AYDBABTU: Autodesk® Revit® Data Management

Greg Schleusner
Firm-wide BIM Manager - HOK

Autodesk University

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AYDBABTU: Or How I Learned to Stop Worrying and Love the ~~Bomb~~ BIM

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kingdom—animal
phylum—chordata
subphylum—vertebrata
class—mammalia
subclass—theria
order—primates
family—hominidae
genus—homo
species—sapiens
subspecies—sapiens

name – greg

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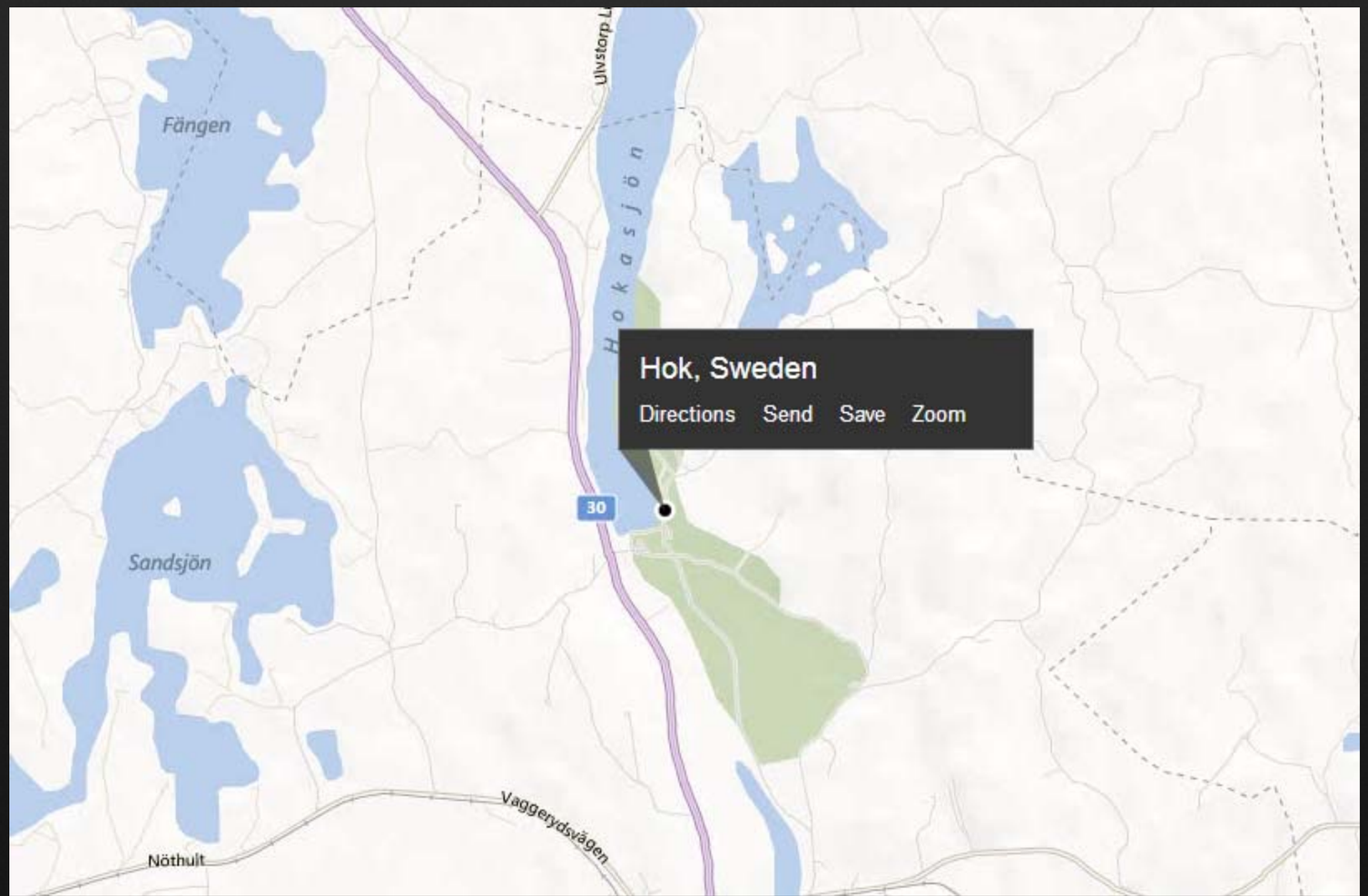

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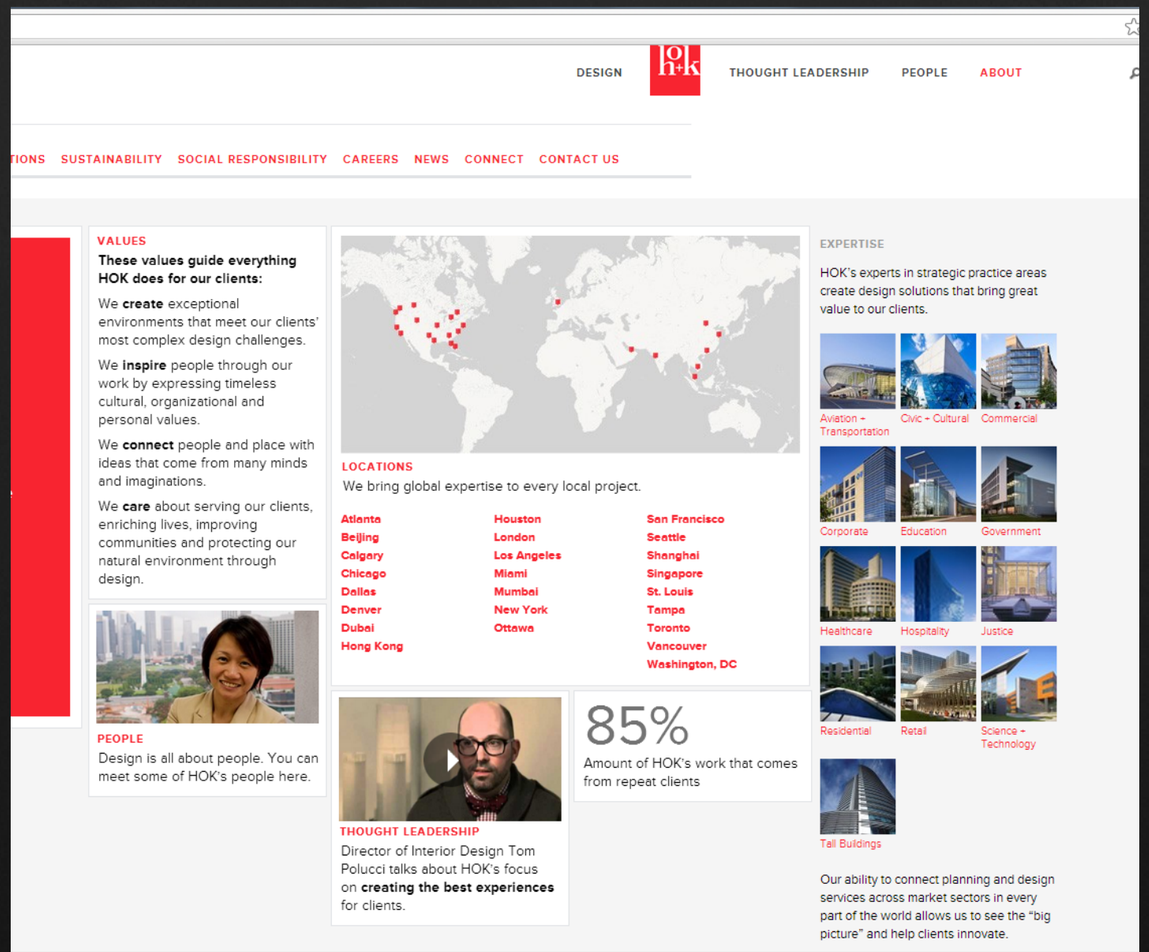

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40.754036 -73.98539

Building = Commercial

Floor = 6

Zone = 2

Space = 6-A201

Desk = 4

Chair = Office

Job = Professional

Trade = Architecture & Technology

Company = HOK

Position = Firm Wide buildingSMART Leader

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@gschleusner

- *greg is very convincing autonomous carbon unit, being of interesting the people of earth. Please to be you friend*

greg.schleusner@hok.com

- Lots of software
- Regular bim stuff
- Data management
- Lots of process improvement and development specs
- Work with software vendors
- Drofus implementation
- Researching stuff

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Class Summary

As client and project requirements become more and more complex; the need to manage information in Autodesk Revit software and data connected to Revit becomes exceedingly important. This class will survey the landscape of tools available to aid in this task, including tools for family and parameter management as well as specific tools for program management. Autodesk® Vault software, dRofus, Microsoft® Access®, Microsoft® Excel® tools and others will be covered. During the class, we will touch on project experience with many of these tools and provide guidance on how to approach many data management challenges in Revit.

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Learning Objectives

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

- Understand the benefits of data management for revit projects
- Learn the tools available in the market to aide in managing revit and connected data
- Understand when to develop your own solutions for data management via the revit API
- Understand how various BIM uses can affect your collaboration and data management strategy

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Basic Terminology

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Start from the Beginning

- BIM – 2 Concepts not one (to me)…building, information, model
- Key/Link
- Model Element…..
- COBIE
- IFC
- Information Exchanges

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Data Model, Model, Model Data, Data

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Can you design a building with text alone?

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Data or the Model (Mad lib)

To build a building the first thing you need is a _____ which is a mix of _____ and _____. If you don't have either you can't build or operate the building

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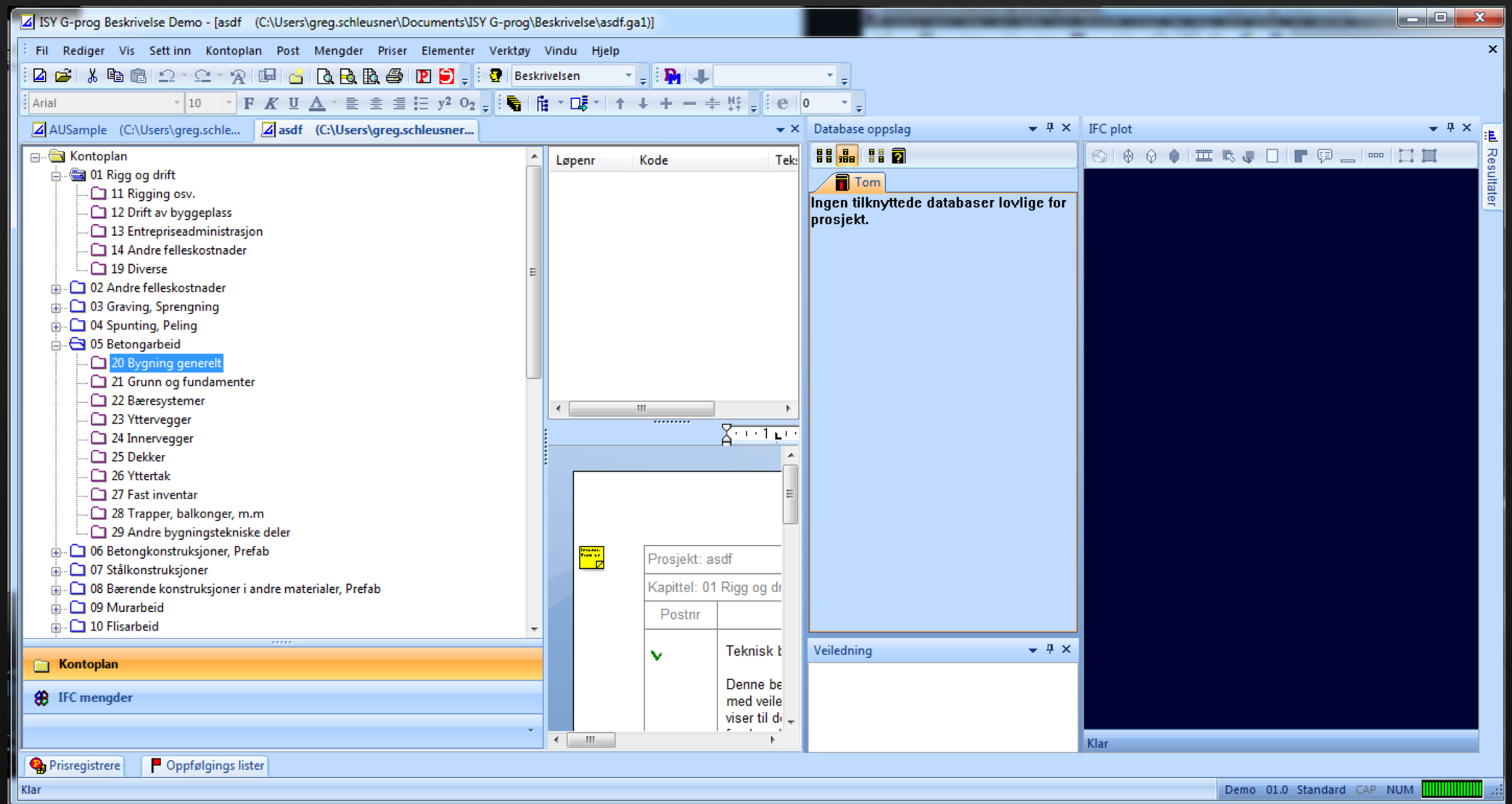
Data or the Model



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Lets _____ about data

(VERB)

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Owners are asking

- Data requirements
  - COBIE
  - Unique owner requirements
    - VA, Finland, USACE, IU, GSA, Singapore,
  - Coding requirements
    - UniClass , DIN276, Omniclass, Masterformat, Uniformat, ….UBERCLASS

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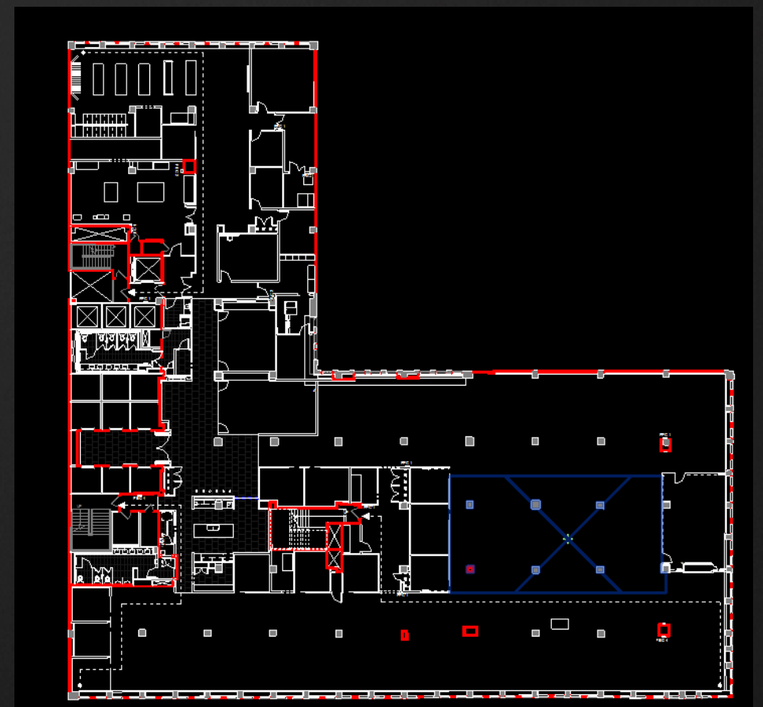
Projects Need it

- Translation
- Consistency (QA/QC)
- Efficiency
- Information reuse
  - Examples

    Rating Plans, Occupancy Calculations, Distributed Project Files…



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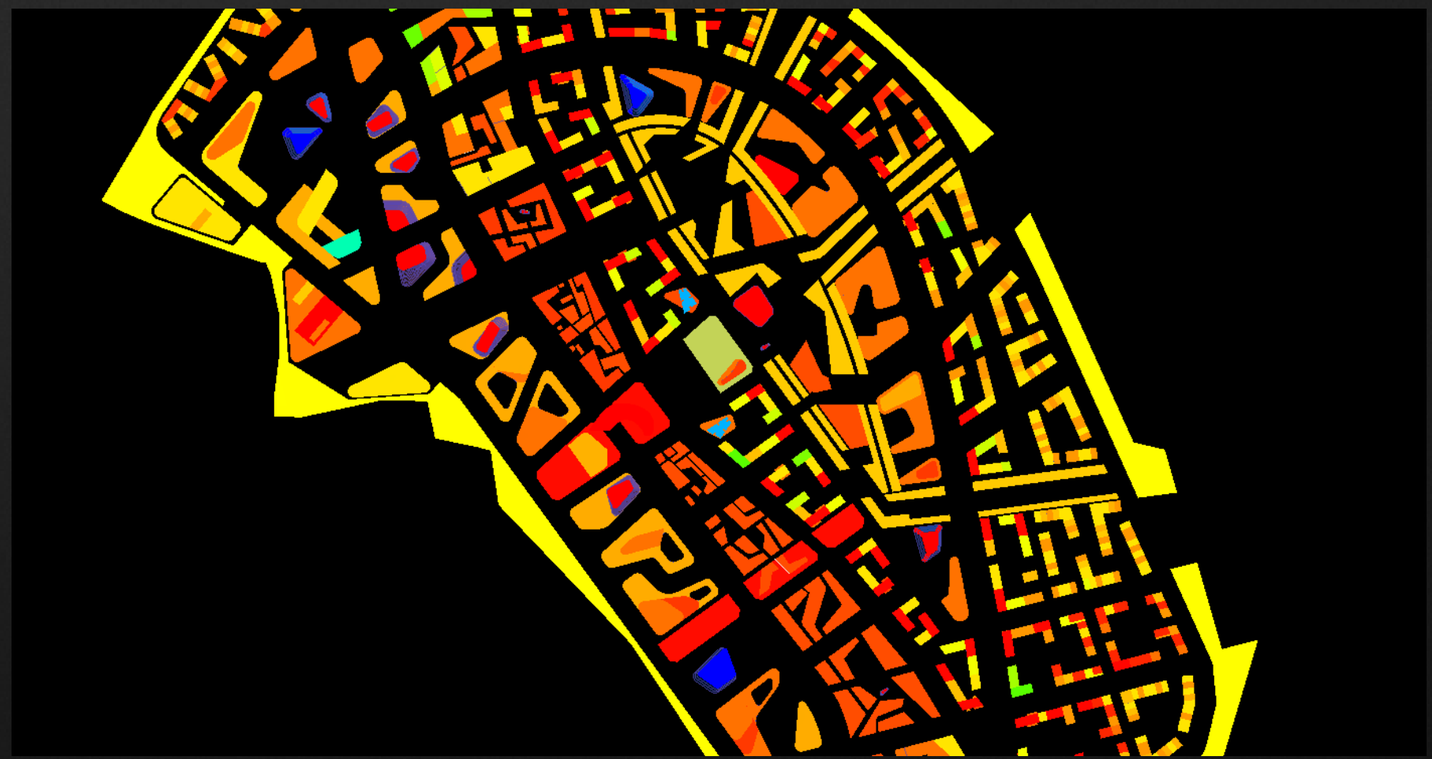
Designs can learn from it

- Analysis
- Optimization



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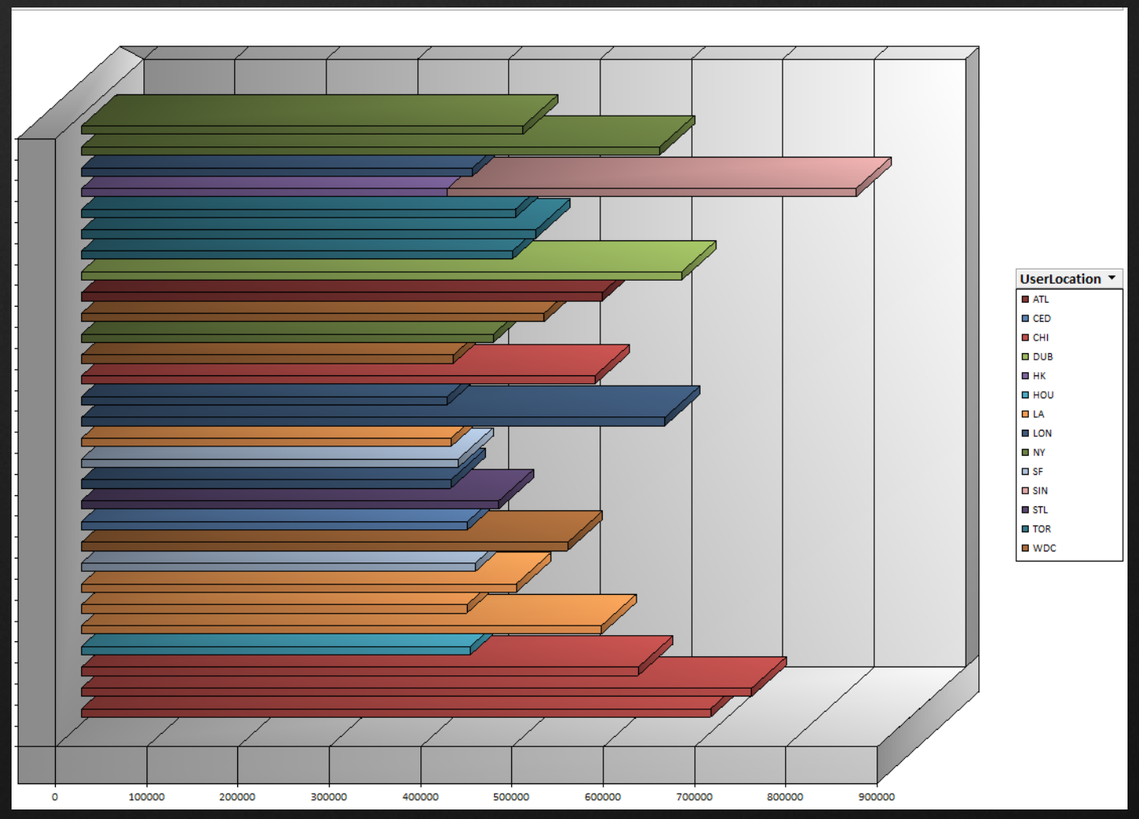
Business Intelligence

- Team size
- Family use
- Preemptive support
- Project performance
- Social / crowd learning
- Pattern/ trend recognition
- Design interrogation



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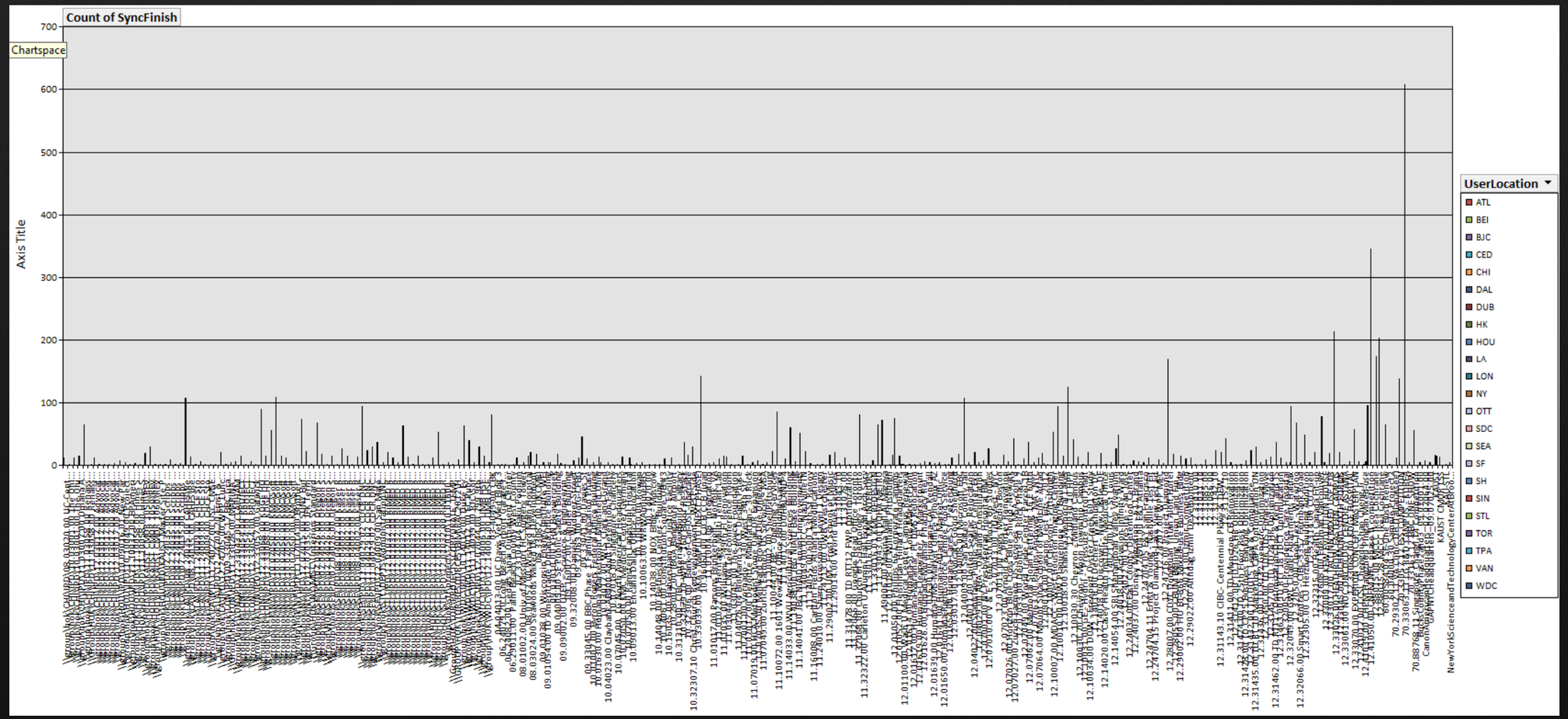
Business Intelligence



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Challenges

- Most design staff won’t have worked with any sort of data tools outside of excel
- Tools and processes are immature
- BIM momentum has out stretched the markets ability to produce software to solve these problems

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Transactional Tools

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Excel Based…

- Great at editing data
- Most if not all tools set the “Key” for you
- Excel file should be seen as temporary
- Good for coding and one time updates
  - Hardware vendors
  - Space classifications
  - COBIE and others
- If the design is in flux will often be out of date
- Most flexible, but potentially dangerous

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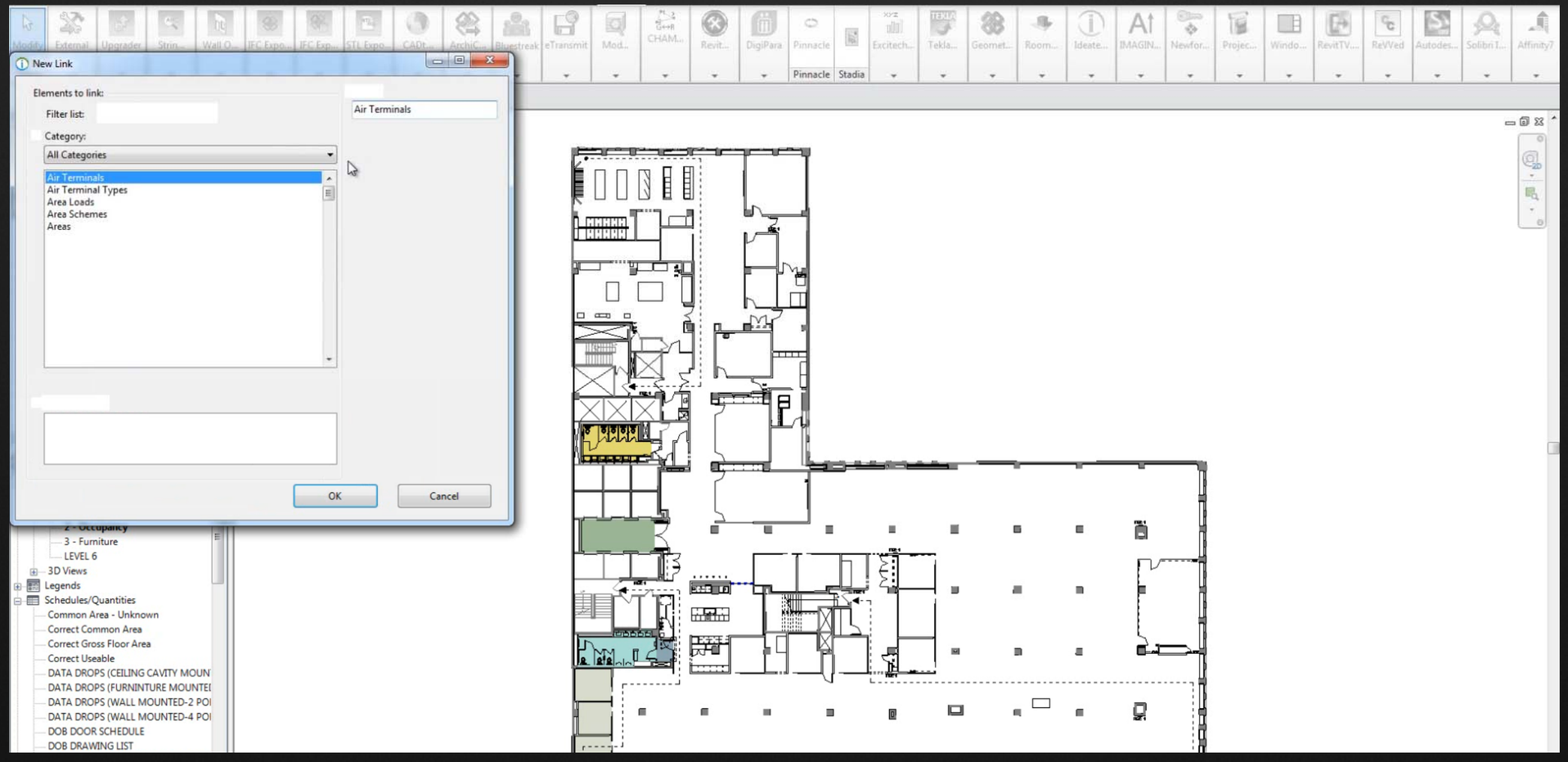
Ideate BIMLink



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Access

- Allows for relational concepts
- Often used for “sync and persist” type tasks
- Key gets more complicated based the object type
- Access is very finicky and fragile
- Need to jump through hoops in 64bit/32bit access environment

Autodesk DB Link

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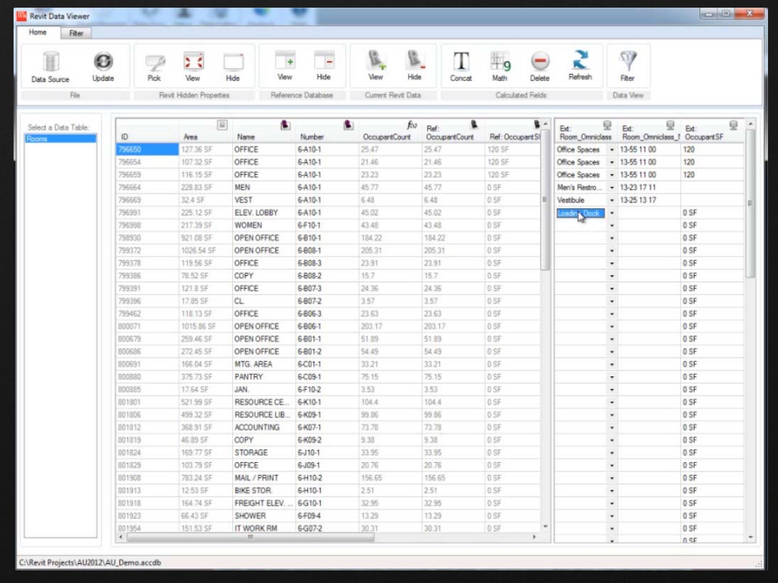
Hybrid Approach – HOK Data Editor

- Excel like ease of editing
- Defined settings for project team
- Foundation for more project data applications
- Beginning of connection to broader project database
- Not a replacement for one off tools
- Currently still Access based



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Plugins, Custom Tools and Hacks

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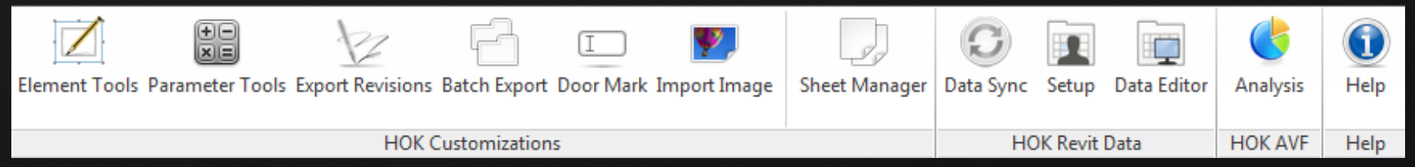
Single Use Tools



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Examples

- CASE
- Whitefeet
- CTC
- Autodesk File Upgrader
- Autodesk BIM Review
- Excitech: Revit Toolkit
- Ideate Explorer
- Sumex Design
- Newforma
- DigiPara
- LandCADD
- DigiPara® Elevatorarchitect

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Hacks (Not for the faint of heart)

Process

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Family Management

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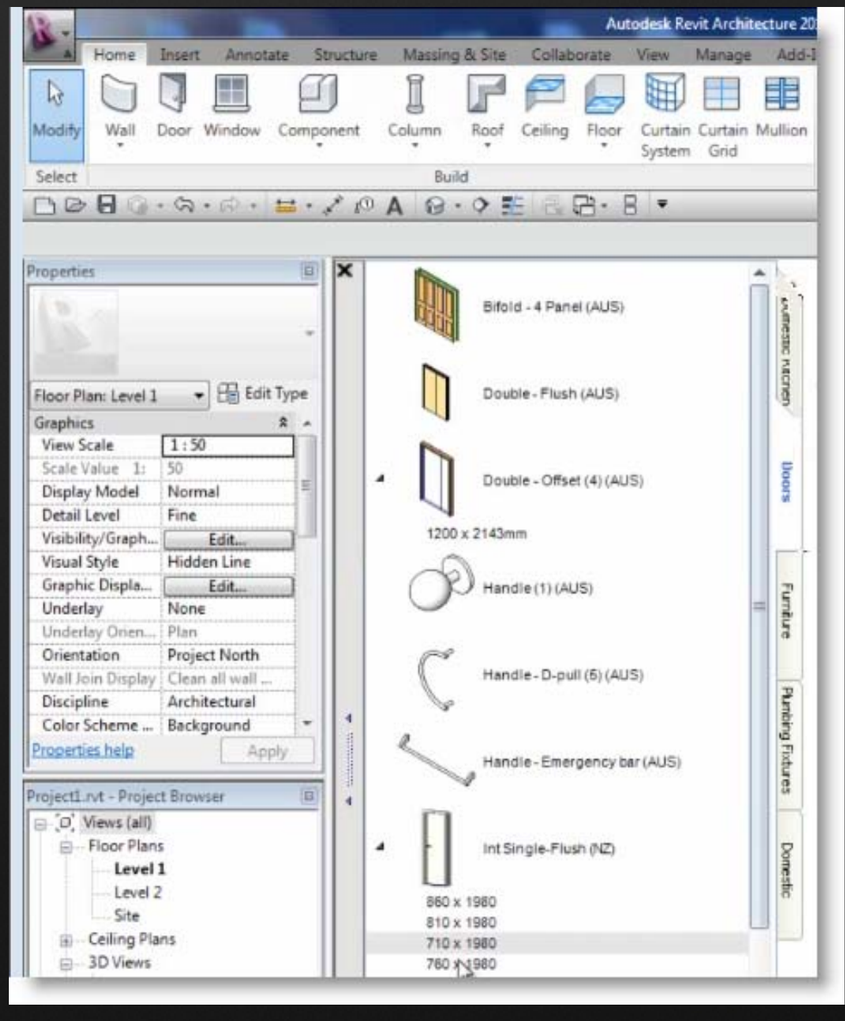
Three tasks of Family tools

- Find it – consistency and efficiency
- Load it - efficiency
- Update



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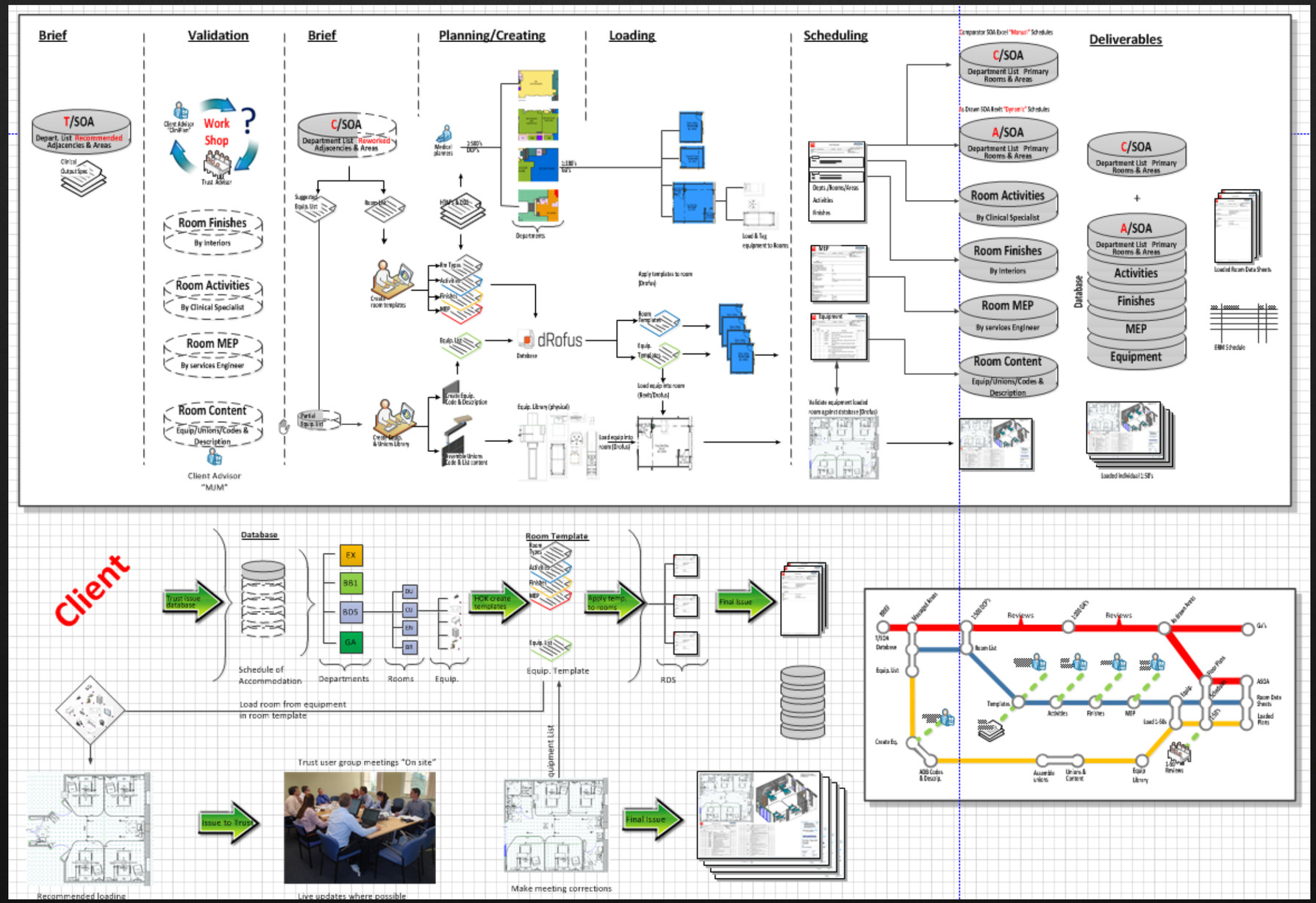

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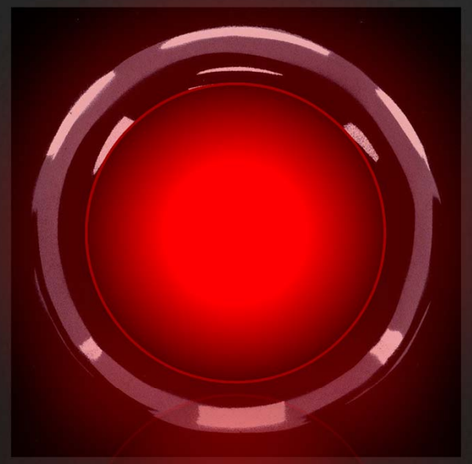
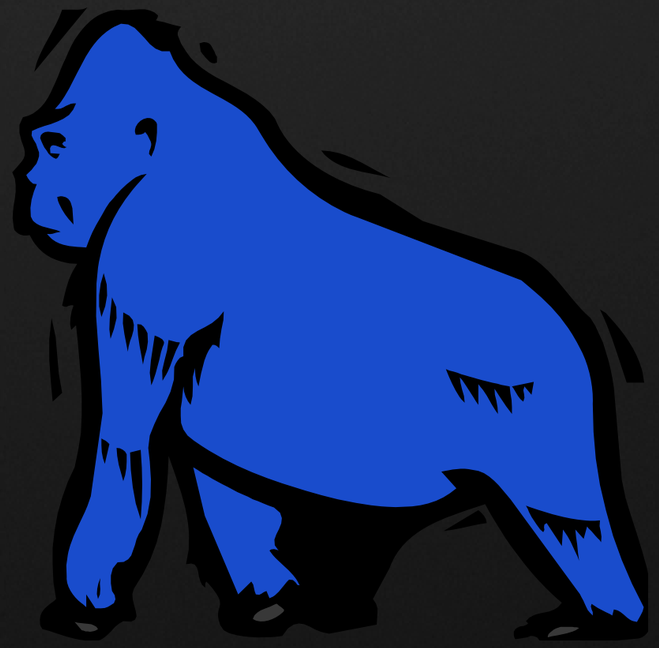
Three Pools of Families

- Firm
- Office
- Project





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Three Pools of Families

Most if not all tools fail on one or more of these categories currently

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Market

- BIMlist – CTC
- Family Browser – Kiwi Codes
- Smart Browser – Tools4Revit
- Library Manager - SmartBIM
- Revit Family Manager – Familit
- Content Studio – Content Studio
- Content Controller - OFCdesk
- Vault – Autodesk
- Open Asset BIM – Axomic
- Others….

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Video Break

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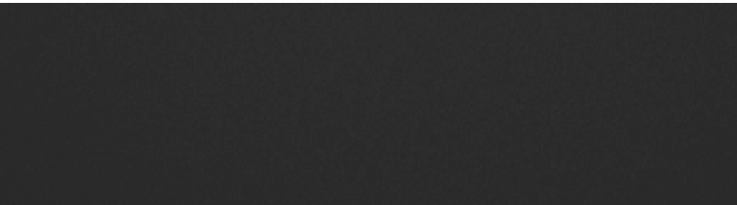
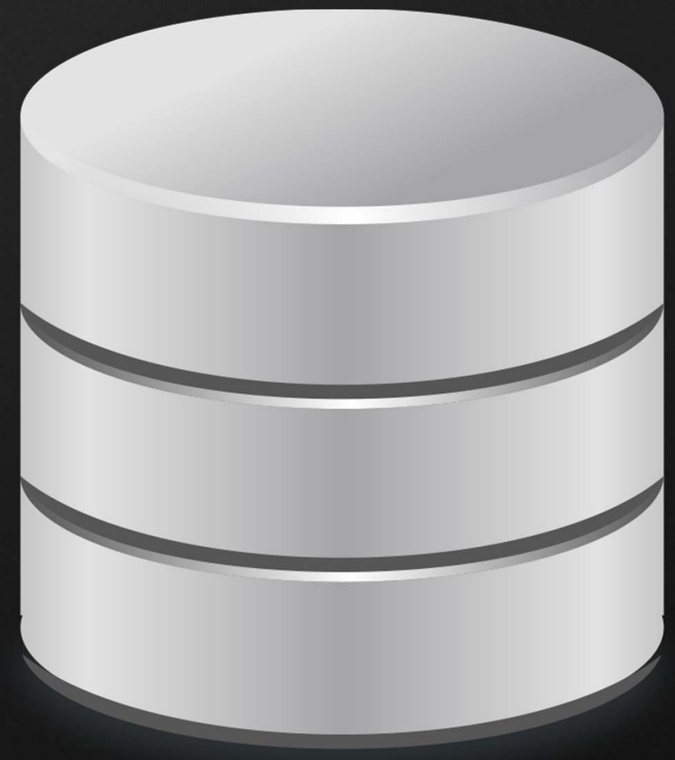
Data Management Tools





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A place for Data

- Linked to the model not in the model
- Import to model when needed
- Model and data management tools have different strengths

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Design > Construction > FM

- Different needs and goals
- Different views of data

- Design
  - Need to be flexible and adaptable
- Construction
  - Not clear value beyond bridging design to operations
- FM
  - Different views of data
  - Benefits can come from early transition

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Revit- Design

Characteristics

- Direct Connection to Revit
- Benefit the design process
- Extend Revit functionality
- Mix of Data driven by Revit and Database

- Codebook
- dRofus
- Onetools
- Affinity
- Custom Tools

Candidates

- Assemble

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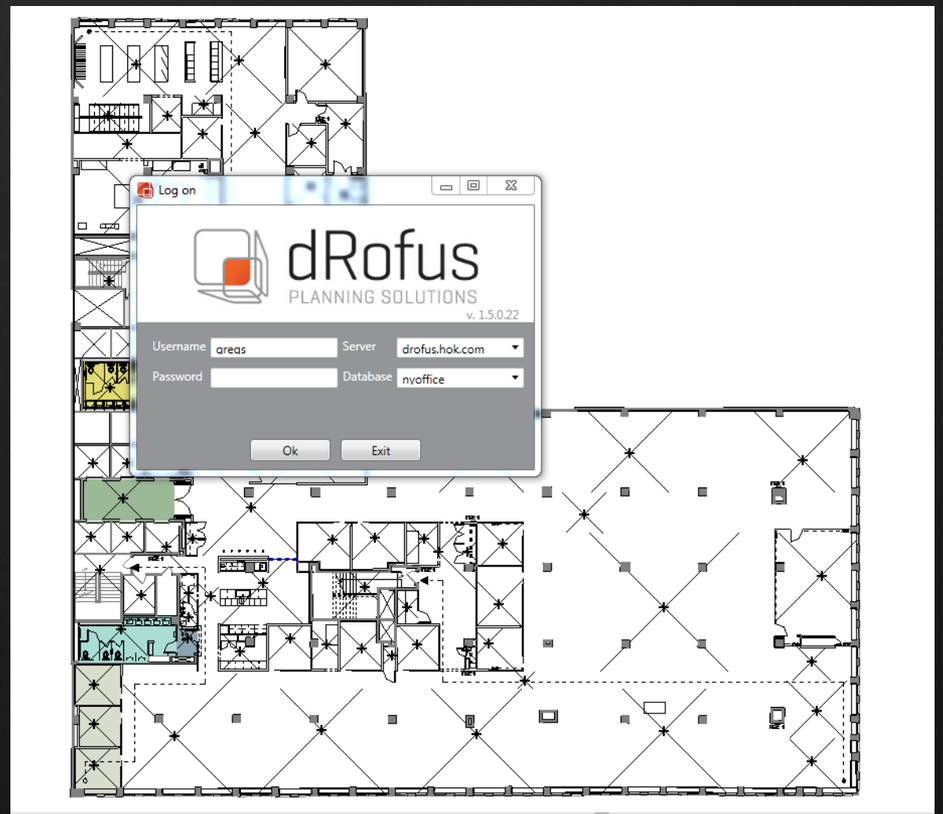
dR ofus



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Revit- Construction

What’s the value statement to directly connect to Revit

Challenges

- MEP for Fabrication not Revit
- Structure for Fabrication not Revit
- No clear update process
- Record Model a secondary process
- Most exports are not editable

Tools

- dRofus*
- FAB MEP*
- Sigma
- Tekla

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Revit- Operations

Translation or direct to Revit?

Revit direct benefits
- Data and geometry in sync
- Solves technical aspects of facility updates

Challenges to Revit
- Performance and learning curve
- File management/ cost
- Enterprise support multi-building, GIS…
- Analysis

Tools
- Maximo (Labs Project)
- FM Systems
- OneTools

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Long-term Revit and Data Management

- Revit is not immutable
  - Changes occur with upgrade – Ex. Heat Transfer 2013
- Files need to be upgraded
- Data in Revit inaccessible without opening Revit
- No time/ states

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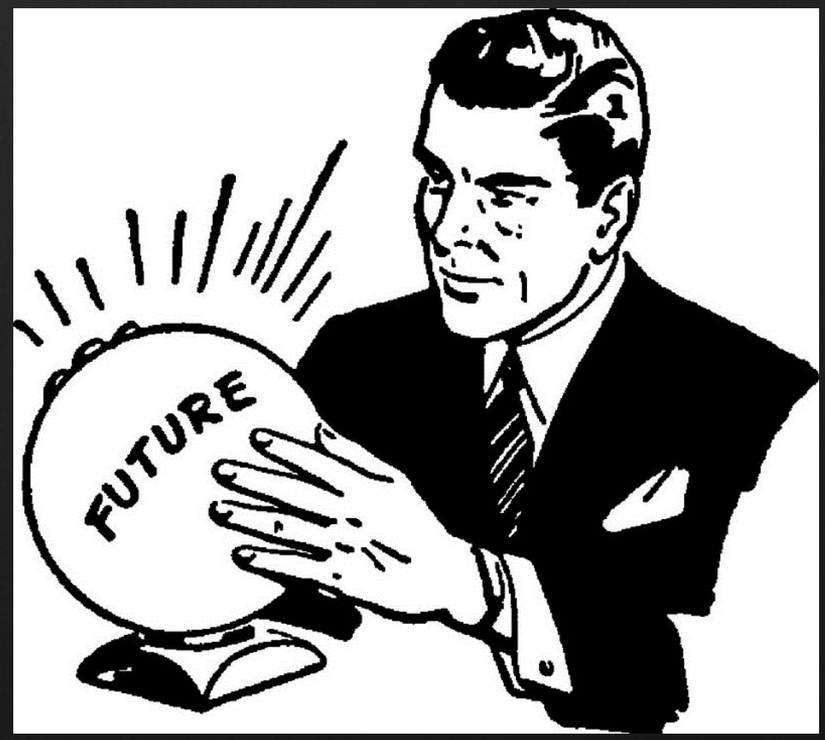
Future Directions



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Model Storage Technologies

- Model servers
  - Access multiple models/ projects at the same time
  - Enterprise scale
  - Data processes at the server not the desktop?
- Examples
  - BIMserver.org
  - GTEAM
  - dRofus (Jotne)
  - Eurostep*

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BIM/ GIS Living in harmony ☺

- BIM and GIS linked together
- Unified Level of Development (LOD)
  - CityGML, BIM

Intersecting Tools

- AIM (Infrastructure Modeler)
- City Engine
- ARCGIS
- SAFE

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This is the future I want

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