolve around mobile/interoperable ticketing programs and traffic/transit management systems. Digitization has been a major trend in city and county procurements for several years but

many transit organizations are still experimenting with the best practices to move towards a majority mobile ticketing and travel information platform.

The ability to leverage transit data is just beginning to be understood and utilized by cities and counties. Dynamic mapping and tracking of entire transportation ecosystems is something that major cities and counties are eager to make use of to lessen traffic, system downtime, and rider congestion.

SUMMARY OF LEADING SUB-CATEGORIES

Within this major category are 98 different sub-categories of solutions, services, or technologies. At the top of the list is the design function of smart transportation, which includes engineers and planners making decisions about how to improve transportation options and utilize smart solutions.

ITS products and services are visible across the list of top items, showing up in various forms from computer-aided highway monitoring to smart intersections to dynamic, digital road signs.

Top Industry Smart Tags	Share
Transportation planning	11%
Traffic studies	7%
Buses	7%
Transportation studies	7%
Fleet management services	6%
Transit bus services	5%
Disability transportation services	4%
Bicycles	3%
Highway performance monitoring services	3%
Traffic signal products	3%
Parking meters and pay stations	3%
Intelligent transportation systems	2%
Shuttle services	2%
ITS controller cabinets	2%
Transportation detection and identification products	2%
Bike sharing services	2%
Parking access and revenue control systems	2%
Adaptive signal control technologies	2%
Rail and rapid transit infrastructure construction services	2%

SMART TRANSPORTATION, RECENT AWARDS

The next tables provide a sample of recent awards in Smart Transportation. These purchases range from $33 thousand for a traffic count/speed study to $17 million for a red light safety enforcement system. These purchases often include an element of what is known as intelligent transportation systems (ITS) solutions.

EXAMPLE OF RECENT CITY AWARDS

$1.2M	$3.7M	$33K	$3.3M	$2.0M
Communications Based Train Control (CBTC)	**Electronic Fare Collection System**	**Traffic Counts and Speed Studies**	**Traffic and Data Analysis Services**	**Adaptive Traffic Control Systems Project**
New York, NY 2015	Charlotte, NC 2015	Glendale, AZ 2017	New York, NY 2017	Culver, CA 2016

EXAMPLE OF RECENT COUNTY AWARDS

$9.9M	$955K	$593K	$17.3M	$2.0M
Transit Mobile Ticketing and Fare Card Interoperability System	**ITS Architecture and Future Technology Master and Implementation Plan**	**Automated Fare Collection System**	**Red Light Safety Enforcement System**	**Automated Vehicle Location**
Broward County, FL 2016	Sacramento County, CA 2017	Chemung County, NY 2017	Orange County, FL 2018	King County, WA 2017

SMART TRANSPORTATION, GOVERNMENT RANKING

ANALYSIS

At the top of the list of highest ranking governments in Smart Transportation are three counties: Montgomery County, MD, Hawaii County, HI, and King County, WA. While there were still only seven counties on the top 20 list, seeing only counties occupy the top three positions is unusual for this study. It suggests that for these particular entities, efficient and effective transportation options have been prioritized much more highly in budgets and attention compared to other counties and cities. In the case of #1 Montgomery County, this was the only "smart" category where it ranked within the top 10 of all cities and counties combined.

While Chicago is normally showing up near the end of these lists, here the city ranked fourth and was the highest ranked of the cities, suggesting it has placed a somewhat higher emphasis in this particular area.

With the strength of the higher ranking counties, several major cities shifted lower in their standing, such as Austin, Columbus, and Jacksonville. With a solid commitment to improving traffic congestion, Seattle continues to rank in the middle of this list and did not lose ground.

Smart Rank	Gov Name	Smart Purchases
1	Montgomery County, MD	216
2	Hawaii County, HI	189
3	King County, WA	180
4	City of Chicago, IL	156
5	City of New York, NY	132
6	City of Los Angeles, CA	112
7	Harris County, TX	100
8	City of Austin, TX	94
9	Los Angeles County, CA	93
10	City of Seattle, WA	89
11	City of Columbus, OH	82
12	Broward County, FL	71
13	City of Washington D.C.	65
14	City of Fort Worth, TX	62
15	City of Baltimore, MD	49
16	City of Dallas, TX	49
17	City of Jacksonville, FL	49
18	City of Philadelphia, PA	49
19	City of Memphis, TN	46
20	Orange County, CA	23

■ City   ■ County

SMART EMERGENCY RESPONSE, PROFILE

BACKGROUND/DEFINITION

The category of Smart Emergency Response addresses the "resilient government" element of Smart Cities by covering several principal areas: smart emergency services, safety services and disaster planning. Emergency and safety services includes software and technology used in police departments for solving crimes, video surveillance, 911/dispatch systems for responding to emergency calls, and related solutions in the public safety area.

It also includes the important area of emergency backup power to protect data centers and server banks. For disasters, a wide range of services are included for earthquakes, flooding, tornadoes and other events along with emergency notification, management and cleanup.

OVERALL SUMMARY/PROFILE OF CATEGORY

Within this particular category is a market comprised of around 4,800 purchases each year, of which 54% are from cities and 46% are from counties. These opportunities have been growing at a rate of 9.3% on average per year since 2015. They include a wide range of purchase values, and between 10-11% are over $1 million in size (see chart).
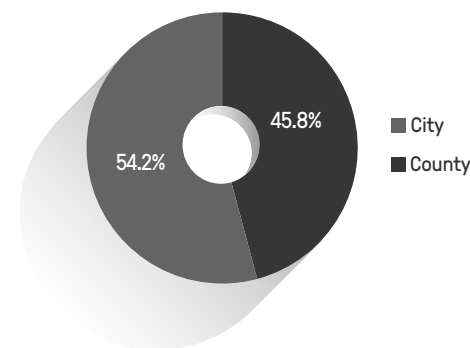
CASE STUDY

Fairfax County, VA awarded a contract for Next Generation Core Services and ESINet Services in 2017 valued at $39 million. Fairfax County acted as the lead purchasing organization for the National Capital Region (NCR) as the region decided to move to Next Generation 911 (NG 911). NG 911 provides cities and counties with an IP based system that enhances nearly every component of call centers, providing better call handling, data collection, and information dissemination abilities.

+9.3% Avg. Annual Growth in Purchase Activity (2015-18)

SMART EMERGENCY RESPONSE

- City 45.8%
- County 54.2%

SMART EMERGENCY RESPONSE - SHARE OF AWARDS BY SIZE

	City	County
Less than $25k	26.7%	33.1%
$25k-$99k	29.8%	26.7%
$100k-$499k	26.4%	25.5%
$500k-$999k	5.9%	4.9%
$1M or more	11.2%	9.7%

■ City ■ County
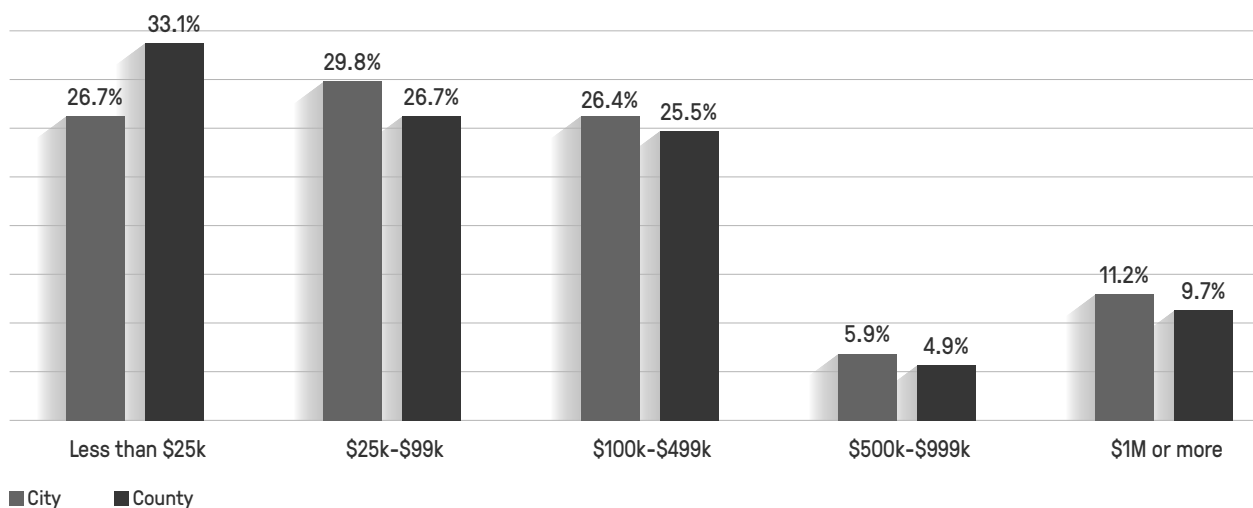
SMART EMERGENCY RESPONSE, PROFILE CONTINUED

SUMMARY OF INDUSTRY TRENDS

Smart Emergency Response technology is being procured around the country at an increasing pace. Our data shows that the majority of these procurements are occurring in California, Texas, Florida, New Jersey, and New York. These states account for just over 47% of Smart Emergency Response procurement. The biggest push in this area has by far been in Next Generation 911 and improving radio communications.

Next Generation 911 and core Public Safety Answering Point (PSAP) services are among the most common trends in Smart Emergency Response. This encompasses new interoperability possibility, data usage, and security features that were not available on non-IP based systems. NG 911 and P25 radio communications promote the inclusion of many other smart technologies such as cloud storage and smart devices. Other noteworthy areas that are expanding are smart surveillance, such as body worn cameras, and mobile crime scene processing technology.

Smart Emergency Response technologies are already being implemented with PSAPs around the county. The rollout of the National Public Safety Broadband Network is one of the first major steps towards enabling Smart Emergency Response systems. While NG 911 and P25 radio systems will often make up the largest projects, one of the most competitive rising fields is in mobile application development for public safety.

Public safety agencies are eager to utilize smart technology in their work. They recognize the benefits of newer technologies and are actively seeking out cost- and time-saving technology to promote more efficient work in every aspect of government.

SUMMARY OF LEADING SUB-CATEGORIES

Within this major category are 59 different sub-categories of technologies or solutions. As the table indicates, there are a wide range of safety and disaster related items ranging from radio equipment and services to uninterrupted power, security cameras and emergency/disaster related services. From a departmental standpoint, they encompass law enforcement and crime fighting, 911/dispatch notification, and disaster preparedness and response. All of these uses can benefit from adoption of smart technologies.

Top Industry Smart Tags	Share
Radio equipment	22%
Uninterruptible power supplies	8%
Radio services	8%
Security cameras	8%
Emergency preparedness services	8%
Safety sensors and detectors	5%
Background check services	4%
Flood protection services	4%
Body cameras	4%
Emergency management services	3%
Forensic equipment	2%
Security x ray equipment	2%
Public safety software	2%
Electronic monitoring systems	2%
Vehicle security cameras	2%
Dispatch software	2%
Flood consulting services	2%

SMART EMERGENCY RESPONSE, RECENT AWARDS

The tables below provide a sample of recent awards in Smart Emergency Response. These purchases range from $841 thousand for an automated fingerprint ID system to $54 million for a larger "public safety radio network".

EXAMPLE OF RECENT CITY AWARDS

$1.2M

Fully Integrated and Seamless Public Safety Information Technology

Detroit, MI
2015

$54.0M

800 MHZ P25 Public Safety Radio Network

Memphis, TN
2017

$32.0M

Computer Aided Dispatch and Automatic Vehicle Locator System

Phoenix, AZ
2017

$4.4M

Body Worn Camera and Evidence Management System

San Jose, CA
2016

$841K

Automated Fingerprint Identification System

Washington D.C.
2016

EXAMPLE OF RECENT COUNTY AWARDS

$39.5M

Next Generation Core Services and ESINET Services

Fairfax County, VA
2017

$2.5M

Public Safety Software Solution to integrate CAD, MD, RMS, FBR and JMS

Rensselaer County, NY
2016

$25.0M

Public Safety Broadband Network Devices

Los Angeles County, CA
2015

$5.0M

Text to 911 Services

Suffolk County, NY
2017

$34.3M

Next Generation Radio System Implementation

Marin County, CA
2017

SMART EMERGENCY RESPONSE, GOVERNMENT RANKING

ANALYSIS

At the #1 position, the City of Los Angeles had the most purchases of Smart Emergency Response products and services since mid-2015. Once again, out of the 20 top governments there were only seven counties, but two out of the top four governments were counties.

Between the natural disaster threats of earthquakes in California and hurricanes in the Gulf states, southern California, Texas and Florida were all well represented among the high ranking cities and counties.

Rounding out the top 10 list were the cities of Columbus, Washington D.C., Memphis, and Jacksonville – all governments that generally ranked highly for other smart categories.

Smart Rank	Gov Name	Smart Purchases
1	City of Los Angeles, CA	235
2	Harris County, TX	225
3	City of New York, NY	195
4	Los Angeles County, CA	173
5	City of Dallas, TX	156
6	City of Columbus, OH	135
7	City of Washington D.C.	116
8	City of Austin, TX	113
9	City of Memphis, TN	97
10	City of Jacksonville, FL	92
11	Orange County, CA	85
12	City of Fort Worth, TX	83
13	King County, WA	81
14	Montgomery County, MD	80
15	Broward County, FL	66
16	City of Seattle, WA	63
17	Hawaii County, HI	61
18	City of Baltimore, MD	47
19	City of Chicago, IL	47
20	City of Philadelphia, PA	41

■ City   ■ County

SMART & BIG DATA RESOURCES, PROFILE

BACKGROUND/DEFINITION

The category of Smart & Big Data Resources includes the principal components of smart and big data and related computing resources. Smart and big data focuses on using large data sets, software, databases and business intelligence methods to help identify answers, design solutions and more effectively and efficiently manage government. Computing resources represents the back-end hardware and computing systems like servers and cloud that are necessary to support the use of smart and big data systems and solutions.

OVERALL SUMMARY/PROFILE OF CATEGORY

Within this particular category is a market comprised of around 7,500 purchases each year, of which 55% are from cities and 45% are from counties. These opportunities have been growing at a rate of 6.9 on average per year since 2015. Typical purchase sizes range from very small to $500K, and around 10% are at least $1M in size (see chart).
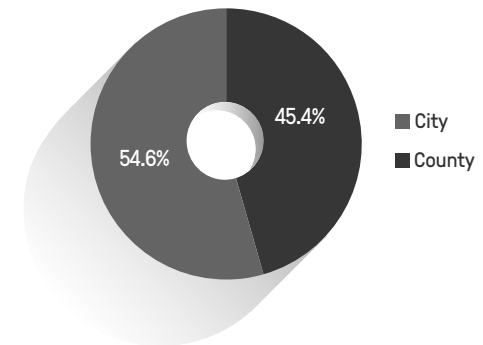
CASE STUDY

The City of Boston entered into a contract as of July 1, 2018 for a new Analytics Data Warehouse with a maximum value of $811 thousand. Boston

has its Citywide Analytics Team, which is the central organization for data science and analytics. The focus of this group is improving how the city operates using data analysis, visualization, mapping, reporting, and predictive modeling. The team integrates data from roughly 250-300 distinct sources, including Boston's 311 system, permitting, inspections, and emergency dispatch systems. This new platform will combine a modern, scalable, cloud-based data warehousing technology with tools that allow for ease of data utilization, which in turn will allow the city to solve more challenging problems and build a more effective government.

+6.9% Avg. Annual Growth in Purchase Activity (2015-18)

SMART & BIG DATA RESOURCES

- 45.4% City
- 54.6% County

SMART & BIG DATA RESOURCES - SHARE OF AWARDS BY SIZE

	Less than $25k	$25k-$99k	$100k-$499k	$500k-$999k	$1M or more
City	21.6%	32.0%	28.8%	6.6%	11.0%
County	31.9%	29.0%	26.5%	4.2%	8.5%
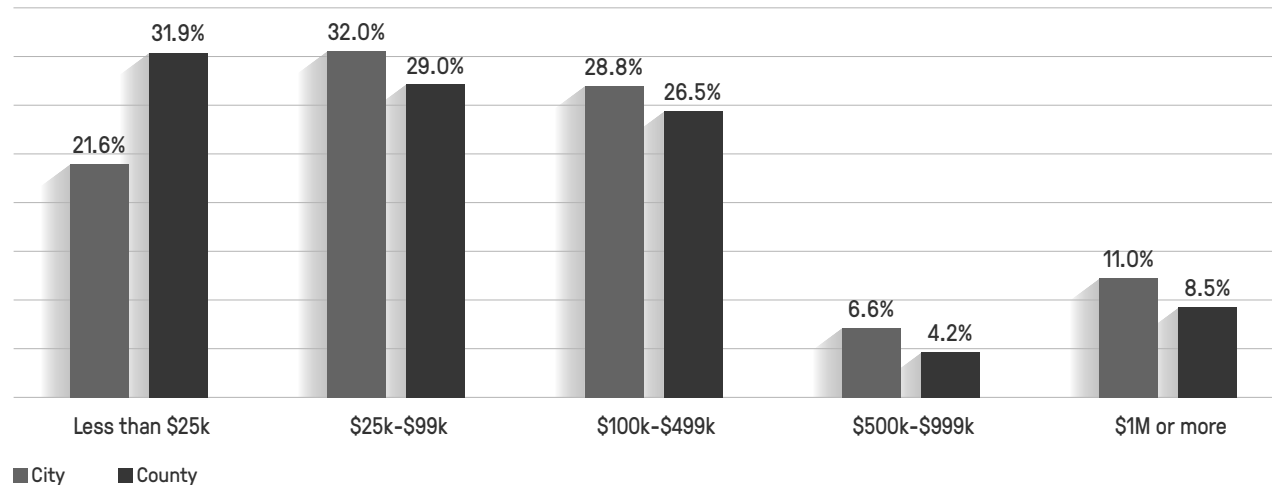
SMART & BIG DATA RESOURCES, PROFILE CONTINUED

INDUSTRY TRENDS

Our data shows that while cities and counties across the country are procuring smart and big data technologies and related computing resources, the majority of this purchasing activity has been in California, Florida, Texas, New York, and New Jersey, with these five states representing over 50% of city and county purchases in this area over the past three years.

Cities and counties are exploring the use of big and smart data and analytics across a range of vertical areas, including in public utilities, transportation, and general government performance and services.

The future of smart cities is not far off, as cities are naturally becoming more interconnected through technologies such as big data and the Internet of Things (IoT). Built on and integrating with big data, the cities of the future are becoming a realization today. The use of smart technologies and big data can help raise efficiency for consumption of resources, improve the lives of citizens, and shape effective city development.

An article in StateScoop raised the point that cities are using much more generated data than ever before, but that oftentimes not enough of this data is usable or relevant. Cities as well as counties will have to contend with this issue and find ways to identify, develop, define, and deploy new solutions to harness and utilize this data effectively.

SUMMARY OF LEADING SUB-CATEGORIES

Within this major category are 54 different sub-categories of technologies or solutions. Many of these are software-related, including maintenance, development or consulting around existing software applications or legacy systems to be more productive, connecting to more or larger data sets, or continuing to meet government IT needs.

The secondary part of this category that involves computing resources can be seen in several of these sub-categories dealing with the installation or maintenance of back-end computing resources and computer equipment necessary to support smart and big data solutions.

Top Industry Smart Tags	Share
Software maintenance	34%
Software products	5%
Information management services	5%
Content management software	5%
Software services	4%
Computer equipment	3%
Security software	3%
Mapping and surveying products	2%
Software development	2%
Human resource management software	2%
Enterprise resource planning software	2%
Mapping services	2%
Asset management software	2%
Virtualization software	2%
Data management software	2%
Case management software	2%
Cyber security services	2%

SMART & BIG DATA RESOURCES, RECENT AWARDS

A sample of recent larger awards in Smart & Big Data Resources are shown below in the tables. These purchases range from $105 thousand to $1.2 million in size and include a variety of data management, analysis, and tracking projects.

EXAMPLE OF RECENT CITY AWARDS

$811K
Analytics Data Warehouse Platform
Boston, MA
2018

$282K
Meter Data Management and Analytics System
Park City, UT
2017

$250K
Big Data and Analysis
Charlotte, NC
2016

$155K
Open Data Platform Replacement
Mesa, AZ
2017

$105K
Utility Data Management Solution
Cupertino, CA
2016

EXAMPLE OF RECENT COUNTY AWARDS

$1.2M
Fiber Optic Data Tracking
Broward County, FL
2016

$163K
Data Collaboration Environment Upgrade
Morris County, NJ
2018

$150K
Data Virtualization Software
Los Angeles County, CA
2017

$138K
Mobile Device Data Collection
St. Louis County, MN
2016

$117K
Big Data Analytics
Cobb County, GA
2017

SMART & BIG DATA RESOURCES, GOVERNMENT RANKING

ANALYSIS

The top 20 governments making Smart & Big Data Resources purchases are listed in the table to the right. Cities tend to dominate, with only seven out of the 20 governments being a county – however, the #2 ranked government was Los Angeles County.

The major cities of New York, Washington D.C. and Los Angeles rank within the top seven, which is to be expected given their population and political-economic importance. While Washington D.C. has a more typical population size, it over-indexes in employment and political importance as the nation's hub for military and government databases, data sharing and analysis.

Austin's high rank here and in other categories speaks to the city's commitment to meet the robust technology expectations of this region, which is generally considered one of the leading "tech corridors" alongside Seattle, Boston, and Silicon Valley.

Smart Rank	Gov Name	Smart Purchases
1	City of New York, NY	560
2	Los Angeles County, CA	427
3	City of Washington D.C.	416
4	City of Austin, TX	324
5	Orange County, CA	275
6	City of Jacksonville, FL	248
7	City of Los Angeles, CA	247
8	Harris County, TX	246
9	Memphis, TN	223
10	Columbus, OH	220
11	King County, WA	188
12	Fort Worth, TX	173
13	Seattle, WA	168
14	Philadelphia, PA	165
15	Baltimore, MD	155
16	Broward County, FL	154
17	Montgomery County, MD	144
18	Dallas, TX	121
19	Chicago, IL	98
20	Hawaii County, HI	77

■ City ■ County

SMART CITIZEN ENGAGEMENT, PROFILE

BACKGROUND/DEFINITION

Smart Citizen Engagement includes technology solutions geared toward enhancing engagement with citizens and the public. This consists of a variety of software and services from automated teller machines to customer relationship software to website design to teleconference systems.
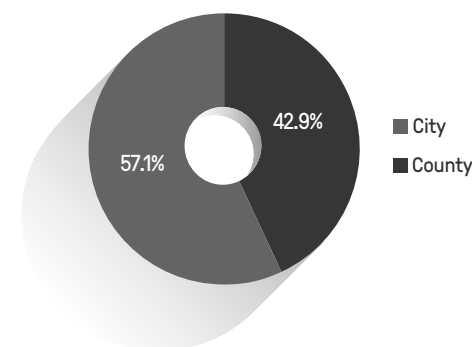
OVERALL SUMMARY/PROFILE OF CATEGORY

Within this particular category is a market comprised of around 2,800 purchases each year, of which 57% are from cities and 43% are from counties. These opportunities have been growing at a rate of 6.2% on average per year since 2015. They include a wide range of purchase values, with around 6% of purchases valued at over $1 million in size (see chart).

CASE STUDY

The County of Pima, AZ awarded a contract worth $31 thousand in December 2017 for an Integrated Customer Behavior Analysis and Communications Platform for the county public library. The platform was designed to be a comprehensive service for the library to track and manage customer behaviors, promote library services and use, and become a guide

for allocating limited library resources. This system has a focus on customer segmentation functionality and communication tools to allow for behavioral analysis and to give patrons a more individualized experience through direct engagement with the library. This solution is a specialized form of a customer relationship management (CRM) system where the CRM system was customized to fit the needs of the library and its services.

+6.2% **Avg. Annual Growth in Purchase Activity** (2015-18)

SMART CITIZEN ENGAGEMENT

- 42.9% City
- 57.1% County

SMART CITIZEN ENGAGEMENT - SHARE OF AWARDS BY SIZE

	Less than $25k	$25k-$99k	$100k-$499k	$500k-$999k	$1M or more
City	30.6%	33.7%	24.8%	5.2%	5.7%
County	33.2%	25.7%	29.2%	5.6%	6.4%

■City ■County
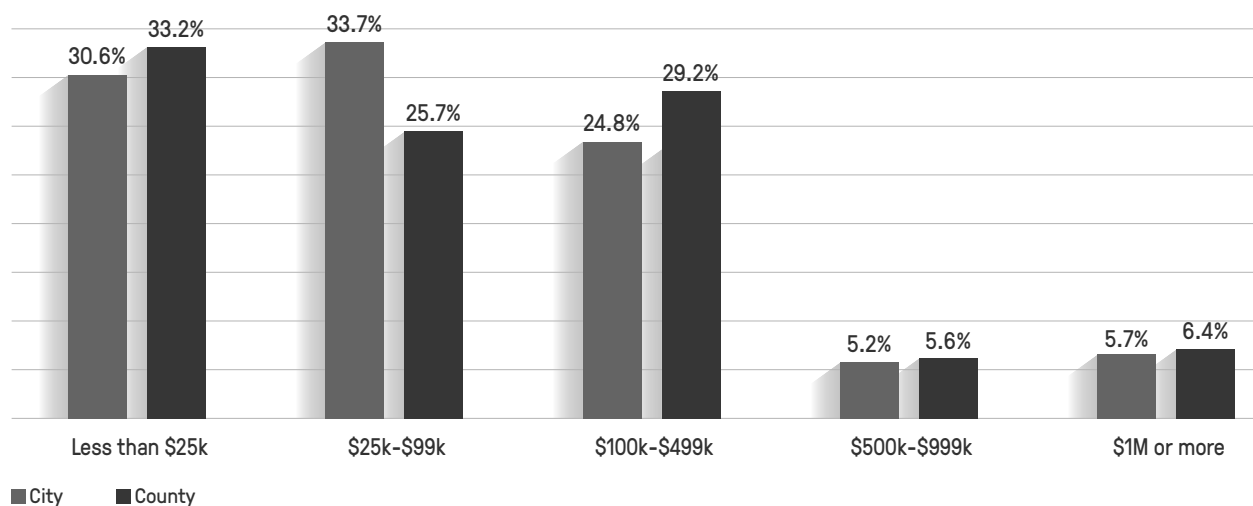
SMART CITIZEN ENGAGEMENT, PROFILE CONTINUED

INDUSTRY TRENDS

Technologies focused on citizen and civic engagement have seen purchasing trends around solutions such as customer relationship, park management, and event management software. The purchasing activity is also more prevalent among cities where these technologies can have a greater impact in reaching citizens. CitizenLab noted that "citizen participation blossoms when governance is open." This aligns with industry trends calling for "Open Data" and government transparency. With access, citizens can be made aware of government outlooks and therefore have more effective collaboration and communication with cities and counties.

Cities and counties are beginning to actively participate in using various technologies for citizen engagement. The technologies have a focus on communication and connection, in order to bridge the gap between decision-makers in government and the citizens impacted. Also, with technology at the fingertips of citizens it can permit active participation in the well-being of a city.

One example of motivating residents to communicate and collaborate was the City of Fort Worth, TX, which in 2016 issued an RFP for a

Customer Relationship Management (CRM) system. The overall goal of the system was to modernize and transform the city's current CRM system in order to make it not only user-friendly but also more convenient. CRM systems have become a big ticket item in this realm because citizen engagement is at this technology's core with elements of customer service, performance measurement, and the enhancement of government transparency.

SUMMARY OF LEADING SUB-CATEGORIES

Within this major category are 42 different sub-categories of technologies or solutions. We ranked them in order and listed all of them with at least 2% of total projects.

Web design purchases topped the list, at 22%, followed by "television, audio and video products" at 13%. Document imaging was included because it is digital and serves the needs of a public accustomed to receiving documents in digital formats. Other common examples include videography, electronic voting, mobile apps for smart phones, automated teller machines, teleconferencing, and permit tracking software.

Top Industry Smart Tags	Share
Web design services	22%
Television, audio and video products	13%
Document imaging services	7%
Videography services	6%
Electronic voting machines	6%
Mobile applications	4%
Hosting services	3%
Automated teller machines	3%
Teleconference products	3%
Permit tracking software	2%
Library management software	2%
Paging systems	2%
Digital streaming services	2%
Parks and recreation management software	2%
Customer relationship management software	2%
Digital media software	2%

SMART CITIZEN ENGAGEMENT, RECENT AWARDS

A sample of recent larger awards in Smart Citizen Engagement are shown below in the tables. These purchases range from $16 thousand to $1.9 million in size and include a variety of professional services and software aimed at interacting more efficiently with the public and helping deliver higher quality government services.

EXAMPLE OF RECENT CITY AWARDS

$202K	$651K	$1.9M	$263K	$65K
Constituent Relationship Management System	**Work Order & Asset Management, Business Licensing, Permitting, Inspection, & Citizen Engagement Software**	**Customer Relationship Management Solution**	**Professional Station Management & Videography Services**	**Economic Development Website Redesign & Launch**
Sunnyvale, CA 2016	Orland Park, IL 2017	Fort Worth, TX 2016	East Point, GA 2017	Morgan Hill, CA 2018

EXAMPLE OF RECENT COUNTY AWARDS

$300K	$106K	$16K	$31K	$73K
Event/Incident Management Software	**Volunteer and Event Management Software Solution**	**Event Ticketing System and Services**	**Integrated Customer Behavior Analysis & Communications Platform**	**Provision & Installation of Integrated Paging System**
Los Angeles County, CA 2016	Boulder County, CO 2016	Miami-Dade County, FL 2016	Pima County, AZ 2017	Gwinnett County, GA 2017

SMART CITIZEN ENGAGEMENT, GOVERNMENT RANKING

ANALYSIS

The table presents the top 20 governments making Smart Citizen Engagement purchases. Once again, cities tend to dominate, with only one county in the top five and seven counties in total represented here.

New York, Washington D.C. and the Los Angeles community (City & County) have the highest counts of purchasing activity over the past three years.

At #5, Austin continues to maintain a near top-tier positioning consistent with its performance in the other four smart categories.

Ranking #6, Harris County, TX is actually the 3rd largest county in population, so it is not surprising to see it rank in the top 10 in multiple categories. Orange County, CA ranks within the top 10 here as well as for two other categories.

 Jacksonville, FL and Columbus, OH are other examples of higher ranking cities that show up here as well as in other major categories.

Smart Rank	Gov Name	Smart Purchases
1	City of New York, NY	216
2	Washington D.C.	148
3	Los Angeles County, CA	111
4	City of Los Angeles, CA	92
5	City of Austin, TX	75
6	Harris County, TX	62
7	Orange County, CA	58
8	City of Jacksonville, FL	54
9	City of Columbus, OH	52
10	City of Seattle, WA	52
11	City of Dallas, TX	49
12	King County, WA	43
13	City of Fort Worth, TX	42
14	City of Philadelphia, PA	41
15	City of Baltimore, MD	39
16	City of Memphis, TN	38
17	Broward County, FL	35
18	Montgomery County, MD	31
19	Hawaii County, HI	19
20	City of Chicago, IL	13

■ City   ■ County

SMART CONNECTED FACILITIES, PROFILE

BACKGROUND/DEFINITION

The category of Smart Connected Facilities focuses on connectivity and telecommunications, and includes technology products that connect buildings, rooms and facilities, including networking and intranet systems and routers, cabling and fiber optic equipment, and satellite communications.

OVERALL SUMMARY/PROFILE OF CATEGORY

Within this particular category is a market comprised of around 4,800 purchases each year, of which 62% are from cities and 38% are from counties. These opportunities have been growing at a rate of 2.5% on average per year since 2015. They include a wide range of typical purchase values, from very small to $500K in value. Around 11% are over $1M (see chart).

CASE STUDY

The City of San Francisco entered into a contract in January, 2017 for Advisory Services with a contract value of $565 thousand in relation to the Broadband to San Francisco Project. This project looks to build a municipal fiber network to provide all residential, commercial, and industrial premises in San Francisco with 1 gigabit per second internet service. The city is committed to maintaining its place as a center of technical innovation, while also laying a foundation for future growth.

INDUSTRY TRENDS

Unsurprisingly, a majority of Smart Connected Facilities solicitations are focused in highly populated states with coffers to spend. California, Texas, and Florida have led the way with 38% of the total activity by cities and counties, while adding New York and New Jersey brings the share to just past 50%.

+2.5% Avg. Annual Growth in Purchase Activity (2015-18)

CONNECTED FACILITIES

- 37.7% City
- 62.3% County
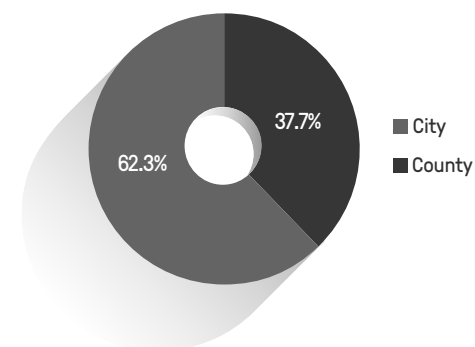
CONNECTED FACILITIES - SHARE OF AWARDS BY SIZE

	Less than $25k	$25k-$99k	$100k-$499k	$500k-$999k	$1M or more
City	24.8%	28.2%	28.8%	7.2%	11.0%
County	33.6%	24.4%	25.6%	5.6%	10.8%
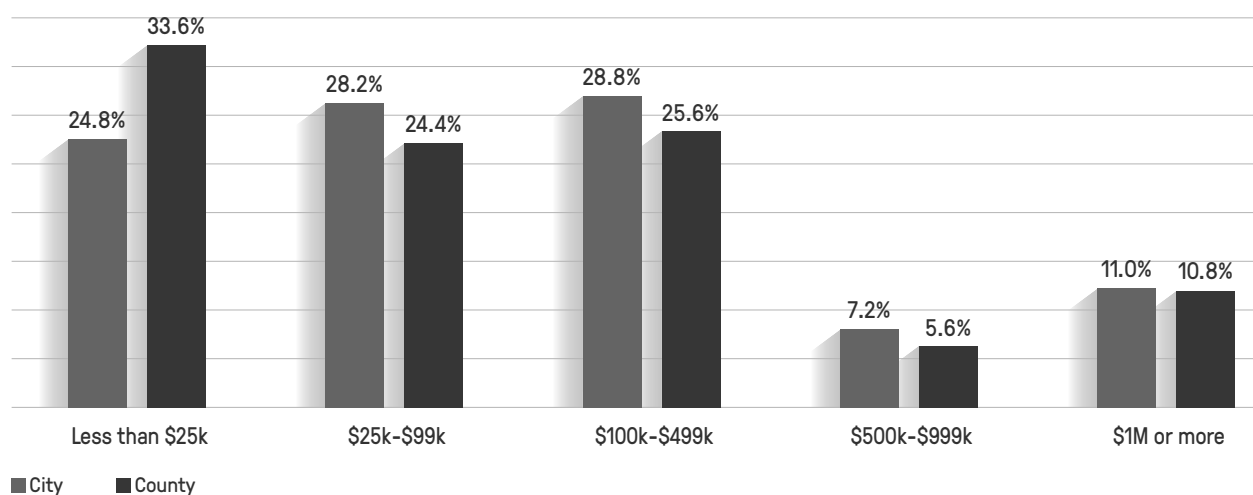
SMART CONNECTED FACILITIES, PROFILE CONTINUED

With the rapid growth of interest in smart city technology and connected facilities, cities and counties are frequently looking to outside sources for advisory services.

Smart city roadmaps and development planning with consulting firms are currently of high interest to assist in the determination of government needs, system requirements, and integration into overall city plans.

New smart city technologies are enabling cities and counties to more efficiently and effectively manage their multitude of assets and facilities. Through the use of AI, further connectivity, and more focused data, organizations are better able to control and adapt their physical environment and multitude of systems.

As data collection builds through increased adoption and enablement of connected systems, the new information will become connected to the human experience. Particularly in areas of rapid growth, these systems could elevate collaboration between various systems to raise the standard of living in a rapidly developing technologically-centered world.

SUMMARY OF LEADING SUB-CATEGORIES

Within this major category are 36 different sub-categories of technologies or solutions. The table to the right lists the leading products and services.

Cabling services, at 23% and network services, at 17% were the top two sub-categories within connected facilities. Cabling is a common component of many infrastructure or facilities projects, including construction of new facilities as well as remodeling projects. Connectivity involves the latest standards of cabled as well as wireless communications.

Among the other more common industry tags were computer networking equipment, CCTV services, telephone systems, and wireless equipment.

Top Industry Smart Tags	Share
Cabling services	23%
Network services	17%
Computer networking equipment	9%
CCTV services	8%
Telephones	7%
Telephone systems	6%
Wireless products and equipment	5%
IP telephony services	4%
Security systems services	3%
Fiber optic cabling	2%
Communications infrastructure construction services	2%
Wiring supplies	2%
Closed captioning services	2%

SMART CONNECTED FACILITIES, RECENT AWARDS

The following tables provide examples of larger recent awards in the area of Smart Connected Facilities. These purchases range from $30 thousand to $3.4 million in size and include a range of telecommunication related products and services.

EXAMPLE OF RECENT CITY AWARDS

$1.2M

Enterprise Identity and Access Management System

Boston, MA
2016

$565K

Broadband for San Francisco Advisory Services

San Francisco, CA
2017

$573K

Closed Circuit Television CCTV Network

Washington, D.C.
2017

$200K

Citywide Telephone System Maintenance

Mesa, AZ
2017

$30K

Smart Building Pilot and Energy Management Software

Durham, NC
2017

EXAMPLE OF RECENT COUNTY AWARDS

$1.3M

VoIP Telephone System

Cherokee County, GA
2016

$630K

Construction of Wireless Towers and Wireless Broadband System

Louisa County, VA
2017

$120K

Wireless High Speed Data Transmission System

San Diego County, CA
2018

$84K

Cisco Networking Equipment

Yolo County, CA
2016

$3.4M

VoIP System, Training, Support & Consulting

Harris County, TX
2016

SMART CONNECTED FACILITIES, GOVERNMENT RANKING

ANALYSIS

The table to the right lists the top cities and counties making purchases in the Smart Connected Facilities category. All tallied, 13 cities and seven counties led the way.

The top two buyers of these solutions also happen to be the largest of the U.S. megacities. This list contains many of the larger cities as well as some fairly large counties.

In this particular category of connecting between facilities, the dominance of the larger governments makes sense because projects involving infrastructure and modifications to buildings often require telecom-related improvements as a best practice, as opposed to an optional consideration. Larger governments generally spend more in these areas because they have a much larger footprint of facilities that may need attention or upgrading. Cables and fiber tend to be added whether or not they will be immediately used, because the high cost of retrofitting in the future means it makes sense to budget for them each time.

Smart Rank	Gov Name	Smart Purchases
1	City of New York, NY	216
2	City of Los Angeles, CA	191
3	City of Washington D.C.	170
4	Harris County, TX	167
5	Los Angeles County, CA	120
6	City of Austin, TX	105
7	City of Columbus, OH	104
8	Orange County, CA	95
9	City of Jacksonville, FL	80
10	City of Dallas, TX	77
11	City of Memphis, TN	73
12	King County, WA	72
13	City of Seattle, WA	65
14	Broward County, FL	62
15	City of Fort Worth, TX	61
16	City of Baltimore, MD	56
17	Montgomery County, MD	53
18	City of Philadelphia, PA	43
19	Hawaii County, HI	36
20	City of Chicago, IL	28

■ City   ■ County

ANALYSIS OF THE COMBINED CATEGORIES

COMBINED ANALYSIS: BACKGROUND

This section involves an analysis of the combined data from all five major smart categories, focusing on Top 50 rankings by cities and counties separately.

OVERALL GOAL

Identify and profile the leading governments in smart purchasing overall and consider implications for vendors.

METHOD USED

Step 1

Identify Top 50 Cities or Counties

First, we sort all cities or counties by the overall number of purchases over the previous three-year period (summing up the individual counts from each of the five major smart categories already presented earlier). These lists are then briefly discussed.

Step 2

Profile Top Cities or Counties Using Additional Demographic/Government Data

Secondly, we appended data on population size and total annual expenditures for each city or county shown in a Top 50 list.

Step 3

Analyze Gaps in Purchasing Relative to Government Size

For this final step, we went beyond simply ranking governments against each other in purchasing. This involved computing a rank for population within each Top 50 list, as well as a rank for total expenditures, and then comparing them against the corresponding rank for overall smart purchasing. This approach allowed us to easily examine whether differences in purchasing were fully explained by the size of a government. There were three possible outcomes of this analysis:

1. The city/county seems to be purchasing smart solutions at a rate that is **roughly consistent** with it's size (i.e. within 10 or less difference between purchase rank and demographic rank)

2. The city/county appears to be making **more purchases** than expected for its size (i.e. greater priority recently)

3. The city/county appears to be making **fewer purchases** than expected for its size (i.e. lesser priority recently)

Step 4

Present Explanations or Draw Insights Based on the Patterns

We make several observations and draw some preliminary conclusions to assist contractors and vendors selling to the SLED market.

OVERALL RANK FOR TOP 50 CITIES

OVERALL SUMMARY

The tables shown here feature the top 50 cities ranked for total or combined smart purchases (across the five major categories).

The #1 top city on the list was New York, with 1,319 combined purchases, or around 440 per year since mid-2015. Washington D.C. was second with 915 total purchases.

Looking at the typical volume of purchases in this 1-50 rank list, most cities had between 120 and 400 purchases in total, or between 40-133 per year on average.

The top five cities with around 600-1,300 purchases included two mega-cities but were otherwise represented by generally larger governments with around 700,000 – 1 million in population.

Total Smart Rank	City	Total Smart Purchases
1	City of New York, NY	1,319
2	City of Washington D.C.	915
3	City of Los Angeles, CA	877
4	City of Austin, TX	711
5	City of Columbus, OH	590
6	City of Jacksonville, FL	523
7	City of Memphis, TN	477
8	City of Seattle, WA	427
9	City of Fort Worth, TX	421
10	City of Dallas, TX	354
11	City of Baltimore, MD	334
12	City of Boston, MA	329
13	City of Chicago, IL	314
14	City of Albuquerque, NM	299
15	City of Philadelphia, PA	296
16	City of San Antonio, TX	288
17	City of Houston, TX	286
18	City of Detroit, MI	254
19	City of Cleveland, OH	226
20	City of San Jose, CA	225
21	City of Springfield, MO	225
22	City of Phoenix, AZ	205
23	City of Mesa, AZ	192
24	City of Fort Lauderdale, FL	187
25	City of Hilton Head Island, SC	176

Total Smart Rank	City	Total Smart Purchases
26	City of Denver, CO	176
27	City of San Diego, CA	171
28	City of Napa, CA	170
29	City of San Francisco, CA	166
30	City of Saint Petersburg, FL	161
31	City of Pasadena, CA	159
32	City of New Orleans, LA	159
33	City of Aurora, CO	155
34	City of Chandler, AZ	153
35	City of Tacoma, WA	148
36	City of Sacramento, CA	147
37	City of Anchorage, AK	134
38	City of Santa Monica, CA	133
39	City of Las Vegas, NV	133
40	City of Oklahoma City, OK	128
41	City of Orlando, FL	121
42	City of Nashville, TN	121
43	City of Norfolk, VA	120
44	City of Honolulu, HI	110
45	City of Chattanooga, TN	108
46	City of Savannah, GA	108
47	City of Long Beach, CA	106
48	City of Portland, OR	105
49	City of Atlanta, GA	104
50	City of Tempe, AZ	99

OVERALL RANK FOR CITIES & FURTHER ANALYSIS (1-25)

HOW TO INTERPRET

The main list of top cities are again shown in order for #1-25. For both the population and expenditure data, the rank within the 50 are shown for each demographic, along with the variance from the overall purchase rank:

Buying more than expected

Buying less than expected

DISCUSSION & SURPRISING FINDINGS

Many of the cities ranked in the top 25 overall had populations or expenditures that did not seem to fully explain their high incidence of making smart purchases. When the volume of purchasing is greater than expected it suggests city leaders had to prioritize these investments higher or make some budget tradeoffs to afford them.

For example, Columbus, OH was ranked 5th for purchasing but was ranked 15th for population and only 29th for expenditures.

Total Smart Rank	City	Population	Population Rank (w/Variance)	Expenditure ($ 000's)	Expenditure Rank (w/Variance)
1	City of New York, NY	8,622,698	1 (0)	126,284,487	1 (0)
2	City of Washington D.C.	693,972	18 (16)	14,863,296	3 (1)
3	City of Los Angeles, CA	3,999,759	2 (-1)	18,112,140	2 (-1)
4	City of Austin, TX	950,715	11 (7)	4,002,951	14 (10)
5	City of Columbus, OH	860,427	15 (10)	1,601,289	29 (24)
6	City of Jacksonville, FL	892,062	12 (6)	4,018,486	13 (7)
7	City of Memphis, TN	652,236	22 (15)	2,902,727	20 (13)
8	City of Seattle, WA	724,745	16 (8)	3,279,757	15 (7)
9	City of Fort Worth, TX	874,168	14 (5)	1,658,416	27 (18)
10	City of Dallas, TX	1,341,075	9 (-1)	4,140,831	12 (2)
11	City of Baltimore, MD	611,648	26 (15)	4,186,218	11 (0)
12	City of Boston, MA	685,094	19 (7)	4,366,965	10 (-2)
13	City of Chicago, IL	2,716,450	3 (-10)	10,461,294	5 (-8)
14	City of Albuquerque, NM	558,545	27 (13)	1,049,883	35 (21)
15	City of Philadelphia, PA	1,580,863	6 (-9)	7,553,034	6 (-9)
16	City of San Antonio, TX	1,511,946	7 (-9)	5,124,002	8 (-8)
17	City of Houston, TX	2,312,717	4 (-13)	5,507,721	7 (-10)
18	City of Detroit, MI	673,104	20 (2)	3,024,897	18 (0)
19	City of Cleveland, OH	385,525	33 (14)	1,244,544	31 (12)
20	City of San Jose, CA	1,035,317	10 (-10)	1,755,815	26 (6)
21	City of Springfield, MO	167,376	45 (24)	659,442	42 (21)
22	City of Phoenix, AZ	1,626,078	5 (-17)	2,807,777	21 (-1)
23	City of Mesa, AZ	496,401	29 (6)	794,995	38 (15)
24	City of Fort Lauderdale, FL	180,072	43 (19)	517,247	44 (20)
25	City of Hilton Head Island, SC	40,055	50 (25)	60,215	50 (25)

OVERALL RANK FOR CITIES & FURTHER ANALYSIS (26-50)

HOW TO INTERPRET

The main list of top cities are shown in order for #26-50. For both the population and expenditure data, the rank within the 50 are shown for each demographic, along with the variance from the overall purchase rank:

Buying more than expected

Buying less than expected

DISCUSSION & SURPRISING FINDINGS

Within the second half of the top 50 list are another assortment of mid-sized to larger cities roughly similar to the top 25 list in scale. However, the lower half of the 50 city list contained many examples (noted in red) where city leaders appear to have approved smart purchases at a lower rate than one would expect for their size of community. For example, Nashville, TN was 42nd for purchasing but was 21st in population and 9th in expenditures. These are indicators of a relatively larger government that one might expect would make even more purchases of smart solutions (all other things being equal). There were also a few exceptions (noted in blue) where smart purchases were actually higher than expected, such as Napa, CA – ranked 28th in purchases yet only 49th in population and expenditures.

Total Smart Rank	City	Population	Population Rank (w/Variance)	Expenditure ($ 000's)	Expenditure Rank (w/Variance)
26	City of Denver, CO	704,621	17 (-9)	3,132,527	17 (-9)
27	City of San Diego, CA	1,419,516	8 (-19)	3,238,258	16 (-11)
28	City of Napa, CA	79,774	49 (21)	434,180	49 (21)
29	City of San Francisco, CA	884,363	13 (-16)	11,719,180	4 (-25)
30	City of Saint Petersburg, FL	263,255	38 (8)	502,247	45 (15)
31	City of Pasadena, CA	142,647	47 (16)	717,131	40 (9)
32	City of New Orleans, LA	393,292	32 (0)	2,011,843	24 (-8)
33	City of Aurora, CO	366,623	35 (2)	549,707	43 (10)
34	City of Chandler, AZ	253,458	39 (5)	420,576	46 (12)
35	City of Tacoma, WA	213,418	41 (6)	1,176,380	34 (-1)
36	City of Sacramento, CA	501,901	28 (-8)	998,164	36 (0)
37	City of Anchorage, AK	294,356	36 (-1)	1,844,770	25 (-12)
38	City of Santa Monica, CA	92,306	48 (10)	664,760	41 (3)
39	City of Las Vegas, NV	641,676	25 (-14)	888,727	37 (-2)
40	City of Oklahoma City, OK	643,648	24 (-16)	1,236,581	32 (-8)
41	City of Orlando, FL	280,257	37 (-4)	727,729	39 (-2)
42	City of Nashville, TN	667,560	21 (-21)	4,397,948	9 (-33)
43	City of Norfolk, VA	244,703	40 (-3)	1,278,138	30 (-13)
44	City of Honolulu, HI	374,658	34 (-10)	2,966,043	19 (-25)
45	City of Chattanooga, TN	179,139	44 (-1)	1,195,364	33 (-12)
46	City of Savannah, GA	146,444	46 (0)	335,747	48 (2)
47	City of Long Beach, CA	469,450	31 (-16)	2,088,629	23 (-24)
48	City of Portland, OR	647,805	23 (-25)	1,603,884	28 (-20)
49	City of Atlanta, GA	486,290	30 (-19)	2,178,318	22 (-27)
50	City of Tempe, AZ	185,038	42 (-8)	382,360	47 (-3)

OVERALL RANK FOR TOP 50 COUNTIES

OVERALL SUMMARY

The top 50 counties ranked for smart purchases are listed in the tables to the right.

The #1 top county on the list was Los Angeles County, with 871 combined purchases, or around 290 per year since mid-2015. Florida (with 10 high ranking counties) followed by California (8) were the top two states represented on a geographic basis. The majority of these counties made between 150 and 400 purchases in total or 50-130 per year.

The top five counties that made at least 500 purchases in total each happened to be near the top of the size spectrum, with populations greater than one million. However, for the remaining 45 top counties, there was a range of midsized to larger counties.

Total Smart Rank	County	Total Smart Purchases
1	Los Angeles County, CA	871
2	Harris County, TX	742
3	King County, WA	554
4	Orange County, CA	536
5	Montgomery County, MD	501
6	Hawaii County, HI	378
7	Broward County, FL	335
8	Hillsborough County, FL	332
9	Fairfax County, VA	309
10	San Bernardino County, CA	308
11	Davidson County, TN	304
12	Westchester County, NY	289
13	Miami-Dade County, FL	281
14	Orange County, FL	268
15	Cuyahoga County, OH	257
16	Pinellas County, FL	247
17	Baltimore County, MD	243
18	Fresno County, CA	237
19	Maricopa County, AZ	232
20	Jefferson Parish, LA	230
21	Mecklenburg County, NC	229
22	Hudson County, NJ	220
23	Loudoun County, VA	219
24	Collier County, FL	216
25	DeKalb County, GA	215

Total Smart Rank	County	Total Smart Purchases
26	Howard County, MD	214
27	Monmouth County, NJ	207
28	Riverside County, CA	203
29	Oakland County, MI	194
30	Palm Beach County, FL	189
31	Hillsborough County, NH	187
32	Broome County, NY	177
33	Arlington County, VA	176
34	Lancaster County, NE	170
35	San Diego County, CA	169
36	Camden County, NJ	166
37	Gwinnett County, GA	165
38	Sonoma County, CA	165
39	Hennepin County, MN	162
40	Volusia County, FL	159
41	Cook County, IL	152
42	Santa Clara County, CA	145
43	Lake County, FL	137
44	Anne Arundel County, MD	134
45	St. Louis County, MO	132
46	Fulton County, GA	128
47	Rockland County, NY	127
48	Pasco County, FL	126
49	Hamilton County, OH	124
50	Cobb County, GA	122

OVERALL RANK FOR COUNTIES & FURTHER ANALYSIS (1-25)

HOW TO INTERPRET

The main list of top 50 counties are again shown in order for #1-25. For both the population and expenditure data, the rank within the 50 are shown for each demographic, along with the variance from the overall purchase rank:

Buying more than expected

Buying less than expected

DISCUSSION & SURPRISING FINDINGS

Many of the counties ranked in the top 25 overall had populations or expenditures that did not seem to fully explain their high incidence of making smart purchases. When the volume of purchasing is greater than expected it suggests county leaders had to prioritize these investments higher or make some budget tradeoffs to afford them.

One noteworthy example was Hawaii County, ranked 6th for smart county purchasing yet only ranked 49th for population size and 46th for expenditures. Another was Hillsborough County, FL, ranked 8th in purchases but only 41st in population and only 50th in expenditures.

Total Smart Rank	County	Population	Population Rank (w/Variance)	Expenditure ($ 000's)	Expenditure Rank (w/Variance)
1	Los Angeles County, CA	10,163,507	1 (0)	24,837,098	1 (0)
2	Harris County, TX	4,652,980	3 (1)	5,054,273	6 (4)
3	King County, WA	2,188,649	9 (6)	2,919,357	16 (13)
4	Orange County, CA	1,348,975	15 (11)	1,899,915	25 (21)
5	Montgomery County, MD	1,058,810	21 (16)	8,224,910	2 (-3)
6	Hawaii County, HI	200,381	49 (43)	482,514	46 (40)
7	Broward County, FL	1,935,878	12 (5)	2,448,144	19 (12)
8	Hillsborough County, FL	409,697	41 (33)	85,959	50 (42)
9	Fairfax County, VA	1,148,433	19 (10)	6,587,995	4 (-5)
10	San Bernardino County, CA	2,157,404	10 (0)	4,233,320	11 (1)
11	Davidson County, TN	667,560	33 (22)	4,397,948	9 (-2)
12	Westchester County, NY	980,244	25 (13)	3,970,800	12 (0)
13	Miami-Dade County, FL	2,751,796	7 (-6)	7,938,593	3 (-10)
14	Orange County, FL	3,190,400	6 (-8)	3,946,560	13 (-1)
15	Cuyahoga County, OH	1,248,514	18 (3)	2,048,053	21 (6)
16	Pinellas County, FL	970,637	26 (10)	1,079,418	34 (18)
17	Baltimore County, MD	832,468	28 (11)	3,835,835	14 (-3)
18	Fresno County, CA	989,255	24 (6)	1,936,454	23 (5)
19	Maricopa County, AZ	4,307,033	4 (-15)	1,757,688	27 (8)
20	Jefferson Parish, LA	439,036	40 (20)	1,482,015	29 (9)
21	Mecklenburg County, NC	1,076,837	20 (-1)	2,929,765	15 (-6)
22	Hudson County, NJ	691,643	32 (10)	900,381	38 (16)
23	Loudoun County, VA	398,080	42 (19)	1,884,290	26 (3)
24	Collier County, FL	372,880	43 (19)	595,551	43 (19)
25	DeKalb County, GA	753,253	31 (6)	994,396	37 (12)

OVERALL RANK FOR COUNTIES & FURTHER ANALYSIS (26-50)

HOW TO INTERPRET

The main list of top 50 counties are shown in order for #26-50. For both the population and expenditure data, the rank within the 50 are shown for each demographic, along with the variance from the overall purchase rank:

Buying more than expected

Buying less than expected

DISCUSSION & SURPRISING FINDINGS

Within the second half of the top 50 list (26-50) are an assortment of mid-sized to larger counties roughly similar to the top 25 list in scale. However, these counties contained many examples (noted in red) where county leaders appear to have approved purchases at a lower rate than one would expect for their size of community. For example, Palm Beach County, FL ranked 30th for purchasing but was ranked 13th for population and 20th for expenditures. These are indicators of a relatively larger government that one might expect would make even more purchases. There were also a few exceptions (noted in blue) where smart purchases were higher than expected, such as Lancaster County, NE (34th in purchases but 47th in population and 49th in expenditures).

Total Smart Rank	County	Population	Population Rank (w/Variance)	Expenditure ($ 000's)	Expenditure Rank (w/Variance)
26	Howard County, MD	321,113	46 (20)	2,025,706	22 (-4)
27	Monmouth County, NJ	626,351	34 (7)	641,188	42 (15)
28	Riverside County, CA	2,423,266	8 (-20)	4,291,354	10 (-18)
29	Oakland County, MI	1,250,836	17 (-12)	1,245,769	31 (2)
30	Palm Beach County, FL	1,471,150	13 (-17)	2,216,264	20 (-10)
31	Hillsborough County, NH	1,408,566	14 (-17)	1,907,265	24 (-7)
32	Broome County, NY	193,639	50 (18)	666,319	41 (9)
33	Arlington County, VA	234,965	48 (15)	1,597,865	28 (-5)
34	Lancaster County, NE	314,358	47 (13)	122,820	49 (15)
35	San Diego County, CA	3,337,685	5 (-30)	4,775,210	7 (-28)
36	Camden County, NJ	510,719	38 (2)	545,624	45 (9)
37	Gwinnett County, GA	920,260	27 (-10)	1,121,332	33 (-4)
38	Sonoma County, CA	504,217	39 (1)	1,446,642	30 (-8)
39	Hennepin County, MN	1,252,024	16 (-23)	2,751,371	17 (-22)
40	Volusia County, FL	538,692	36 (-4)	439,418	47 (7)
41	Cook County, IL	5,211,263	2 (-39)	4,622,674	8 (-33)
42	Santa Clara County, CA	1,938,153	11 (-31)	5,395,546	5 (-37)
43	Lake County, FL	346,017	44 (1)	244,663	48 (5)
44	Anne Arundel County, MD	573,235	35 (-9)	2,608,094	18 (-26)
45	St. Louis County, MO	996,726	23 (-22)	714,218	40 (-5)
46	Fulton County, GA	1,041,423	22 (-24)	1,175,719	32 (-14)
47	Rockland County, NY	328,868	45 (-2)	882,122	39 (-8)
48	Pasco County, FL	525,643	37 (-11)	580,007	44 (-4)
49	Hamilton County, OH	813,822	29 (-20)	1,050,293	35 (-14)
50	Cobb County, GA	755,754	30 (-20)	1,046,783	36 (-14)

CITIES & COUNTIES: IMPLICATIONS FOR SALES STRATEGY

Both the top 20 category lists as well as the top 50 combined lists provide a valuable tool for SLED contractors wishing to target governments with the highest current rates of adoption of the smart technologies we profiled. There are several ways to use this information.

THE OVERALL VOLUME GOVERNMENT

You can consider targeting cities and counties of any size that meet a minimum threshold of total smart purchasing activity. They may offer the best chances of making new purchases, but this approach doesn't leverage any of the additional profile data on government size or consider differences by specific category. Also, consider that larger and higher volume governments attract a lot of attention and related competition for contract dollars.

THE CATEGORY VOLUME GOVERNMENT

Businesses may want to ignore overall purchasing and just focus on purchasing within the closest major category/segment to what their company provides (using the Top 20 lists).

BALANCING OVERALL AND CATEGORY LISTS

Companies interested in category level purchasing as well as overall smart purchasing can pursue both in a hybrid approach. While the category lists show both cities and counties and are not as detailed, you can still cross them with the top 50 overall volume lists to increase confidence or certainty.

THE OVER-PURCHASING GOVERNMENT

Governments noted in blue in the previous data tables that seem to be making a lot of purchases for their size can be targeted. The advantages would be: 1) These are governments that have recently been placing more emphasis on these areas and therefore may continue to be somewhat better candidates in the future, and 2) because they spend more than normal, you can find mid-sized cities or counties where the competition for technology purchases is not as great as in larger ones (potentially raising win rates).

THE UNDER-PURCHASING GOVERNMENT

Some contractors may want to consider a reverse strategy where they intentionally look for and target cities or counties marked in red in the previous data tables, where they appear to be under-spending relative to their size.

One of the potential drivers of under-spending is tight budgets. While this is often seen negatively, one of the positive aspects of these governments is that while their total volume may be limited, they may be forced to innovate and seek out efficiency using technology as a way to maximize their limited resources. The fact that they still reached the top 50 list in overall purchasing means they are still interested in moving this direction, but their under-spending status could mean somewhat better chances for vendors offering strong ROI solutions that promise big wins.

Another possible benefit to targeting these governments is timing. There may be ups and downs in the volume of smart purchasing, and for whatever reason, an under-spending but top 50 city or county may simply be found near the bottom of the longer-term cycle and therefore may be gearing up to shift higher over the next 3-5 years, passing by some of the others who are currently ranked favorably based on temporarily strong buying patterns.

EXPANDING THE SEARCH

These rankings are intended to be a starting point, not an exhaustive resource. Use of a market intelligence database such as the one GovWin+Onvia provides can unlock additional value through efficient screening of thousands of potential opportunities.

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