IBM Smarter Cities:
Building a Smarter Planet One City at a Time

Curtis Clark, Director Global Government IBM Public Sector
Citizens are placing increasing demands on leaders

Evolution of Value

Citizens Demand
- Security
- Convenience
- Opportunity
- Prosperity

Leaders Deliver
- Buildings, Roads
- Water, Energy
- Jobs, Education
- Lifestyle, Health

For the first time in human history the majority of the world’s population lives in urban areas.

WorldBank.org

3 billion people – half the world’s population – live in cities
Almost 180,000 people move into cities each day
Two-thirds of all people will live in cities by 2050
Leaders create opportunities from today’s harsh realities

- Innovation
- Aging Infrastructure
- Declining Budgets
- Dynamic Environments
- Community
- Sustainability
- Investment
- Changing Populations
Leaders must innovate across services to **meet and exceed citizen expectations**

**Planning and Management**
Design and implement a city plan to realize full potential for citizens and businesses; while efficiently running daily operations

**Infrastructure**
Deliver efficient fundamental city services that make a city desirable for citizens

**Human**
Provide effective services that support the economic, social and health needs of citizens
Reaching beyond city hall to **collaborate and integrate...**

...**engaging citizens and businesses**
Cities are achieving real results

**City of Dubuque**
real-time monitoring pilot achieves 6.6% decrease in water consumption over 9-week period

**Public Safety Organization**
utilized social network analysis to dismantle an organized crime group, making more than 140 arrests with 70% conviction rate

**Las Vegas Metro Police**
turned to IBM for help in improving public safety through analyzing data to recognize patterns

**City of South Bend**
protects human health and river water quality with 95% reduction of dry weather sewer overflows
Local Governments are achieving **real results**

**Miami-Dade County and IBM Establish Public-Private Partnership on Smarter Cities Initiative**

_Collaboration helps government harness Big Data to serve residents more efficiently and save taxpayer dollars_

March 4, 2013

“Making Miami-Dade County more efficient and cutting the red tape that slows economic progress are priorities, and this initiative with IBM is a great way to accomplish both of those goals,” said Miami-Dade County Mayor Carlos A. Gimenez. “We look forward to making vital data more accessible to our municipal partners and to serving our residents even better.”
IBM’s Corporate **Commitment** to Cities

**Social Responsibility**

- **Corporate Service Corps**
  Deploying **1,000+ IBM'ers** to 100+ societal challenge projects in **20 countries**.

- **Smarter Cities Challenge**
  Applying IBM resources, valued at **$400K+ per project**, to Cities worldwide.

- **Service Grants**
  For not-for-profits to build IT infrastructure, technology and **leadership skills**.

**Solution provider**

- **$6B on R&D** per year
- **$14B in acquisitions** for leading-edge assets and innovations
- **8000+ IBM business consultants** dedicated to analytics
- **200+ mathematicians** creating breakthrough algorithms in IBM Research.
- **100+ research scientists** dedicated to technologies for **Cities**
IBM Smarter Cities: Smarter Social Programs

Walter Sedlazek – Director IBM Cúram Product Strategy
Smarter Social Programs – bringing the human dimension to cities

**Smarter Social Programs**

**Leverage** citizen context to connect them to the right programs

**Anticipate** citizen life events, respond dynamically and optimize resources

**Coordinate** social programs across levels of government and the community to achieve desired outcomes
Citizen Engagement – balancing the six human needs

Citizens
To provide care and protection for citizens in need and to help them to achieve their social and economic potential

Government
To maximize social and economic ROI

food  safety  education  income
shelter  health

People, not programs
Citizen Engagement requires the understanding of social context.

Social Context is the interrelated data, events and actions in which a citizen or family exists. The relationships provide meaning and relevance.
“... study suggests that comparatively few families consume the lion's share of Illinois's service resources. Researchers looked at five services—mental health care, substance abuse treatment, foster care, adult incarceration, and juvenile incarceration—and found that the **23 percent of Illinois families using multiple services accounted for 86 percent of the dollars spent on those services.**”

*Illinois Families and Their Use of Multiple Service Systems, Robert M. Goerge, Cheryl Smithgall, Roopa Seshadri, Peter Ballard*, 2010
Disproportionate spend on High Cost - High Need clients (HCHN) – “80/20”

Potential Savings*

20% Cost Reduction

Integrated Case Management

Integrated Service Delivery

Outcome Management for HCHN

Added Savings from Proactive and Preventative Care & Family Engagement (No Wrong Door and Differential Response)

Program Spend

Status Quo - Do Nothing

Demographic Spending Trend


* HCHN Care Coordination pilots have shown a >40% reduction in visits and costs – example see http://www.health.ny.gov/health_care/medicaid/program/medicaid_health_homes/docs/nys_health_home_spa_and_app_summary.pdf.
A differential response is critical to cost-effective service delivery.

Determine Response

Priority, Complexity, Risk

Social Context

Outreach

Point of Care

Practice Models

Social Innovation Programs

Crisis

Diversion

No Touch

Manage

Prehab

Rehab

Fraud

Emergency

Integrated Case Management

Outcome Management Multi Disciplinary Team

Social Innovation Programs

Engagement Pathways

Family

Household

Needs

Barriers

Strengths

Health

Shelter

Safety

Income

Food

Education
Citizen Engagement – Service Delivery Model

NO WRONG DOOR
UNIVERSAL ACCESS
DIFFERENTIAL RESPONSE

CASE MANAGEMENT
SOCIAL ASSISTANCE
DISABILITY
CHILD CARE
PUBLIC HEALTH
EMPLOYMENT
PENSIONS

OUTCOME MANAGEMENT
CARE COORDINATION
CHILD WELFARE
YOUTH SERVICES
HOMELESS
MENTAL HEALTH
DISABILITIES
RETURN TO WORK

SOCIAL INNOVATION
YOUTH IN TRANSITION
VULNERABLE FAMILIES
AT RISK KIDS
CHRONIC UNEMPLOYED
ELDERLY COMMUNITIES
POOR NEIGHBORHOODS
HOT SPOTS

ECOSYSTEM: PROVIDERS AND COMMUNITY ORGANIZATIONS

Conceptual Industry Model

Service Delivery Channels

Application Platform

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<table>
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<th>IBM Cúram Social Programs customer examples</th>
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<tbody>
<tr>
<td><strong>Hamburg</strong></td>
</tr>
<tr>
<td>Addresses rising child poverty with</td>
</tr>
<tr>
<td>an <strong>outcomes approach</strong> to service delivery</td>
</tr>
<tr>
<td>Integrate all elements of youth and social</td>
</tr>
<tr>
<td>services impacting the full client life-</td>
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<tr>
<td>cycle</td>
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<tr>
<td><strong>North Carolina</strong></td>
</tr>
<tr>
<td>Places key information in the hands of</td>
</tr>
<tr>
<td>citizens, reduces errors and caseworker</td>
</tr>
<tr>
<td>burden to <strong>improve</strong> customer satisfaction</td>
</tr>
<tr>
<td>Addressing a growing need for citizen</td>
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<tr>
<td>services</td>
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<tr>
<td><strong>Developmental Services Ontario</strong></td>
</tr>
<tr>
<td>Improves service delivery <strong>efficiency</strong></td>
</tr>
<tr>
<td>and understand true demand for services</td>
</tr>
<tr>
<td>Providing services for adults with</td>
</tr>
<tr>
<td>developmental disabilities and their</td>
</tr>
<tr>
<td>families</td>
</tr>
<tr>
<td><strong>NZ Ministry of Social Development</strong></td>
</tr>
<tr>
<td>Integrates information and delivery to</td>
</tr>
<tr>
<td>facilitate <strong>collaboration</strong></td>
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<tr>
<td>Providing social welfare and employment</td>
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<td>services to NZ citizens</td>
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</table>
New York City
Homeless Services
Integrated Case Management System
(CARES)
Agenda

- HHS Connect
- DHS CARES
- CARES Process
- Key Benefits
DHS Mission Statement

The mission of DHS is to prevent homelessness when possible and to provide short-term, emergency shelter for individuals and families who have no other housing options available to them. As an agency comprised of 2,000 employees and with an annual operating budget of approximately $800 million, DHS remains one of the largest organizations of its kind committed to preventing and addressing homelessness in New York City. As we further this mission, DHS employs a variety of innovative strategies to help families and individuals successfully exit shelter as quickly as possible.
**DHS CARES**: is a web-based case management and vacancy control system. DHS CARES tracks clients from Intake through Shelter Placement, to returning to community.

**Client Assistance and Rehousing Enterprise System**
CARES is the Most Comprehensive Sheltering Support System Available Today.

• CARES represents a significant investment by NYC to improve the quality and effectiveness of services provided the public.
• CARES is not only big for NYC, it is big period:
  – 3,000 CARES users
    • City Staff (DHS staff and sister agencies)
    • Over 200 non-profit provider agencies
  – Serves 50,000 homeless clients a night
  – Operates 24/7
HHS Connect: Supporting Social Services Using Technology Citywide

- Access NYC
- Worker Connect
- Enterprise Case Management Systems
  - Department of Homeless Services
  - Administration of Children’s Services
CARES is at the heart of all major DHS operations

- Record client interactions.
- Assess eligibility for services.
- Schedule actions for client and DHS staff.
- Monitor completion of actions and outcome of services.
- Document investigations and incidents.
- Track shelter vacancy and assign clients to shelter units.
- Facilitate cross-unit client referrals.
- Optimize use of public assistance programs.
- Support client transition to stable housing.
- Generate mandated reporting.
- Pay shelters and claim reimbursement.

Client Assistance and Rehousing Enterprise System: Went live 12/2011
The DHS CARES system delivers many benefits to social services staff and clients.
Increases Efficiency

✓ **Eliminates redundant data entry:** Client information only captured once.

✓ **Immediate access to client case files:** Multiple users across divisions can have instant access to a case record.

✓ **Interfaces with other agency systems:** DHS CARES provides access to client information from other DHS internal databases (OOR, Field Investigations) and from other social service databases (HRA, Parole, ACS).

✓ **Standardizes and automates cumbersome processes:** Previously manual, burdensome processes are now streamlined and automated. Client forms are now automatically generated in standardized forms/letters.
**Improves Communication & Information Sharing**

- **Enhances Communications:** The client’s information is in one location leading to better case outcomes, better supervision, greater transparency, and immediate access to case information.

- **Eliminates Manual Communications:** All information about the client’s case record are now available immediately. No additional calls need to be made to follow up on the status, progression or placement of a client.

- **Increases DHS oversight of provider operations:** Improves shelter performance and maximizes shelter outcomes. Enhanced access to client information at sister social services agencies to better understand the needs of our clients.
**Improved Reporting Capabilities**

**Enhanced Reporting:** Enhanced ability to measure and evaluate the effectiveness of programs and providers. Reporting Matrices include, vacancy rate, length of stay, demographics, and user efficiency.

**Policy Benefits:** 29 system generated reports provide immediate access to key information to improve management of clients and allows for improvements to policies and procedures.

**Workload Management:** Supervisors can view caseloads, case files, and tasks to help staff manage their workload.
**Key Benefits**

Simplifies & Streamlines Processes

- **Automates shelter bed management:** Reduces manual nightly bed reconciliation and ensures shelters only receive appropriate referrals. Eliminates phone calls to track vacancies at shelters.

- **Automatically generates client forms and letters:** Providers can automatically generate client letters and forms (e.g. 4002, ILPs).

- **Streamline processes:** Transfers, next step conferences, incident reporting, and client responsibility will all be handled through the system.

- **Shelter Billing and Claiming:** Monthly invoices are calculated and submitted via CARES and are available to shelters and finance staff.
Key Benefits for Clients

✓ Engaged and informed staff: An integrated case management system gives staff the tools they need to provide better service to clients.

✓ Eliminates redundant information gathering: Clients no longer have to repeatedly provide information at different points of the process.

✓ CCI and Interfaces with City Agencies: Staff can obtain relevant client information from other city agencies that will help improve services to clients.
DHS CARES replaces Legacy systems

Past Practices

Multiple Legacy Systems supporting many business areas (shelter, homelessness prevention, outreach)

Paper case records. Manually created reports and documents.

Multiple City Agencies with silos of information. Paper referrals and dispositions used to manually request and send information.

DHS CARES

Replaces paper based process with automated electronic reports and documents.

Integrates client data from other City Agencies via interfaces and external databases

All business areas now use the same system. Electronic access to shared information about clients.

Immediate access to client records and multiple reports and information with advanced metrics to improve efficiency and inform policy.

DHS CARES obtains data from other sources including financial/benefit information, criminal history, DV, children’s services.
## Implementation – successes and challenges

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
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<tbody>
<tr>
<td>Security Matrix and Legal Issues</td>
<td>• Procuring Access to multiple data sources across Agencies.</td>
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<tr>
<td>Converting Legacy Systems</td>
<td></td>
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<tr>
<td>User Acceptance Testing</td>
<td>• Size and Scope?</td>
</tr>
<tr>
<td>Staff Computer Literacy</td>
<td>• How to standardize literacy across divisions and, more importantly, across user types.</td>
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<tr>
<td>End User Training</td>
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<tr>
<td>Functional Help Desk</td>
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<tr>
<td>Addressing Evolving Business Needs</td>
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## Measuring Non Monetized Savings

<table>
<thead>
<tr>
<th>Increased staff efficiency in servicing clients</th>
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<tbody>
<tr>
<td>Increase the number of shelter diversions</td>
</tr>
<tr>
<td>• Due to access to immediate benefit and historical case.</td>
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<tr>
<td>Make eligibility determinations more quickly</td>
</tr>
<tr>
<td>• Helps eligible clients receive services in a more timely/accurate manner.</td>
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<tr>
<td>Reduce the length of time clients stay in shelter</td>
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<tr>
<td>• Reduces cost to the City; and</td>
</tr>
<tr>
<td>• Helps clients return to the community more quickly.</td>
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<tr>
<td>Non-monetized IT cost  savings</td>
</tr>
<tr>
<td>• Savings for Providers by using CARES rather than locally installed case management tools; cost avoidance of upgrading legacy systems; mitigating risk of failure of current, older legacy system and retiring multiple datasets.</td>
</tr>
</tbody>
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### What’s Next for DHS and Access NYC?

<table>
<thead>
<tr>
<th>Paperless Document Management</th>
<th>• DHS is integrating a document management system to ingest and tag documents in order to progress towards a completely paperless system.</th>
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</thead>
</table>
| Enhanced Data Usage         | • Predictive modeling to improve policies and procedures.  
                              | • Creating analytical customer service management to produce customer-level models |
| Integration with Other City Agencies | • Using our current platform to integrate Health and Human Services across City Agencies.  
                                         | • Partnering with other city agencies to share data and improve client-level services. |
Q&A
How to get started

*If you...*
- Want to learn more about Smarter Social Program Solutions for Cities
- Want to be learn more about the potential to participate in an early adopter program with IBM

... *Then you should*
- Link to [ibm.com/smartercities](http://ibm.com/smartercities)
- Reach out directly to IBM Smarter Cities representatives
  - Contact Guy Kurtz ([gkurtz@us.ibm.com](mailto:gkurtz@us.ibm.com))
Thank You
MORE INFO
IBM Cúram Universal Access
Citizen Portal to Government and Community Programs

- **No wrong door** access to health and social programs
- Triage - Screen - Apply - Enroll
- Manage “Citizen Account”
- **Life Event** Management
- Integrated Outreach
- **Complements** existing legacy systems
- **Phased implementation** to match the evolution of program strategies

Access NYC - Provides a single point of access for 35 federal, state and local programs across 9 agencies in 7 languages

“I’ve always believed in the power of technology to make government work better,” said Bloomberg … that’s what we’re trying to do with ACCESS NYC”
NYC Mayor Michael Bloomberg

IBM Cúram Outcome Management

Family Centric - Integrates Service Delivery - Improves Effectiveness

- **Personalize** client goals and objectives based on agreed services, referrals and activities
- **Outcome-based** care planning, coordination and evaluation
- Linked to configurable **Assessment Framework**
- Integrated **Provider Management** supports seamless service and provider provisioning, performance mgmt, and invoicing/payment
- **Multi-disciplinary team (MDT) portal** for secure and proactive planning and collaboration with agency, community professionals & caregivers
- Identify & develop **best practice service delivery strategies** and “intelligent” interventions via built-in business intelligence and rules modules
- **Complements** existing case management systems – supports **phased implementation**
Citizen Engagement – Conceptual Industry Model

Needs to Outcomes™

1. Who is in need?
2. What are their needs?
3. Who can help?
4. How do we achieve sustainable outcomes?

Non-Government Organizations (NGO)

Government Agencies

Providers

Life Events

Needs

Integrated Case Management

Outcome Management

Social Context

CARE and PROTECTION

SOCIAL and ECONOMIC POTENTIAL
Citizen Engagement – Conceptual Industry Model

Needs to Outcomes™

Integrated Case Management

Government

Non-Government Organizations

Providers

Referral

No Wrong Door

CARE and PROTECTION

SOCIAL and ECONOMIC POTENTIAL

Social Assistance

Family Services

Evidence Management

Eligibility & Entitlement

Participant Management

Provider Management

Financial Management

Outcome Management

Outcome Identification

Outcome Evaluation

Service Provisioning

Outcome Planning

Government

Integrated Case Management

Non-Government Organizations (NGO)

Providers

Client

Life Events

Needs

No Wrong Door

Employment Services

Pensions

Civil Assistance

Health

Disability

Employment Services

Life Event Management

Triage

Screening & Application

Enrollment

Outcome Planning

Outcome Evaluation

Service Provisioning

Outcome Management

Outcome Plan

No Wrong Door

Care and Protection