TAM Implementation Journey at Yukon Highways and Public Works

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Outline

• Background & Context
• Activities to Date (years 1-3)
• Next Steps (years 4-7)
• Lessons Learned
Background and Context
Yukon Overview

- 37,000 people
- 20% Aboriginal
- Economy:
  - Mining
  - Tourism
Yukon – Transportation Network

- 5000 km roads
  - 50% Sealed Roads
    - Chip Seal - BST
    - HMA – Paved
  - 50% Gravel
  - Mostly low volume
- Key Connections
  - Alaska Highway
  - Haines Road
  - South Klondike (Skagway)
  - Dempster Highway
- 132 Bridges
- 4 Airports & 25 Aerodromes
Yukon –
Highways and Public Works Organization

• Department of Highways and Public Works ➔
  • Transportation Division ➔
    • Transportation Engineering Branch
    • Transportation Maintenance Branch
    • Transport Services Branch
    • Aviation Branch
  • Planning Functions Distributed Among Branches
  • Budget Coordination by Transportation Division Management Team (TDMT)
  • Division Annual Capital and O&M ~$100 million.
Yukon – Asset Management

Background

• Asset Management > 20 yr history

• Surface Management:
  • in-house
  • condition indices based on 10-component manual distress evaluations
  • in-house deterministic deterioration models by structure type, climate zone

• Bridge Management
  • adapted Alberta model
  • Inspections every 2 years
Yukon – Asset Management Background – Impetus for New Roadmap

- Despite having significant TAM capabilities in place for a jurisdiction of comparable size…

- Desire for cross-asset capabilities
- Desire for increased rigour at asset level
- Desire for integrated system
- Desire for more coordinated planning
Yukon – Asset Management Background – Program Development Team

- Sponsors: Branch Managers and Division ADM
- Internal: Representatives from all Branches and Asset Classes
- External:
  - Fireseeds North Infrastructure
    - consultant project manager
    - ‘owner’s engineer’
    - coordinate internal and external resources
  - Opus International Consultants
    - Framework consultant
    - Decisions models consultant
    - Standing Offer Agreement
Activities to Date (years 1-3)
Activities to Date

“adding progressive detail to the roadmap”

- Planning Reform Meetings
- TAM Gap Analysis
- TAM Strategic Plan
- TAM Framework
- TAM Communication Plan
- TAM Service Levels Development
- TAM IT Requirements
  - ‘High-level’ requirements
  - Expressions of Interest
- TAM Decision Models
Planning Reform Meetings

- Cross-Division
- Top-level management support
- Aim: elicit required planning reforms
- Results:
  - Asset Management Program Development Initiative
  - Organizational Analysis Initiative
  - Knowledge Transfer Initiative
Planning Reform Meetings

- Cross-Division, 50+ staff
- Top-level management support
- Aim: elicit required planning reforms

Results:
- **Asset Management**
- Organizational Analysis
- Knowledge Transfer
Gap Analysis

- Modified AAHSTO Gap Analysis
- 50 Questions
- Phone Version for Management Staff
- Web Version for Remainder of Staff

- Value of awareness building exceeded value of gap analysis
- Result: Launch of Asset Management Strategic Planning Project
Asset Management Strategic Plan

“High level program roadmap”

- Program Development Strategic Plan (vs other kinds of plans or strategies)
- Intentions
  - Reflect TAM best practice
  - Align with division strategy
  - Reflect staff aspirations
  - Address key issues
  - Outline high level roadmap
Asset Management Strategic Plan

• Process:
  • Preliminary Reading
  • Preliminary Questionnaires
  • 2 half-day sessions with 50 staff
    • Educational Components
    • Elicitation Components
      • Facilitated using ‘Liberating Structures’
    • TAM SME-facilitated
    • Top Management and Asset SMEs participated

• Plan Components
  • TAM Vision
  • TAM Mission
  • TAM Situational Analysis (SWOT)
  • TAM Critical Issues (5)
  • TAM Strategic Goals (5)
  • TAM Strategic Objectives (23)

• Deliverables: 11 page plan + Prezi
Asset Management Strategic Plan

Future (Mission/Vision)

Present (SWOT)

Path Forward (Goals/Objectives)

Delta (Critical Issues)
Asset Management Strategic Plan - Critical Issues

- Undefined Service Levels
- Human Resource Needs
- Cross-Asset Capabilities Missing
- Low TAM Communication Effectiveness
- Distributed Knowledge Utilization Required for Engagement
Asset Management Strategic Plan - Results and Next Steps

- Smart Goals and Objectives became implementation roadmap
- Team formed
- Consultant Project Manager retained
- Series of increasing program development budgets to implement strategic plan:
  - $300K → $450K → $1.3M
Asset Management Strategic Plan - Results and Next Steps

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Asset Management Framework - Introduction

“Intermediate-level roadmap detail”

• Intentions:
  • Support strategic plan goals and objectives
  • A shared mental and working model of TAM components, tools, relationships, roles, and interactions
  • A more detailed roadmap

• Process:
  • Retained OPUS international consultants
  • OPUS led several facilitated workshops
  • Prepared conceptual then detailed framework
  • Emphasis on business process and organization
Asset Management Framework - Scope

- Practice Level Assessment
- Current State Documentation
- Future State
- Governance and Strategy
- Organizational Structure
- Processes and Systems
- Resource Requirements

- 160 page report
Asset Management Framework – 4 layer diagram (OPUS)
Asset Management Framework – Key outcomes

• Intention to form Transportation Planning Branch
• Launch Decision Models Project
• Launch Software High level Requirements and EOI
Asset Management Framework – Key outcomes

• Intention to form Transportation Planning Branch
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• Launch Software High level Requirements and EOI
Asset Management – Communication Plan

- Team formed
- Series of workshops held
- Resourcing TAM training
- Some communication challenges
  - Constant project awareness not always maintained
  - Individual business unit owners launch overlapping projects
- Attention needed on Scope
- Attention needed on Terminology
Asset Management – Level of Service Development

• Commitment from beginning to:
  • Customer focus
  • Tiered service levels
    • Customer
    • Asset
    • Activity
    • Resource
  • Hierarchical service levels
    • Primary A, Primary B, etc

• Customer components
  • Safety
  • Reliability
  • Efficiency

Additional outcome component:
  • Sustainability

• LOS white paper
Asset Management – IT Requirements

“The roadmap for the IT system acquisition and implementation”

• Challenge: Can we define what we need from IT
  • Based on business processes
  • Using the roadmaps as developed to date?
• Background: Diversity of IT approaches within team
  • Speed
    • Try & buy vs long & detailed
  • Adaptation
    • Business processes vs software
Asset Management – IT Requirements

“The roadmap for the IT system acquisition and implementation”

**Activities**
- Requirements elicitation by non SMEs
  - IAG Requirements Management Consultants
  - Internal Functional and Business Analysts
- Several weeks of team sessions
- OPUS and FNI participated

**Outputs**
- 700+ functional requirements
- 900+ pages of requirements documentation in RFEOI
- 4 RFEOI participants, demos, evaluation

**Outcomes**
- Launch decision models project to more clearly define some framework components
- Add more detail to LOS
Decision Models
Functional Design

“roadmap for decision making”

- Framework identified:
  - Network level decision model
  - Asset level decision models
  - Strategic, tactical, and operational components
- Additional clarity required for IT and business unit implementation
Decision Models
Functional Design

“roadmap for decision making”

- Decision model objectives:
  - Define activity types, use rules, LOS impacts
  - Set LOS targets
  - Predict LOS (customer and LOS components)
  - Identify LOS gaps (current and future)
  - Generate lifecycle treatment options
  - Analyze options (optimization)
    - Individual Asset
    - Asset Class
    - Network level
  - Define data requirements
  - Flexible for ‘what-if’ analysis
• Project is ongoing
• 2\textsuperscript{nd} draft of decision models has been submitted
• Key challenges
  • Assessing Value of LOS Gaps
  • Predicting LOS (customer components)
Next Steps (Years 4-7)
Next Steps

- Finalize Decision Models
- Refine LOS
  - Target Setting
  - Predictive Ability
  - Costing
- IT Procurement
- New Data Collection
- Run Decision Models
- Calibrate and Refine
Lessons Learned
Engagement

• Building engagement was easier than containing it
  • People care about budget allocation
  • People know it can be done better
  • Participatory processes used (liberating structures)

• Non-contained engagement
  • Because people care about budget allocations…
    • Side projects launched that overlap in scope
    • Constant communication required with all stakeholders
Speed

• Yukon government has not rushed any aspect of the project

• Principles of project failure risk mitigation used throughout

• Progressively more detailed roadmaps are being prepared
  • Sometimes it feels painfully slow
  • However, ‘mapping’ decisions taken at subsequent stage (e.g. decision models design) show danger of planning
Questions

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