A PERSPECTIVE ON FUTURE USERS' NEEDS IN FIRE SERVICE POLICY RESEARCH

Charles Jennings, Ph.D. AIFireE

Assistant Professor

Department of Public Management

John Jay College of Criminal Justice

City University of New York

inFire Annual Conference, 1999

Montour Falls, New York

1

Overview of Presentation

- ✦ Environment of Fire Service Management

- ✦ Technological Change

- ✦ Changing Management Paradigm

- ✦ Future Research Needs

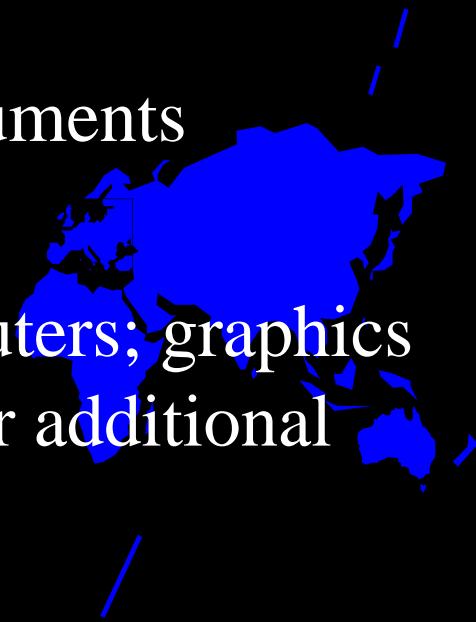- ✦ Conclusions and Recommendations for Libraries

ENVIRONMENT OF FIRE SERVICE MANAGEMENT

- ✦ Dynamic Environment
- ✦ Increased regulatory requirements
- ✦ Greater Oversight by Elected Officials/Managers
- ✦ Fiscal Scarcity
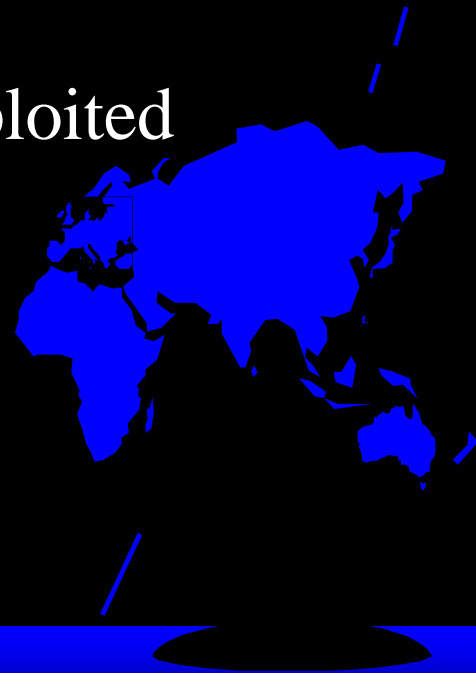- ✦ Better Fire Service Managers?

TECHNOLOGIES AND THEIR IMPACT ON FIRE SERVICE RESEARCH

✦ World Wide Web (WWW)

– growth

– eliminates need for geographic proximity

– 24-hour access

– potential to deliver complete documents

– ability to transmit digital data

– allows remote operation of computers; graphics intensive applications, no need for additional software

TECHNOLOGIES AND THEIR IMPACT ON FIRE SERVICE RESEARCH

✦ Geographic Information Systems (GIS)
  – databases linked to a spatial display capability
  – around for over 20 years
  – explosive growth
  – potential is only starting to be exploited
    ◆ hydrant maps
    ◆ pin maps (law enforcement)
    ◆ administrative simplification

TECHNOLOGIES AND THEIR IMPACT ON FIRE SERVICE RESEARCH

✦ GIS, cont'd
  – 3 classes of user
    ◆ Casual (firefighter/citizen)
      – simple query of map data via WWW
      – tactical level (where is fire hydrant)
    ◆ Professional Using GIS (Fire Officer/Savvy Manager)
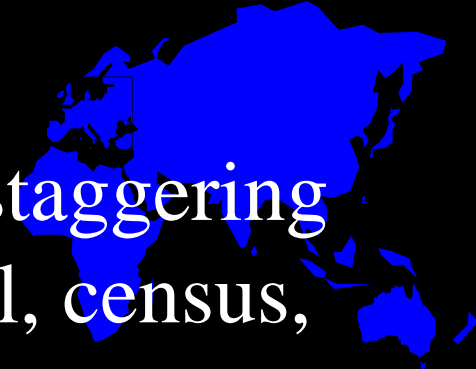   – perform sophisticated analyses in support of policy formation
    ◆ GIS Professional (A few per agency/City/can be officer/analyst)
      – implement and design systems
      – acquire and customize data for inclusion in GIS
      – strategic analysis/custom analyses

TECHNOLOGIES AND THEIR IMPACT ON FIRE SERVICE RESEARCH

✦ Advances in computing technology and power have generally outstripped our understanding and ability to use these tools for analysis of our problems . . . in other words . . . the technology does more than we know what to do with it!

✦ We have potential to deal with staggering amounts of information -- parcel, census, fire.

Changing Management Paradigm

✦ Reinventing Government
  – fiscal scarcity
  – increased accountability for results (media, elected officials) NY Times and NYCEMS
  – Shifting from outputs to outcomes
  – Prevention rather than cure (fire service skipped that chapter)

Changing Management Paradigm

✦ Barriers to Accountability

– We don't know what difference investment in inputs makes

◆ one minute response time

◆ one extra firefighter

◆ one inspector v. one firefighter

National Research Council Report

The problems of fire suppression and fire prevention have been under study for a great number of years by a wide variety of private and governmental organizations . . . because the effort is supported by a wide variety of organizations, the direction of total effect is diffuse, and areas of economic interest to the whole nation are often of insufficient interest to produce a desirable overall level of attention.

National Research Council Report

The problems of fire suppression and fire prevention have been under study for a great number of years by a wide variety of private and governmental organizations . . . because the effort is supported by a wide variety of organizations, the direction of total effect is diffuse, and areas of economic interest to the whole nation are often of insufficient interest to produce a desirable overall level of attention.

-- written in 1961!

Barriers to Accountability cont'd

✦ Increased regulation of fire services (health and safety)

✦ "One size fits all" approach

✦ Unintended consequences
  – compromised training on basics
  – displacement of goals

✦ Promotion of National Standards before research establishes consensus
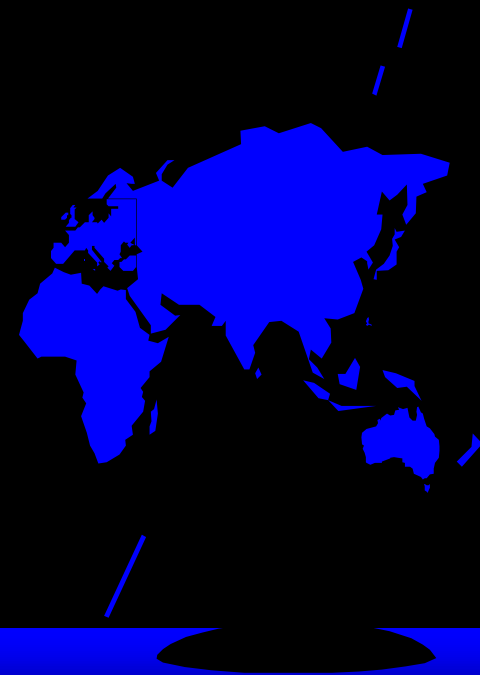
Role of Libraries in Facilitating "Reinvention"

✦ Become suppliers of performance measurement data

- annual reports
- quality control
- types of data, try using ICMA Categories

ICMA CENTER FOR PERFORMANCE MEASUREMENT

ICMA Performance Measurement Project: Fire Services

✦ **Service Area Descriptors**

- Primary Population Served

- Square Miles Served

- Service Area Description

- Median Age of Structures

- Demographic Characteristics

- Median Household Income

- Percentage Below Poverty Level

- Median Age of Population

- Number of Population

ICMA Performance Measurement Project: Fire Services

✦ **Fire Suppression**

- Total Responses to Fire Calls
- Fire Calls Responded to within 5 minutes
- Structure Fires by Outcome
- Firefighter Fire-related Injuries
- Firefighter Fire-related Deaths
- Civilian Fire-related Injuries
- Civilian Fire-related Deaths
- Special Operations

ICMA Performance Measurement Project: Fire Services

✦ **Service Provider Descriptors**

  – Total Operating Expenditures

  – Services Provided

  – Number of Stations

  – Staff By Type (Sworn/Civilian)

  – Community Risk Reduction

  – Total Hazards (within reporting period)

  – Total Inspected Occupancies

  – % of Fires in Previously Inspected Occupancies

  – % of Total Inspected Occupancies Experiencing Fires

  – Total Dollar Value Lost to Fire

  – Cost of Community Risk Reduction Efforts

  – Structure Fires by Occupancy Type

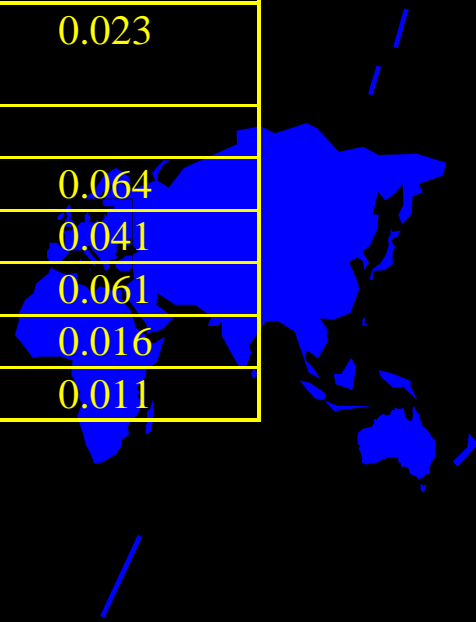 – Deaths By Occupancy Type

  – Arson Fires

Future Needs

✦ **Performance Measurement**

– provides basis for goal setting, comparison with other organizations

✦ **Community Risk Assessment**

– GIS is key

– Need access to data from other agencies/departments

– Can go down to individual property level

Community Risk Assessment: Potential of GIS

Table 1: Fire Risk per Building by Major Use Categories, Memphis City

Use Category	Number of Buildings (Assessor's Records)	Number of Buildings (Total)	Fires	Fires per Building per Year
Residential	162267	166048	4991	0.010
Commercial/ Industrial	9829	9911	675	0.023
Agricultural	0		0	
Institutional	492	492	95	0.064
Education	77	790	97	0.041
Hospital	267	359	49	0.061
Government	4	122	6	0.016
Total	172936	177722	5913	0.011

Community Risk Assessment: Potential of GIS

Table 2: Fire Risk per Square Foot by Major Use Categories, Memphis City

Use Category	Square Footage of Buildings in Memphis City (Total)	Fires	Fires per Building per Year per 1,000 square feet
Residential	284,247,545	4991	0.0585
Commercial/ Industrial	116,256,748	675	0.0194
Agricultural	0	0	
Institutional	2,881,718	95	0.1099
Education	23,099,890	97	0.0140
Hospital	17,777,183	49	0.0092
Government	2,085,493	6	0.0096
Total	446,348,577	5913	0.0442

Future Needs cont'd

✦ Public fire education
  – evaluations (McConnell)
  – best practices
  – Use GIS to identify/target programs
✦ Deployment Analysis
  – station location studies
    ◆ response times
    ◆ population served
    ◆ time to assemble complement

Future Library Needs

✦ Facilitate access to geographic information

– data sets ready to go

– pointers to sources of data

– add basic references to your collections

✦ Collect and disseminate via WWW

– best practices in all areas (.pdf, etc.)

– quality performance measures data

– Seek support from foundations, fire service orgs, government to collaborate on producing online gallery of annual best practice annual reports and case studies

Future Library Needs: Conclusion

✦ Continue to provide links to reputable data sources

– annotate

– categorize "objective" from interest-based groups; scholarly from non-peer reviewed

✦ Librarians as "change agents"

✦ Give them what they need, not necessarily what they want!

✦ Identify our customers -- the public!