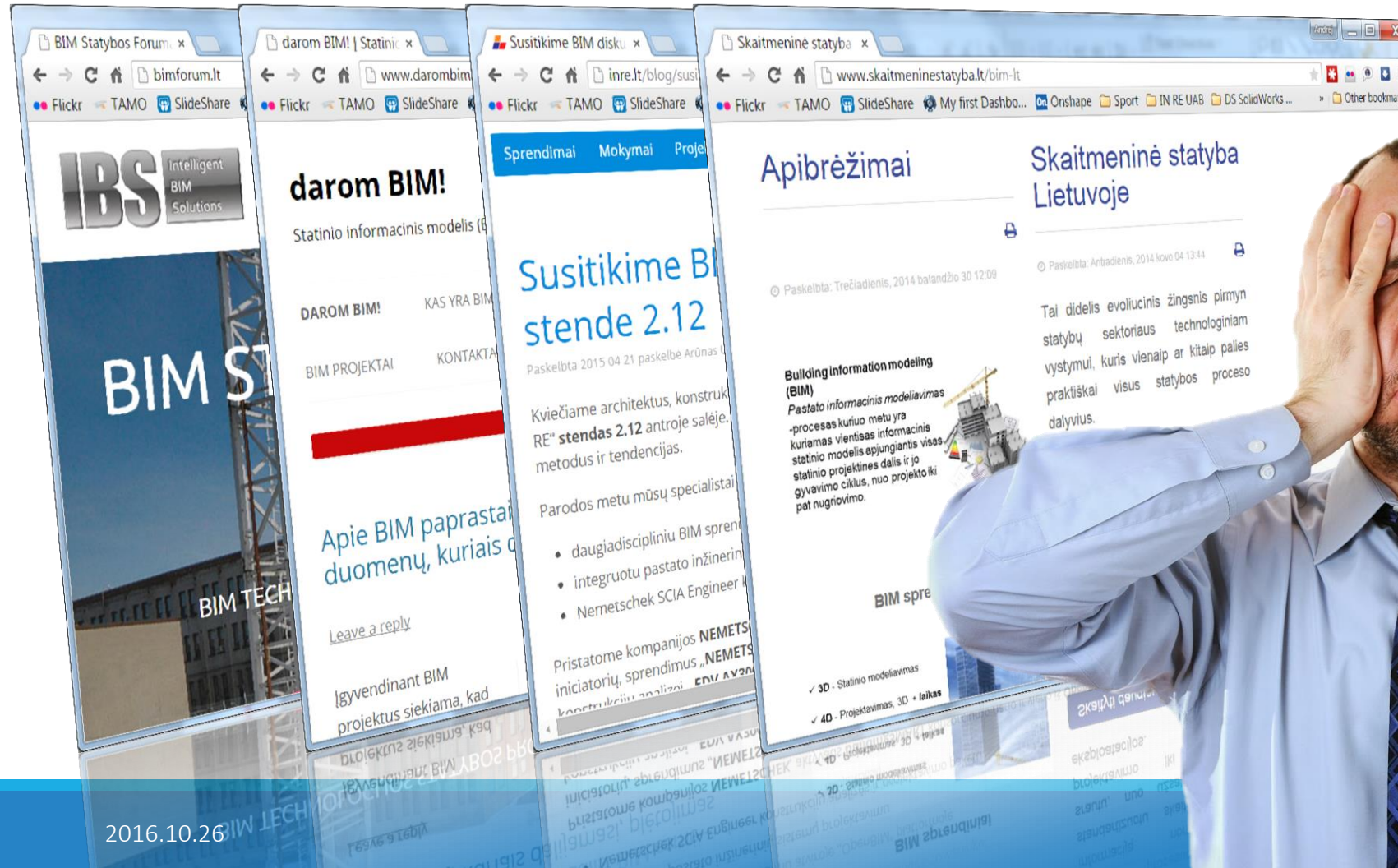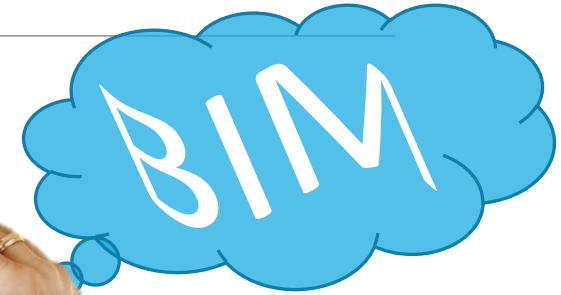# Common Data Environment for BIM Process Management

Vilnius, 2016-10-18
Riga, 2016-10-19
Tallinn, 2016-10-20
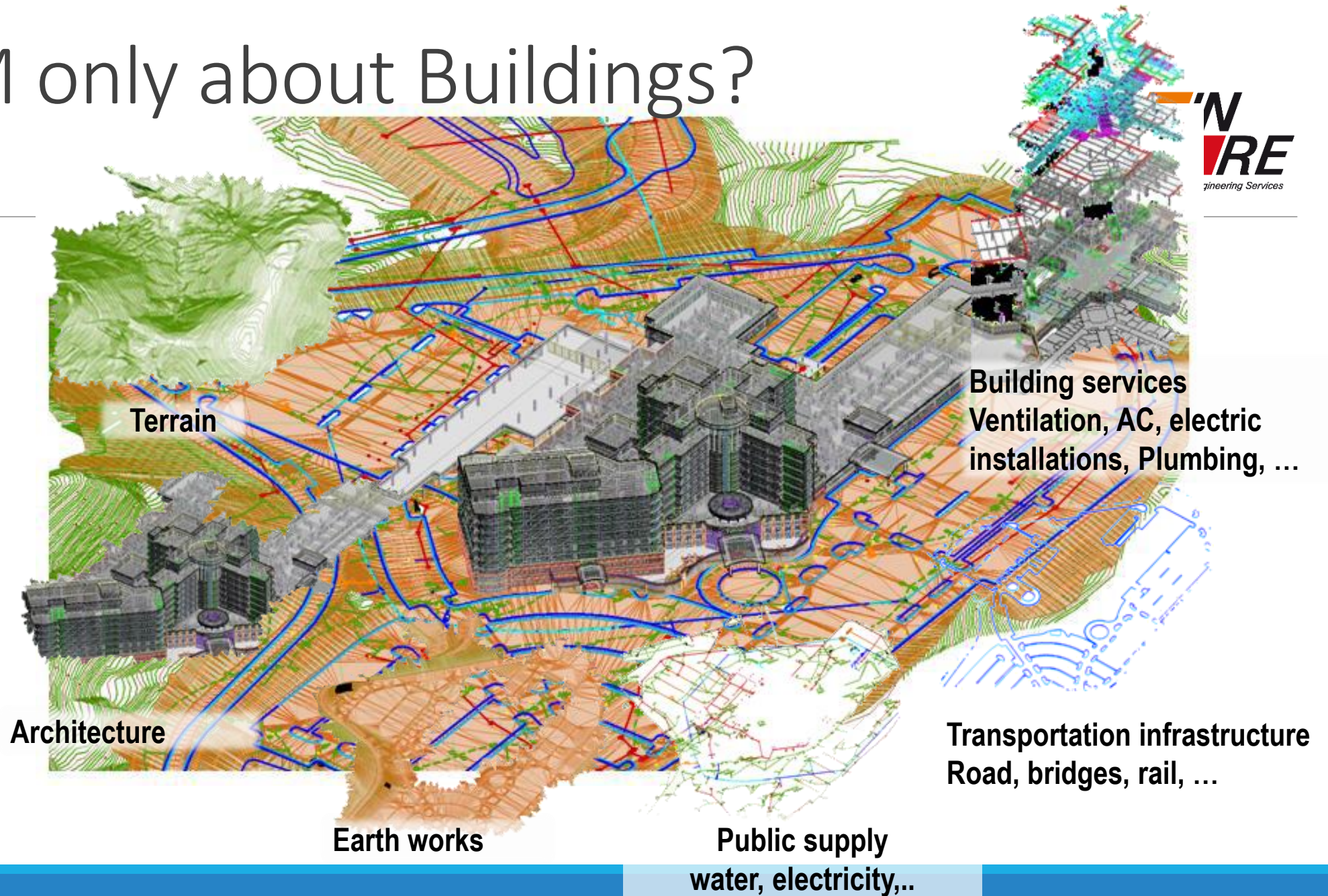
Dr. Arūnas Urbšys

Projects Development Director, UAB „IN RE"

IN RE
Computer-Aided Engineering Services

What is BIM?

Is BIM only about Buildings?

Terrain

Building services
Ventilation, AC, electric
installations, Plumbing, …

Architecture

Transportation infrastructure
Road, bridges, rail, …

Earth works

Public supply
water, electricity,..

Is BIM only about Modelling?

Modelling   Management   Mobility

BIM "is the **process** of generating and managing building data during its entire life cycle"
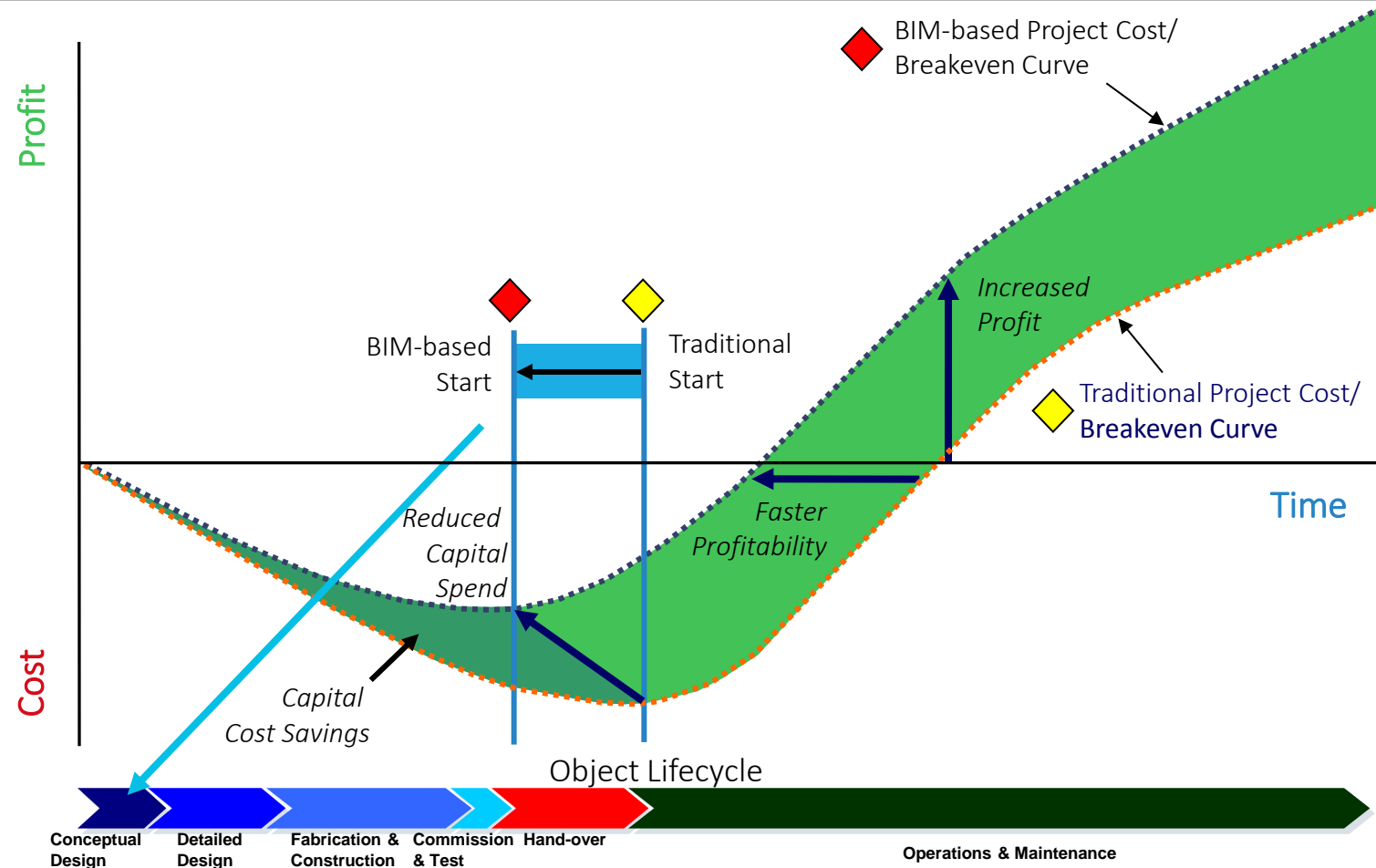
(Automation in Construction 2006)

Why BIM is required?

Initiative of Europos parlamento iniciatyva skatinanti BIM diegimą

- DIRECTIVE 2014/24/EU of the European Parliament and of the Council on **public procurement** and repealing Directive 2004/18/EC suggests, that Member States shall ensure that all communication and information exchange under this Directive are performed using electronic means of communication.
- building information electronic modelling tools are considered as one of such electronic means (Article 22, Paragraph 4) for public works contracts and design contests.
- Member States may encourage, specify or mandate the use of BIM for publicly funded construction and building projects in the European Union by 2016.

The UK, Netherlands, Denmark, Finland and Norway already require the use of BIM for publicly funded building projects. Benefits are reported:

- The British government estimates that the savings from large public construction projects since 2012 is around £1.7 billion (€2 billion) and that 66% of Britain's Major Project Authority portfolio is now delivered on time and within budget, a significant improvement compared to 33% in 2010. (Source: Construction News)
- According to a report by the European Commission in 2012, public agencies that have already implemented solutions for e-procurement have reported **savings of 5%-20%** of their cost of procurement. The overall size of the EU's public procurement market is estimated to be more than €2,000 billion, which means that a 5% saving translates to around €100 billion in savings per year. This is equal to the cost of building more than 150 large hospitals!

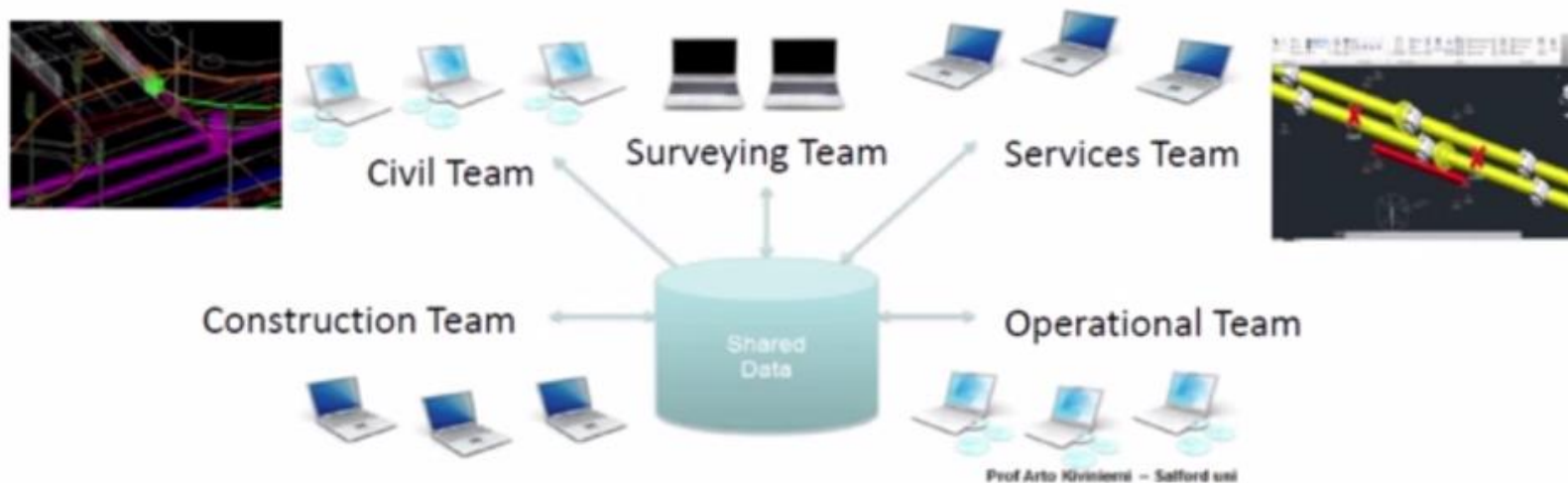# Accumulated benefits through lifecycle

Profit

Cost

Time

BIM-based Project Cost/ Breakeven Curve

BIM-based Start

Traditional Start

Increased Profit

Traditional Project Cost/ **Breakeven Curve**

Reduced Capital Spend

Faster Profitability

Capital Cost Savings

Object Lifecycle

Conceptual Design

Detailed Design

Fabrication & Construction

Commission & Test
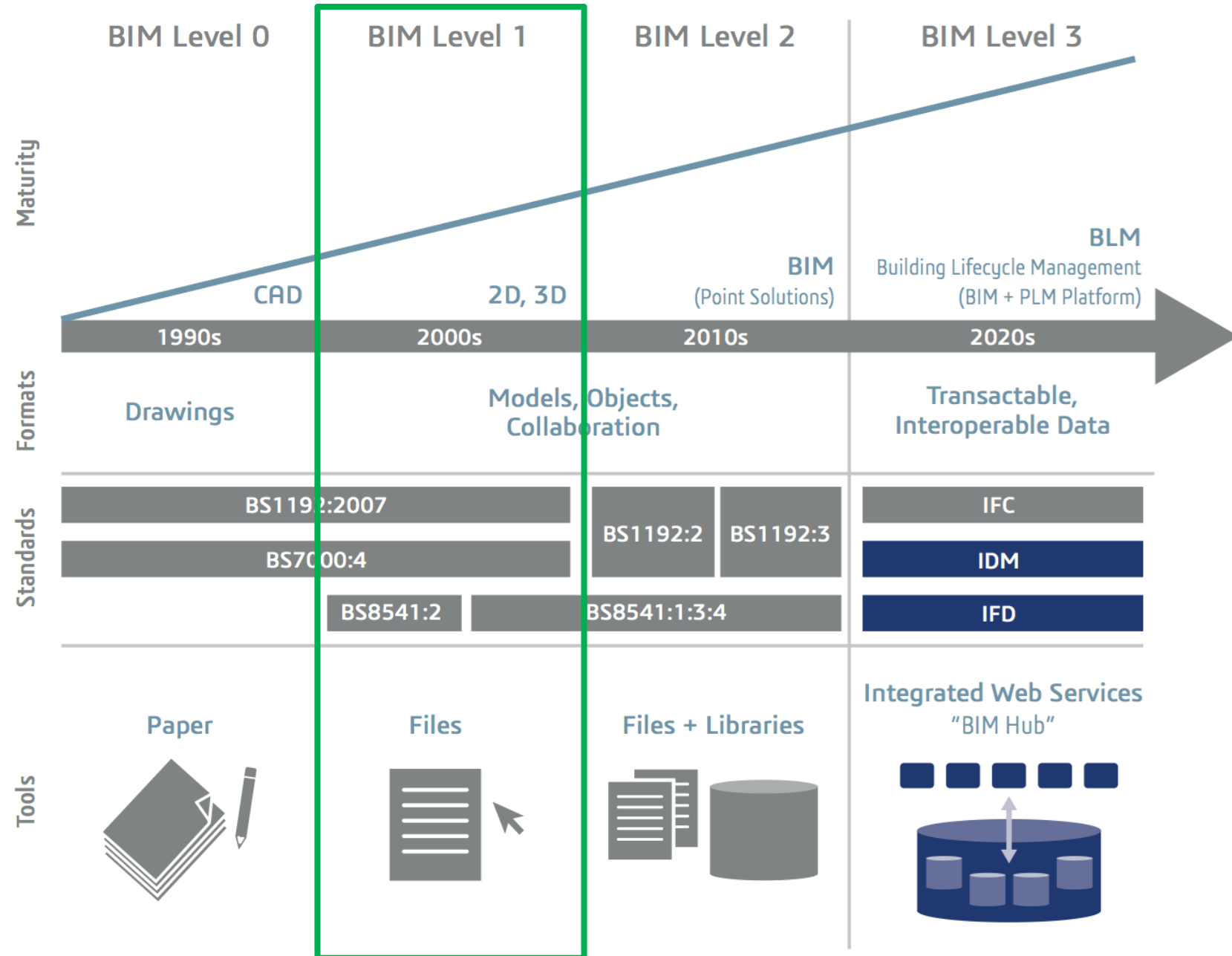
Hand-over

Operations & Maintenance

" ... over 80% of a project's total cost are committed within the first 20% of the total project's design time ..."

Level 2 BIM: a minimum standard

"Level 2 BIM maturity is a series of domain and collaborative federated models, consisting of both 3D geometrical and non-graphical data, prepared by different parties during the project life-cycle within the context of a common data environment. The project participants provide defined, validated outputs via digital data transactions using proprietary information exchanges between various systems in a structured and reusable form."
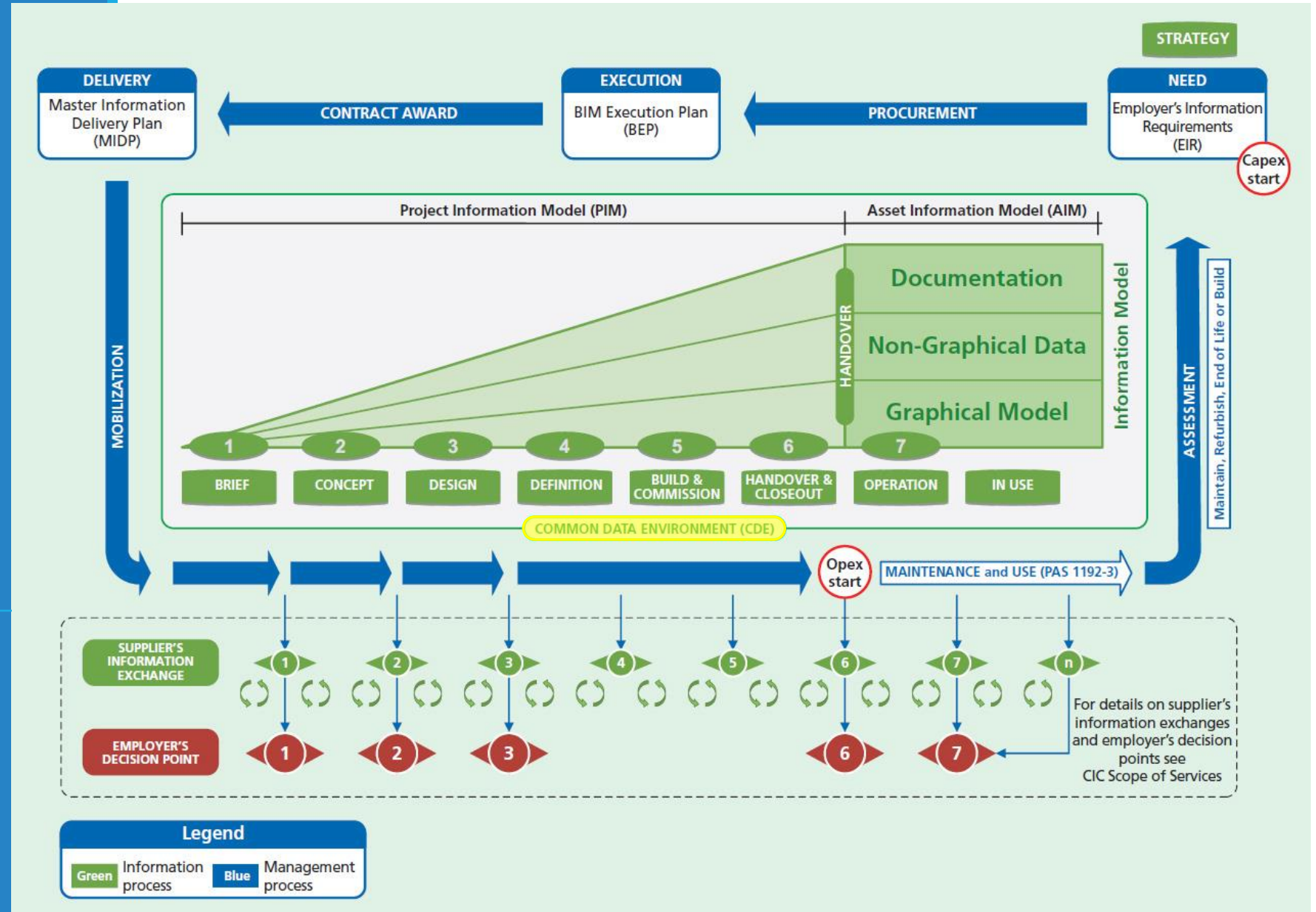
Civil Team
Surveying Team
Services Team
Construction Team
Shared Data
Operational Team

Prof Arto Kiviniemi – Salford uni

Moving towards BIM Level 2

The BIM Maturity Model by Mark Bew and Mervyn Richards adapted to reflect BLM's relationship to Level 3.

Management of Project Information Model – PIM

BS/PAS1192

Project Delivery plan PAS/BS 1192 (UK)

The reality

What is required for successful BIM?

- Access anywhere, anytime:
  - Internet (Web browser)
  - Desktop (software integration)
  - Mobile (touch tablets)
- Security, Rights, Control:
  - Projects Teams access only assigned Projects, Folders
  - Work in Progress (Teams edit only assigned documents, shared data is Read Only)
  - Quality Ceck – only Authorized Persons
  - Control of works, Audit Trail

- Ensuring Processes:
  - Automated Codding
  - Managed Stages of the Process
  - Automatic Versioning
- Easy of Use:
  - Managed Cloud Service (IT costs)
  - Convenient Windows-like interface
  - Ready Templates (structures of Folders, Rights)
  - Easy and fast confirmation process
  - Easy search and ensured actuality

The *Common Data Environment* is required

Common Data Environment

Non-Graphical Information

Graphical Information
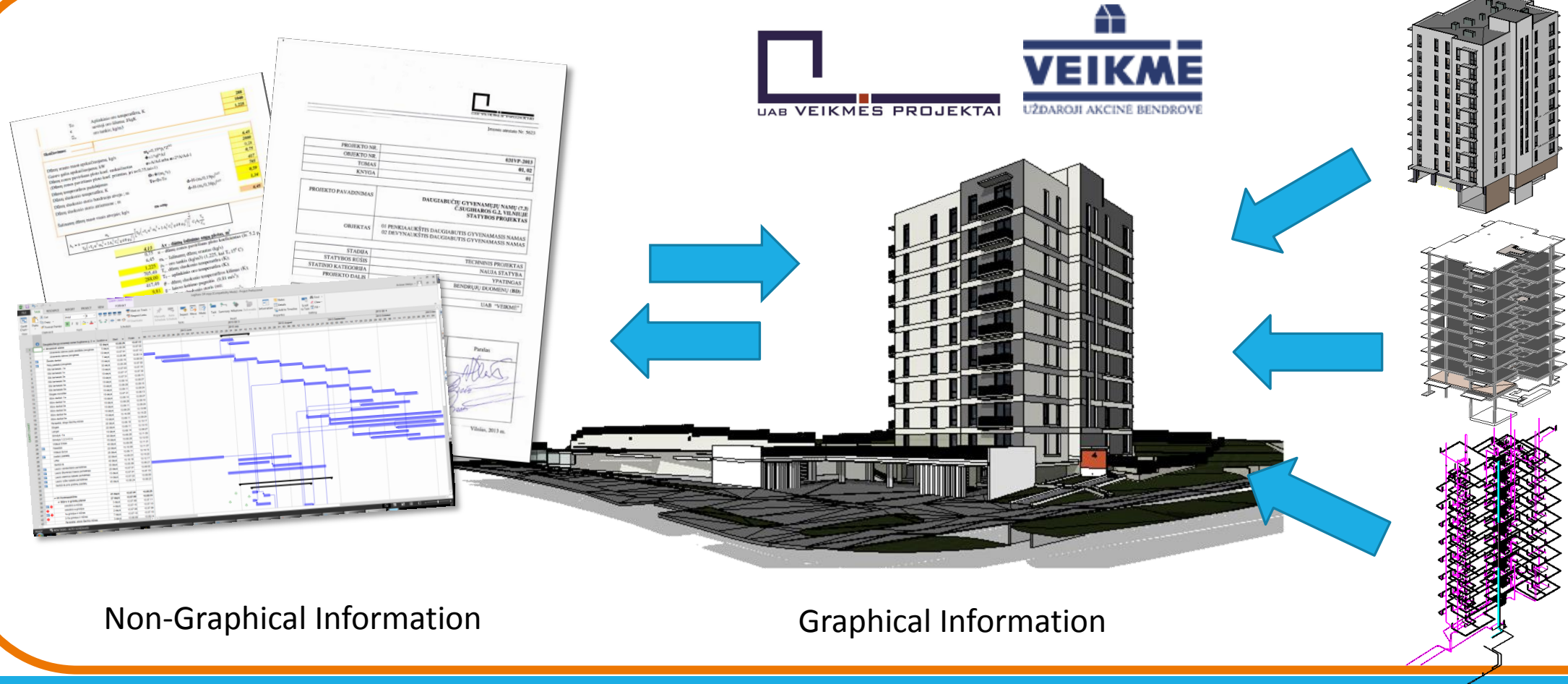
Project Initiation

This presentation uses the data of 9 stores multi-flat house in Sugiharos str. 2, Vilnius, Lithuania by of Company „Veikmė"

Datasource   View   Tools   Window   Help

Search

Address

ProjectWise Explorer Datasources
- decide-eu-001
- decide-eu-002
- decide-eu-003
- decide-eu-004
- decide-eu-005
- decide-eu-006
- decide-eu-007
- decide-eu-008
- decide-eu-009
- decide-eu-010
- Marketing

Name   Description

There are no views registered that are able to display current selection.

PROFESIONALUMAS
PATIKIMUMAS
KOKYBĖ

Uploading or Creating Documents

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Datasource   Folder   Document   Export   View   Tools   Window   Help

Search

View Projektavimas (Personal)

Address pw:\\decide-pwdi-eu.bentley.com:decide-eu-001\Documents\Partners\Lietuva\031VP-2013 Daugiabučiai Sug   Go

Out to	Name	Description	State	Status	Revision Number	File Revision	Version
	031VP_00_TP	Techninis projektas - ra...	Work in Progre...				
	031VP_01_DP	Darbo projektas	Work in Progre...				
	031VP_02_Dalinimuisi	BIM modeliavimas	Work in Progre...				
	031VP_03_Siunčiami	Publikavimui	Work in Progre...				
	031VP_04_Gaunami	Korespondencijai	Work in Progre...				

- ProjectWise Explorer Datasources
  - decide-eu-001 (Arunas.Urbsys)
    - Documents
      - Partners
        - Lietuva
          - 031VP-2013 Daugiabučiai Sugiharos g, 2
            - 031VP_00_TP
              - 01 BD
              - 02 SP
              - 03 SA
              - 04 SK
              - 06 S
              - 07 VN
              - 08 ŠVOK
              - 09 D
              - 10 E
              - 11 ER
              - 12 AS
              - 13 GSS
              - 14 PVA
              - 15 ŠT
              - 16 GS
              - 17 CS
              - 18 AA
              - 19 BS
              - 20 SO
              - 21 KS
              - 22 EK
            - 031VP_01_DP
            - 031VP_02_Dalinimuisi
            - 031VP_03_Siunčiami
            - 031VP_04_Gaunami
            - Saved Searches
        - BSI200 - Miesto erdvinis tyrimas
        - BSI300 - Medicinos kompleksas

Project Properties | Dependency Viewer | Access Control

Properties (Project Type - Building)

Project Name	Daugiabučiai Sugiharos g.2
Project Number	031VP-2013
Owner	UAB "Veikmė"
Project Location	Vilnius
Country	Lietuva
Size	0,4310 ha
Project Scope	New Construction

Access to the Information

This presentation uses the data of 9 stores multi-flat house in Sugiharos str. 2, Vilnius, Lithuania by of Company „Veikmė"

ProjectWise Web Server

Left window:

ProjectWise® Web Server

Location
decide-eu-001

User Name
A

Password

Log in

Right window:

ProjectWise® Web Server

Location
decide-eu-001

User Name

Password

Log in
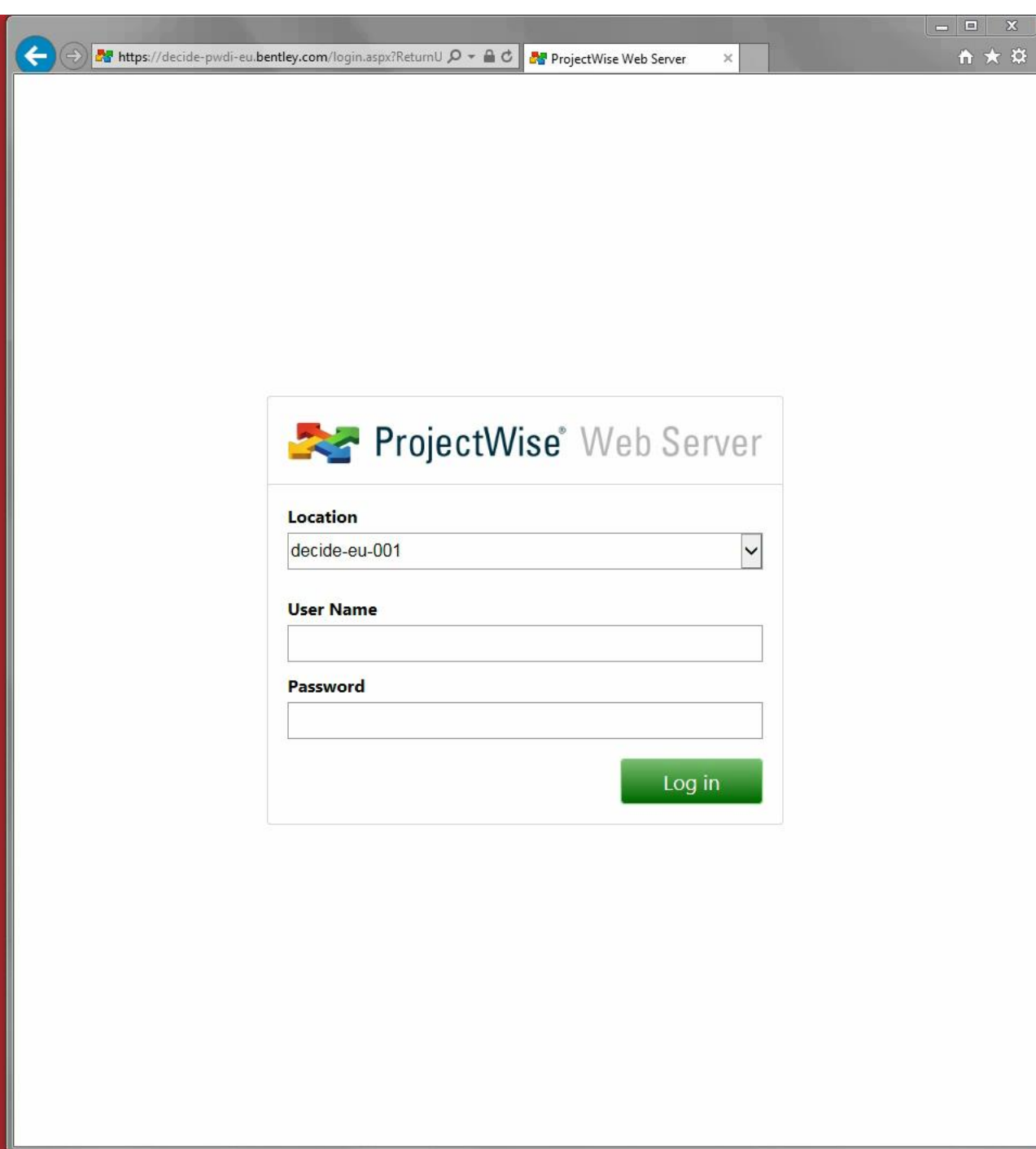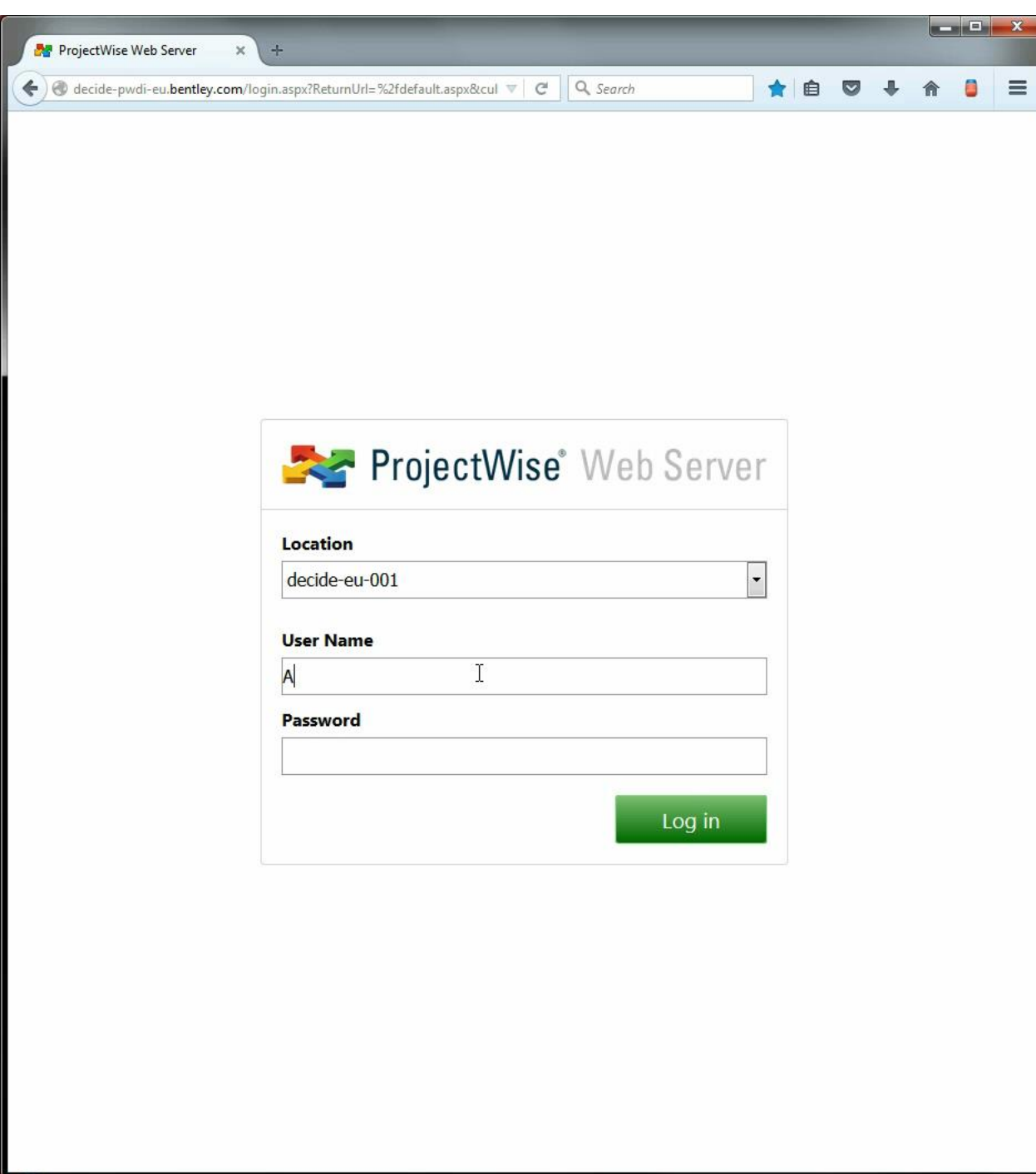
Software Integration

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Analysis of the Information: Search, Control, Audit

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Datasource Folder Document Export View Tools Window Help

Search ▷ View Modeliai (Personal) ▾

Address pw:\\decide-pwdi-eu.bentley.com:decide-eu-001\Documents\Partners\Lietuva\031VP-2013 - Daugiabučiai Su ▾ ▷ Go

- decide-eu-001 (Robertas.Janulevicius)
  - Documents
    - Partners
      - Lietuva
        - 031VP-2013 - Daugiabučiai Sugiharos g.2
          - 031VP_00_TP
          - 031VP_01_DP
            - SA
            - VN
          - 031VP_02_Dalinimuisi
            - 00 Modeliai
            - E DWG
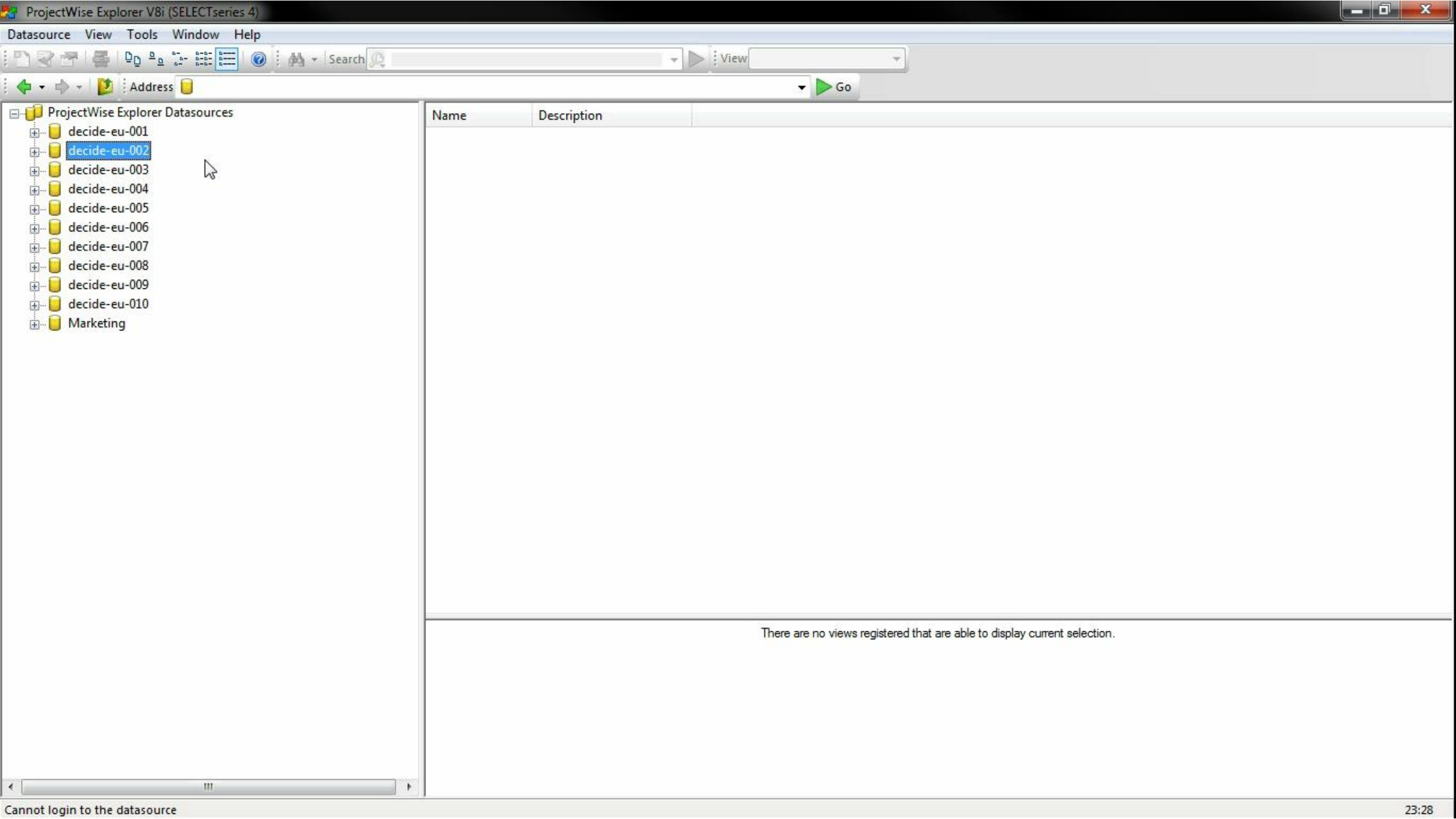   - SA DWG
            - SV1 DWG
            - SV2 DWG
            - VN DWG
          - 031VP_03_Siunčiami
          - 031VP_04_Gaunami
          - Saved Searches
            - Global
              - Atidaryti
              - Dalinimuisi
              - Yra žodis "topograf..."
              - Per 7 d. keisti dokumentai
              - Redaguota šiandien
            - Personal
        - BSI300 - Medicinos kompleksas
        - BSI900 - Bokštas
        - BSI901 - Daugiabutis
        - Dujų tarnyba
  - Components
  - Saved Searches
- decide-eu-002
- decide-eu-003
- decide-eu-004
- decide-eu-005

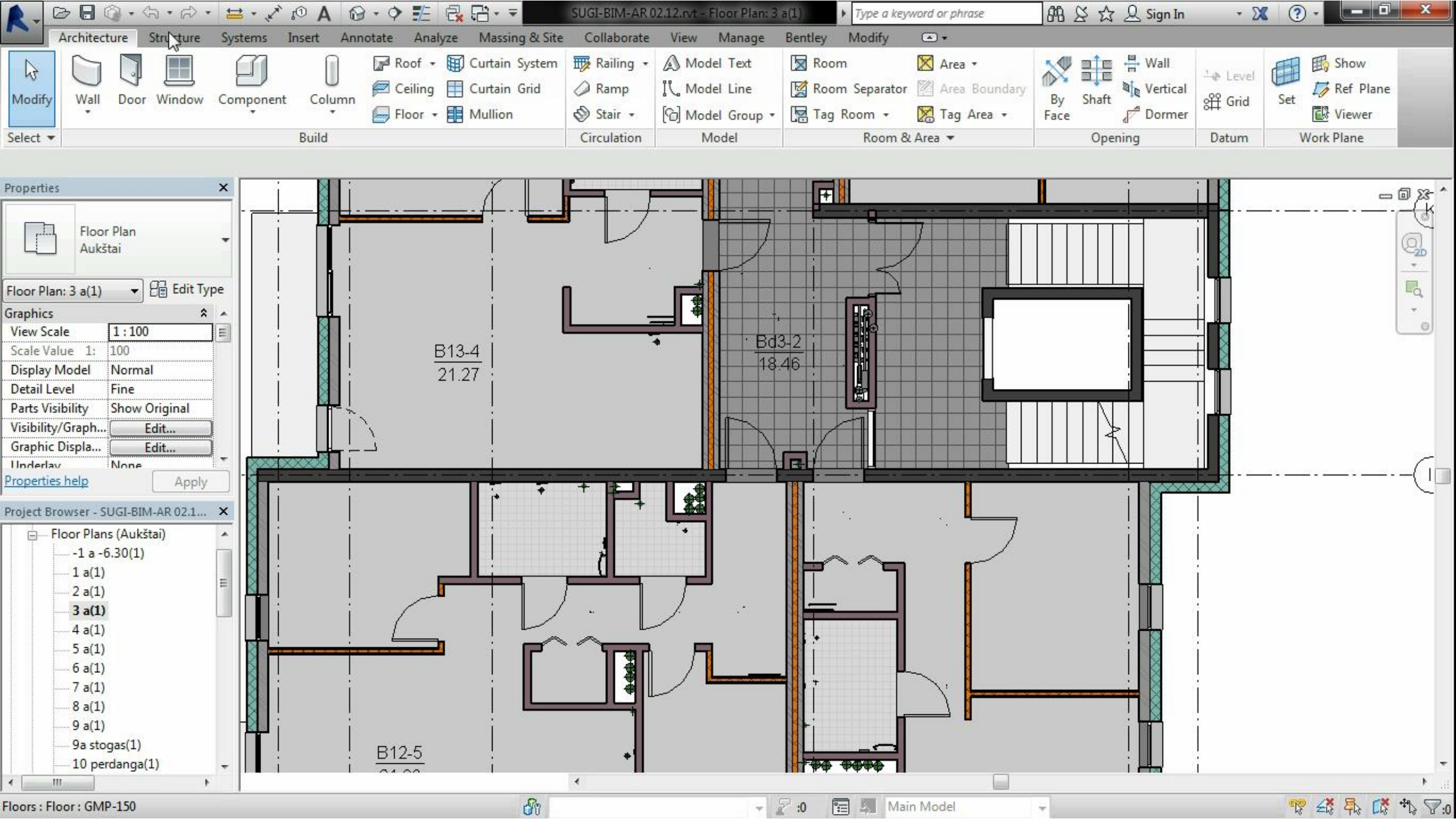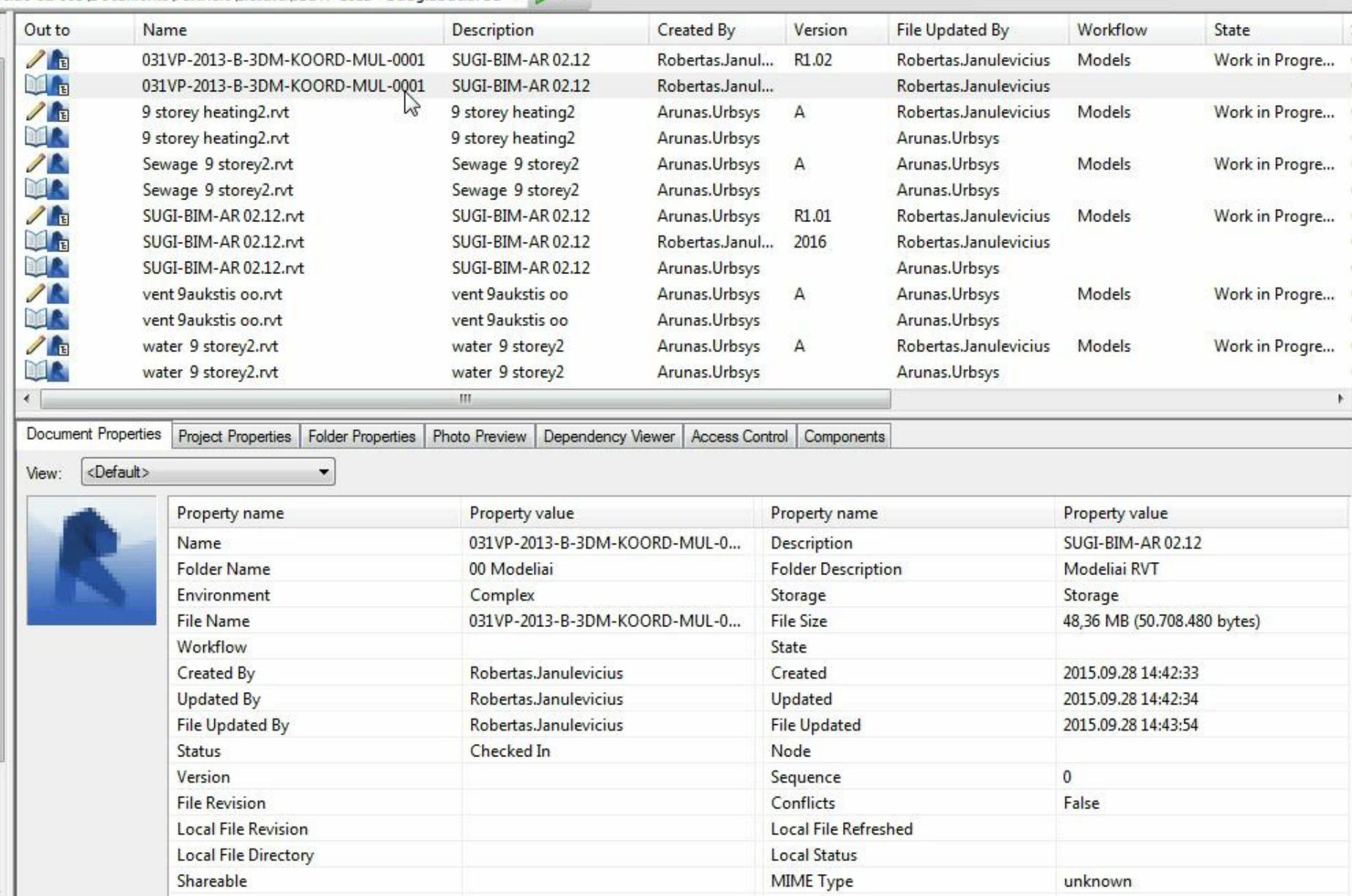| Out to	Name	Description	Created By	Version	File Updated By	Workflow	State
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	031VP-2013-B-3DM-KOORD-MUL-0001	SUGI-BIM-AR 02.12	Robertas.Janul...		Robertas.Janulevicius		
	9 storey heating2.rvt	9 storey heating2	Arunas.Urbsys	A	Robertas.Janulevicius	Models	Work in Progre...
	9 storey heating2.rvt	9 storey heating2	Arunas.Urbsys		Arunas.Urbsys		
	Sewage 9 storey2.rvt	Sewage 9 storey2	Arunas.Urbsys	A	Arunas.Urbsys	Models	Work in Progre...
	Sewage 9 storey2.rvt	Sewage 9 storey2	Arunas.Urbsys		Arunas.Urbsys		
	SUGI-BIM-AR 02.12.rvt	SUGI-BIM-AR 02.12	Arunas.Urbsys	R1.01	Robertas.Janulevicius	Models	Work in Progre...
	SUGI-BIM-AR 02.12.rvt	SUGI-BIM-AR 02.12	Robertas.Janul...	2016	Robertas.Janulevicius		
	SUGI-BIM-AR 02.12.rvt	SUGI-BIM-AR 02.12	Arunas.Urbsys		Arunas.Urbsys		
	vent 9aukstis oo.rvt	vent 9aukstis oo	Arunas.Urbsys	A	Arunas.Urbsys	Models	Work in Progre...
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	water 9 storey2.rvt	water 9 storey2	Arunas.Urbsys	A	Robertas.Janulevicius	Models	Work in Progre...
	water 9 storey2.rvt	water 9 storey2	Arunas.Urbsys		Arunas.Urbsys		

Document Properties | Project Properties | Folder Properties | Photo Preview | Dependency Viewer | Access Control | Components

View: <Default> ▾

Property name	Property value	Property name	Property value
Name	031VP-2013-B-3DM-KOORD-MUL-0...	Description	SUGI-BIM-AR 02.12
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Environment	Complex	Storage	Storage
File Name	031VP-2013-B-3DM-KOORD-MUL-0...	File Size	48,36 MB (50.708.480 bytes)
Workflow		State	
Created By	Robertas.Janulevicius	Created	2015.09.28 14:42:33
Updated By	Robertas.Janulevicius	Updated	2015.09.28 14:42:34
File Updated By	Robertas.Janulevicius	File Updated	2015.09.28 14:43:54
Status	Checked In	Node	
Version		Sequence	0
File Revision		Conflicts	False
Local File Revision		Local File Refreshed	
Local File Directory		Local Status	
Shareable		MIME Type	unknown

1 object(s) selected 18:05

Information Mobility for Construction and Inspection

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decide-pwdi-eu.bentley.com/default.aspx?default=ECObjects|Bentley_DMS|DMSFolder|4747

Search

ProjectWise® Web Server

Advanced search options

decide-eu-001

Folder   Document   View   Tools   Help

	Name	Description	File Name
☐	📁 031VP_03_Siu...	Publikavimui	
☐	📁 031VP_04_Ga...	Korespondencijai	

- ☐ 📁 Documents
  - ☐ 📁 Partners
    - ☐ 📁 Lietuva
      - ☐ 📁 031VP-2013 Daugiabučiai Sugiharos g.2
        - ☐ 📁 031VP_03_Siunčiami
        - 📁 031VP_04_Gaunami
      - ☐ 🔍 Saved Searches
    - ☐ 📁 Template
- ☐ Components
- ☐ 🔍 Saved Searches

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