Make Your Case – Preparing a Business Justification and ROI for BIM in Utilities – Roundtable Discussion

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UT5414-R Highlights for Handout

Roundtable Agenda (90 min)

- Presentation (30 min)
  - Need for business case
  - Financial metrics defined
  - Major utility case study

- Roundtable Discussion / Questions (60 min)
  - What technology solution are you planning?
  - Have you identified the benefits?
  - Have you quantified the benefits?
  - What challenges are you facing to secure funding?

Make Your Case – Roundtable Class Summary

Developing a sound **business case** and **securing funding** to implement new technology is **sometimes a difficult hurdle** to overcome. This class discusses an Autodesk Consulting engagement for a **major electric and gas utility** to develop a **strategic implementation plan and business case** for the **adoption of BIM** for both Transmission and Substation Design Engineering and Construction workflows. The solution will completely transform the current design and construction management processes, and includes InfraWorks, Civil3D, Inventor/Publisher, Substation Design Solution, Vault and BIM360. In this class we will **discuss the process** followed to **analyze the business requirements**, **develop a solution** and formulate an **implementation plan and cost estimate**. The class will highlight an approach to **benefit quantification**, preparing a **net cash flow analysis** and calculating the **financial metrics** required to present and **win funding approval** from senior management.

Key learning objectives

At the end of this class, you will be able to:

- Describe methodologies for **business requirements gathering** and strategic planning
- Develop a approach to **quantify benefits** for a technology solution
- **Calculate key financial metrics** for a business case including net cash flow, ROI and payback
- **Propose a study** to develop specifications, solution design, implementation plan and business case

Why do we need a business case?

- Unlocking project funding typically requires executive sponsorship and a solid business case

- A business case can present *strategic benefits* but almost always requires a **financial benefit presentation**

- Financial means *quantification* and calculating ROI metrics

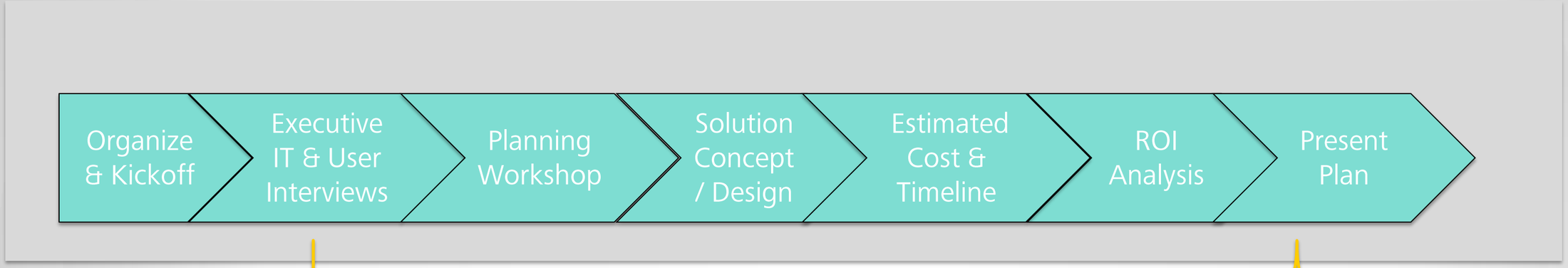
Financial Metrics – A Primer

- **Payback Period** – sometimes called break even analysis. Represents the time required for the full investment to be recovered, typically in years.

- **Return on Investment (ROI)** - The calculated internal rate of return of a series of cash flows of investment and benefits realized over a period of time. An internal rate of return (IRR) is the same as an ROI.

- **Net Present Value (NPV)** – Considers a cash flow stream over time, similar to ROI, except the discount rate is assumed and all future cash flows are discounted for comparison in today's current dollars.

Strategic Planning – One Approach



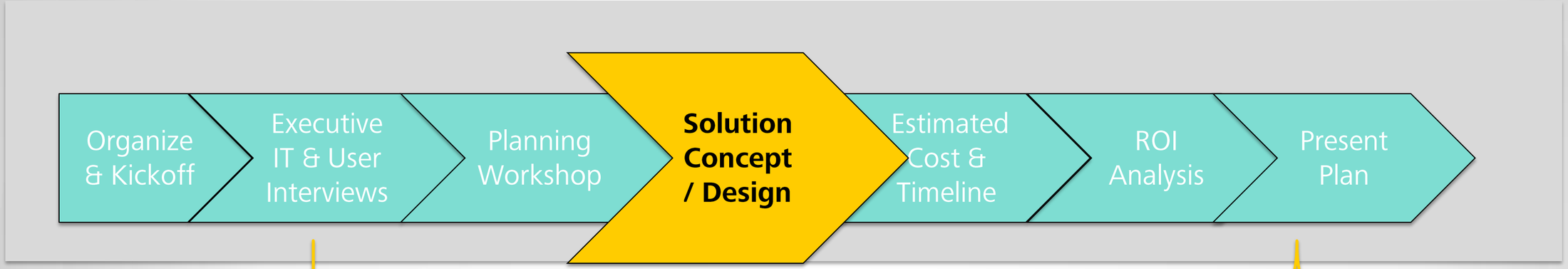
Business drivers
Current “as-is” workflows
Needs and opportunities
Current costs of doing business

Executive Summary
Requirements Analysis
- Current “as-is” workflows
- Needs analysis and opportunities

Solution Conceptual Design
- Proposed “to-be” workflows
- Proposed solution architecture

Implementation Plan
- Budgetary Estimates
- Schedule
- Cost/Benefit Analysis

Strategic Planning – Conceptualize the Solution



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BIM Vision to Transform Engineering & Construction

Protection & Controls
Schematics, panels, wiring diagrams, cable lists

Physical Design
2D/3D Modeling

Constructability Design Review
Model aggregation, clash detection, schedule

WORKFLOW

CENTRAL DESIGN REPOSITORY

Site Design
2D/3D Modeling

Construction Package
Drawings, BOMs

3D Parts and Assemblies
SAP CU Alignment
Technical Publications

Conceptual Design
Permitting, estimating

ESTIMATING

Construct and Commissioning
Checklist, Validations, Project Dashboards

BIM – A Unified Workflow Across Design Disciplines

PLAN → DESIGN → CONSTRUCT → OPERATE → MAINTAIN

Engineering & Construction Service Providers

BIM Unified Model

Field / Mobile Workforce

Transmission Design

Substation Design

Distribution Design

Communications & Control Design

Construction

Operate and Maintain

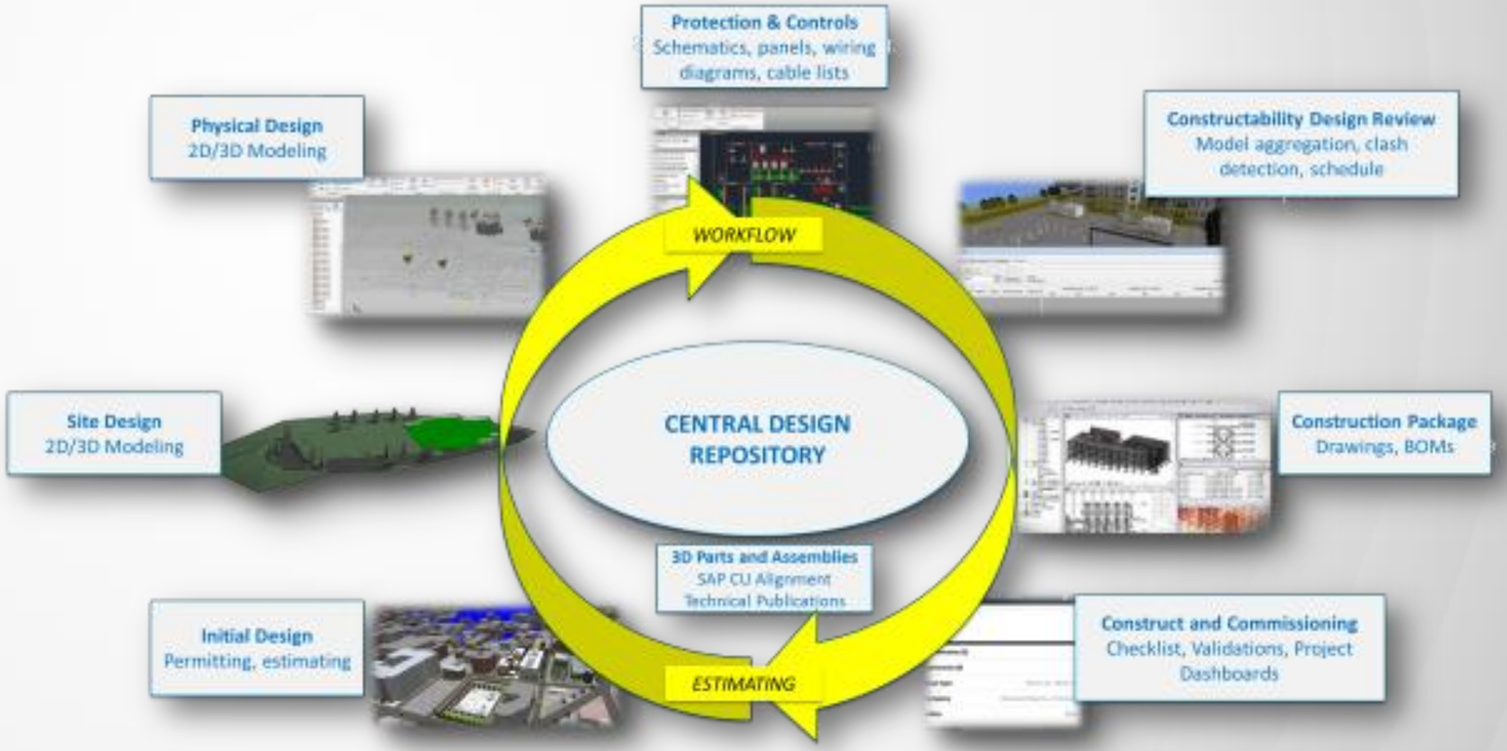
Crafting a Solution – Building Information Model (BIM)

OPERATIONAL EFFECTIVENESS
3D Digital Model v. 2D Drawing File
Business Process Improvement

COST CONTROL
Reduce construction waste
Increase confidence in cost estimates

SAFETY
Improved Data Quality
Validate Standards

A unified workflow for the project lifecycle



Cost Benefit Approach – Benefit Catagories

- Productivity Benefits
- Cost Avoidance Benefits
- Reduction of External Costs
- Reduction in Capital Project Costs

Roundtable Discussion Point:

We continue to need customer testimonials to build our cost benefit quantification library of examples for % saved, costs eliminated, etc.

3D/2D Model Design – Cost Benefit Analysis Approach

- **Key Benefits Quantified in the Analysis:**
  - Productivity improvements for Transmission Engineering (15%)
  - Productivity improvements for Substation Engineering (15%)
  - Productivity improvements for As-Built creation (50% using Lidar/ReCap)
  - Cost avoidance benefits in construction by earlier detection of issues
  - Reduction in contingency and construction costs of 1% on capital projects

- **Gradual phased realization of benefits over three years**

- **Calculate Net Cash Flow and Financial Metrics**
  - Include all project costs: HW,SW, Services and SDG&E team costs
  - Calculate IRR and Payback Period

Cost Categories Considered

- Presented Capital Expenses (CAPEX)
  - Software License Costs
  - Implementation Services
  - Customer Implementation Team
  - Computing Hardware, Networking
- Presented Operating Expenses (OPEX)
  - Software Maintenance Subscription
  - Customer Support Team
  - External Support

Roundtable Discussion Topics

- What technology solution are you planning next?
- Have you identified the benefits?
- Have you quantified the benefits?
- Can you sell a project based on strategic benefit alone?
- How are projects financially modeled in your firm?
- What challenges are you facing to secure funding?