DELIVERING SUSTAINABLE DATA AND PRODUCT MANAGEMENT BUSINESS PROCESSES

The Landgate Approach

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Introduction

Traditional Mapping
- Map production is resource intensive
- Information trapped in formats that can’t be reused
- Multiple databases required for specific products
- Work flows are divided and difficult to manage
- Data maintenance is time consuming and costly
- Data currency is inconsistent across data
Vision

Achieve a sustainable data management and map production environment that will provide flexibility to create innovative products, in a timely and efficient manner, in order to support commercialisation well into the next decade.
Sustainability

- Real time business processing and integrated workflows
- Robust and flexible system
- Technology renewal - economical
- Reuse of data, processes and workflows;
- Task automation – address resource constraints
- Longevity and use of Landgate’s data and products
- Extensibility – Enterprise and WoG
FIG Congress 2010
Facing the Challenges – Building the Capacity
Sydney, Australia, 11-16 April 2010

Focus Areas

Drivers
- Flexible and scalable GIS
- Manage information complexity
delivering a wide range of products

Objectives
- Solution consistent with enterprise architecture
- Multipurpose geographic knowledge-base
- Extensible geographic data model

Drivers
- Data Management
- Map Production and Revision

Objectives
- Automate map production and revision
- Flexible map production
- Product innovation focus

Business Strategies
- Convert CAD data to GIS
- Integrate databases at feature level
- Quality control measures
- Multipurpose data model
- Data model extensibility
- Schema evolution

Focus Areas

Drivers
- Data Compilation and Capture
- Products

Objectives
- Generate more products in less time to increase product profitability

Business Strategies
- Automated cartographic methods
- Dynamic spatial updating triggers
- Automated cartographic validation
Focus Areas

Focus Areas

Data Compilation and Capture

Drivers

Objectives

Business Strategies

Data Management

A variety of readily accessible products that generate revenue

Product Variety

Multiple data formats

Map products online

Customisable products

Seamless state-wide thematic coverage

Products digitally enabled for online integration

Real-time product currency

Customer participatory model

User generated content and customisation

Location-based searching

Drive Product currency

User-selected themes and coverage

Maps

Maps,

Anywhere/Anytime

User feedback mechanisms

Effective Collaboration

Online sales

Customer feedback mechanism

Web ‘mashup’ capabilities

Delivery System

FIG Congress 2010

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Focus Areas

Data Compilation and Capture
- Supply-chain modelling
- Integration of externally provided data
- Direct editing agency partnerships
- Change detection method
- Crowd sourcing
- Mobile data collection

Data Management
- Convert CAD data to GIS
- Integrate databases at feature level
- Quality control measures
- Multipurpose data model
- Data model extensibility
- Schema evolution

Map Production and Revision
- Automated cartographic updates
- Dynamic spatial updating triggers
- Automated cartographic validation

Products
- Map products online
- Seamless state-wide thematic coverage
- Real-time product currency
- Location-based searching

Customers
- User-selected themes and coverage
- Map customisation
- Customer feedback mechanism
- Web ‘mashup’ capabilities
- Online sales

Strategic Delivery System

Delivery System = integration, automation and customer participation

Timely Data Capture
- From a data maintenance cycle based on handcopy product revision

Integrated Systems and Data
- Integrated Geographic Databases
- Spatial Data Maintenance

Automated Map Production and Revision
- Dynamic Spatial Updating

Dynamically Updated Products
- To continuous real-time product updating

Online Delivery
- To customer driven data requirements and maintenance priorities

Customer Feedback and Participation
Map Production

Database-sharing and Spatial Views Environment

Shared Geographic Database
Names
Address
Valuation Cadastre

Product Views
GIS Views

Feature Level Integration

Multiple Spatial Views

Map produced using traditional Desktop Publishing techniques
Map produce using directly from geographic database using GIS techniques
Map Production

- Spatial views are created without changing the underlying data
- Rules are defined at the view level
- Tools allow user to change geometry, symbology and semantic

Data Modelling

Map production rules based on geographic knowledge

real world representation

geographic data

Map Production

knowledge

more

map production

flexibility

real world abstraction

information

abstraction

multipurpose

geographic

database

cartographic

representation

representation

Map

more information

abstraction

geographic

data

knowledge

characteristics

spatial

proximity

relationships

behaviour

hierarchies

gometry

+ displacement

fine adjustments

Theme and scale variability
Dynamic Spatial Updating

Pseudo Rules – Persist Representations

- Selection and elimination queries
- Generalised rendering
- Symbology
- Annotation Styles and Label Placement
- Product dictionaries

Dynamic Spatial Updating

Toolbox

Map Production
- Selection queries
- Generalised rendering
- Symbology
- Annotation Styles
- Label Placement
- Product dictionaries

Multiple Spatial Views

Enhancements
- Displacement
- Fine adjustments

Theme and scale variability
Dynamic Spatial Updating

- Map Production processes = pseudo DSU rules
- Rules are defined at the view level

**Shared Geographic Database**

Apply Rules → Dynamic Spatial Updating Rules → Product Update

Spatial Update
Add, delete, modify, semantic change

- Data integrity checked during geographic data maintenance
- Cartographic appearance validated at the view level

**Shared Geographic Database**

Product Update

Data integrity validated

Cartography validated
Validation

- Data integrity checked during geographic data maintenance
- Cartographic appearance validated at the view level

DSU Pseudo Rules

Map Production
- selection queries
- generalised rendering
- symbology
- annotation styles
- product dictionaries

Enhancements
- displacement
- fine adjustments

Feature Level
- 100% accuracy
- 90% Aesthetically correct

Validation

- Cartographic validation occurs prior to publishing
- Validation rules identify overlapping features
Conclusion

- Data Capture
  - Rich data store and enhanced data quality
  - Consistent data and product currency
  - Timely and sustainable data maintenance

- Data Management
  - Reuse of core data and streamlined workflows
  - Reduced data handling and risk of error
  - Better managed costs

• Map Production and Revision
  - Improved time to market and real time product updating
  - Rewarding work environment

• Products
  - Increased commercial opportunities
  - Products accessible online

• Customers
  - Increased product availability, convenience and currency
  - Responsive to customer needs
  - Foster community innovation and partnerships
Thank you

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Selection/Elimination

Kindergarten Selection Code
FCSUBTYPE 1 = Education Facility & FACILITYTYPE 2 = Kindergarten

Dam Wall Selection Code
FCSUBTYPE 10 = Dam Wall & INDUSTRIALFEATURETYPE -98 = not applicable & RELATIONSHIPTO GROUND 3 = ON
Product Dictionaries

- Official names in Database.
- School names are abbreviated – Prim Sch
- Shopping Centres only require name – to remove, abbreviation is blank

Symbolisation

Bridge symbol created as a Cartographic Representation does not fit the dual carriage road symbology.

Single features can be edited using ‘Free Representation Editor’
Label Placement

Generalised Rendering

Generalised Polygon features

Line to Point transformation

Polygon to Point transformation