Adapting to the Evolving GIS World

GIS In Action

May 5th, 2015

Aaron Paul - First American Title

David Howes, Ph.D. - David Howes, LLC

Joanne Markert - Leon Environmental, LLC

David Wallis, GISP, CMS - Cowlitz County

Blair Deaver - GeoEngineers, Inc.

Bridget Brown - HDR, Inc.

The Plan

- Introduction
- Presenter Backgrounds
- Professional Development
- Business Analysis
- Technology
- Project Management
- Audience Engagement
- Takeaway Messages
- Final Thoughts

The Plan

• Introduction	what we'll do
• Presenter Backgrounds	about us
• Professional Development	the bigger picture and our growth
• Business Analysis	figuring out the needs
• Technology	creating solutions
• Project Management	keeping organized
• Audience Engagement	questions and thoughts
• Takeaway Messages	positive action items
• Final Thoughts	words of wisdom to close

Presenter Backgrounds

Aaron Paul

GIS Manager & Solutions Engineer

First American Title

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David Howes LLC

Geographic Information Systems Development Services

Professional Development

Professional Development Framework

Business

Government

Private sector

Non-profit

People

Executives

Managers

Technical Staff

Institutions

Departments

Agencies

Clients

Technology

Desktop

Mobile

Web

Professional Development Framework

Business

GIS Consultancy

Engineering

Software

People

Surveyor

Analyst

Developer

Institutions

Public Works

Information Technology

Transportation

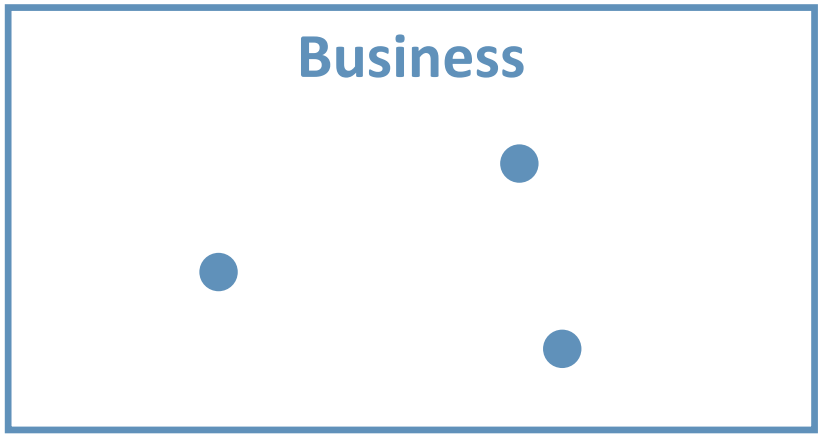
Technology

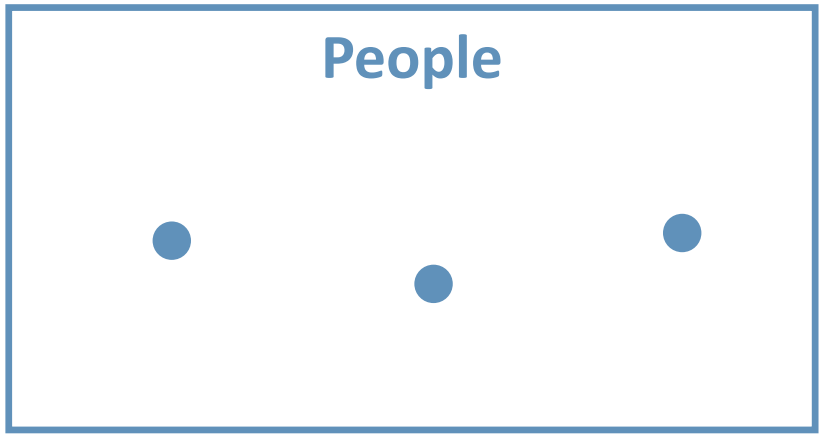
Analytical Tools

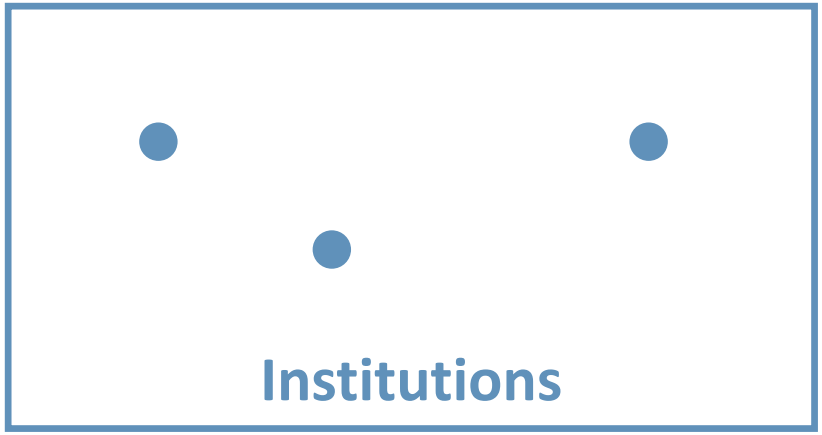
Databases

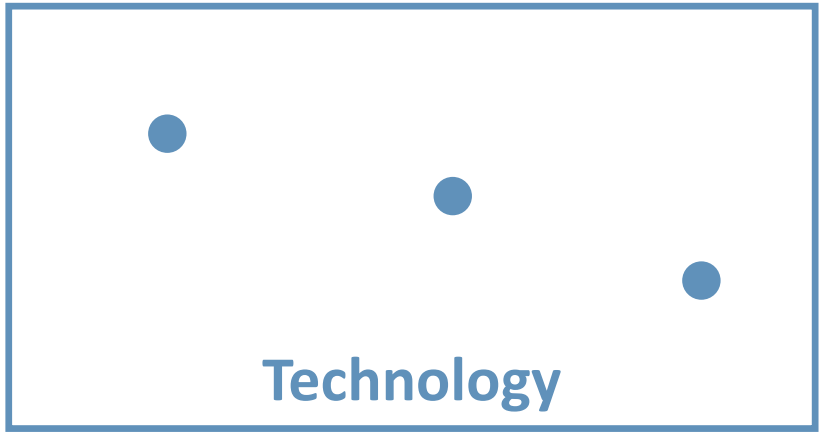
Infrastructure

Professional Development Framework

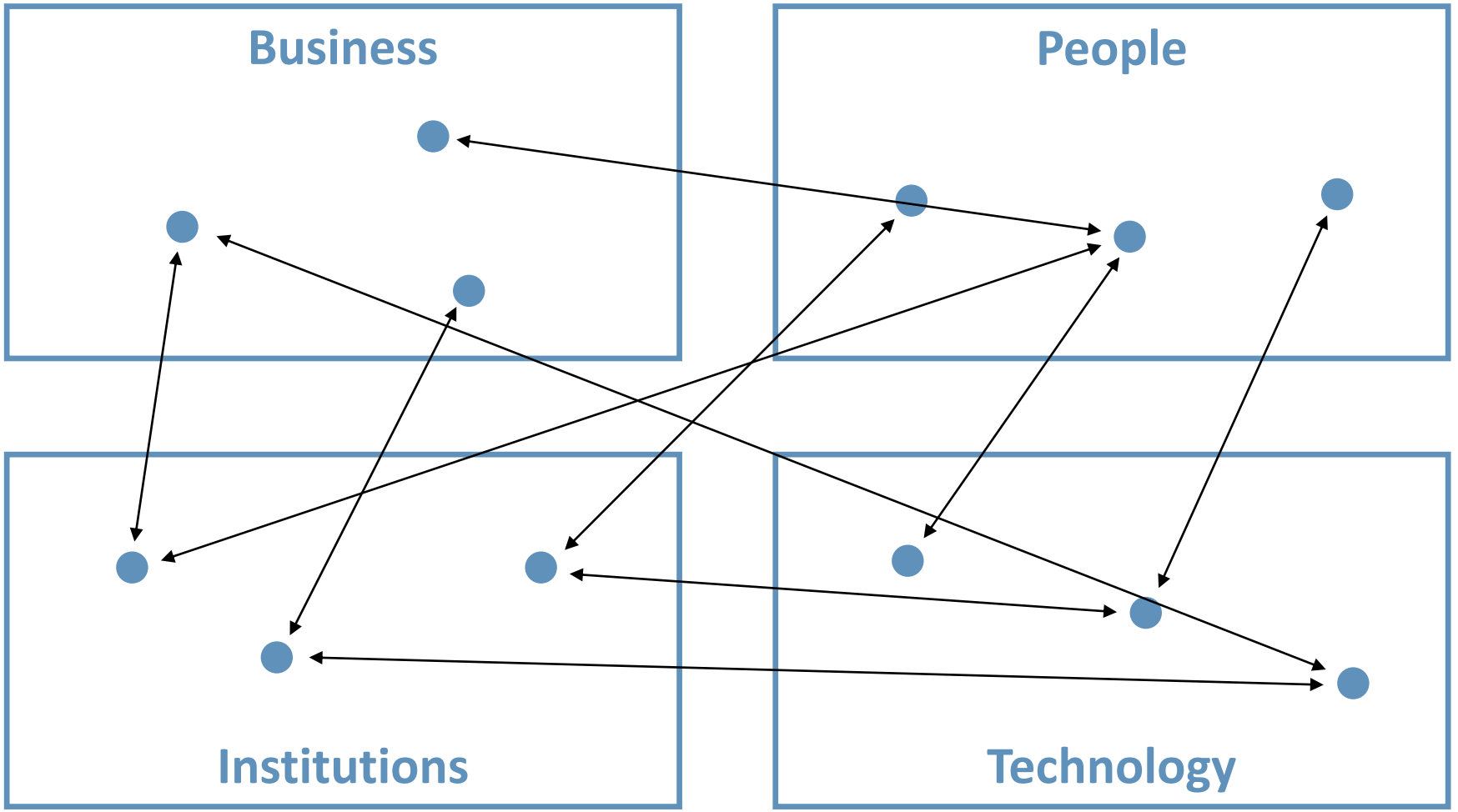








Professional Development Framework



Professional Development Framework

- Is this sort of framework useful?
- Where do your interests/responsibilities fit?
- What do you know about different parts of the framework?

Communicating Our World - Deliverables

Act on what we came up with together at the 2014 Washington GIS Conference

- Walk a mile in their shoes
- Create an inspiring teachable moment
- Be a mentor to the education community

Eliminate turf wars

See *Background to the 2014 Washington GIS Conference – Communicating Our World* and other related articles

GISPD.com blog - http://www.gispd.com/blog

Collaboration

- Look closely at professional organizations and gatherings
  - URISA Chapters
  - Regional GIS user groups - proprietary and open source
  - MapTime
- How effective are they?
- Learn from the open source model of collaboration and innovation

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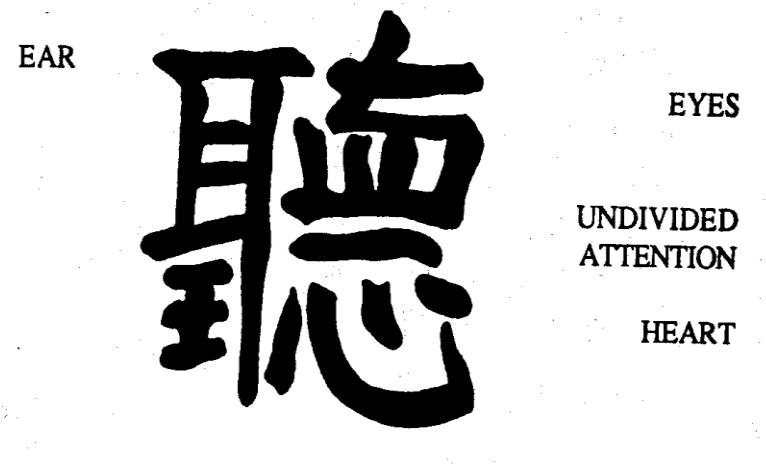
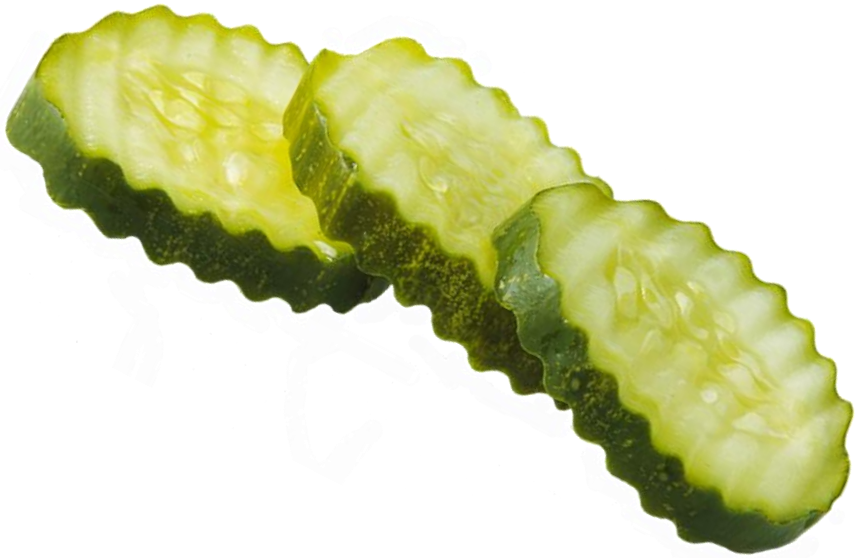
Listen

- Communication skills
  - The foundation of interaction
  - Verbal and written
- Seek first to understand
  - Repeat back for clarity
  - Have empathy and sincere interest
  - Minimize distractions
- Be trustworthy
  - Walk the talk - always
  - Speak truth



Grow Relationships

- Do what you say you will do
  - Build trust
- Show competence
  - Do it well
- Deliver “plus 1”
  - Give ‘em the pickle



Learn

- Seek opportunities
  - Don’t wait
- Support training
  - Say yes
- Act
  - Put new knowledge to work

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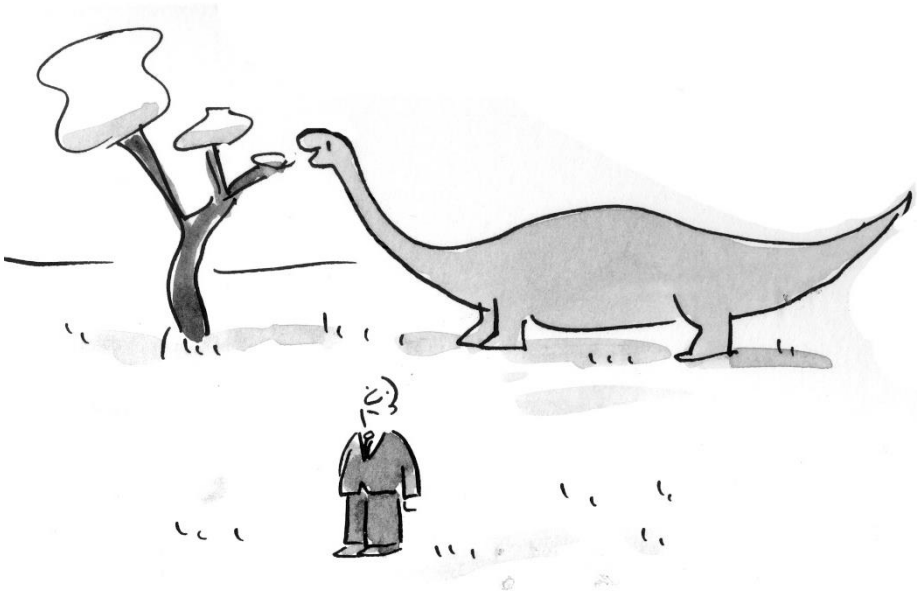
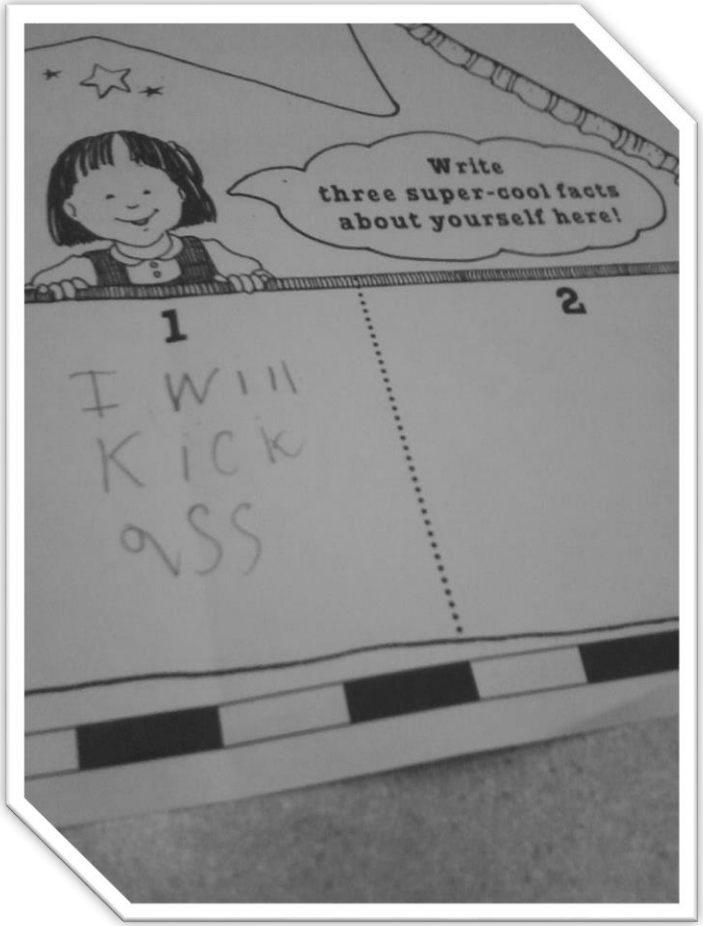
Have a Vision

Know Who Your Champions Are



Mentor the Next Generation



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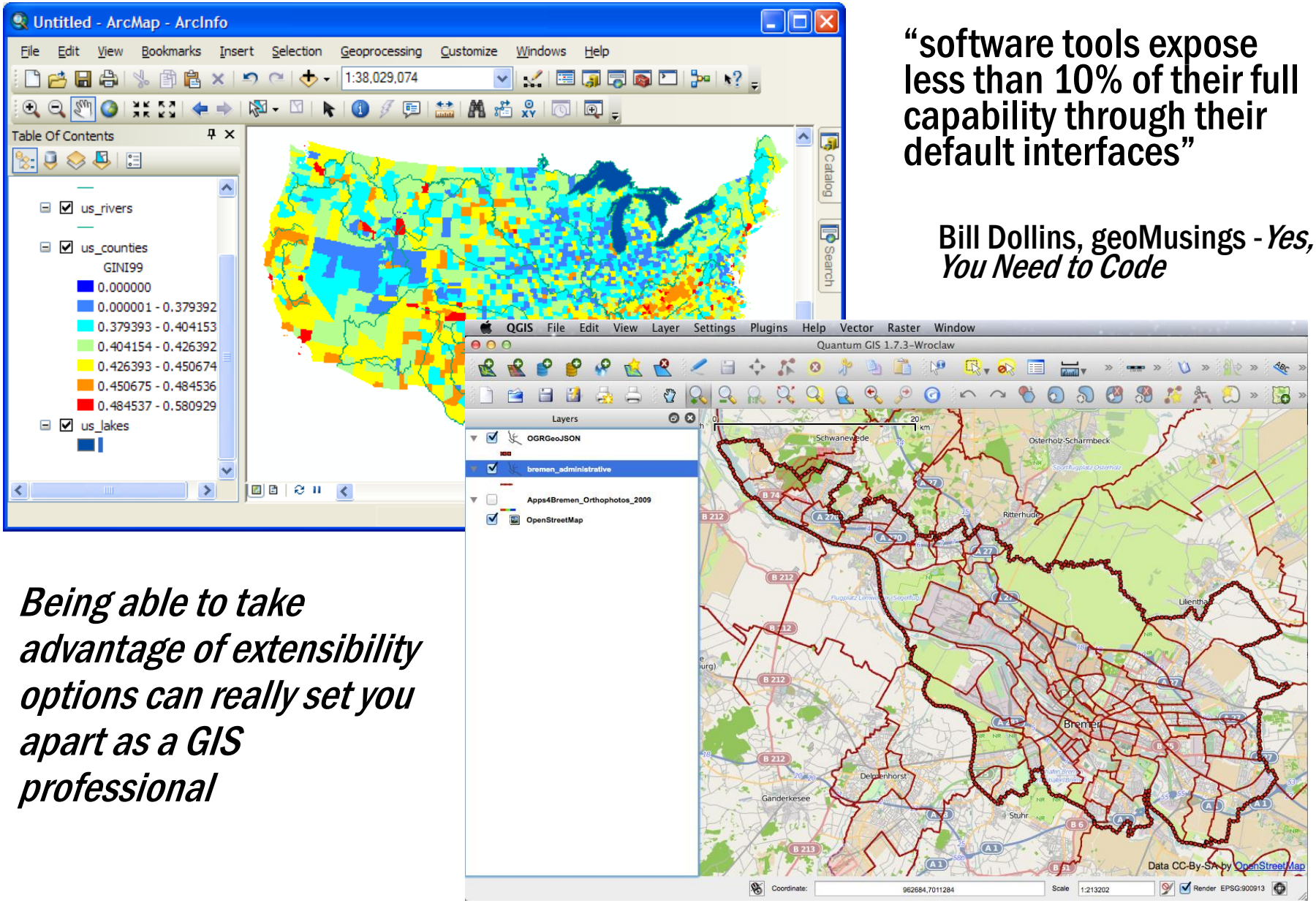
Geographic Information Systems Development Services

The Value of Coding

- **Learn to code**
- Learn how to leverage the GIS investment
- Some form of coding may become a standard requirement for any GIS positions



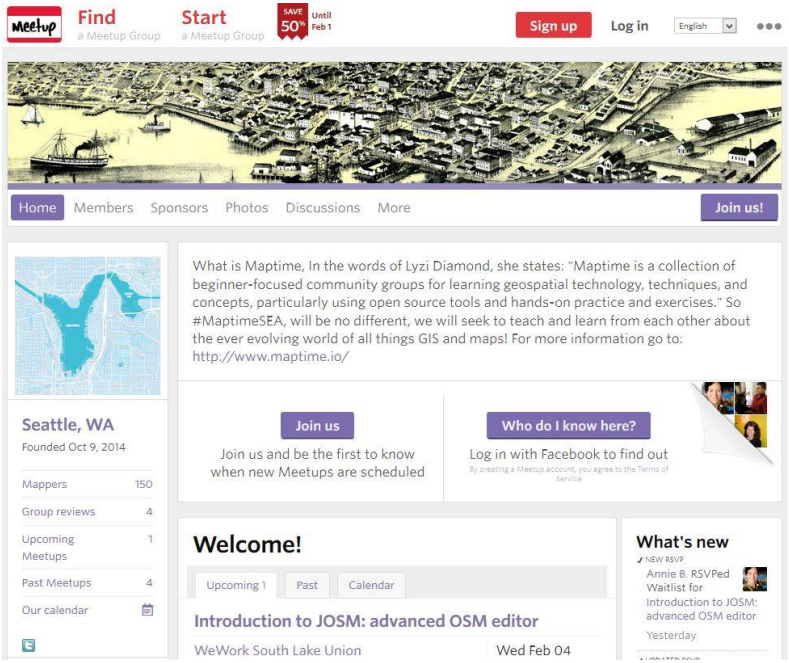
"software tools expose less than 10% of their full capability through their default interfaces"

Bill Dollins, geoMusings - *Yes, You Need to Code*

Being able to take advantage of extensibility options can really set you apart as a GIS professional

Technology Trend

- Coding has always been valuable for GIS
- Increasing emphasis on coding
- Local example: MapTime Seattle (Meetup group)
  - Making a web page and a web map (HTML5, CSS, JavaScript, Leaflet.js)
  - Git & GeoJSON
  - Mapping with D3.js



Why Should Coding Be Important?

- Personal development perspective

  Why should coding be important to you?

  - Professional growth
  - Expanded toolbox
  - Streamline workflows

- Policy perspective

  Why should coding be important to your employer?

  - Return on investment
  - Standard operating procedures
  - Leveraging/freeing up resources

Resources

See *The Value of Coding for GIS*

- King County GIS User Group (February 2015)
- 2015 Alaska Surveying & Mapping Conference
- 2015 GIS Pro Conference (upcoming session)

http://gispd.com/events
http://dhowes.com/presentations

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Business Analysis

Investigate
Implement
Analyze
Business
Process
Test
Identify
Develop
Design

Call the Meetings

- ANYTHING with a spatial component should be considered
  - Imagine GIS everywhere
- Reach out
  - Make appointments
  - Make connections
- Provide simple business analysis procedure
  - One page

Ask the Questions

- Strategic planning
  - Identify issues
  - Make goals
- Could we …?
  - Explore all options/possibilities
- Why not us?
  - No limits

Implement Solutions

- Empower others
  - Ownership
  - Open doors
- Innovation
  - Think freely - Imagineering
- Deliver “plus 1”
  - Be the BEST
  - No excuses

Blair Deaver

Software Product Manager

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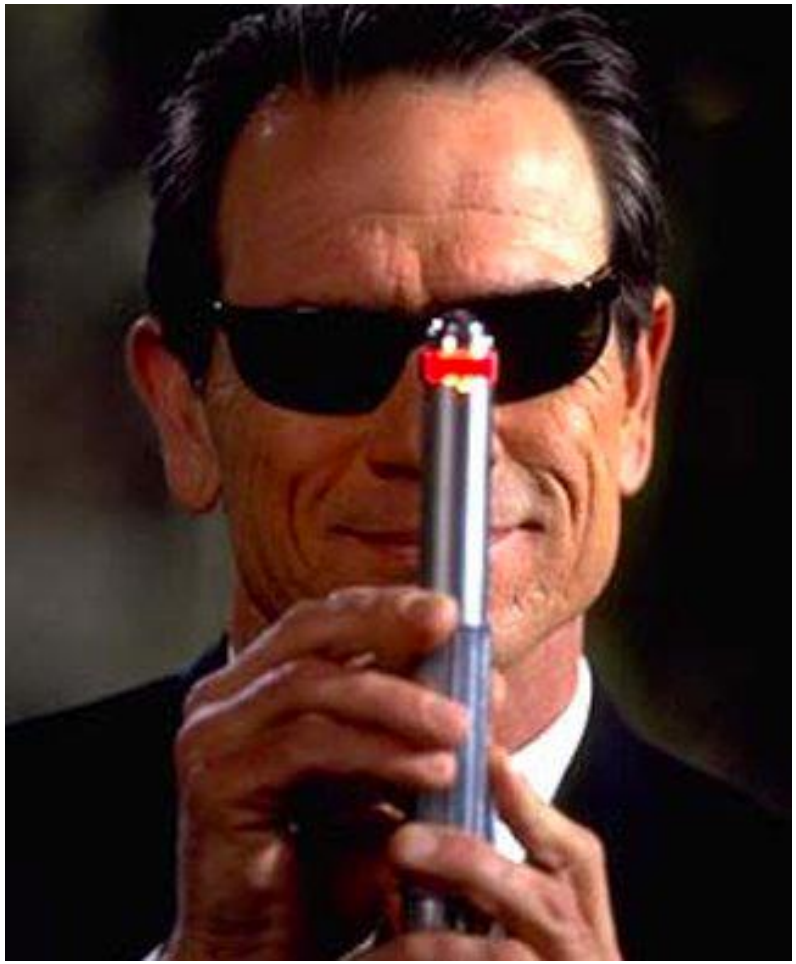
Build > Measure > Learn

Metrics

- Define product metrics up front
- Incorporate metrics Into your products
- Be able to measure ROI and TCO at your solution/product level
- Learn from your metrics and **adjust**

Technology

Start With a Clean Slate



Align Your Tools With the Business

- You have MORE technology options than ever
- You don't need to master them all but be aware of the options
- You can increase delivery and quality by matching the right tools with the business problem

Platform to Deliver

Ways to Deliver Faster

- Use the cloud
  - Software as a Service (ArcGIS.com, CartoDB, MapBox)
  - Infrastructure as a Service (Amazon, Azure, and others)
  - Platforms as a Service (Amazon Relational Database Service (RDS), Elastic Beanstalk)
  - Hybrid Architectures

- Transition your staff to support the cloud
  - From Sys Admin to Developer Operations (DevOps)

Become Fascinated With the Problem Not the Technology

Design Matters

- Provide rich user experiences
  - Less is more
- Prepare for new experiences
  - Vector Tiling
  - WebGL – 3D experiences
- Get in the trenches with your customer
  - Usability labs
  - Can you child or parent use your product?
- Invest in UI/UX
  - It matters

Open Data

Open Data Formats

Open Data Platforms

Additional Tech Talks

3:30 – 5:00 pm – Discovery B

- “The CLOUD for the everyday GIS person” – Blair Deaver, GeoEngineers
- “Don’t Copy Data Instead, Share it at Web-Scale” – Mark Korver, Amazon

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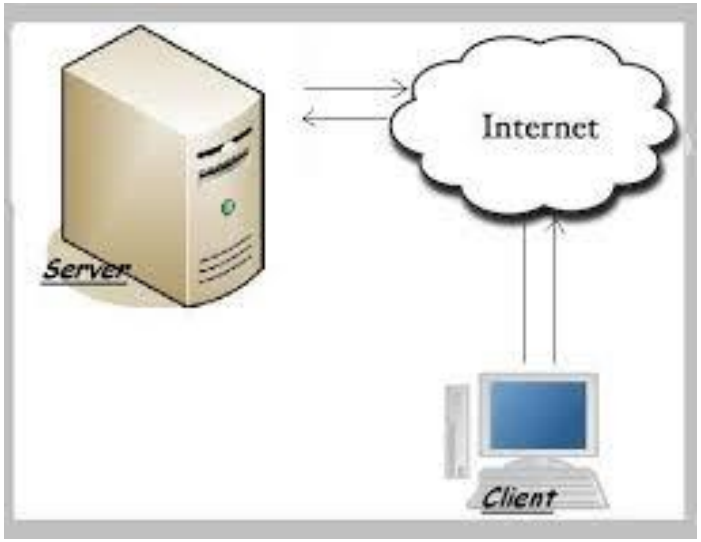
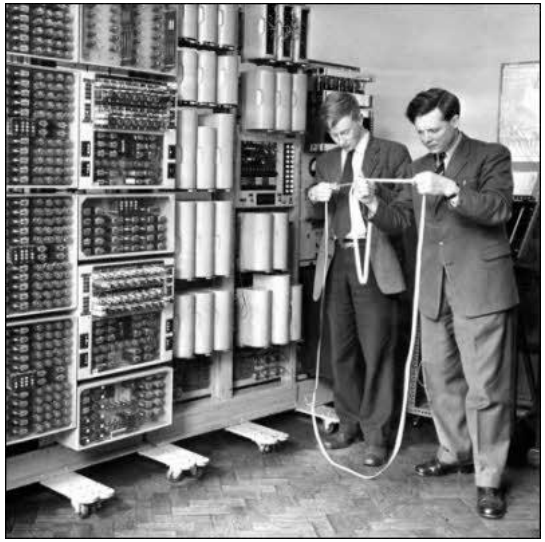
ArcGIS Online Overview:
Perfectly clear and/or overwhelming



Current day GIS (for many of us)



ArcGIS Online: Comes with high performance ArcGIS Server(s)

ArcGIS Server and ArcGIS Online Hybrid Approach

Cloud Infrastructure

ArcGIS Online

GIS

Traditional Computing Infrastructure

POWER

ArcGIS Server VS. ArcGIS Online

Folder: / - Windows Internet Explorer

http://servicesbeta2.esri.com/ArcGIS/rest/services

File Edit View Favorites Help

Favorites Folder: /

ArcGIS REST Services Directory Login | Get Token

Home > services Help | API Reference

JSON | SOAP

Folder: /

Current Version: 10.1

View Footprints I

Folders:

- SanDiego
- Utilities

The typical syntax for the ArcGIS Server Home Url is: **http://[EnterYourServerNameHere]/ArcGIS/rest/services**

This is useful to explore the ArcGIS Server's metadata via the **ArcGIS REST Services Directory**.

Services:

- Census (MapServer)
- GDBVersions (GPServ
- Geometry (GeometryS
- Military (FeatureServe
- Military (MapServer)
- MontgomeryQuarters
- Notes (FeatureServer)
- Notes (MapServer)
- PoolPermits (FeatureServer)
- PoolPermits (MapServer)
- SF311 (FeatureServer)
- SF311 (MapServer)
- Water_Network_Base_Map (MapServer)
- Water_Network (FeatureServer)
- Water_Network (MapServer)
- Wildfire (FeatureServer)
- Wildfire (MapServer)

FeatureLayers are found within map services that have the words "**(MapServer)**" or "**(FeatureServer)**" appended to the end of the map service name. You must then click on the hyperlink for the map service name to drill deeper into the documentation to find **ID** number(s) of the individual FeatureLayer(s) that can be accessed from the map service.

Supported Interfaces: REST

ArcGIS Server Manager sharing geographic information

Logged in as .\Administrator

Home

Services

Applications

GIS Server

Security

Users

Roles

Settings

Security Settings

Security Stores

Specify location where users and roles are stored. Location options include a built-in database, Windows users and groups, and custom providers.

Location: Windows users and groups Configure...

Security for GIS Services

Enabling this setting requires that users of ArcGIS Server Web services provide a username and password to access services. The security store location chosen above determines how user credentials are stored and authenticated. Once security is enabled, it cannot be disabled using Manager.

Security for GIS Services is: **Enabled**

Token Service

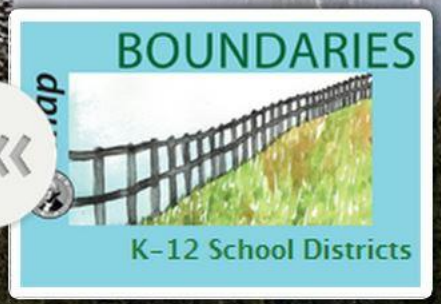
Enable ArcGIS Server token service on this computer

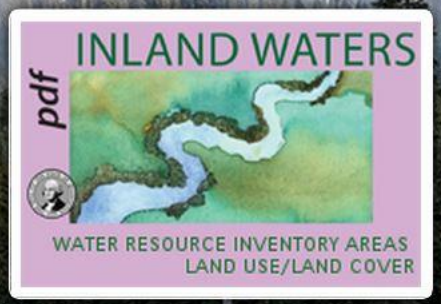
Settings

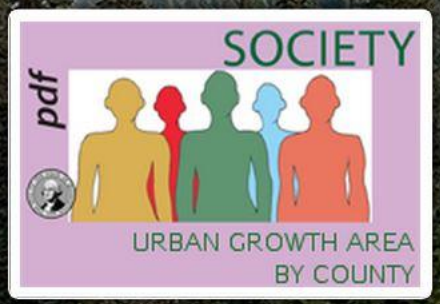
Joe Public

Content is easier to see and discover

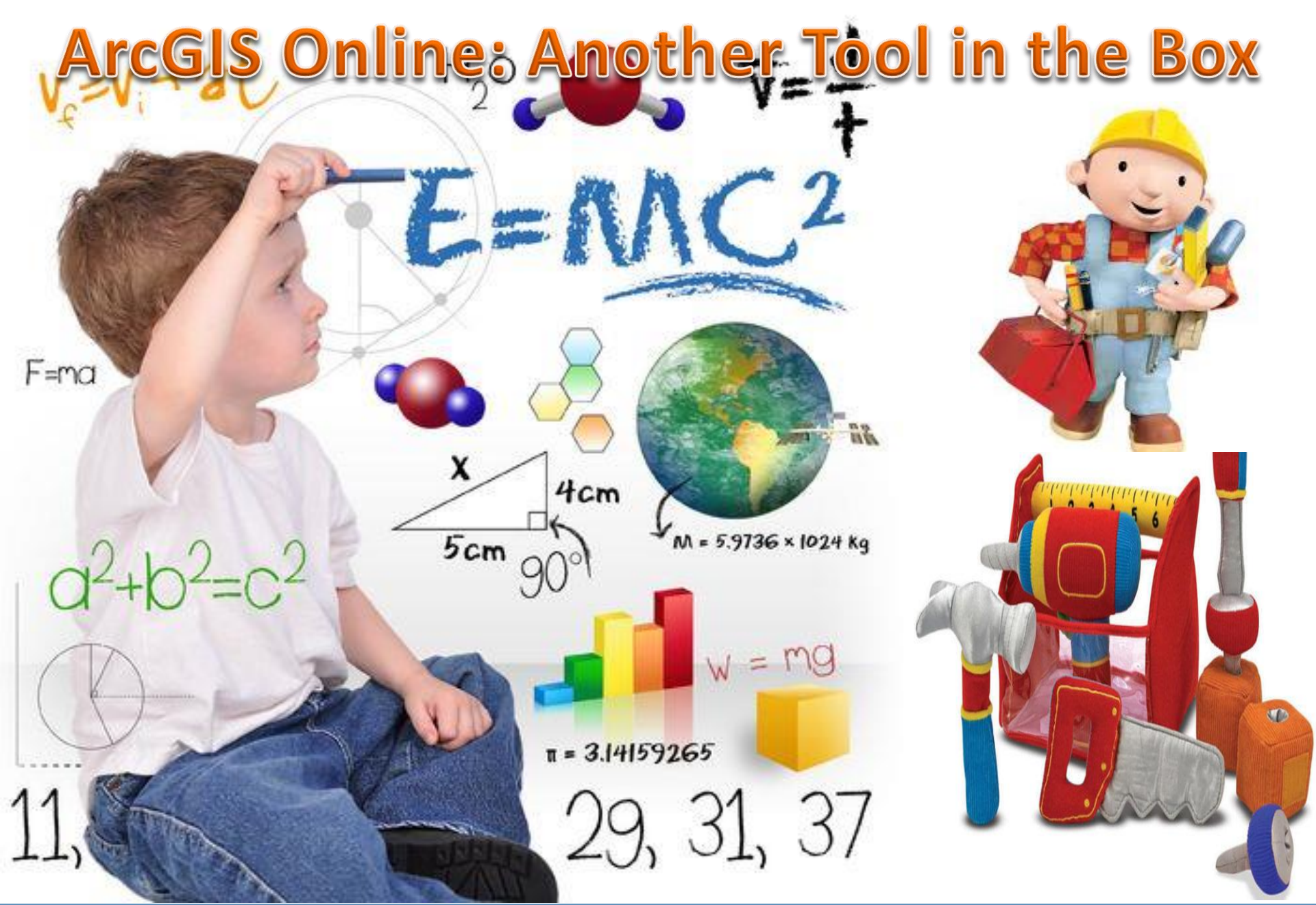
Maps | Apps | Services | Data | PDF

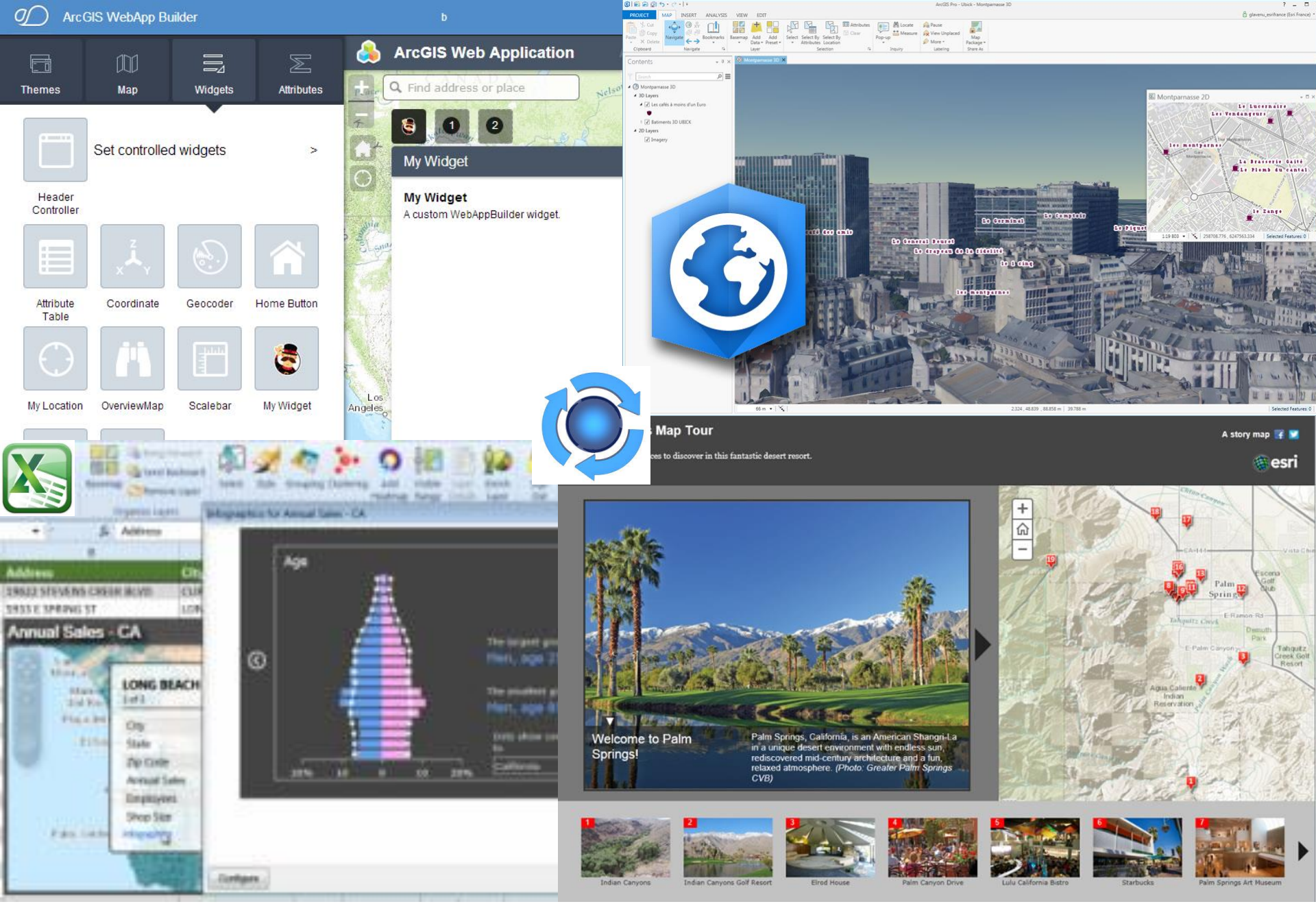






ArcGIS Online: Another Tool in the Box



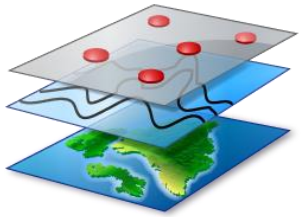

ArcGIS WebApp Builder
Themes
Map
Widgets
Attributes
Set controlled widgets
Header Controller
Attribute Table
Coordinate
Geocoder
Home Button
My Location
OverviewMap
Scalebar
My Widget
ArcGIS Web Application
Find address or place
My Widget
My Widget
A custom WebAppBuilder widget.
Map Tour
A story map
esri
Annual Sales - CA
Age
Welcome to Palm Springs!
Palm Springs, California, is an American Shangri-La in a unique desert environment with endless sun, rediscovered mid-century architecture and a fun, relaxed atmosphere. (Photo: Greater Palm Springs CVB)
Indian Canyons
Indian Canyons Golf Resort
Elrod House
Palm Canyon Drive
Lulu California Bistro
Starbucks
Palm Springs Art Museum

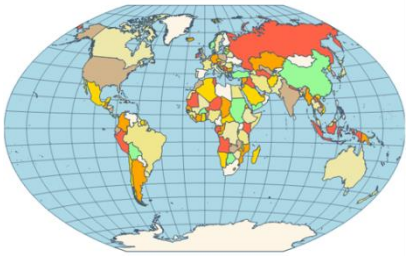
The App Revolution

Overall Consideration

You need to understand GIS

Spatial analysis





Projections

Coding

```
>>> # Import the arcpy and os modules.
... import arcpy
... import os
... # Input feature classes to buffer.
... inFCs = "C:/temp/VirtualCampus/PythonDesktop10/Data/Shapefiles/Schools.shp"
... # Output workspace.
... outWS = "C:/temp/VirtualCampus/PythonDesktop10/Data/Westerville.gdb"
... # Buffer distance.
... dist = 1000
... # Split input feature classes into separate feature classes.
... inFCs = inFCs.split(";")
... # Loop through each feature class and create buffers.
... for inFC in inFCs:
...     # Figure out the name of the output feature class.
...     (filePath, fileName) = os.path.split(inFC)
...     dotInd = fileName.find(".")
...     if dotInd <> -1:
...         newFC = fileName[0:dotInd]
...         outFC = newFC + "_buffer"
...     else:
...         outFC = fileName + "_buffer"
...     # Create the buffer feature class.
...     arcpy.Buffer_analysis(inFC, outWS + "\\" + outFC, str(dist) + " Feet")
...
```

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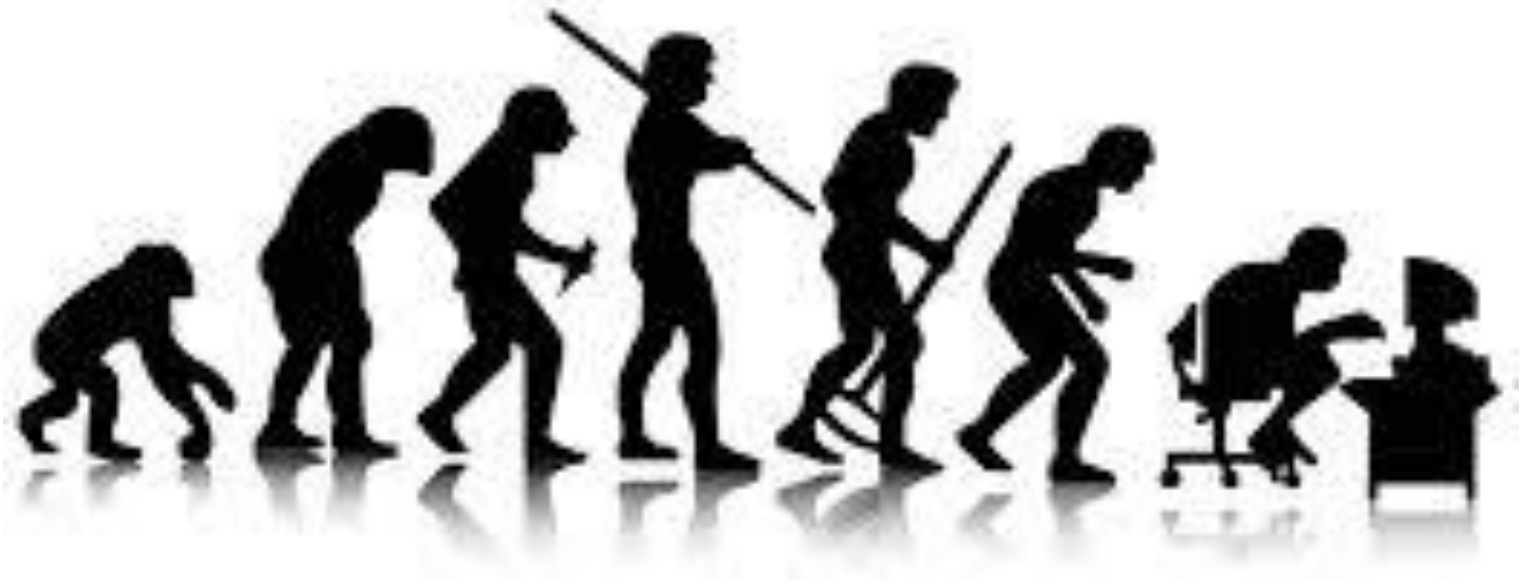
Project Management



Understand Your Customer

Habit 1: Be Proactive

Habit 2: Begin with the End in Mind

Habit 3: Put First Things First

Habit 4: Think Win-Win

Habit 5: Seek First to Understand, Then to be Understood

Habit 6: Synergize

Habit 7: Sharpen the Saw

Based on Customer Understanding

- Scope
  - What are we trying to accomplish?
  - Manage expectations
- Schedule
  - When is it due?
- Budget
  - How much will it cost?
  - How much funding is available?

Feature Creep

Adapt and Evolve

How to be flexible (agile) within rigid contracts?

- Evolving ways to manage scope, schedule & budget to allow for changes in project
- Evolving contract mechanisms to handle Agile projects
- Customer involvement and ownership
- Document decisions

Project Management Tools Have Evolved

How we manage Scope, Schedule, Budget and Feature creep has changed

- Dizzying array of tools available
  - (Base camp, Excel, Smartsheet, MS Project, sharepoint)
- Pick the one that works for you and your team and just be consistent – no tool is perfect
- Pick a communication style that works for your and your team (emails, regular phone calls)

Your Turn

Takeaway Messages

Professional Development

1. Grow within your wider professional development framework
2. Learn to code
3. Eliminate turf wars

Business Analysis

1. Call the meetings
2. Ask the questions
3. Implement solutions

Technology

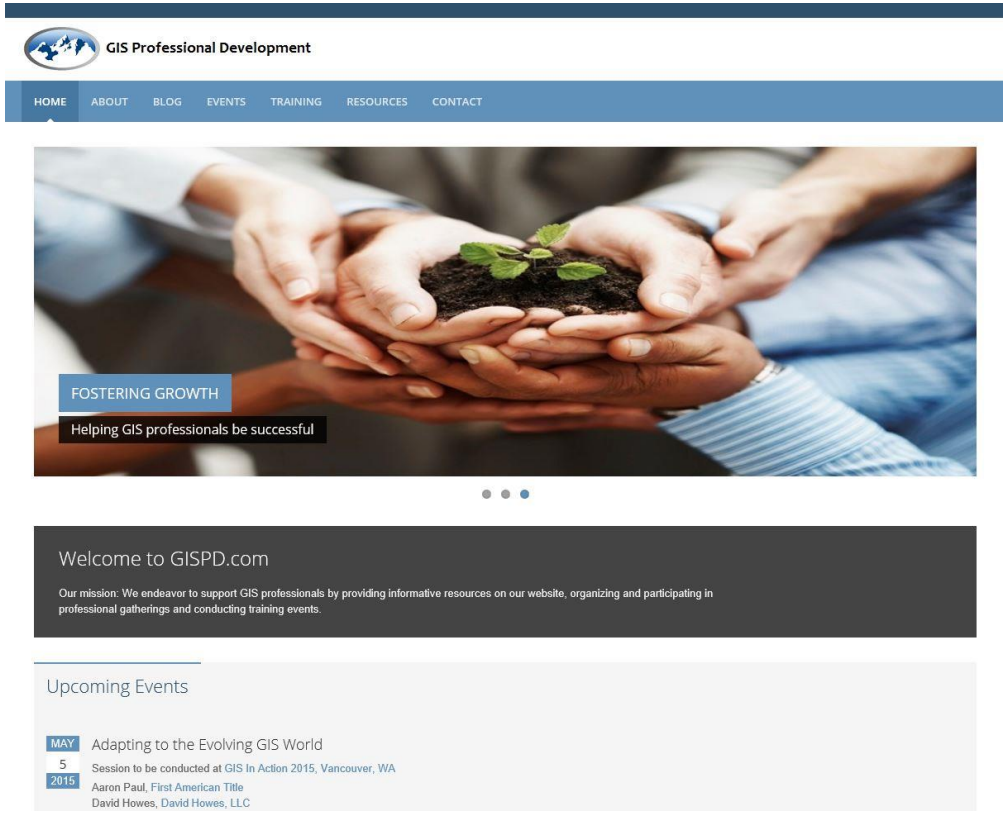
1. Begin to utilize the cloud to improve time to market
2. Align your tools with the business – hybrid is OK
3. Transition your maps to apps

Project Management

1. Understand your customers
2. Adapt and evolve PM techniques (feature creep)
3. Communicate and collaborate

Final Thoughts

Thanks for Coming



Slides available at http://gispd.com/events