State of Hawai'i IMT

State GIS Program
Geographic Information System
Office of Planning, State of Hawaii

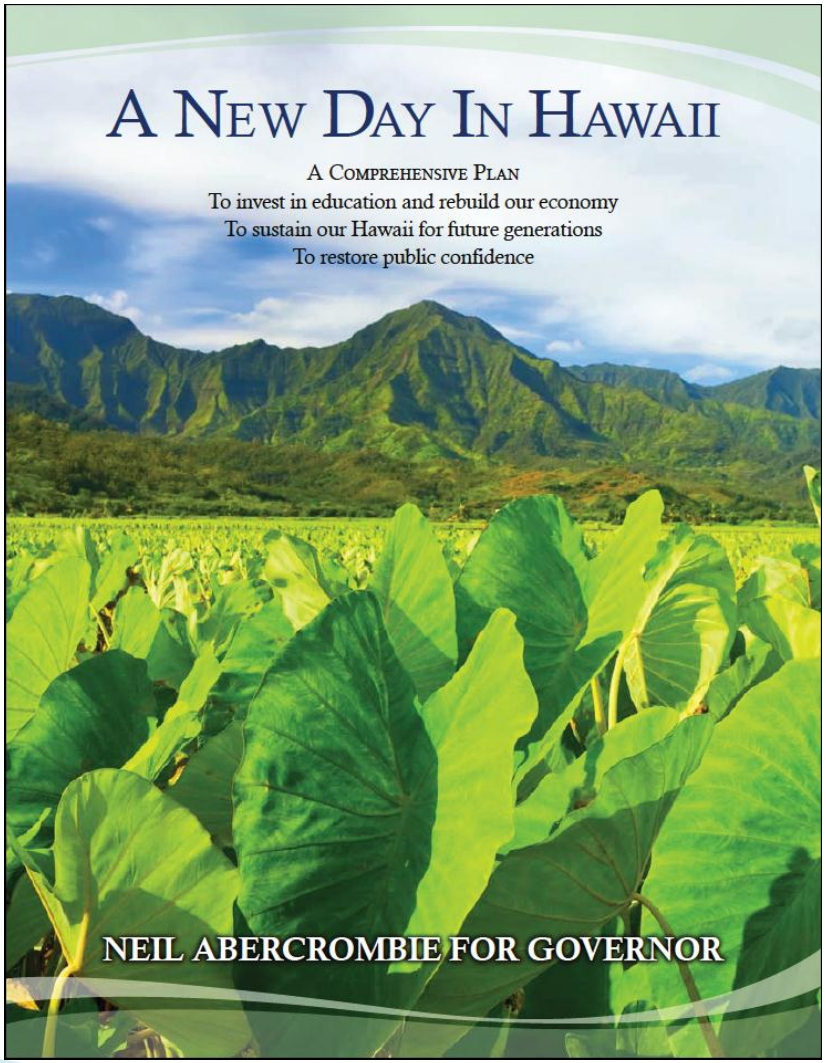
Geographic Information System (GIS) Working Group (WG) Kickoff Meeting

January 27, 2012

Agenda

- Welcome and Opening Remarks – New Day Plan – Bruce Coppa 10 min
- The Hawaii GIS Program & Working Group – Jesse 10 min
- Vision – Sonny 25 min
- GIS Challenges And Opportunities – Sonny/Jesse 10 min
- Form Working Teams – Sonny/Jesse 10 min
- Teams Discuss Challenges & Solutions – Sonny/Jesse 45 min
  - Infrastructure
  - Data
  - Dissemination and Distribution
  - Governance
- Draft Charter, Wrap-Up, Next Steps – Sonny/Jesse 10 min
- Pau Hana

The New Day Vision



- **GROWING A SUSTAINABLE ECONOMY**
  - New Day Work Projects
  - Renewable Energy
  - Food Security
  - Innovation Economy
  - Improvements on Public Lands
  - Environmental Stewardship
  - Culture, Arts, Creative Industries
- **INVESTING IN PEOPLE**
  - Early Childhood
  - Education and Workforce Development
  - Healthcare Transformation
  - Safety Net, Homelessness, Public Safety
  - Housing
- **TRANSFORMING GOVERNMENT**
  - Information Technology
  - Fiscal Management
  - Operations Management
  - Customer Service
  - Civil Defense and Security

State GIS Program

Geographic Information System

Office of Planning, State of Hawaii

ABOUT THE PROGRAM

"Improving efficiency and effectiveness in government decision-making through education, facilitation, and coordination of GIS mapping technologies"

Hawaii 's GIS Program is tasked with "...planning, coordinating, and maintaining a comprehensive, shared statewide planning, and geographic information system and associated geospatial database. The office shall be the lead agency responsible for coordinating the maintenance of the multi-agency, statewide planning and geographic information system and coordinating, collecting, integrating, and disseminating geospatial data sets that are used to support a variety of state agency applications and other spatial data analyses to enhance decision making. The office shall promote and encourage free and open data sharing among and between all government agencies." (§225M-2(b)(4), HRS)

In carrying out its statutory mandate as the lead agency for the statewide GIS program, the Office of Planning (OP) supports and coordinates GIS efforts across state agencies in addition to conducting spatial analysis and mapping for projects and initiatives in OP, the Department of Business, Economic, Development and Tourism (DBEDT), and other State agencies.

PROGRAM COMPONENTS

State GIS Database

OP is responsible for managing the State GIS database. The GIS Program encourages and facilitates sharing of data among agencies to minimize stove-piping of data, thus cutting costs and reducing duplication of effort. The State GIS database contains over 200 data layers, including contributions from federal, state, and county agencies.

State GIS Website

The State GIS website (http://hawaii.gov/dbedt/gis) contains a wealth of information for decision-makers, the public, and GIS experts alike. The site has nearly 200 downloadable GIS data layers for use in mapping and GIS analysis, as well as popular downloadable maps and easy-to-use web mapping services. The site is a well-known resource across Hawaii and even the nation. OP's GIS Program was the first government agency in Hawaii to offer public GIS data sets for download at no charge.

State GIS Coordination

In executing its statutory mandate as the lead agency for GIS in State government, OP supports and tracks GIS efforts across State agencies. As part of its new partnership with the State Chief Information Officer, OP looks forward to even more coordination and collaboration with this group. OP is a founding member and sits on the Board of Directors of the Hawaii Geographic Information Coordinating Council (HIGICC), a non-profit organization consisting of members of Hawaii's geospatial community. HIGICC's goal is to provide coordination of geospatial activities among GIS users from all sectors. OP is also a member of the National States Geographic Information Council (NSGIC), a national organization committed to efficient and effective government through the prudent adoption of geospatial information technologies.

GIS Mapping, Analysis, and Technical Support

The GIS Program conducts mapping and analysis for projects and initiatives in OP, DBEDT and other State agencies, as well as providing technical support and GIS guidance to all State GIS users.

PROGRAM FACTS

Number of Datasets/Layers on State Server
271

Number of Downloadable Layers on GIS Website
179

Number of Web Mapping Services Deployed
54

Number of Downloadable Maps on GIS Website
142

Sample Data, Maps, and Services at GIS Web Site

LSB Land Locator (Prototype Application), Enterprise Zone Locator, 2010 Census Thematic Maps, Census Interactive Online Maps , Hawaii Biomass Resources, Geothermal and Warm Ground Water, Rainfall and Rain Gauge Stations, Solar Irradiance and Radiation, Wind Energy Resource, Tsunami Evacuation Zones, Ocean Recreation Areas, Water Quality Classifications, Agricultural Lands of Importance to the State of Hawaii (ALISH)

Hawaii State GIS Partners

Federal: NOAA, USGS, US Census Bureau, DOA/NRCS, USFWS, USACE, NPS, NGS

State/County: OIMT, ICSD, DBEDT, DOA, AG, DOE, DOH, DLNR, DOT, OHA, HCDA, LUC, County of Hawaii, City and County of Honolulu, County of Kauai, County of Maui,

Others: Hawaii Geographic Information Coordinating Council, Pacific Disaster Center

Hawaii GIS Program Positions
3

* All figures as of January 20, 2012

KEY ACCOMPLISHMENTS

- With County, State and Federal partners, built the State GIS database, containing data developed and contributed by all levels of government.
- Maintains the State GIS database, adding, updating and organizing data and metadata.
- First government agency in Hawaii to create (non-FGDC) metadata for all public layers, listing data source, date, scale, attribute definitions, etc.
- First government agency in Hawaii to offer public geospatial data for download over the Internet at no cost.
- Participated in (and often helped to organize) several joint funding agreements with other County, State and Federal partners to acquire such critical data sets as TMK parcels, satellite imagery data, and digital topo maps.
- Maintains a State GIS User email list in order to disseminate information about new and updated data and upcoming events of interest to the State geospatial data user community.
- Maintains the State GIS Website, containing nearly 200 downloadable GIS layers, links to other geospatial data providers and links to various web mapping applications developed by the State GIS Program.

FUTURE INITIATIVES

Since establishment in 1988, the Hawaii State GIS Program in the Office of Planning has undertaken a number of initiatives in a variety of areas related to geospatial data and coordination. Currently, the program is involved in the following initiatives:

Conversion of Hawaii State GIS Database

Although the 200+ layers in the State GIS database have proven to be a great resource for State agencies and the public alike, they will be far more useful to State agencies after they are converted into one or more spatial geodatabases. This conversion will make querying and displaying the data much faster due to the more efficient storage and delivery of data in a relational database. As part of this project, the State GIS Program will convert the existing metadata into metadata meeting the FGDC standard.

Modernizing Hawaii State GIS

The GIS Program is working closely with the new State Chief Information Officer on modernizing the State GIS. A Strategic Planning effort for GIS has just begun, and will include plans to move the State GIS database off of the 7-year old server on which it resides, to current technology, possibly including high-end servers and cloud storage. In addition, the CIO and GIS Program are planning to deliver the data to users in more efficient and user-friendly ways, including web mapping and web feature services and dashboards.

State GIS Program

Geographic Information System

Office of Planning, State of Hawaii

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State of Hawai'i
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http://hawaii.gov/dbedt/gis

Find us on Facebook
State of Hawaii Office of Planning

twitter @HawOfcPlanning

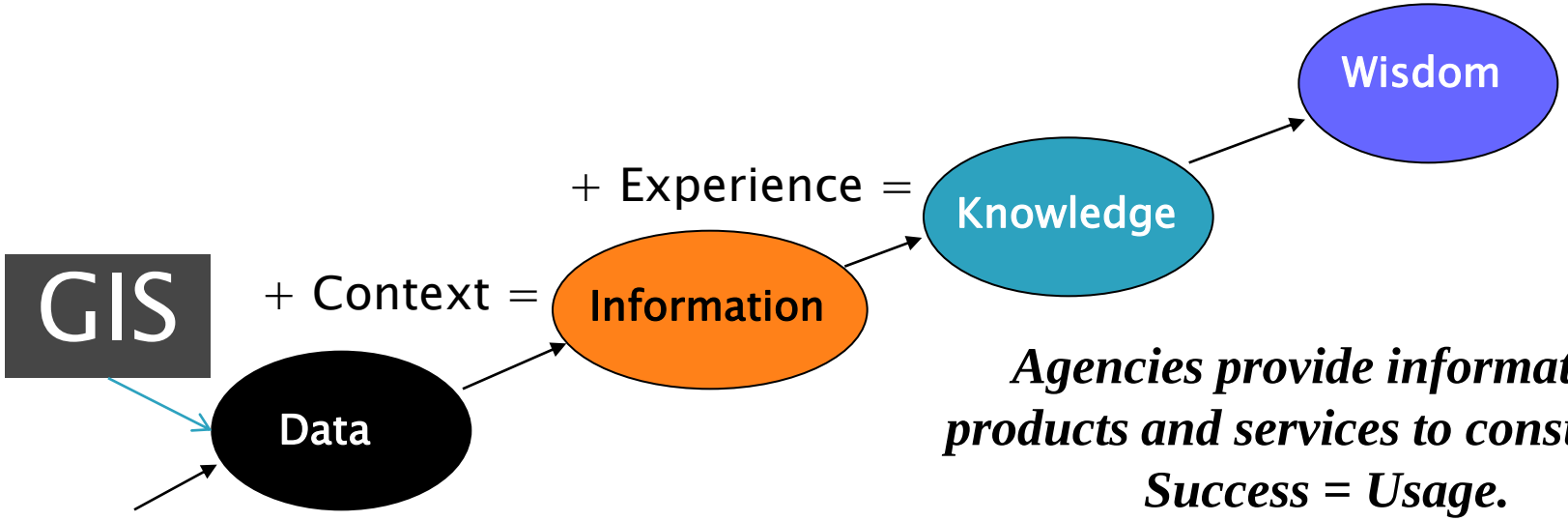
01/09/2012

Jesse Souki/Director, Office of Planning, DBEDT
Joan Delos Santos, GIS Program Manager

The Promise and the Reality

A Geo-Spatial Value Proposition for Hawaii

How are state government agencies impacted by the information Age and Economy?



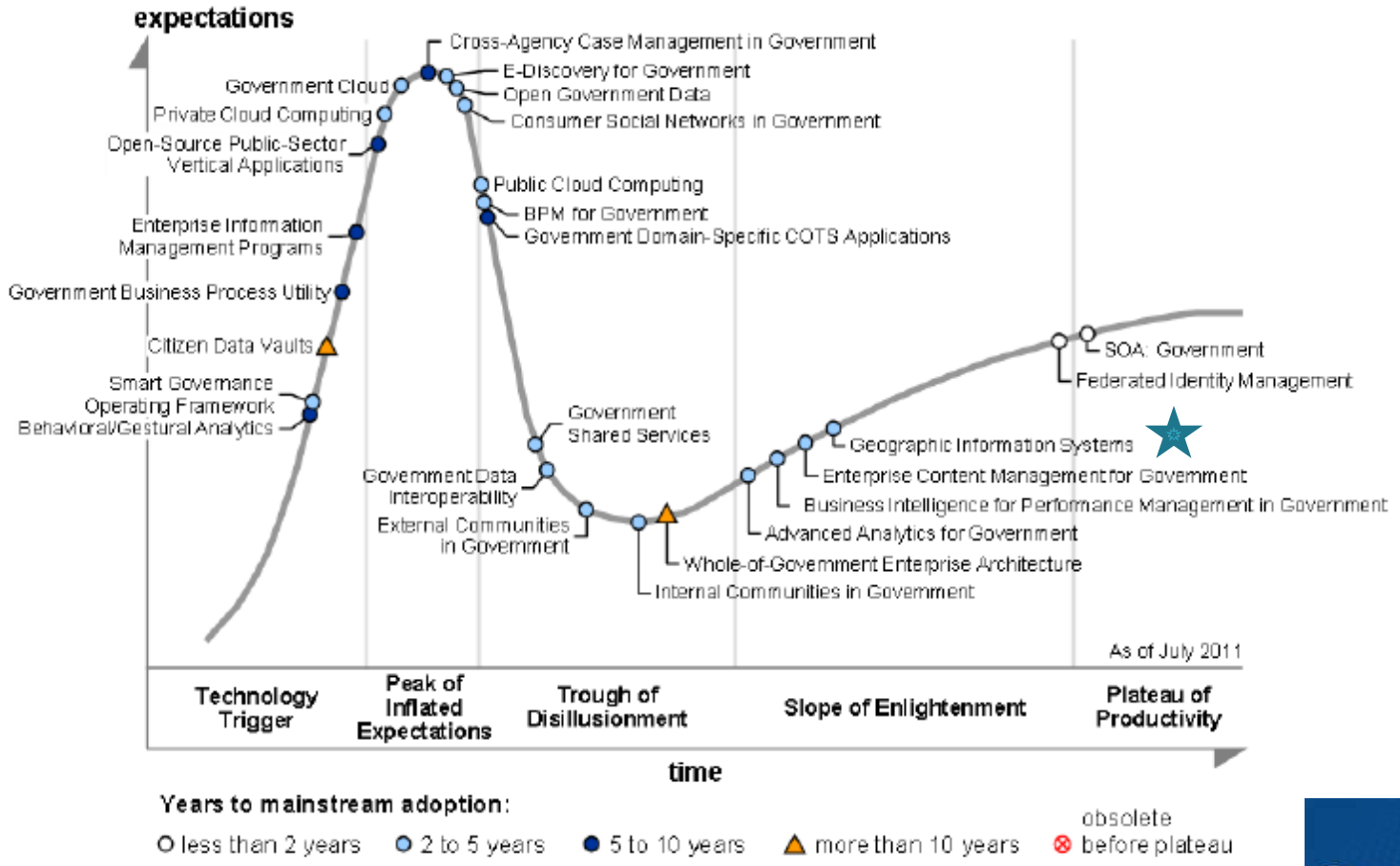
From Stan Davis, MIT

Agencies provide information products and services to consumers. Success = Usage.

Challenge: How do we institutionalize information and knowledge practices where "geo-enabled" information and knowledge is integrated into Systems/Apps, widely shared, available in a Timely, Secure Manner and used for decision-making?

Gartner and GIS (2011)

Figure 1. Hype Cycle for Government Transformation, 2011

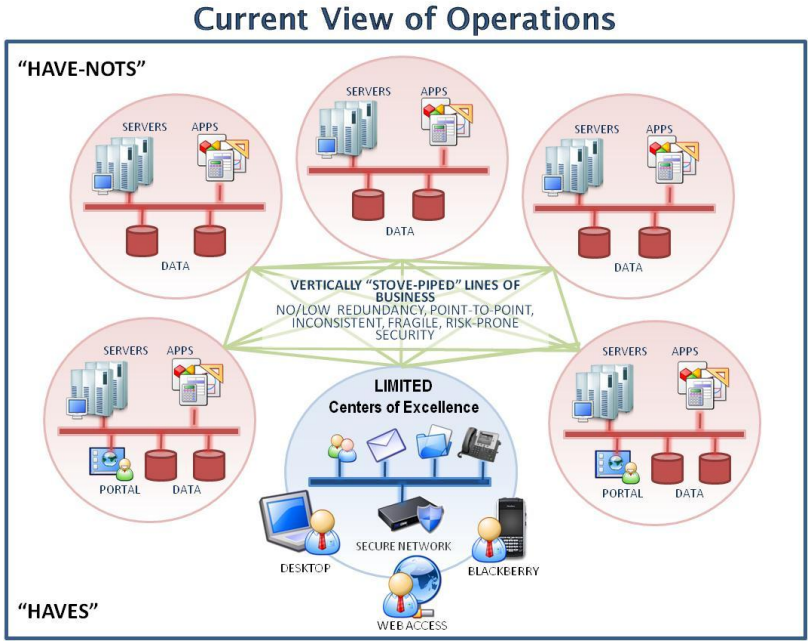


Source: Gartner (July 2011)

Source: "Hype Cycle for Government Transformation (July 2011)"

Hawaii Baseline Overview

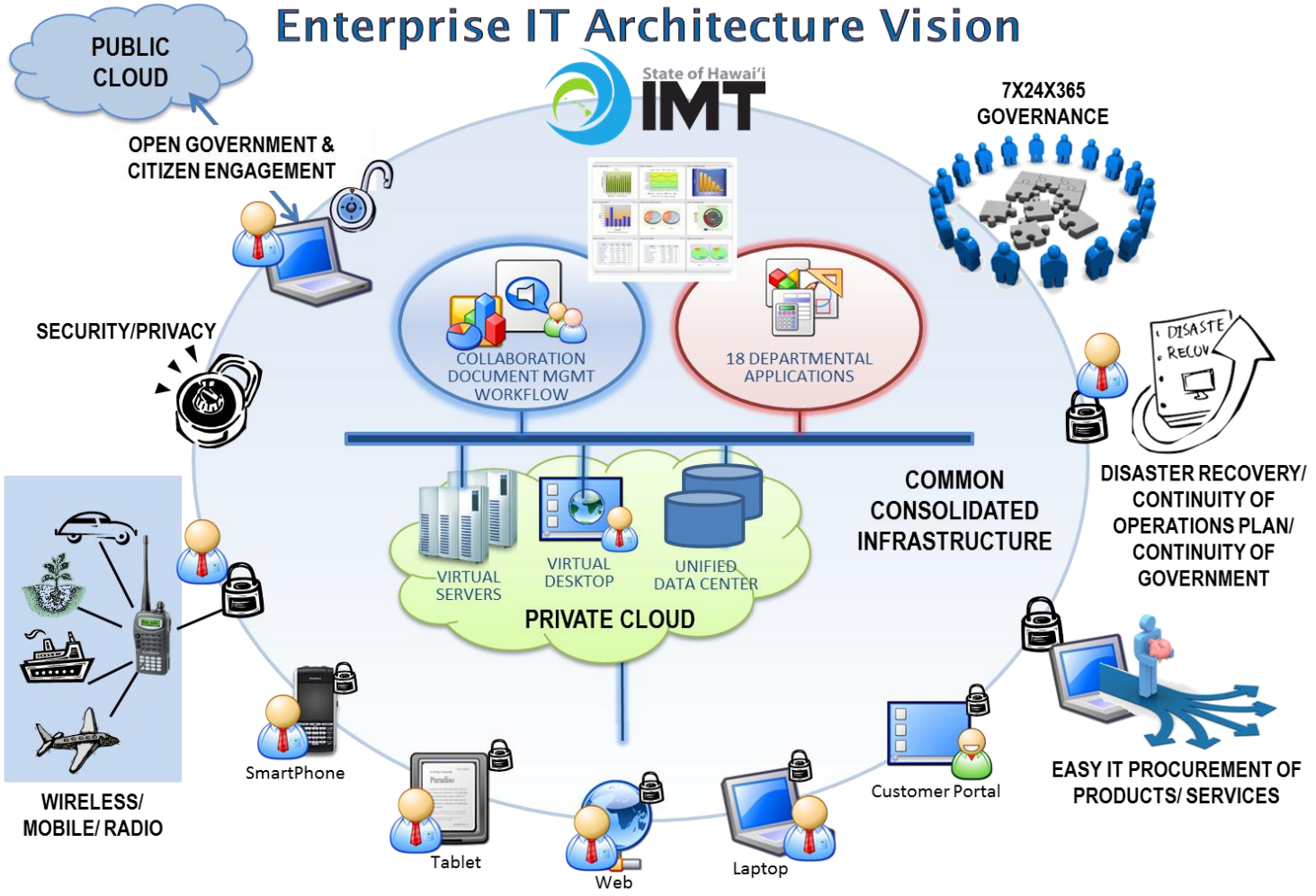
- 18 Departments & University of Hawaii
- $157.5 million IT/IRM budget
- 746 IT/IRM staff
- Over 500 applications
- 200 lines of business
- High duplication of effort
- Wide funding disparities
- Some focused areas of excellence



Many disconnected silos of effort

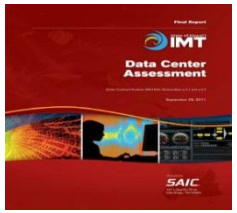
8

Preliminary Future Enterprise IT Architecture Vision



Access to the right information – anywhere, any time, any mission, securely and reliably

Our Study Found:
Top 10 Areas of Opportunity



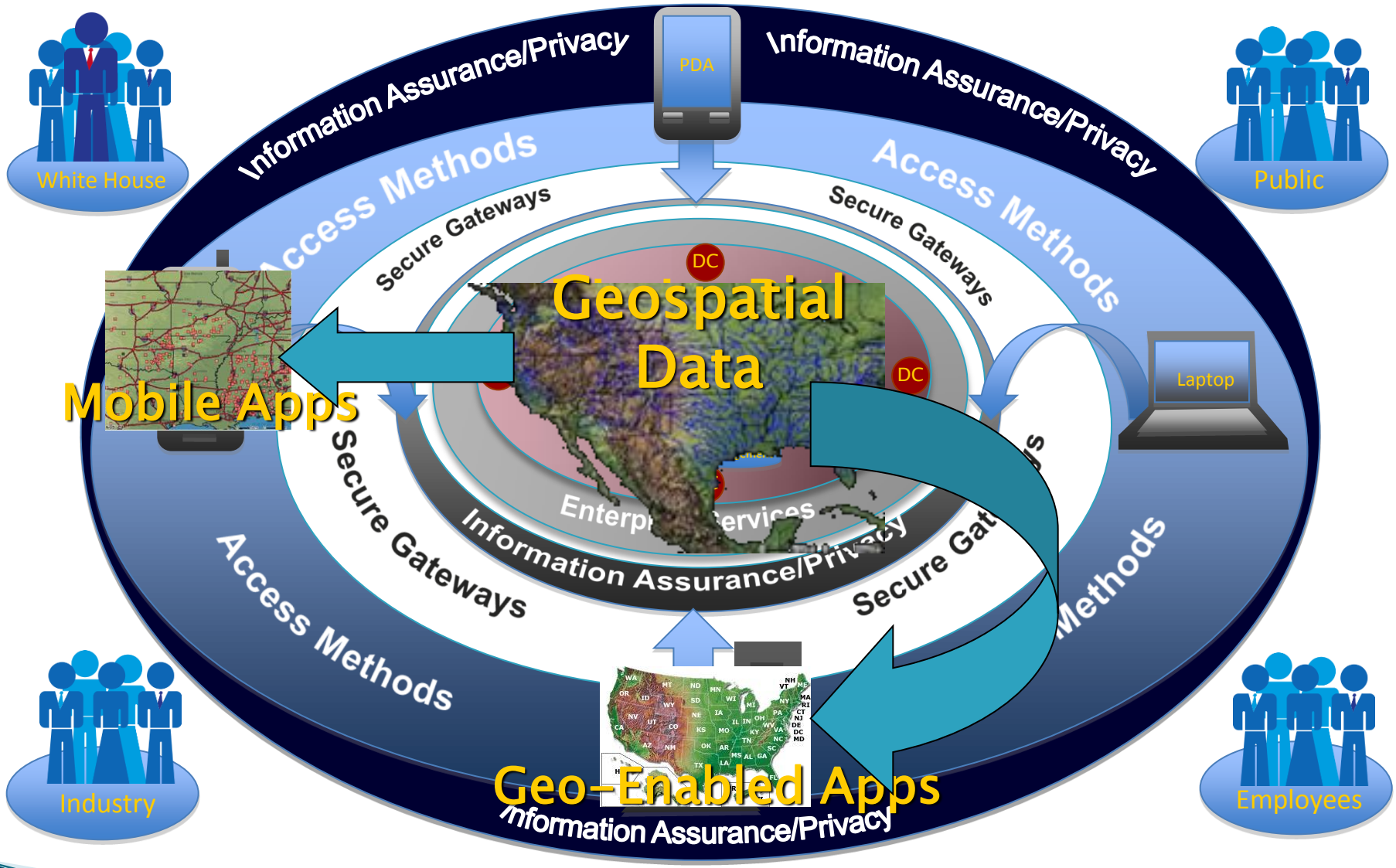
1. **Governance**
   - Creating and Reenergizing Advisory Committees
   - Policies and Procedures
   - Investment Planning and Oversight
   - IT Transformation Roadmap
   - Strategic Plan
2. **Disaster Recovery (DR) and Continuity of Operations (COOP)**
   - Where, What, When, and How
3. **IT Procurement**
   - Leverage Federal schedules
   - State-wide enterprise licensing and "buys" for hardware, software, and services
4. **Security and Privacy**
5. **Open Government and Social Media**
   - Facilitate, integrate, and ensure
6. **Collaboration and Work Flow**
   - Document management (inter and intra-departmental) and work flow
   - Web content management
   - eSignature
7. **Enterprise Applications**
   - Geographic Information System (GIS)
   - Cloud Computing
   - E-Mail in Cloud
   - Legacy System Modernization
8. **Enterprise Infrastructure**
   - Network extension and improvement
   - Data Center enhancement
   - Virtualization – server and desktop
9. **Wireless/Mobile/Radio**
10. **Cross-Cutting Business Process Identification**

Vision

- While GIS professionals in the State of Hawaii have done a good job in maintaining GIS as a viable technology and capability of supporting users in existing mission requirements (e.g., online maps, broadband service mapping, basic analytics), the efforts are largely fragmented and not unified in taking advantage of the additional capabilities of GIS in solving many mission needs that remain to be met.

- Hawaii GIS can solve many needs with additional new capabilities such as:
  - "On-the-fly", direct, on-line, visualization, mobilization, socialization and business analytics of geo-coded information for decision-making and problem solving
  - A unified registry to avoid duplication of effort and coordinate efforts more effectively
  - New mobile applications that provide needed solutions quicker
  - A geo-spatial governance that is nimble and responsive to customer needs and a marketplace for ideas
  - GIS is included in the Life-cycle management of Information Management
  - An agile open architecture and platform to deliver services for Web 3.0/Gov 3.0

Vision

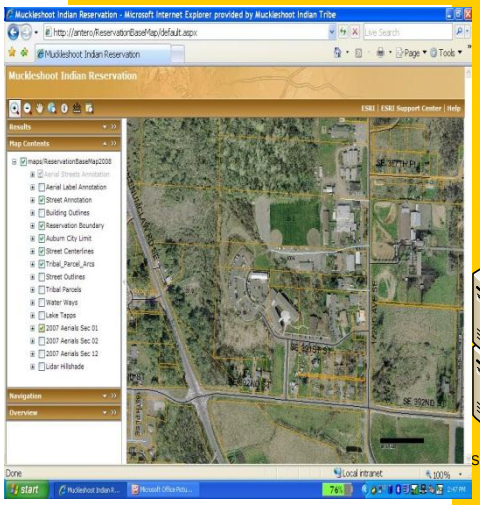


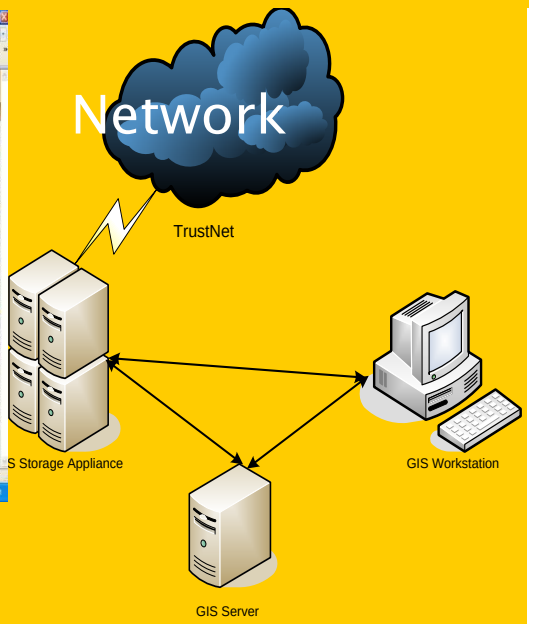
Access to the right information for authorized users any time, anywhere, any mission, securely and reliably

Vision: Partnership

What OCIO Can Provide for the GIS community…

- ✓ Desktops and Servers
- ✓ IT Support; Security Management
- ✓ App. Development/Mobile Apps; Open Data
- ✓ Secure Wide and Local Area Networks
- ✓ Large Capacity Data Storage Solutions/Cloud





What GIS Supports…

- ✓ Realty
- ✓ Title
- ✓ Natural Resources
- ✓ Forestry
- ✓ Irrigation
- ✓ Transportation
- ✓ Fire Management
- ✓ Law Enforcement
- ✓ Decision-Making/Analytics

What GIS can do for Hawaii…

- ✓ Translates and graphically displays land ownership and encumbrance information
- ✓ Accurately display Natural Resource Spatial Data
- ✓ So Much More……

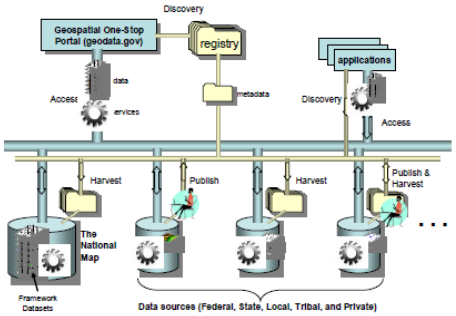
Vision

Hawaii State GIS – 2020?

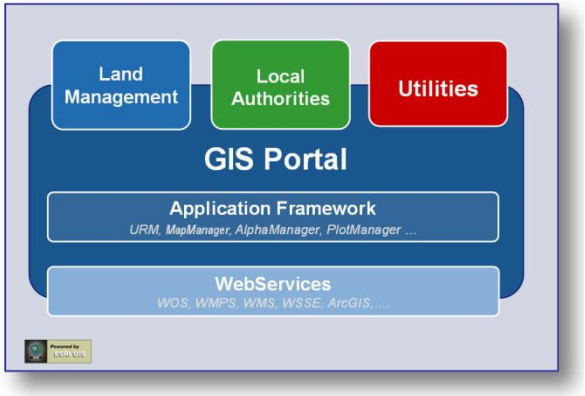
GIS in Hawaii – 2020?

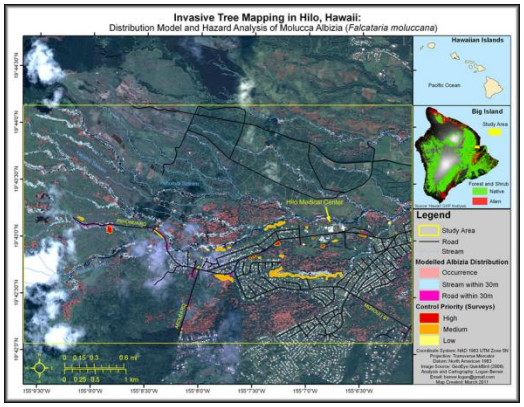
Ideas?

Vision


Discovery
Geospatial One-Stop Portal (geodata.gov)
registry
applications
data
Access
ervices
metadata
Discovery
Access
Harvest
Publish
Harvest
Publish & Harvest
The National Map
Framework Datasets
Data sources (Federal, State, Local, Tribal, and Private)


Map
Satellite
Hybrid
Evac Route
What to Do If...
Thunderstorm
Winter Storm
Floods
Utility Outage
Fire
Heat/Cold
Earthquake
Tornadoes
Hurricane
Terrorism
HAZMAT
Evacuation
Shelter in Place
EVACUATION ROUTE

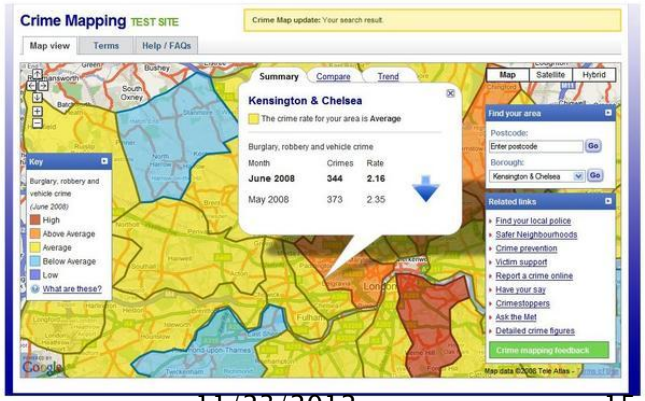

Land Management
Local Authorities
Utilities
GIS Portal
Application Framework
URM, MapManager, AlphaManager, PlotManager ...
WebServices
WOS, WMPS, WMS, WSSE, ArcGIS, ...


Invasive Tree Mapping in Hilo, Hawaii:
Distribution Model and Hazard Analysis of Molucca Albizia (Falcataria moluccana)
Hawaiian Islands
Big Island
Legend
Study Area
Road
Stream
Modelled Albizia Distribution
Occurrence
Stream within 30m
Road within 30m
Control Priority (Surveys)
High
Medium
Low


Rainfall Atlas of Hawai'i
Geography Department - University of Hawai'i at Manoa
HOME
INTERACTIVE MAP
DOWNLOADS
HOW TO CITE
HISTORY
METHODS
RAINFALL
ACKNOWLEDGMENTS
PEOPLE
Mean Monthly Rainfall (mm)
Mean Annual Rainfall
Hawaii (U.S.)
Rainfall Data (mm)
Station Information
Legend


College Access


HealthMap
Global Health, Local Knowledge
Global
Local
News
Outbreak Missing?
flu near you
JOIN
Quick Views
Activity Index
Alerts from past week
Avian Influenza (past month)
Drought in Africa 2011


Crime Mapping
TEST SITE
Map view
Terms
Help / FAQs
Summary
Compare
Trend
Kensington & Chelsea
The crime rate for your area is Average
Burglary, robbery and vehicle crime
Month
Crimes
Rate
June 2008
344
2.16
May 2008
373
2.35
Key
High
Above Average
Average
Below Average
Low
What are these?
Find your area
Related links
Find your local police
Safer Neighbourhoods
Crime prevention
Victim support
Report a crime online
Have your say
Crimestoppers
Ask the Met
Detailed crime figures
Crime mapping feedback

Vision

- We can apply GIS capabilities to practically help all manner of government and commercial functions:

  - Facilities management
  - Energy conservation
  - Emergency services
  - Traffic management
  - Infrastructure planning
  - Social services
  - Energy policy
  - Broadband
  - Disaster recovery
  - Voter registration
  - Healthcare
  - Education
  - Public notices
  - On and on…

Don't just think of the technology – think of the potential applications, and we'll find the technology to make it real

Vision

- Many of the foundational elements have been developed already (e.g. FGDC, NASCIO)
- We can build on those and implement the standards and profiles that exist
- GIS is a "Killer App" – let's put the capabilities in place to enable a transformation of government operations in the state!

Our job now is to define, specifically, *what we want to do* in the next 10 years, and then let's *do it!*

NSGIC State Government Geospatial Maturity Assessment

- **Top 3 Accomplishments**
  - Hired a CIO who is familiar with and a champion of geospatial technology
  - Collaborative purchase of statewide WorldView 2 Imagery
  - HIGICC's creation of a business plan for imagery, metadata and geo-portal
- **Top 3 Goals**
  - Secure funding for, and conduct, a Strategic Plan for Revitalizing GIS in Hawaii State Government
  - Secure funding for and implement new infrastructure and processes for delivering State GIS data and services
  - Co-host, with HIGICC, the Hawaii Pacific GIS Conference 2012 (3/2012)
- **Top 3 Challenges**
  - Secure GIS funding from Hawaii State Legislature
  - Hire State GIS Program Manager
  - Renew State GIS users' interest and participation in data sharing and collaboration

Challenges = Opportunities

Five over-arching areas

Infrastructure & Software

- Hardware
- Software
- Network
- Cloud
- Etc.

1

Data & Information

- Inventory
- Discovery
- Registration
- Sharing
- Accuracy
- Standards
- Format
- Etc.

2

Distribution & Dissemination

- Direct
- Replication
- Feature services
- Map services
- Etc.

3

Governance & Collaboration

- State GIS Council (high level)
- HIGICC
- Awareness
- Etc.

4

Funding & Procurement

- Haves/Have-Nots
- Pooled funding
- State GIS fund
- ELAs
- Etc.

5

① Infrastructure

- What are the infrastructure requirements we need to achieve our desired state?
  - Wired/Wireless
  - Bandwidth
  - Storage
  - Back-End Data Structure

- How do we provide the platform for GIS services, and how much capability should we make available?

2 Data & Information

33. Indicate your level of agreement with the following statements about data sharing.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
The State has a standardized intergovernmental data sharing agreement in-place.				X	
The standardized intergovernmental data sharing agreement is effective.					X
The State's Open Records law makes data publicly available at no cost or at cost of distribution.	X				
The State's Open Records law allows for the collection of fees for distribution of GIS data.			X		
The State's Open Records law allows agencies to Copyright their data.				X	

- How do we share information among the many participating organizations?
- How do we find and register geospatial data so it is discoverable and reusable?

3 Distribution & Dissemination

- What combination of distribution mechanisms will meet the requirements of the varied GIS consumers?
  - Actual raw data? (geo-database replication?)
  - Feature services? (WFS?)
  - Map Services?
  - Applications?
  - Others?

4 Governance & Collaboration

Who does the GIO report to in your state?

Governor	5.3%	1
State CIO	73.7%	14
Department Head	15.8%	3
Legislature	0.0%	0
State GIS Council	5.3%	1
University	0.0%	0
	Other (please specify) Show replies	11

Indicate the current status for each of the following:

	Yes	No	Not Applicable	Response Count
GIO has clear authority for state agency coordination.	92.3% (24)	7.7% (2)	0.0% (0)	26
GIO has clear authority for local government coordination.	50.0% (13)	50.0% (13)	0.0% (0)	26
GIO works full-time on statewide coordination issues.	73.1% (19)	26.9% (7)	0.0% (0)	26
GIO effectively fosters intergovernmental working relationships.	96.2% (25)	3.8% (1)	0.0% (0)	26
GIO is the conduit for federal mapping initiatives in the State.	80.8% (21)	15.4% (4)	3.8% (1)	26
GIO has contracting authority.	76.9% (20)	23.1% (6)	0.0% (0)	26

Who is responsible for coordination of GIS systems, standards and data?

Number of full-time staff the GIO directs

0	19.2%	5
1 to 4	23.1%	6
5 to 9	26.9%	7
10 to 14	11.5%	3
15 to 19	15.4%	4
20 or More	3.8%	1

"Staffing is adequate to accomplish the mission of the GIO's office"

Strongly Agree	3.8%	1
Agree	15.4%	4
Disagree	50.0%	13
Strongly Disagree	23.1%	6
Not Applicable	7.7%	2

We have a lot of great data and capabilities – how do we work together to maximize them?

5 Funding & Procurement

Any special or unique funding sources (not general or Federal funds or grants)?

Wildlife/Hunting/Fishing Tax/Fee	25.0%	5
Environmental Protection Tax/Fee	10.0%	2
9-1-1 Tax/Fee	**70.0%**	**14**
Other Telecommunications Tax/Fee	20.0%	4
Property Transfer Tax/Fee	35.0%	7
Property Development Tax/Fee	10.0%	2
Assessment on State Agencies	35.0%	7
State Fuel or Road Tax/Fee	10.0%	2
	Other (please specify) Show replies	13

Hawaii: Federal CZM funds to acquire imagery

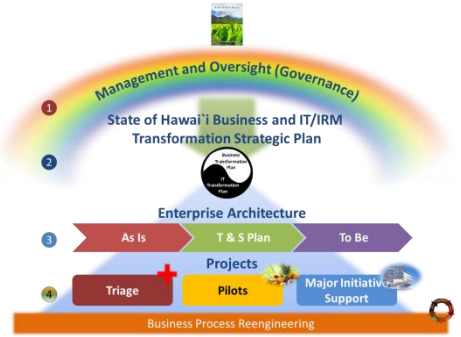
What do we need to make our vision a reality, and how can we maximize the use of the resources available?

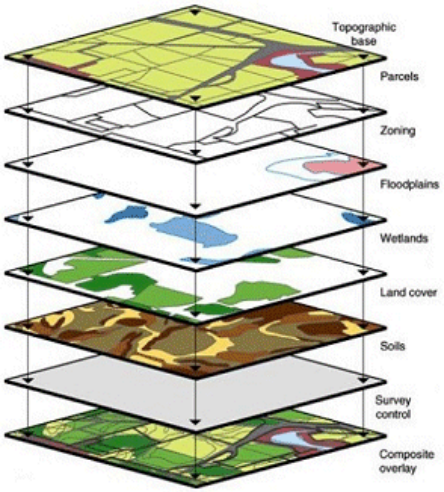
Total annual budget for GIO's office

1. Position has other roles and no designated budget. Function is strictly coordinative.
2. $1,355,000
3. including project funding - $3M
4. $8+ Million
5. 400,000
6. $250,000 to $400,000 plus grants and contracts
7. $200,000 (for Portal and WAGIC O&M only)
8. $1.5M ($804,000 in appropriations; the rest in contracts)
9. 0
10. $544,724
11. 0
12. $100,000
13. $1.1M
14. for the current fiscal year (11/12), not including personal service expenses (salary and benefits), the total from all funding sources is approximately $3 million
15. 1.75 million
16. $0
17. 90,000
18. 3.3m
19. $807,470
20. 120000
21. $1,250,000
22. not applicable as AGRC budget includes grants, contract work, special and general funds

What We Need From You

- OIMT is developing the State of Hawai`i Business and IT/IRM Transformation Strategic Plan

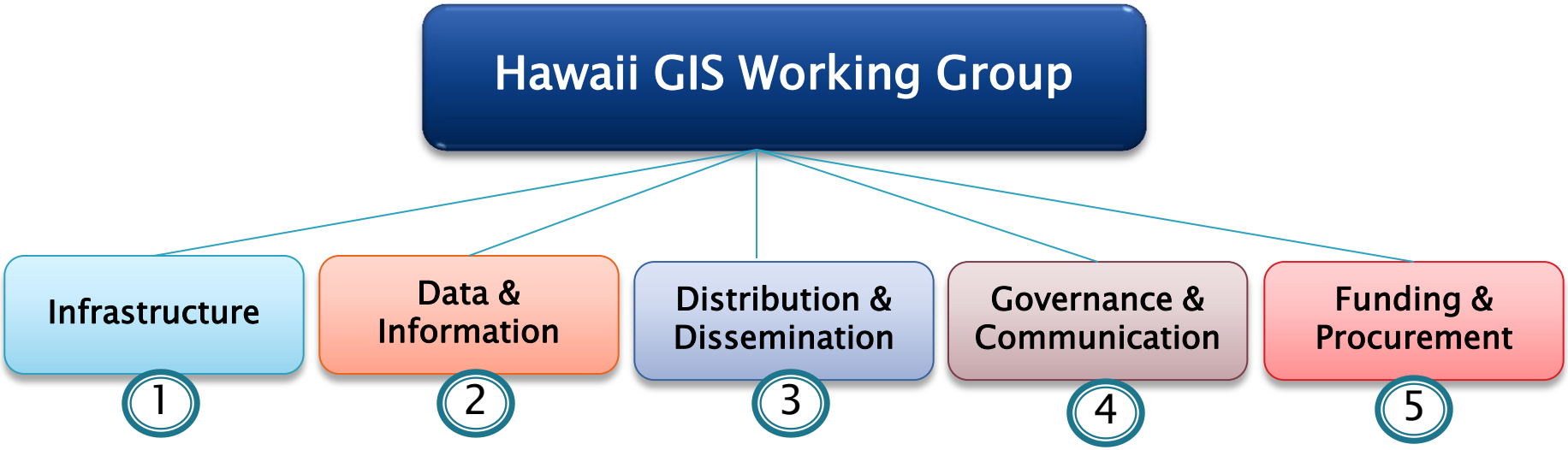




- We need to know from you, how does GIS fit into the future vision for the State, and what does your ideal GIS environment look like?

- How can GIS improve the way we do business in Hawaii? How would universal access to powerful GIS tools make new ways of operating possible?

Team Activity



- Break up into Five groups to address one challenge area
- Further describe challenge(s), then list and expand upon possible solutions
- 45 minutes
- Each group choose someone to scribe and report back

Team Activity

- What are the main **strengths and weaknesses** of the current GIS environment in your topic area – what do we (or some of us) do well, and where can we improve?
- What are the main **opportunities and threats (challenges)** we face Statewide (not just the state government, but everyone) in your specific topic area?
- How does each **challenge affect the others**, and other aspects of the State's Business and IT Transformation (e.g. networks, storage, ERP, process improvement, etc.)?
- What are **potential solutions** – approaches, software, enterprise licensing agreements, architectures, standards, whatever?
- Create a **"wish list"** of what you would like GIS to look like in a perfect future State!

Assignment

- Insert template

GIS Working Group Teams

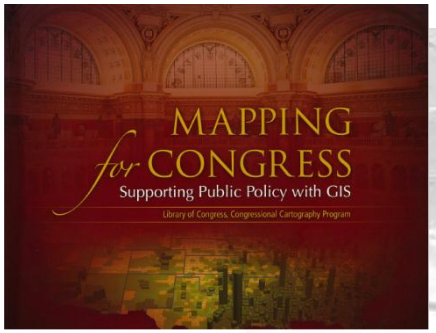
Team	Team Topic	Speaker	Scribe
1	Infrastructure		
2	Data & Information		
3	Distribution & Dissemination		
4	Governance & Collaboration		
5	Funding & Procurement		

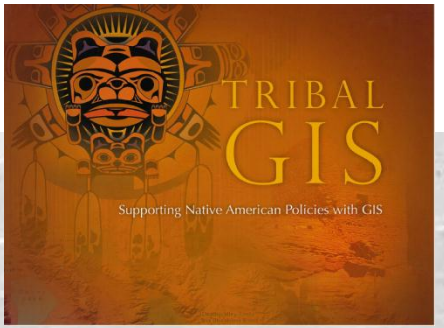
Action Items and Wrap-Up

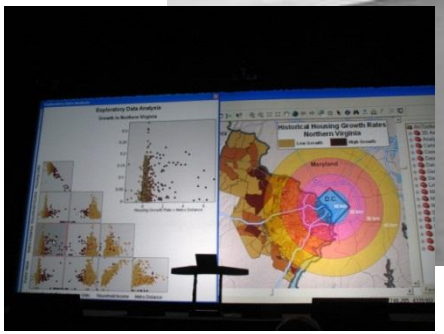
- Please work together in your groups over the next few weeks to complete the template
- This vision will take some time to completely flesh out – don't worry if you don't have specific answers for everything right away, but let's try to identify all the challenges and opportunities we can
- Group speakers will present (10-15 min each) vision at the next meeting on February 24
- Working Group meetings will be bi-weekly after that through May, then monthly

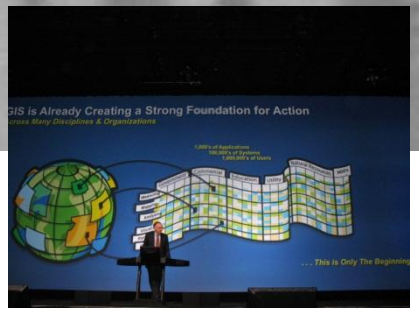
Draft Working Group Charter

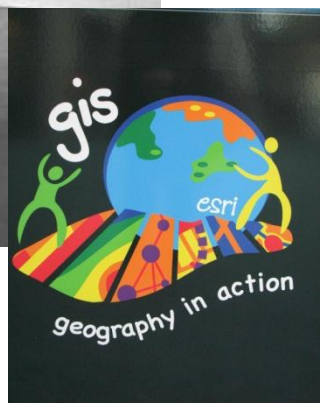
- Also, please review the provided draft Charter for the GIS WG
- We will solidify the members who wish to participate in an ongoing status at the next meeting and ratify the Charter
- If you have any questions or suggestions on the Charter prior to next meeting, please sent them to OIMT@hawaii.gov











Source: ESRI Conference

State of Hawai'i
IMT

State GIS Program
Geographic Information System
Office of Planning, State of Hawaii

Mahalo!

http://www.hawaii.gov/oimt
http://hawaii.gov/dbedt/gis