Class ID: ES119021
New BIM Managers Start Up Guide

Charles H. Berteaux Iv
BIM / VDC / VR Section Manager ATSBU
@neosymbionic

Join the conversation #AU2017

AUTODESK. UNIVERSITY

I am a BIM Manager with 20+ years total experience servicing as an BIM Design Lead, BIM Content Builder, BIM Coordinator, BIM Teacher, experienced in both 2D and 3D production. I bring experience guiding clients from kick off planning, all the way through SDC and VDC, and visualization with High End renderings and VR. Background is Architecture, but I have built-designed content for every discipline.

I also have 20+ years of Graphic Design, Digital Media and Publication experience.

Personal Blog: http://bimtheworld.wix.com/hydroglyphic

https://servicesmarketplace.autodesk.com/provider/public/charles-berteaux-iv

AUTODESK CERTIFIED PROFESSIONAL

AUTODESK CERTIFIED PROFESSIONAL

AUTODESK EXPERT ELITE

AUTODESK SERVICES MARKETPLACE

Class Summary

Whether you are looking for a BIM Manager or want a job as a BIM Manager, but you have no idea where to start – This class is for you. Without a doubt, BIM management requires an extremely diverse set of management skills and toolsets. This roll is often called upon to provide tips, tricks, technologies, tools, and strategies to better manage the company's BIM environment. A BIM Manager needs to have the ability to tackle problem identification, problem solving, user motivation, senior management support, budgeting, training program justification, objection handling and more. I hope that this class will give you a few insights and resources to help you hire the BIM Manager you need or give you the resources to be the best BIM Manager possible.

- What is BIM???
- 10 Key Terms
- Roles and Responsibilities
- Salaries
- Integrating with Management & Non-BIM
- Standards and Templates
- Training
- Tools for the Trade
- 8 Steps To Successfully Marketing BIM

Key Learning Objectives

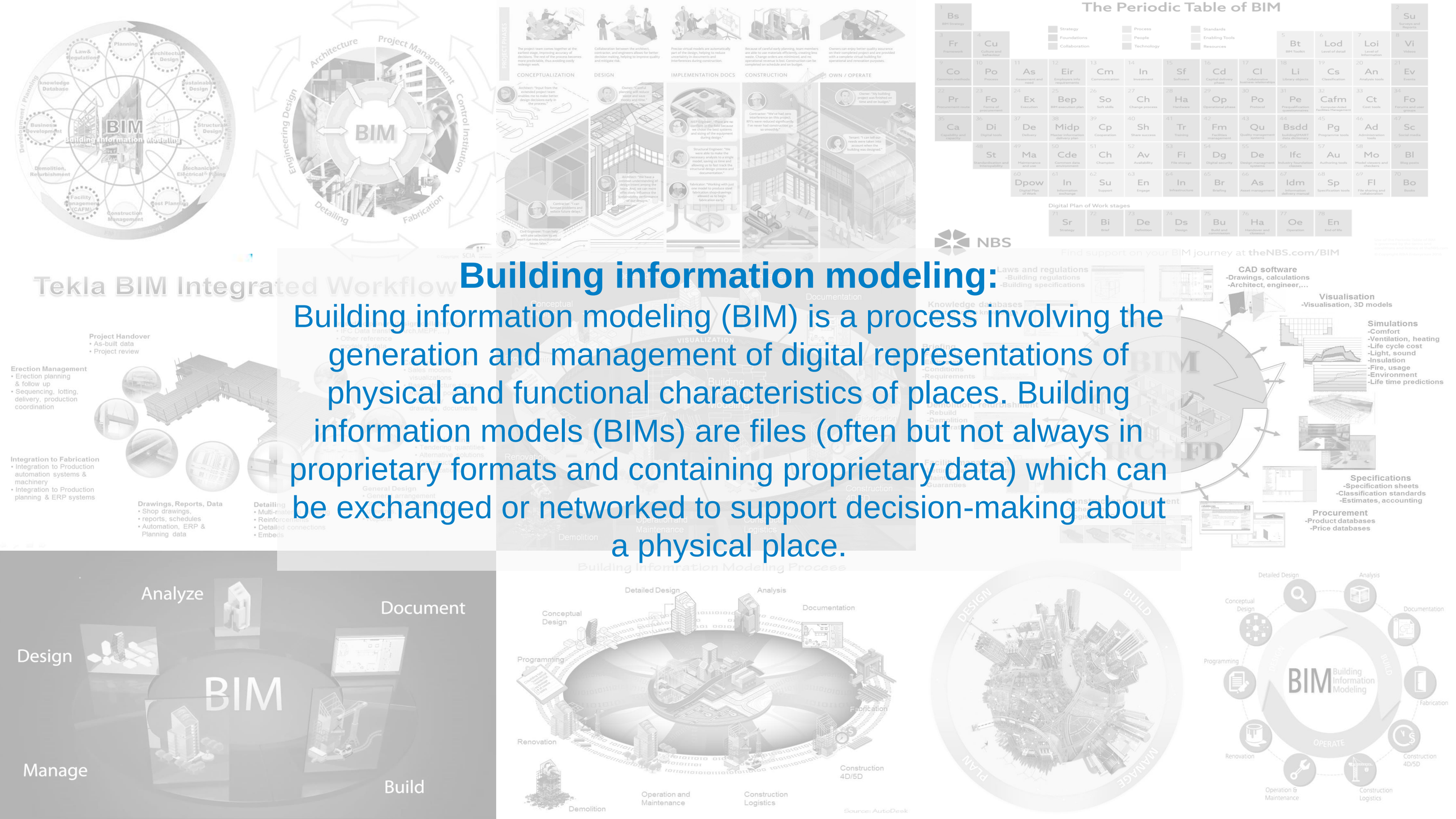
By the end, you will have a better understanding of all the above.

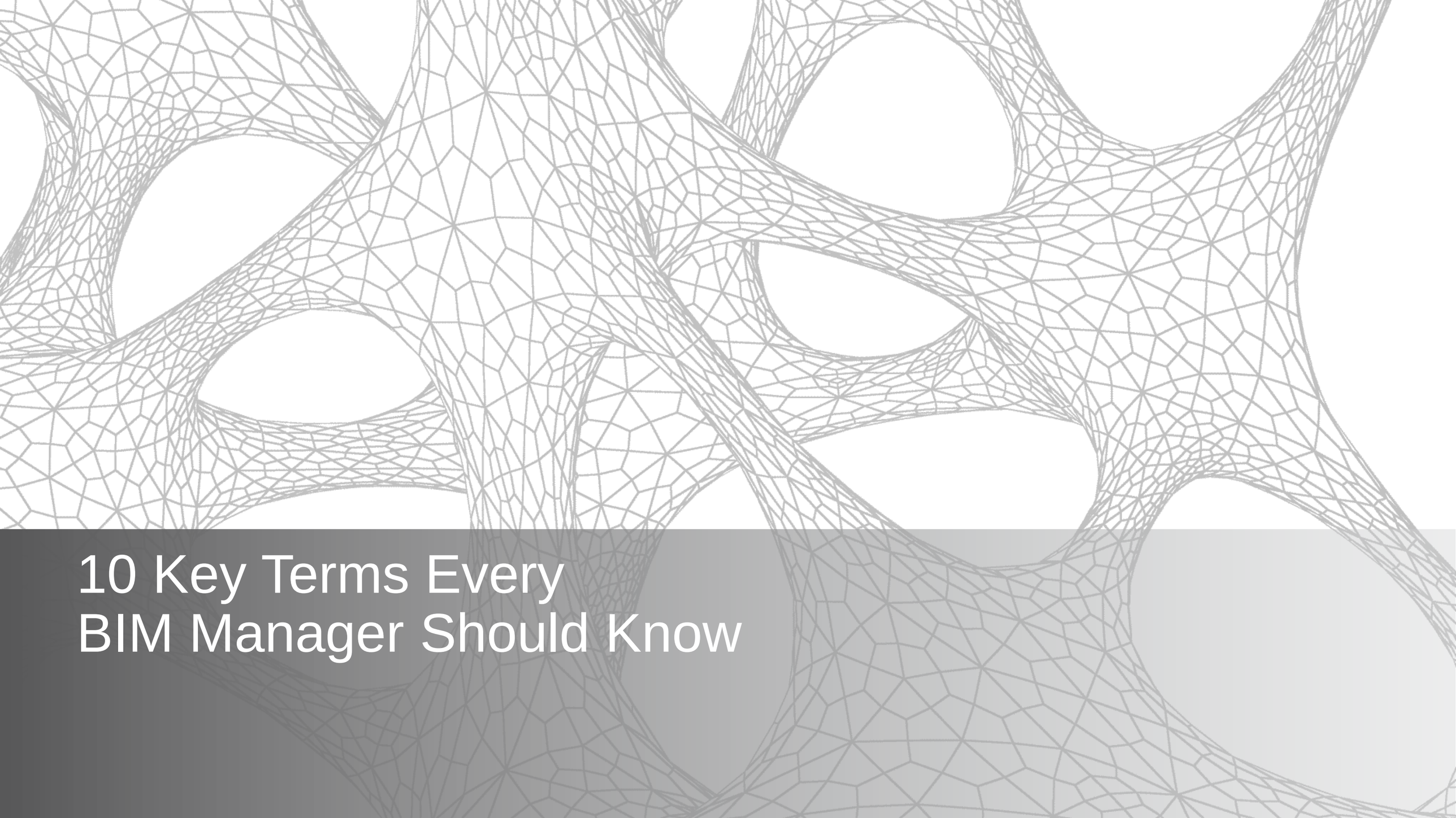
BIM Manager Wanted

What is BIM???

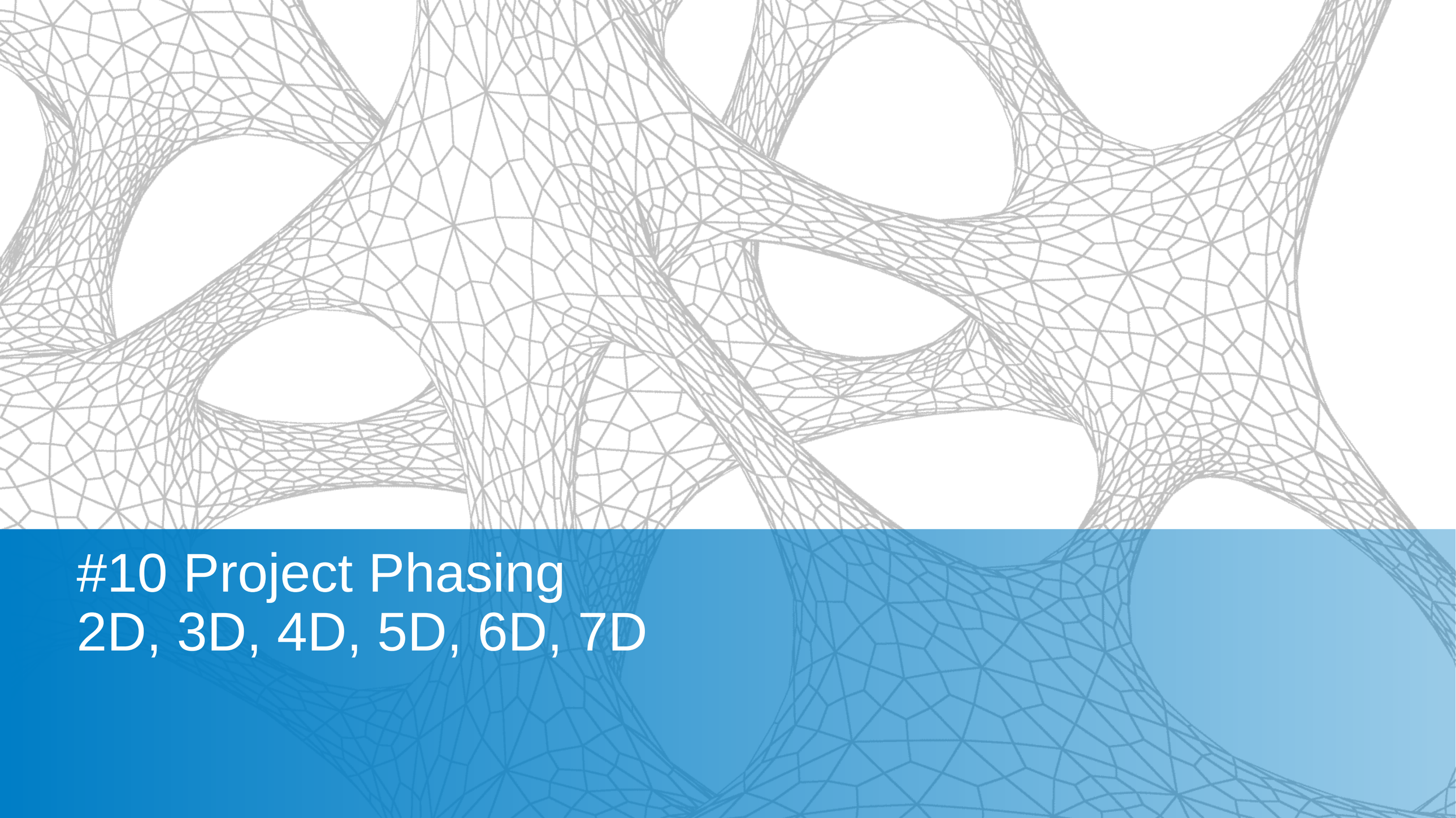
Building information modeling:

Building information modeling (BIM) is a process involving the generation and management of digital representations of physical and functional characteristics of places. Building information models (BIMs) are files (often but not always in proprietary formats and containing proprietary data) which can be exchanged or networked to support decision-making about a physical place.





10 Key Terms Every BIM Manager Should Know



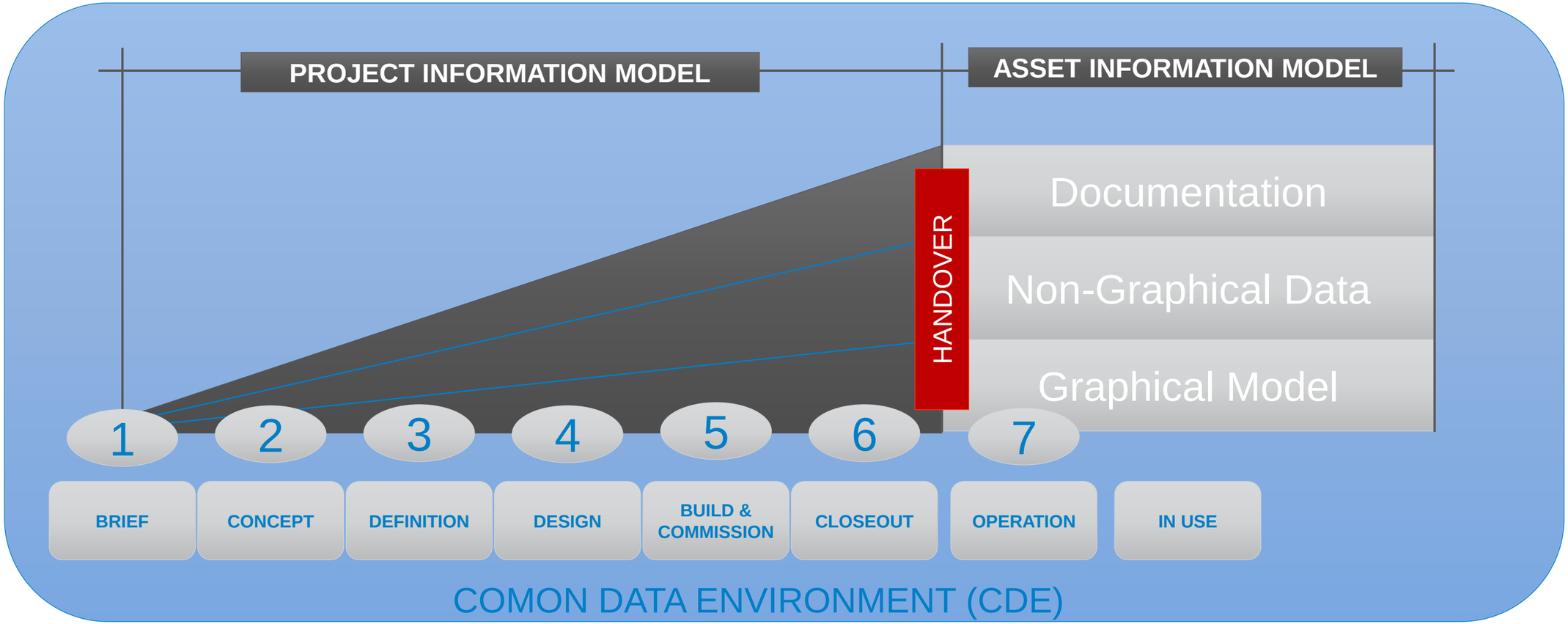
#10 Project Phasing
2D, 3D, 4D, 5D, 6D, 7D

7D

FACILITY MANAGEMENT

- BIM Life Cycle Strategies
- BIM As-Builts
- BIM O&M Manuals
- COBie Data
- BIM Maintenance Plans
- Smart BIM Facilites

#09 Model Types
PIM (Project) and AIM (Asset) Information Models


PROJECT INFORMATION MODEL
ASSET INFORMATION MODEL
HANDOVER
Documentation
Non-Graphical Data
Graphical Model
1
2
3
4
5
6
7
BRIEF
CONCEPT
DEFINITION
DESIGN
BUILD & COMMISSION
CLOSEOUT
OPERATION
IN USE
COMON DATA ENVIRONMENT (CDE)

#08 Project Planning
CDE (Common Data Environment)

Autodesk 360

https://360.autodesk.com/

AUTODESK® 360 > Dashboard > All Projects

Search

Stanley Hudson

Projects | Data | People | Calendar | Discussions | Wiki | Tasks

Upload | Create

All Projects

MY PROJECTS | PINNED | ALL | ACTIVE | NEW | SUGGESTED

RC Car Project

Carboy sour/acidic, seidel pitching, rein heit sgebot adjunct, mouthfeel wheat beer glass.
Gravity hops bottle conditioning, " top-fermenting yeast

23 More > | 18 | 20 | 44

Vacuum Cleaner Study

Grantham Robotics

Carboy sour/acidic, seidel pitching, rein heit sgebot adjunct, mouthfeel wheat beer glass.
Gravity hops bottle conditioning, " top-fermenting yeast

18 | 20 | 44

Articulated Radii

Carboy sour/acidic, seidel pitching, rein heit sgebot adjunct, mouthfeel wheat beer glass.
Gravity hops bottle conditioning, " top-fermenting yeast

18 | 20 | 44

Forklift

Dobson Engineering

Carboy sour/acidic, seidel pitching, rein heit sgebot adjunct, mouthfeel wheat beer glass.
Gravity hops bottle conditioning, " top-fermenting yeast

18 | 20 | 44

Concept Bike

Carboy sour/acidic, seidel pitching, rein heit sgebot adjunct, mouthfeel wheat beer glass.
Gravity hops bottle conditioning, " top-fermenting yeast

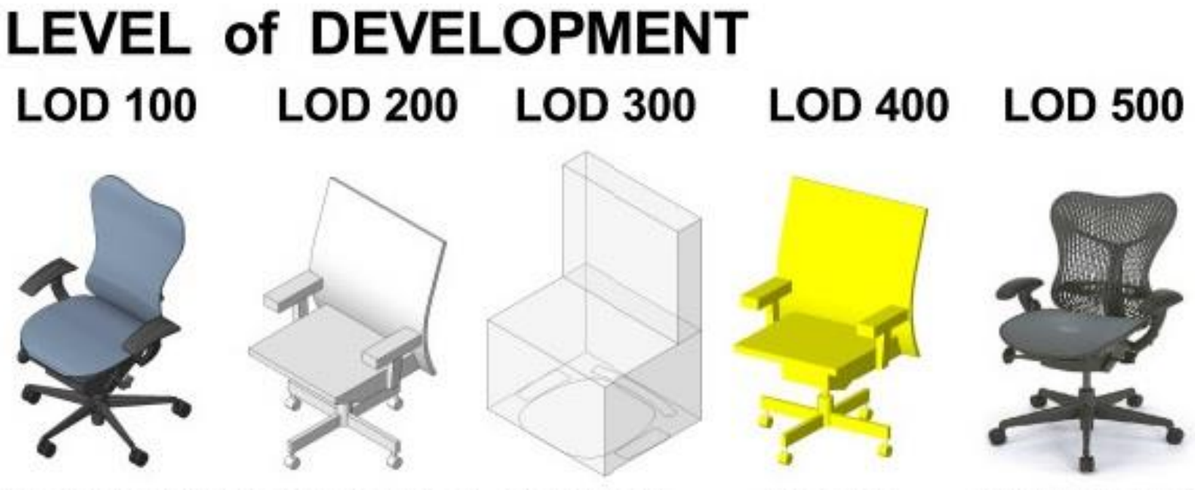
Default Project • Sept. 2013

Grantham Robotics

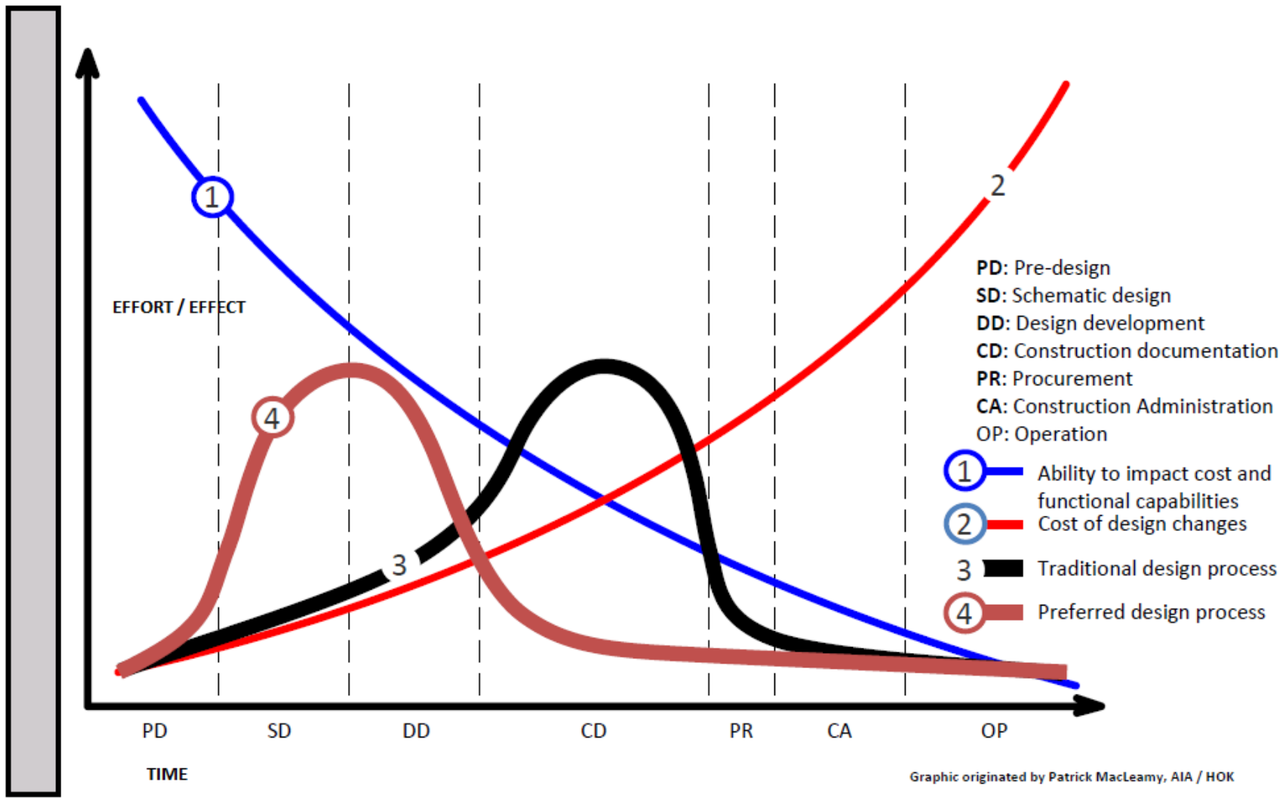
Carboy sour/acidic, seidel pitching, rein heit sgebot adjunct, mouthfeel wheat beer glass.

Powered by AUTODESK® 360

#07 Model Detail
LOD (Level of (Detail) or Development)



- More Information is required UPFRONT
- We live in a world comprised of 3D objects
- Goal of BIM should be to Model everything accurate within tolerances



		SD			DD			CD		
				Date			Date			Date
	Relevant Attribute Tables	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes
	A, B Concrete; A, B Wood; A, B Masonry; A, B Precast Concrete									
	A, B Concrete; A, B Wood; A, B Masonry; A, B Precast Concrete									
	A, B Concrete; A, B Wood; A, B Masonry; A, B Precast Concrete									
	A, B Concrete; A, B Wood; A, B Masonry; A, B Precast Concrete									
	A, B Concrete; A, B Wood; A, B Masonry; A, B Precast Concrete									
	A, B Concrete; A, B Wood; A, B Masonry; A, B Precast Concrete									
	A, B Concrete; A, B Wood; A, B Masonry; A, B Precast Concrete									
	A, B Concrete; A, B Wood; A, B Masonry; A, B Precast Concrete									
	A, B - Str. Concrete									
	A, B Concrete									
	A, B Concrete									

#06 Contract Documents
AIA or BIM Level2

AIA

The American Institute of Architects

E203-2013 – Building Information Modeling and Digital Data Exhibit

Purpose: To encourage the useful sharing of Digital Data by providing the project participants a way to establish the framework and expectations regarding the creation, sharing, and use of Digital Data on the project.

G201-2013 – Project Digital Data Protocol Form

Purpose: To allow the project participants to document the Digital Data protocols for the project, exclusive of specific Modeling requirements.

G202-2013 – Project Building Information Modeling Protocol Form

Purpose: To record the parties intentions regarding the use of Modeling on the project, the anticipated uses of the model and other basic assumptions about the roles and responsibilities of all parties.

http://bim-level2.org/

The UK Construction Industry Council (CIC) developed the documents that can be used to enable the model to be a contractual deliverable – the CIC BIM Protocol. This is due to be updated this year.

- CIC BIM Protocol
- BIM protocol appendix 1
- BIM protocol appendix 2

Supplementary guidance can be found on the BIM Level 2 website including:

- Introduction to commercial documents
- Outline Scope of Services for the role of Information Management
- Best Practice Guide for Professional Indemnity Insurance when using BIM

#05 Non Contract Documents
BIM PeP or PxP

Identify BIM Goals and Uses

Use project and team characteristics to determine BIM Goals and Uses for the project

Design BIM Execution Process

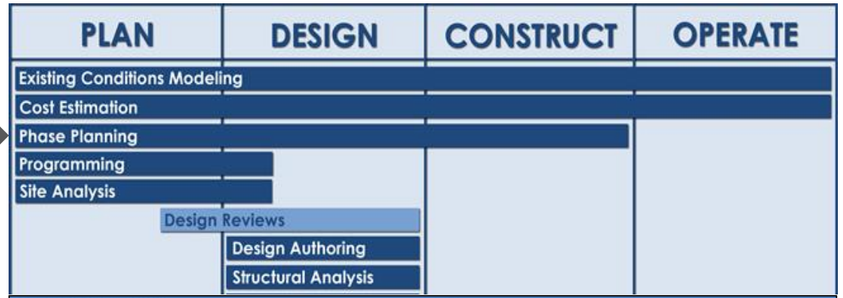
Develop a process which includes tasks supported by BIM along with information exchanges

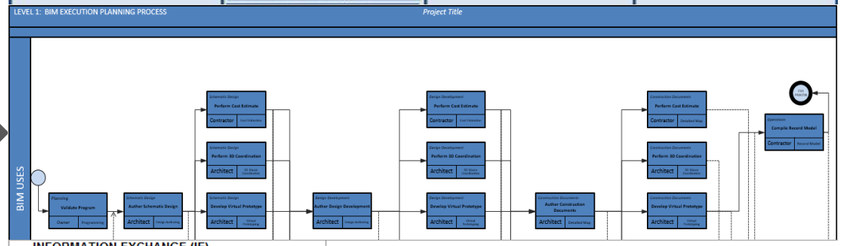
Develop Information Exchange Requirements

Develop the information content, parties responsible, grouping, and schedule for each exchange

Define Supporting Infrastructure for BIM Implementation

Define the infrastructure required to support the developed BIM process





INFORMATION EXCHANGE (IE)

Information	
A	Accurate Size & Location, include materials and object parameters
B	General Size & Location, include parameter data
C	Schematic Size & Location

Disciplines (OmniClass Table 33)	
11	Planning
21	Design
25	Project Management
31	Surveying
41	Construction
55	Facility Use Disciplines
81	Support Disciplines
99	Other Disciplines

BIM Use Title	Programming			Design Authoring			Existing Conditions Modeling			Cost Estimation		
Project Stage	Planning			Design			Design			Design		
Time of Exchange (SD, DD, CD, Construction)												
Responsible Party (Information Receiver)												
Receiver File Format												
Application & Version												
Model Element Breakdown	Info	Resp Party	Notes	Info	Resp Party	Notes	Info	Resp Party	Notes	Info	Resp Party	Notes
01 SUBSTRUCTURE												
10 Foundations												
10 Standard Foundations												
20 Special Foundations												
20 Subgrade Enclosures												
10 Walls for Subgrade Enclosures												
40 Slabs-On-Grade												
10 Standard Slabs-On-Grade												
20 Structural Slabs-On-Grade												

Delivery Strategy

Communication Procedures

Technology Infrastructure

Model Quality Control Procedures

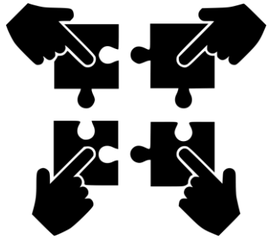
#04 IPD with BIM
Integrated Project Delivery

A project delivery method that integrates people, systems, business structures and practices into a process that collaboratively harnesses the talents and insights of all participants to optimize project results, increase value to the owner, reduce waste, and maximize efficiency through all phases of design, fabrication, and construction. IPD represents a return to the "Master Builder" concept where the entire building team including the owner, architect, general contractor, building engineers, fabricators, and subcontractors work collaboratively throughout the life cycle of the building.

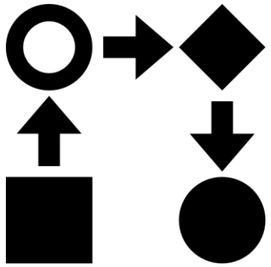
8 Keys to IPD:

Involve all team members in design meetings including trades and contractors

Institute Building Information Modeling



Facilitate Collaboration

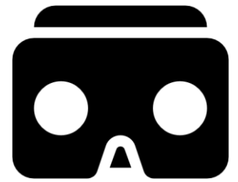


Setup contract mechanisms that enable open collaboration

Minimize paper based processes and collaborate digitally

Check for and manage interferences between trades digitally

Create a culture of trust and sharing



Communicate design ideas using 3D visualization to keep everyone aligned

#03 IFC
Industry Foundation Class

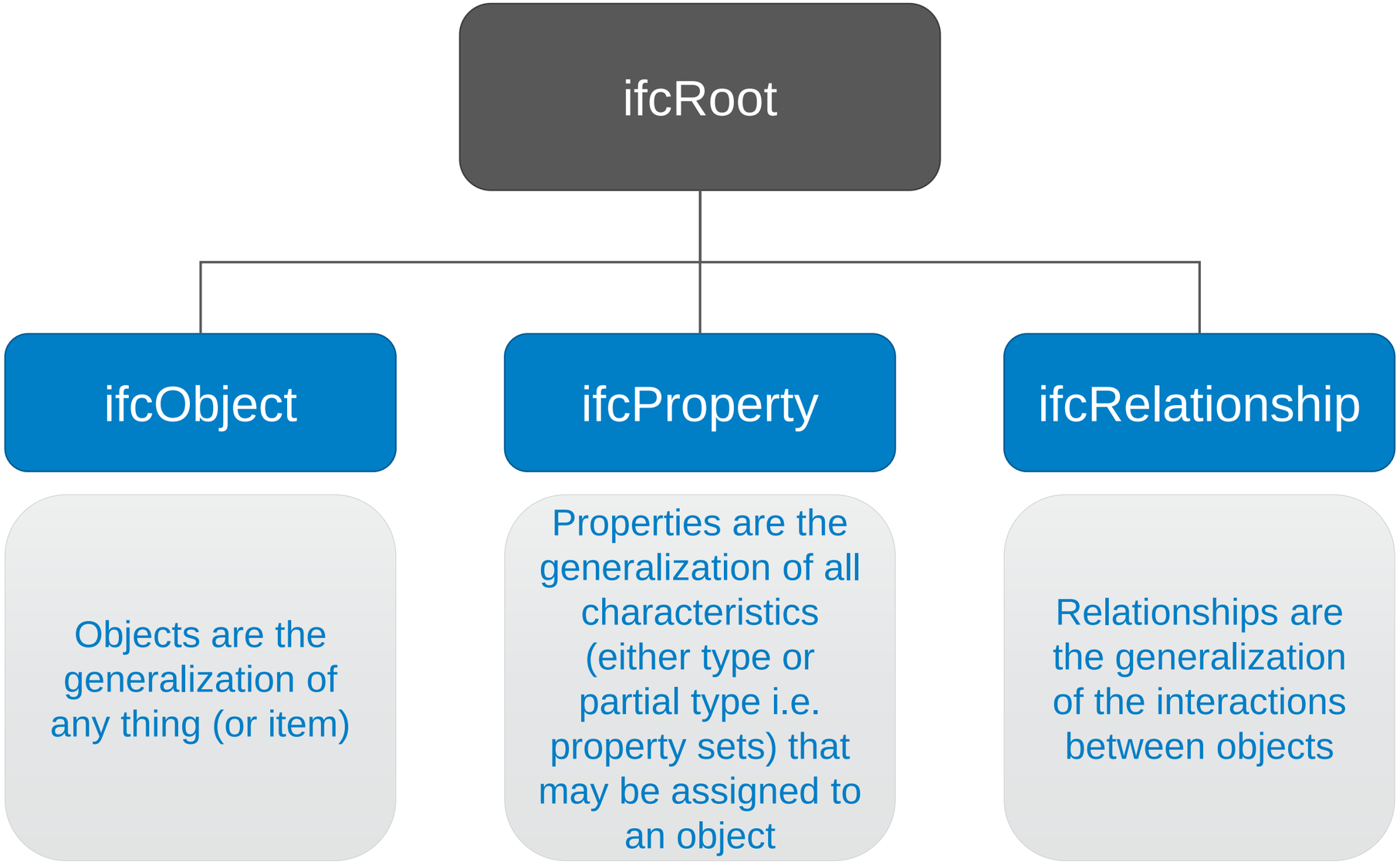
WHAT???

Industry Foundation Classes (IFC) is a neutral and open specification that is not controlled by a single vendor or group of vendors. It is an object-based file format with a data model developed by buildingSMART to facilitate interoperability in the building industry OR is a neutral and open specification, object-based file format with a data model developed by building SMART to facilitate interoperability in the architecture, engineering and construction (AEC) industry

WHO??

The IFC initiative began in 1994, when Autodesk formed an industry consortium to advise the company on the development of a set of C++ classes that could support integrated application development. Twelve US companies joined the consortium. These companies included AT&T, HOK Architects, Honeywell, Carrier, Tishman and Butler Manufacturing.
Initially named the Industry Alliance for Interoperability, the Alliance opened membership to all interested parties in September, 1995 and changed its name in 1997 to the International Alliance for Interoperability. The new Alliance was reconstituted as a non-profit industry-led organization, with the goal of publishing the Industry Foundation Class (IFC) as a neutral AEC product model responding to the AEC building lifecycle. A further name change occurred in 2005, and the IFC specification is now developed and maintained by:

buildingSMART
International Alliance for Interoperability


ifcRoot
ifcObject
ifcProperty
ifcRelationship
Objects are the generalization of any thing (or item)
Properties are the generalization of all characteristics (either type or partial type i.e. property sets) that may be assigned to an object
Relationships are the generalization of the interactions between objects

BIM Applications

MicroGDS

GRAPHISOFT ARCHICAD

ALLPLAN
A NEMETSCHEK COMPANY

Structural Applications

GRAITEC

Tekla

AVEVA

RIB
running together

BOCAD

SOFiSTiK

StruSoft

intercad
Part of Central Innovation

Dlubal

Building Services

Granlund

LBC
LAWRENCE BUILDING CORP

DATA DESIGN SYSTEM
A NEMETSCHEK COMPANY

Viewers

Octaga

DATA DESIGN SYSTEM
A NEMETSCHEK COMPANY

RDF

Database

epm: technology group
ENGINEERING MOMENTUM

ORACLE

SECOM
Internet - Phone - Data

eurostep

Dictionary

NBS

buildingSMART
International Alliance for Interoperability

National Institute of
BUILDING SCIENCES

Building Code

Fornax Objects

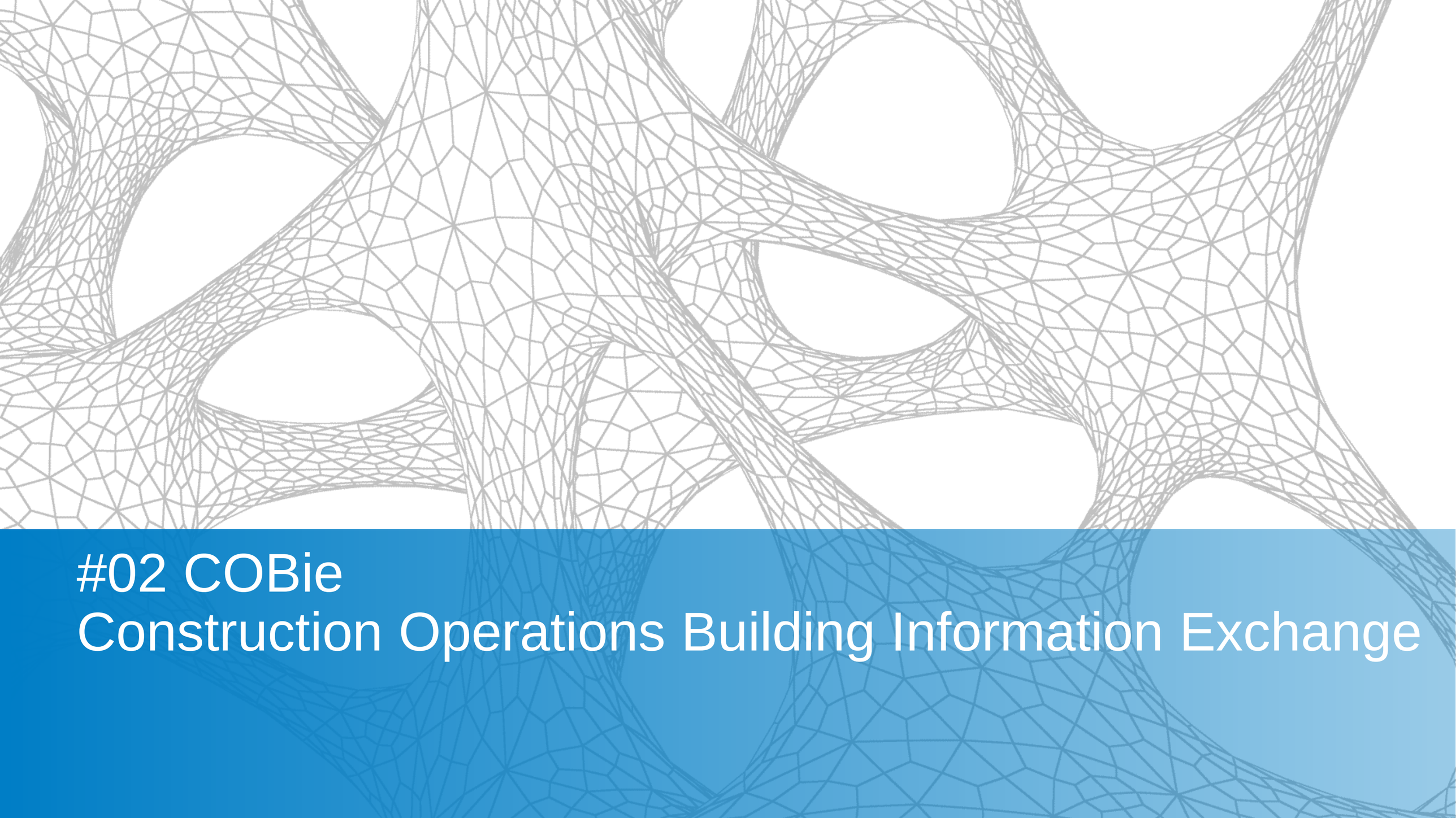
Pacific Northwest
NATIONAL LABORATORY

SOLIBRI

dRofus
A NEMETSCHEK COMPANY

Facility Composer

buildingSMART
International Alliance for Interoperability



#02 COBie
Construction Operations Building Information Exchange

COBie What?

- COBie is an information exchange specification for the life-cycle capture and delivery of information needed by facility managers. COBie can be viewed in design, construction, and maintenance software as well as in simple spreadsheets. This versatility allows COBie to be used all projects regardless of size and technological sophistication

Name	CreatedBy	CreatedOn	Category	ExtSystem	ExtObject
Basic Electricity Course	parts@ps.com	2010-02-13T12:09:09	Training	n/a	n/a
Boiler Certification Course	parts@ps.com	2010-02-13T12:09:09	Training	n/a	n/a
Cad Call Relay Switch Flame Sensors	parts@hongbo.com	2010-02-13T12:09:09	Material	n/a	n/a
Door Hinge Lubricant	customercare@lowes.com	2010-02-13T12:09:09	Material	n/a	n/a
Halide Leak Detector Kit	sales@grainger.com	2010-02-13T12:09:09	Tools	n/a	n/a
Ladder	mariangelica.carrasquillo@usace.army.mil	2010-02-05T12:09:09	Tools	n/a	n/a
Limit Switch	parts@hongbo.com	2010-02-13T12:09:09	Material	n/a	n/a

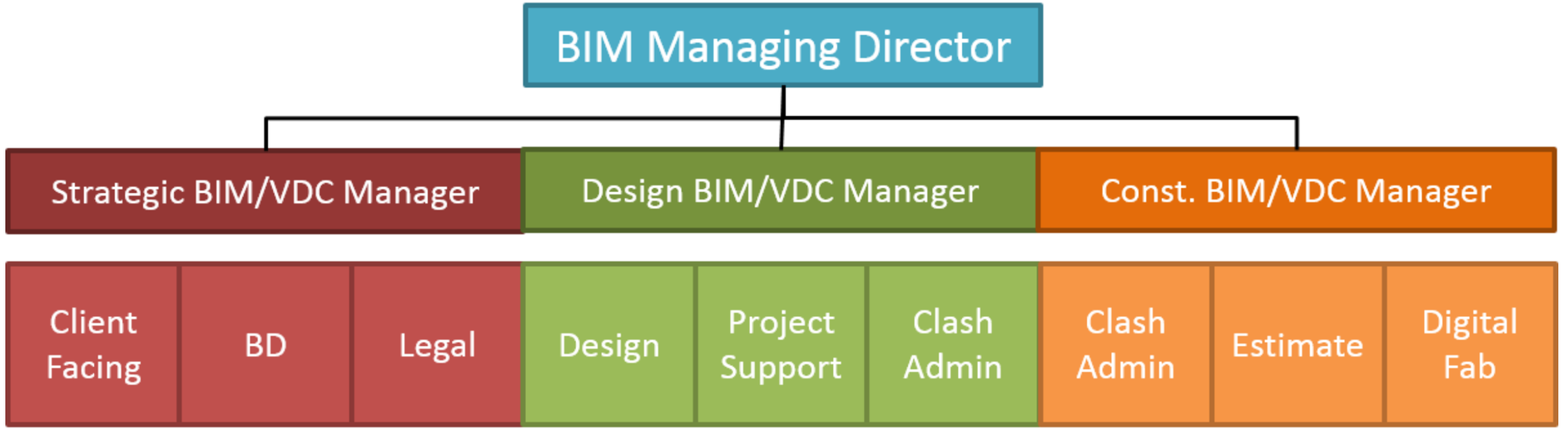
- The COBie specification identifies the content of the information that must be captured and exchanged at each phase of the project to begin to reduce the waste associated with the current paper process. The designer is required to provide the space layout, system list, types of equipment, and the location of named equipment. The builder adds equipment make, model and serial number and provides manufacturer literature, warranty and replacement parts information. The commissioning agent provides the job plan data with associated tools, training and equipment requirements

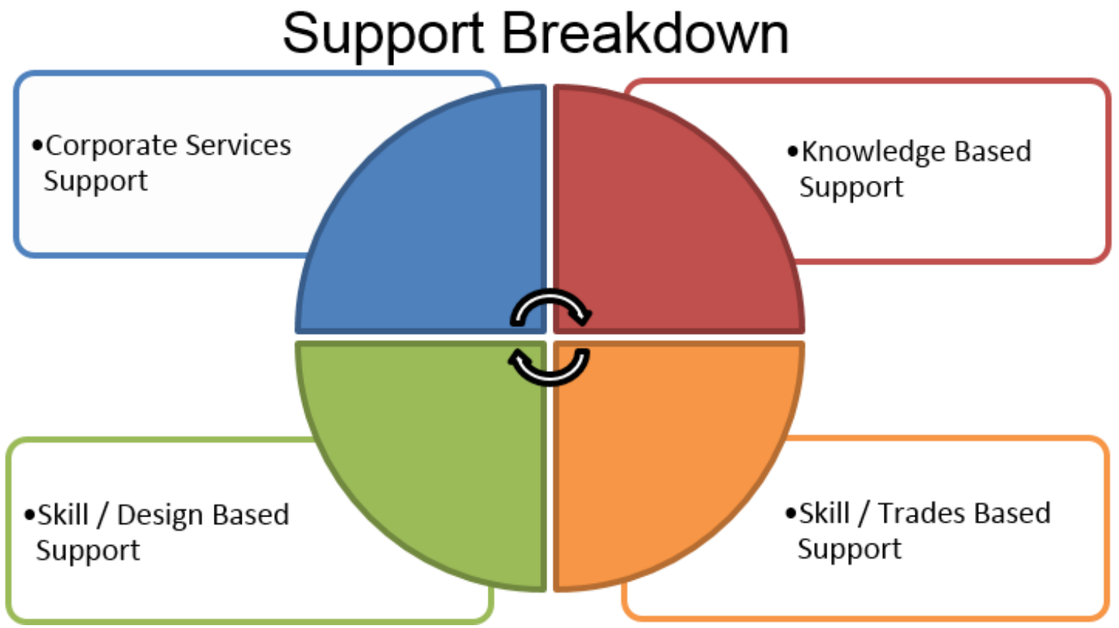
#01 Data Manager

YOU

Roles and Responsibilities

Position Infrastructure:





Strategic BIM Manager

Client Facing

In our business, client facing staff, such as senior managers and business developers, spend a great deal of effort establishing and fostering relationships with new / existing clients. They need to stay on top of new trends within the industry and understand BIM in order to speak the language, share your future vision and make achievable promises.

Strategic BIM Manager

BD

Business development is the creation of long-term BIM values for an organization from customers, markets, and relationships. At its heart, BIM business development is all about figuring out how the interactions of those forces combine together to create opportunities for growth.

Strategic BIM Manager

Legal

In writing your BIM scope and documents, there are several legal considerations. You should guide your legal team to update contracts and create content that deals with BIM scope, otherwise you are not protected. This includes roles & responsibilities, BIM process & collaboration management, data-release-forms and proprietary data protection. Finally defining BIM on a project and aligning expectations with client and team all the way to the finest details such as model detail granularity.

Design BIM Manager

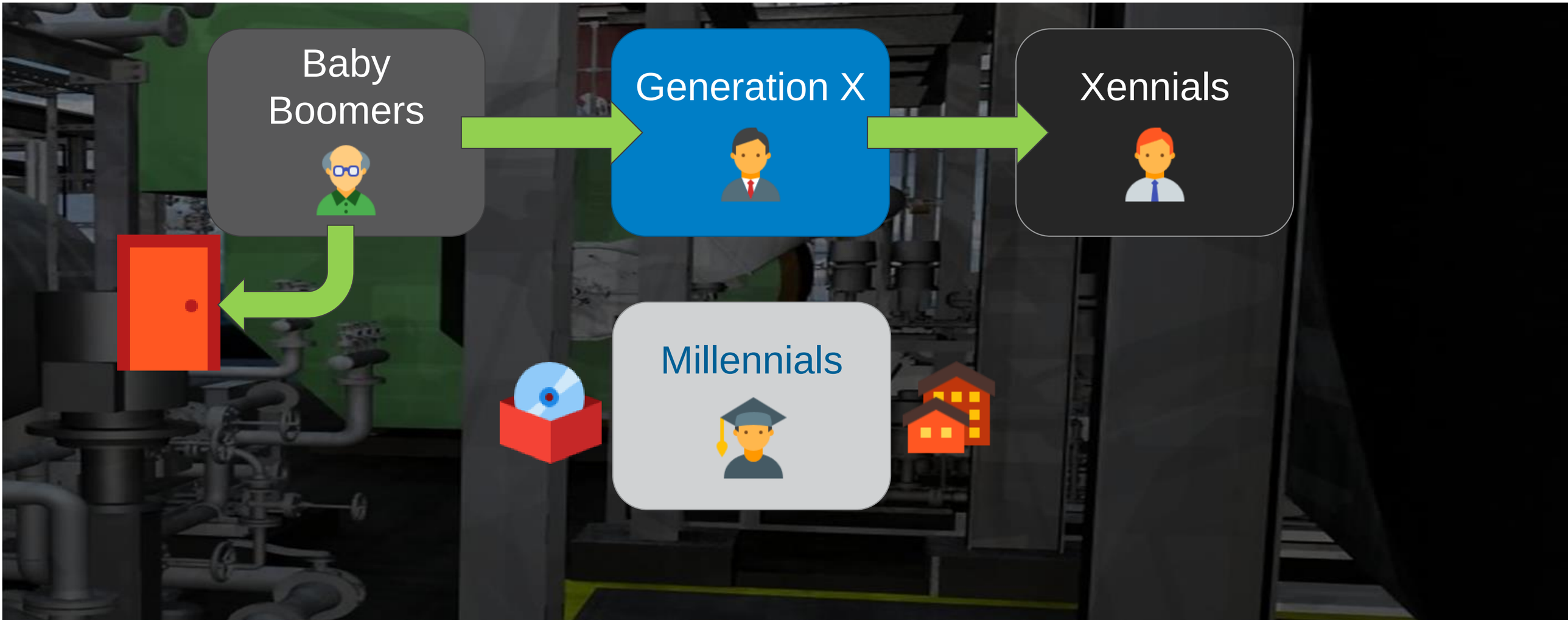
Design

Employees, want to know what their expectations are and their involvement on projects. In addition if you want them accountable, you must give them the proper tools and define their specific roles to achieve success. The sum of the parts = the whole.

Design BIM Manager

Project Support

Due to technology advancement, the largest gap is the lack of understanding design and construction.
BIM today forces us to engage project production staff with a solid understanding of how a building is supposed to come together. This changes the roles, responsibilities and placement of such staff on your projects, as well as the mentoring approach from senior to junior staff.



Design BIM Manager

Project Support

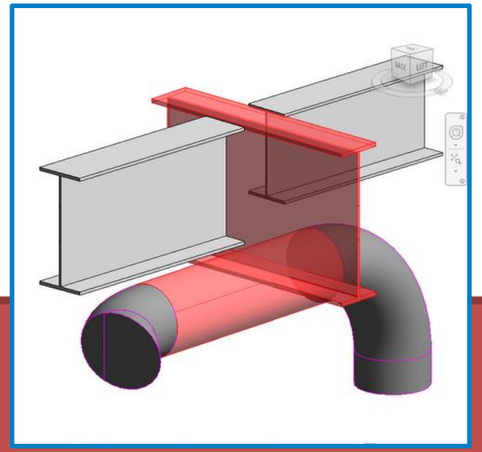
	BIM Position	Key Tasks
BIM Design Communication	Design BIM/VDC Manager	• Corporate and Strategic Goals / PM Project Alignment • Corporate PeP Implementation • Corporate Standards Methodologies and Strategies • Liaison with client BIM/VDC Group • Staff Mentoring and Training • Weekly roundtable of BIM Job Captains and BIM Discipline Coordinators • Content Development
	BIM Job Captain	• Daily Model Management • Complete Drawing Set Ownership and Delivery • BIM Content Development if capable • Liaison with Design BIM Manager • BIM Collaboration / Coordination / Trouble-shooting • May help to preform Clash Detection
BIM Project Support and Production	BIM Discipline Coordinator Champion	• Modeling one discipline - Head of a Specific Discipline • Drawing Set Ownership • BIM Content Development if capable • Liaison with BIM Job Captain • BIM Collaboration / Coordination • May help to preform Clash Detection
	BIM Technician	• Modeling one discipline • Potential BIM Coordination • Liaison with Design BIM Coordinator
	BIM Clash Administrator	• Liaison with Design BIM Manager/Job Captain/Construction Clash Coordinator • Clash Detection Setup and Managing • Clash Meetings with AR Log • Weekly Clash Reporting Metrics

Design BIM Manager

Clash Admin

It is important that this person have an in-depth knowledge of many different disciplines, and how they interact with each other from a DESIGN point of view. This person also needs an in-depth knowledge of Navisworks Manage, Clashing, Creating Rules, Organizing and Disposition of Clashes, and getting the Clashes resolved.

Model Compiled
Issues Identified



Fully Coordinated Models
No Such Thing As
Clash Free

Discipline Model
Created or
Corrected

Issue Resolution &
Responsibility
Assignments

Clash Report Date	CLASH DISCIPLINE OWNER																	PERSON RESPONSIBLE (Name)	T
	CLIENT	GENERAL	CIVIL	LANDSCAPE	CODE	ARCHITECTURAL	KITCHEN	STRUCTURAL	MECHANICAL	FIRE	ELECTRICAL	TELECOM	PROCESS	I&C	LIFE SAFETY	VENDOR			

ATSBU
BIM/VDC DEPARTMENT

Charles Berteaux DM

Diversification

Base Build

Katie King SM

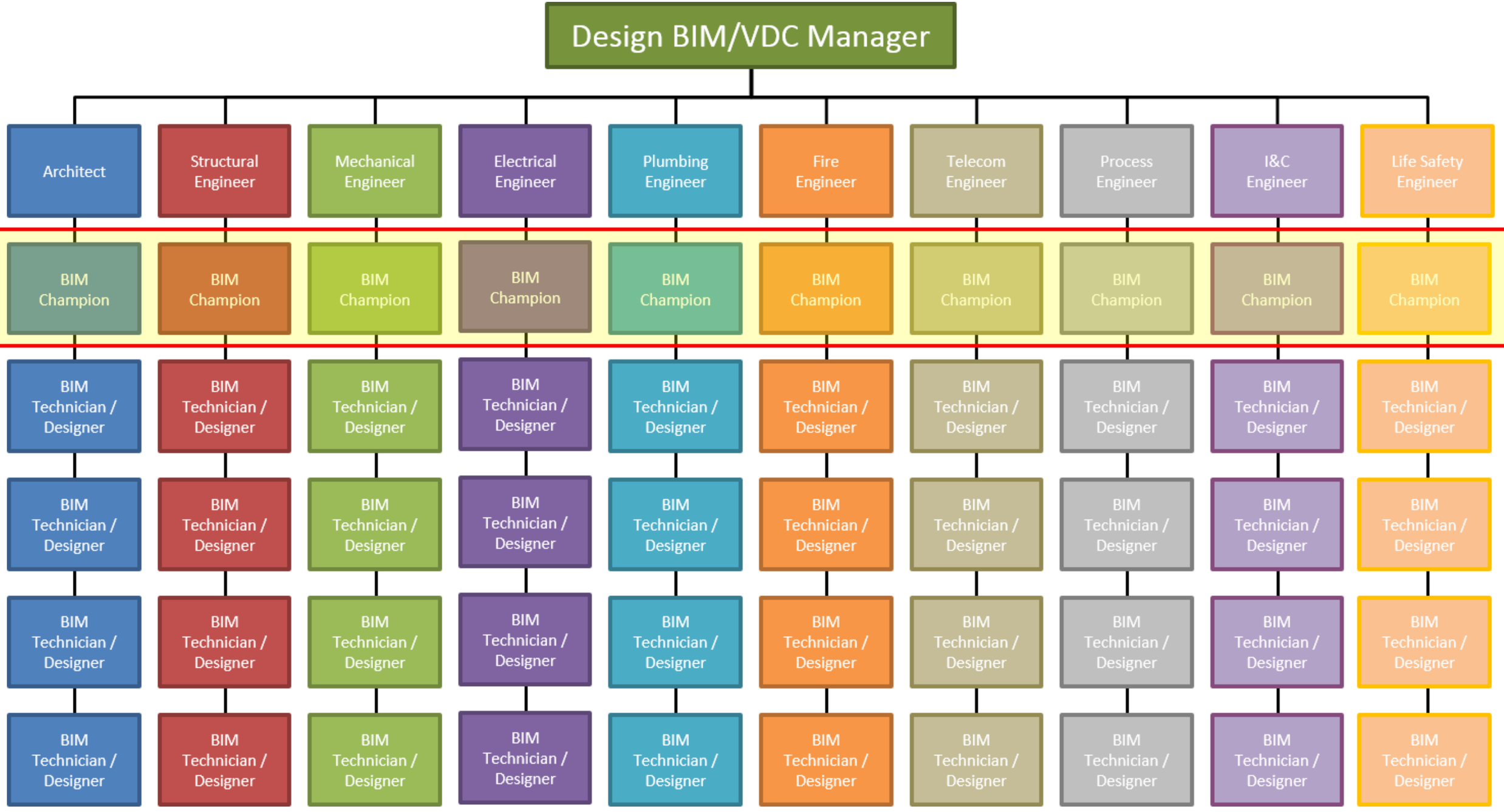
Karl Mayhew SM

Ehsan Iran-Nejad MM

Tony Hernandez MM

Duties and Responsibilities

- Leads, facilitates, and integrates the design and/or construction modeling efforts on projects in collaboration with the Project Director and/or Manager, project design coordinator, discipline design leads, and/or Construction Manager. Specific responsibilities include:
- Assist Department Mgmt. with assessing project team skills and development needs, and recommendations for training.
- Provide input to the project manager for project budget and develop the project technology team project work plan (DWP) in association thereto.
- Develop Project Execution Plans, including Model Authorship and LOD specifications.
- Prepare and lead the VDC/BIM Project Execution kick-off session.
- Assist the PM with requests for proposals and specifications for Reality Capture (3D laser scanning) & other outsourced BIM/VDC services.
- Create & review development of, and deploy project-specific model content.
- Facilitate the 3D spatial coordination process and resolution of (clash/interference) issues with the project Design Coordinator.
- Processing laser scan point cloud data for use in design and construction models.
- Perform specialized modeling application e.g. 4D simulations, point layout extractions, etc.
- Lead quality review process(s) for model content and methods within project models.
- Performance of regular maintenance processes on project models.
- Support the PM and QSR with project post-mortem sessions, capture and document improvements to modeling processes and Best Known Methods (BKM's).
- Provide support to the Project Manager, VDC/BIM Coordinator, Discipline BIM champions and discipline modelers throughout project.
- Participate in the firm's design technology community of practice (CoP) as part of the core group leadership.


Design BIM/VDC Manager
Architect
Structural Engineer
Mechanical Engineer
Electrical Engineer
Plumbing Engineer
Fire Engineer
Telecom Engineer
Process Engineer
I&C Engineer
Life Safety Engineer
BIM Champion
BIM Technician / Designer

Architectural BIM Champion

Life Safety BIM Champion

Structural BIM Champion

I&C BIM Champion

Mechanical BIM Champion

BIM Design Manager

Process BIM Champion

Electrical BIM Champion

Telecom BIM Champion

Fire BIM Champion

Plumbing BIM Champion

BIM Manager

BIM MANAGER

WE SOLVE PROBLEMS

YOU DIDNT KNOW YOU HAD

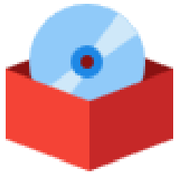
IN WAYS YOU DO NOT

UNDERSTAND

The Roll of BIM Manager, what is that???

- This roll in the industry is still being invented and has not exactly been laid in stone and can mean different things to different people. One thing is for certain though, BIM management requires a diverse set of management skills and toolsets. We are often called upon to provide tips, tricks, technologies, tools, and strategies to better manage our company's BIM environment. We need to have the ability to tackle problem identification, problem solving, user motivation, senior management support, budgeting, training program justification, objection handling and more. Because of all of the nuances associated with our Title and Position it is sometimes hard to quantify exactly what we do.
- Basic Duties & Essential Job Functions any good BIM Manager

Software:



- Manage software products including but not limited to incorporating new version releases and customization of the product
- Manage the implementation of supporting software for BIM
- Evaluate new BIM related software and technologies
- Stay informed on best practices for use of Revit Architecture and BIM
- Stay informed on other BIM related software and how they work with Revit
- Installation and support of related BIM software

Standards:

- Responsible for BIM standards development, implementation, and enforcement
- Creation and maintenance of the software Template files to assure standards are being followed
- Provide support for plotting and electronic file submissions
- Automate routines in BIM to support standards and productivity
- Provide quality control for completeness and adherence to company standards of all shop drawings produced
- Assist in developing and enforcing BIM documentation and workflow process standards
- Train and oversee the day-to-day activities of the Revit Specialist to ensure BIM standards are maintained in the creation of the Architectural Revit model

Management:

- Create written technology evaluations and budgets for future technology adoption that aligns with the corporate goals
- Chair the company's BIM committee (BIM Roundtable)
- Report on the company's current and projected state in regards to BIM implementation
- Create Upgrade and Deployment strategies for the BIM implementation effort
  - **Assess:** evaluate the firms current workflow, strategies, budgets, projects, staffing, etc.
  - **Plan:** create a plan for implementation. Who are the team members, what is the project, what are the goals, etc.
  - **Solve:** Execute the plan, install the software, get templates created, get training, do the pilot project, etc.
  - **Confirm:** Be able to demonstrate the company's BIM success by evaluating goals that were established in the Assess Phase

Support:

- Provide hardware and network support as it relates to BIM production
- Support the BIM technology needs of satellite offices
- Troubleshoot problems
- Liaison with national vendors
- Liaison with corporate technology support staff
- Liaison with software developer support staff and other support channels.
- Confirm: Be able to demonstrate the company’s BIM success by evaluating goals that were established

Training:

- Internal Training: Provide Revit Architecture Fundamental and Intermediate training to all of your staff
- Conduct internal continuing education training sessions
- Provide technical orientation to New Hires regarding BIM tools
- Test new hires skills in BIM
- Maintain high level of competency of software through continued use and training
- Attend conferences, seminars, and workshops for BIM; bringing back learning and disseminating the information to appropriate teams

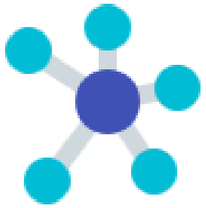
Project Interface:

- Support project standards coordination with customers
- Assist on project work - modeling and detailing
- Assist project teams in BIM project setup
- Create BIM Content in response to project need
- Help resolve BIM design issues
- Manage and distribute coordinated digital documents to the project team
- Coordinate needed hardware upgrades with IT Communicate with subcontractors to receive, coordinate and update all electronic models
- Linking BIM to the project Construction Administration Phase for submittals, construction models, shop drawings and schedules

Marketing of BIM Services:

- Web, literature, interviews, presenting at relevant client focused conferences
- Future BIM/Revit Industry Initiatives and Developments
- Identify trends and business opportunities relating to BIM Evaluate and make recommendations regarding BIM software.
- Develop a Blog or other form of social media

Involvement with Industry Organizations:



- AIA Technology in Architectural Practice (TAP) Knowledge Community
- AIA Integrated Practice Knowledge Community Industry Events: AIA National Convention
- PE / MEP
- Autodesk University
- AUGI
- Local User Groups
- Local colleges and universities for future resources

Required Qualifications:

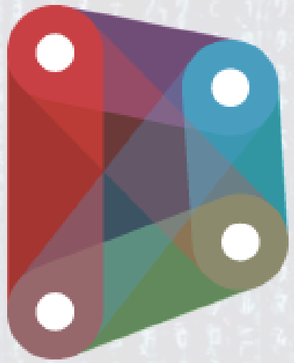
- 5+ year's production experience in design, drafting or engineering
- Associates Degree or Higher in the above
- Must have an in-depth working knowledge of current BIM versions with emphasis on project setup
- Strong written and verbal communication skills
- Must have a professional appearance
- Ability to use time productively, maximize efficiency and meet challenging work goals
- Ability to take on additional responsibilities as needed as well as determine appropriate priorities with minimal guidance
- Must possess and maintain exceptional work ethic as well as support company values and demand the highest standard of conduct from self and others
- Must have basic PC experience in Windows environments, working knowledge of word processing, spreadsheets, e-mail, Web-enabled applications, and database software
- Must be a self-starter and possess the drive to pursue continued education on BIM
- Must possess the ability to work well as part of a team and independently

You Have To Know The Software Expertly

Coding:

- The hottest skill set needed in todays market
- ADSK API

Forge



Dynamo

Python

C Sharp

BIM 360 Future

GLUE | LAYOUT | DOCS (FORGE) | FIELD | PLAN

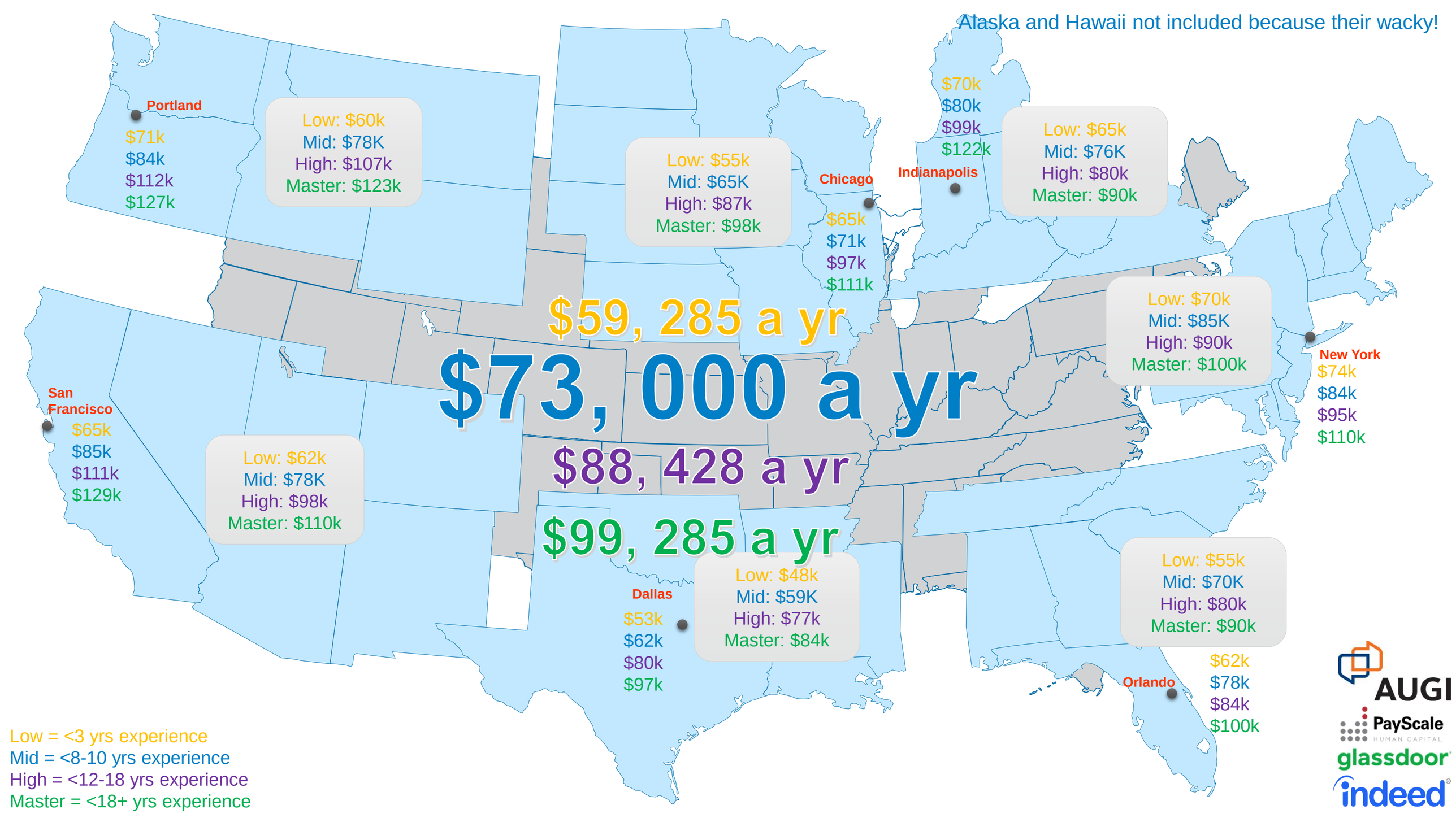
DOCS

HQ (FORGE)

USAF
PARARESCUE
FRIDAY!
ONE BAD DUCK

Salaries

The first rule of salaries, is you do not talk about salaries……

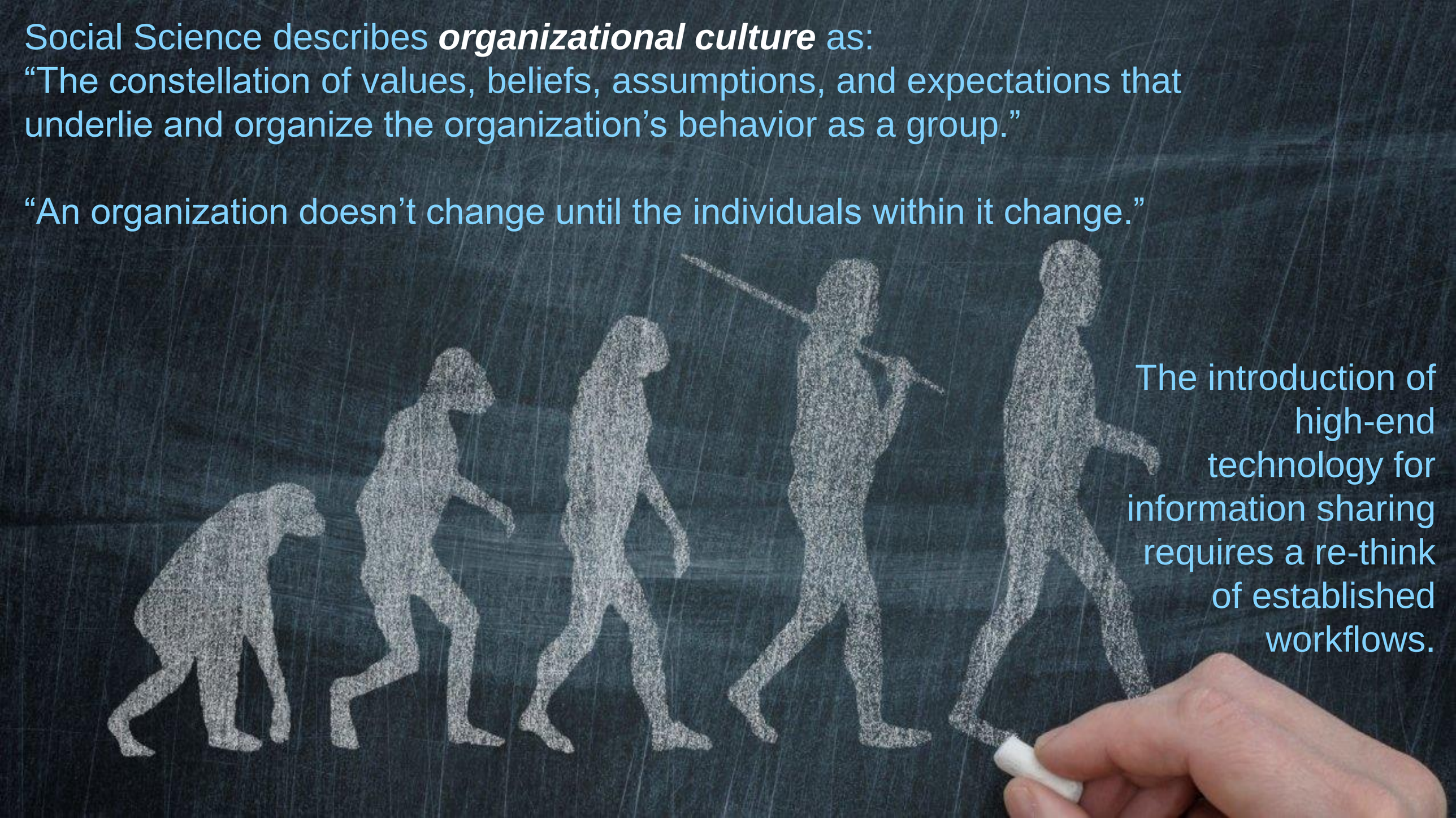

Alaska and Hawaii not included because their wacky!
Portland
$71k
$84k
$112k
$127k
Low: $60k
Mid: $78K
High: $107k
Master: $123k
Low: $55k
Mid: $65K
High: $87k
Master: $98k
Chicago
$65k
$71k
$97k
$111k
Indianapolis
$70k
$80k
$99k
$122k
Low: $65k
Mid: $76K
High: $80k
Master: $90k
$59, 285 a yr
$73, 000 a yr
$88, 428 a yr
$99, 285 a yr
Low: $70k
Mid: $85K
High: $90k
Master: $100k
New York
$74k
$84k
$95k
$110k
San Francisco
$65k
$85k
$111k
$129k
Low: $62k
Mid: $78K
High: $98k
Master: $110k
Dallas
$53k
$62k
$80k
$97k
Low: $48k
Mid: $59K
High: $77k
Master: $84k
Low: $55k
Mid: $70K
High: $80k
Master: $90k
Orlando
$62k
$78k
$84k
$100k
Low = <3 yrs experience
Mid = <8-10 yrs experience
High = <12-18 yrs experience
Master = <18+ yrs experience
AUGI
PayScale
HUMAN CAPITAL
glassdoor
indeed

Integration with Management and Non-BIM

MANAGEMENT
&
NON-BIM

Social Science describes ***organizational culture*** as:
“The constellation of values, beliefs, assumptions, and expectations that underlie and organize the organization’s behavior as a group.”

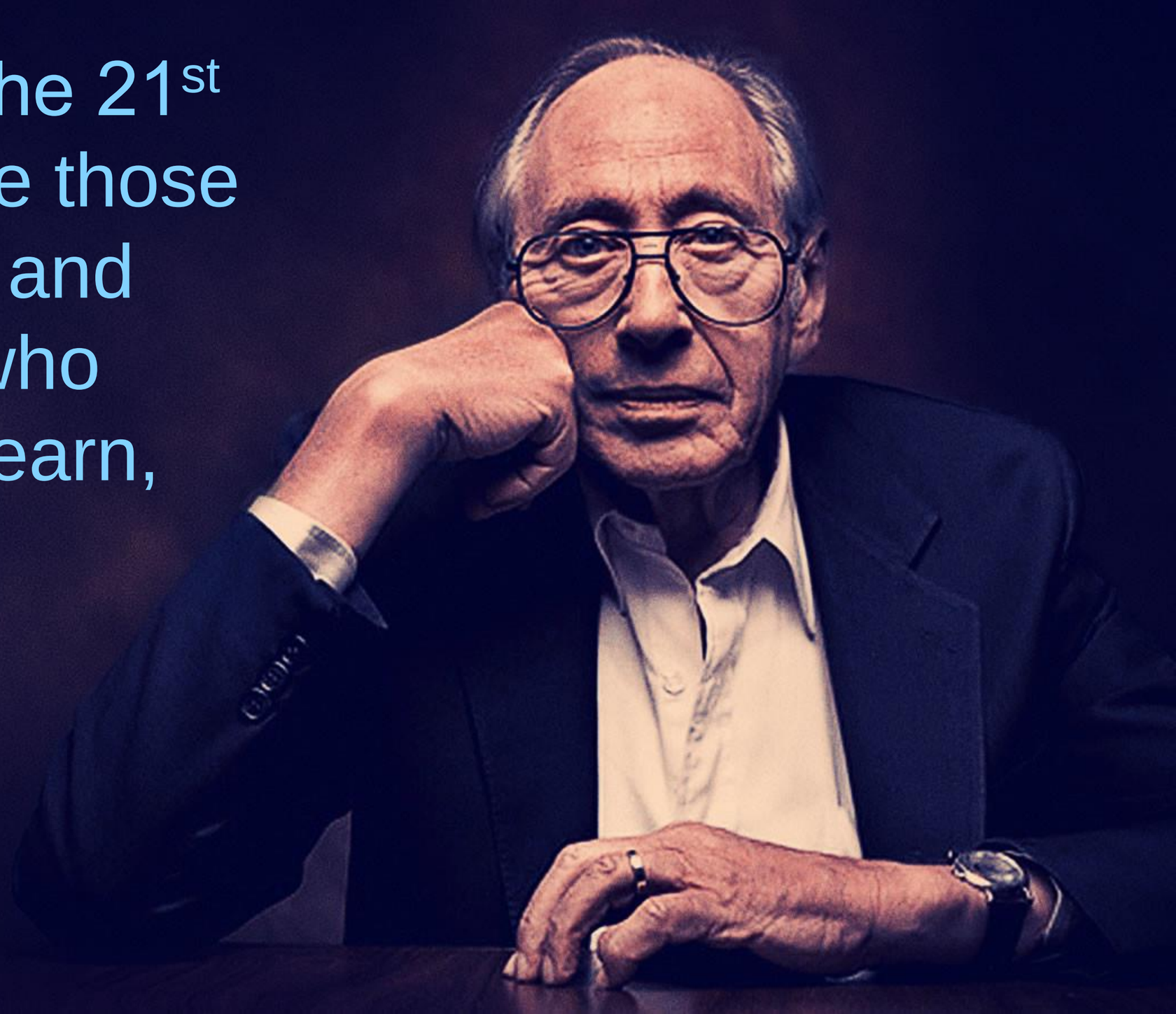
“An organization doesn’t change until the individuals within it change.”



The introduction of high-end technology for information sharing requires a re-think of established workflows.

“The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn”

Alvin Toffler



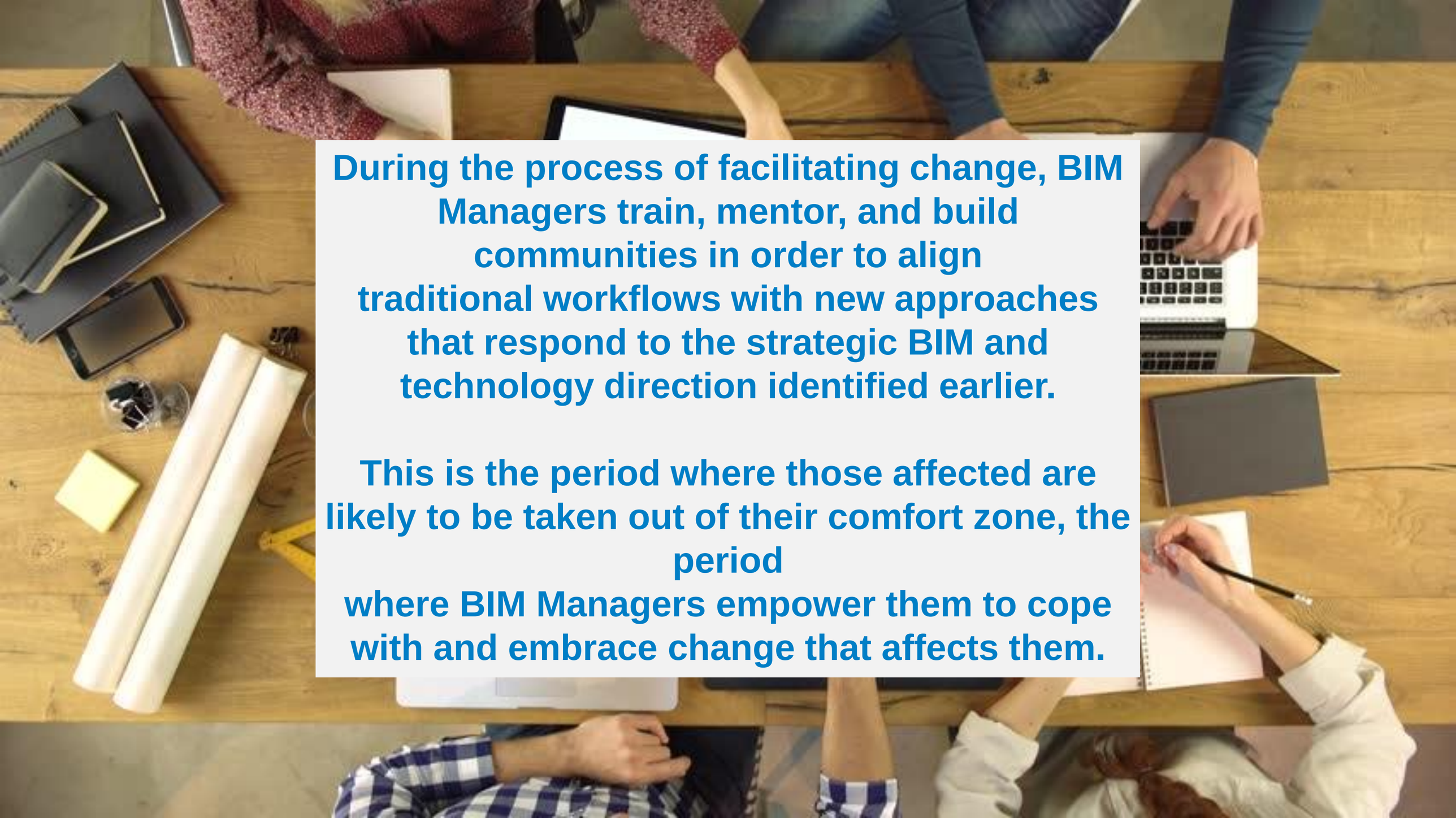
Step 1 Clear definition of the objective and understanding of current situation

Step 2 Get employees involved in executing the change

Step 3 Consolidation of the change with constant feedback

Any organizational change is only as effective as the means to uphold and sustain its effects.

What needs to happen to empower those who are well set in their traditional ways to open up toward new approaches?
How can one structure a process of engagement that leads to sustained organizational change?



During the process of facilitating change, BIM Managers train, mentor, and build communities in order to align traditional workflows with new approaches that respond to the strategic BIM and technology direction identified earlier.

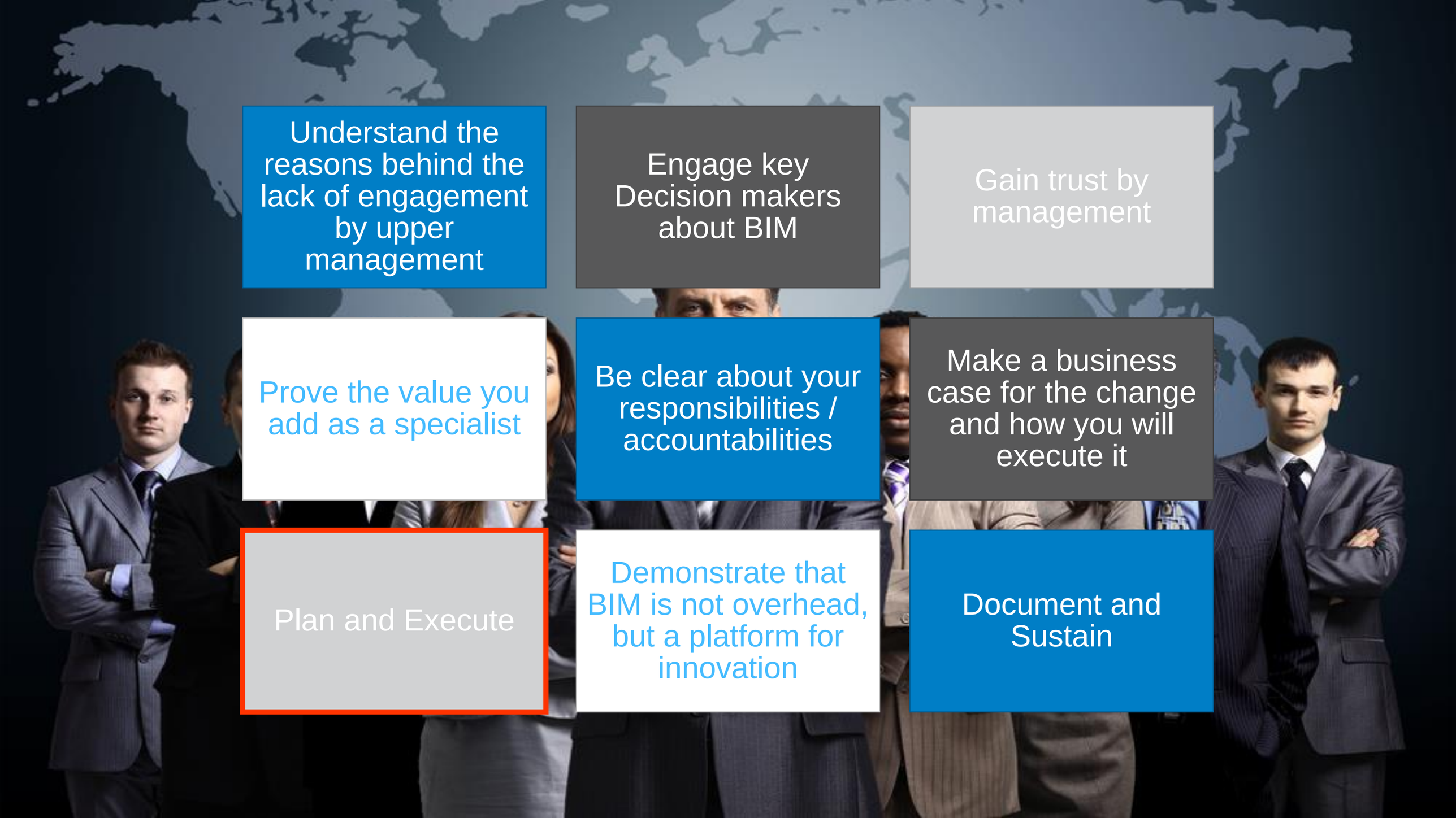
This is the period where those affected are likely to be taken out of their comfort zone, the period where BIM Managers empower them to cope with and embrace change that affects them.

There appears to be a disconnect between those who manage and lead an organization and those who actively engage with BIM.
The kind of change required, and the extent to which change is needed to facilitate BIM, is often unknown to upper management.

It is the BIM Manager’s role to bridge this gap.

Your Clients

"BIM is a supply-side phenomenon, offering changed performance to the market as 'Push.' What will determine how it changes the industry will be the customer 'Pull,' the services actually sought by the market."
– Richard Saxon


Understand the reasons behind the lack of engagement by upper management
Engage key Decision makers about BIM
Gain trust by management
Prove the value you add as a specialist
Be clear about your responsibilities / accountabilities
Make a business case for the change and how you will execute it
Plan and Execute
Demonstrate that BIM is not overhead, but a platform for innovation
Document and Sustain

Standards and Templates

National BIM Standard - United States®
an initiative of the National Institute of Building Sciences buildingSMARTalliance®

National Institute of BUILDING SCIENCES
An Authoritative Source of Innovative Solutions for the Built Environment

NASA

ASHRAE®

bsi.

US Army Corps of Engineers®

The VA BIM Guide

PENNSTATE

BIM EXECUTION PLANNING

AIR FORCE CIVIL ENGINEER CENTER

HKIBIM
The Hong Kong Institute of Building Information Modelling
香港建築信息模擬學會

DEPARTMENT OF ENERGY · UNITED STATES OF AMERICA

BIM Execution

INDIANA UNIVERSITY
UNIVERSITY ARCHITECT'S OFFICE

CRC Construction Innovation
BUILDING OUR FUTURE

ANZRS
Australian and New Zealand Revit Standards

NATIONAL PARK SERVICE

AEC (UK) BIM Standard
A practical & pragmatic BIM standard for the Architectural, Engineering and Construction industry in the UK.

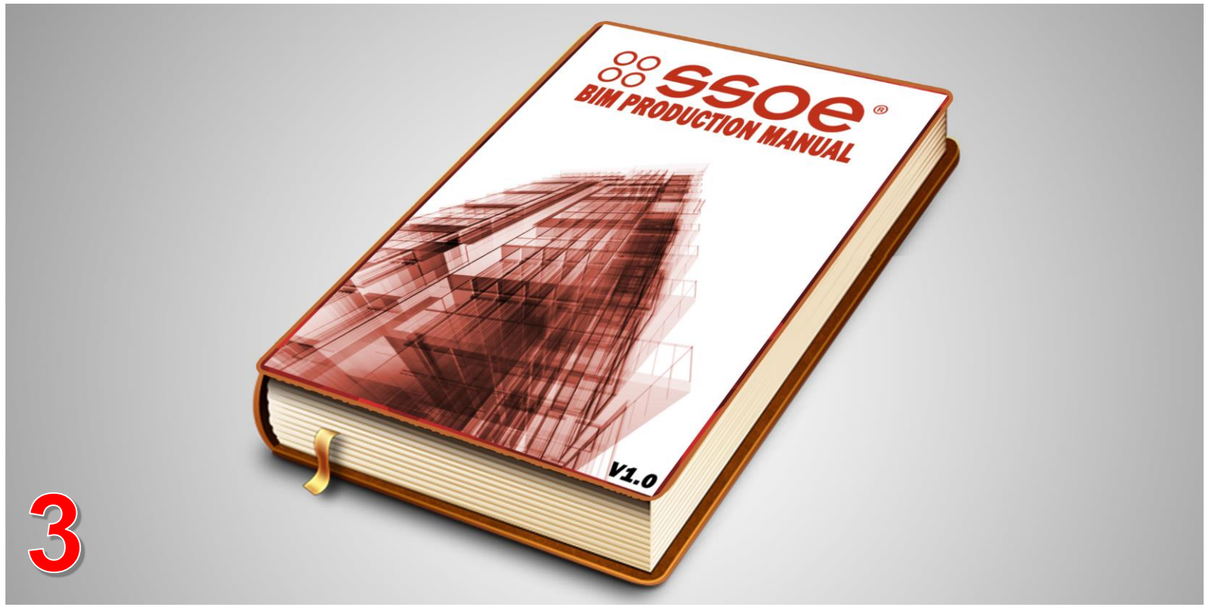
GSA

THE PORT AUTHORITY OF NY & NJ
Engineering Department

NIH

Company
BIM PxP
1

Contract
Documents
2


SSOE
BIM PRODUCTION MANUAL
V1.0
3

ssoe®

BIM PRODUCTION MANUAL

V1.0

TABLE OF CONTENTS

BIM Production Manual 1

1 Introduction 4
1.1 Scope 5
1.1.1 Scope and Purpose 5
1.2 The Production Manual 6
1.2.1 Convention 6
1.2.2 Where can I find _____? 6
1.2.3 BIM Design Control 6

2 BIM Management 7
2.1 Roles and Responsibilities 8
2.2 Revit BIM Directory Structure 9
2.2.1 Directory Structure - General 9
2.2.2 BIM Directory Structure 9
2.2.3 Central Project Folder Structure 9
2.2.4 Local Folder Project Structure 10
2.2.5 Family Approval Process 11
2.3 Model File Naming 12
2.3.1 Model Naming Convention: Central and Local 12
2.3.2 Abbreviation: Project Number 12
2.3.3 Abbreviation: Project Name 12
2.3.4 Abbreviation: Discipline Code 12
2.3.5 Abbreviation: Model File Extended Description. 13
2.3.6 Model File Type 14
2.3.7 File Naming Examples 14
2.4 Autodesk Revit Worksets 15
2.4.1 Workset Naming in Revit 15
2.4.2 CAD Formats Import/Link 15
2.4.3 Image Formats Import/Link 15
2.4.4 Revit Formats Import/Link 15
2.4.5 Revit Model Components 16
2.4.6 Abbreviations: Model File Category 16
2.4.7 Workset Naming Examples 16
2.4.8 Initial Worksets in New Project 17
2.5 Linking and inserting files into revit 18
2.5.1 Linking Revit Files 18
2.5.2 Linking Cad Files – Plans (for Reference Only) 18
2.6 Keynoting 20
2.6.1 Types of Keynotes 20
2.6.2 Project Keynote settings 20
2.6.3 Key Note File Editing 20
2.6.4 Using Keynotes to tag linked models 21
2.7 The project browser interface 22
2.7.1 *Open_Close Drafting View 22
2.7.2 Browser Organization Strategy 22
2.7.3 Browser Category ‘Views’ 23
2.7.4 Browser Category ‘Sheets’ 24
2.7.5 Additional Consultant Browser Category ‘Sheets’ 26

REVIT TEMPLATE

First: What is a Template??

Templates are defined as ‘a standardized non-executable file type used by computer software as a pre-formatted example on which to base other files, especially documents’. Templates contain a set of repeated elements and are created to standardize visibility setting across the final documents.

Second: Why are Templates necessary??

Using a template to work from and to layout elements, allows for less time with background work and more time on individual projects. Templates also provide a level of consistency across all projects, this is essential from a managing perspective.

WHAT DO I PUT INSIDE?

3rd - Min. Template Requirements:

- Project Units (Metric/Imperial)
- Levels and Spacing
- Defined Views (On-Going)
- View Properties
- View Display
- Detail Level by Scale
- View Templates
- Object Styles (On-Going)
- Fill Patterns
- Material Definitions
- Line Styles
- Line Weights
- Line Patterns
- Title Blocks
- Grid Styles
- Wall Styles
- Floor Styles
- Roof Styles
- Door Styles
- Window Styles
- Stair Styles
- Railing Styles
- Section Styles
- Elevation Styles
- Callout Styles
- Default Families Loaded (Family Manager Add-In?)
- Default Loaded Tags
- Default Symbols Loaded
- Temporary Dimension Defaults
- Permanent Dimension Styles
- Text Styles
- Snap Settings
- Room and Area Settings
- Browser Organization
- Phases
- Keynoting (Spec Software integrated?)
- Project Parameters (On-Going)
- Site Settings
- Structural Settings
- Filters
- Spelling Library
- Color Schemes
- Export Layers Defined
- Import Line weights
- SHX font mapping
- Use OpenGL Hardware Graphics
- Sun and Shadow Settings
- Revit .ini customization
- Keyboard Shortcuts
- Code Requirements
- Cover Sheet Requirements

I'm a strong believer in BIM standards, that's why I use an excellent set of my own

4th – What not to put in your templates

Do not make your project templates heavy, i.e. you do not include everything that a project **MAY** use. This is why we have a Standard Content folder with a structure for the user to find the content to be load easily. So items may be loaded in using Load Family and System Families can be loaded either via Copy/Paste or Transfer Project Standards.

Details:
Adding details that a project may use will unnecessarily weigh the template down. Some details are appropriate to add, like standard mounting heights, abbreviations, patterns etc. In our office we have the sheet setup for out Discipline Standards which get put in for every project. Those details are appropriate to add to the project template.

Worksets:
Worksets cannot be expressed enough – these are not layers like in the CAD days. Use only as many as you need to break up modeling efforts. The more you have, the slower your model will behave……Naughty Naughty – Make sure your naming standards are captured in your companies production model.

Training

ZIGURAT | GLOBAL INSTITUTE OF TECHNOLOGY

AGC of America
THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA
Building on Experience
100 YEARS

RICS®

BIMFORUM
The US chapter of buildingSMART International

BIM Management Certification Programs

Georgia Tech Professional Education

Udemy

CERTIPORT
A PEARSON VUE BUSINESS

AUTODESK.
Certified Professional

bsi.

ASCENT
CENTER FOR TECHNICAL KNOWLEDGE

SharePoint

EVERNOTE

IMAGINiT
TECHNOLOGIES
A RAND Worldwide Company

OneNote

Internal Wiki

Training Your Staff

lynda.com

Eagle Point Software

Welcome
FlashBack Express 5

SCREENCAST

CADLearning
design your future

PLURALSIGHT

Tools of the Trade

Featured Apps

Styler
(5)
USD 5.00

FAMILY + DETAIL WAREHOUSE
(4)
Trial

Quick Commands Search
(13)
USD 1.00

BIM Track™
(4)
Free

Visualive3D
(1)
Trial

ElumTools 2018
(0)
Trial

DigiPara® Elevatorarchitect
(2)
Free

AUGmentecture
(4)
Free

Most Popular Apps

Lumion® Pl…
(9)
Free

BIMobject
(30)
Free

COINS Auto-…
(94)
Free

Most Popular Paid Apps

Revision + C…
(5)
USD 10.00

Topo Align 2…
(1)
USD 3.00

Topo Align 2…
(3)
USD 3.00

Featured New Apps

ReviTea Grid/Level …
(0)
Free

Greenlee BendWor…
(3)
Trial

Copy scope boxes …
(0)
USD 3.99

Novade Exporter
(1)
Trial

Xinaps Suite
(0)
Trial

TrimbleConnect-for…
(0)
Free

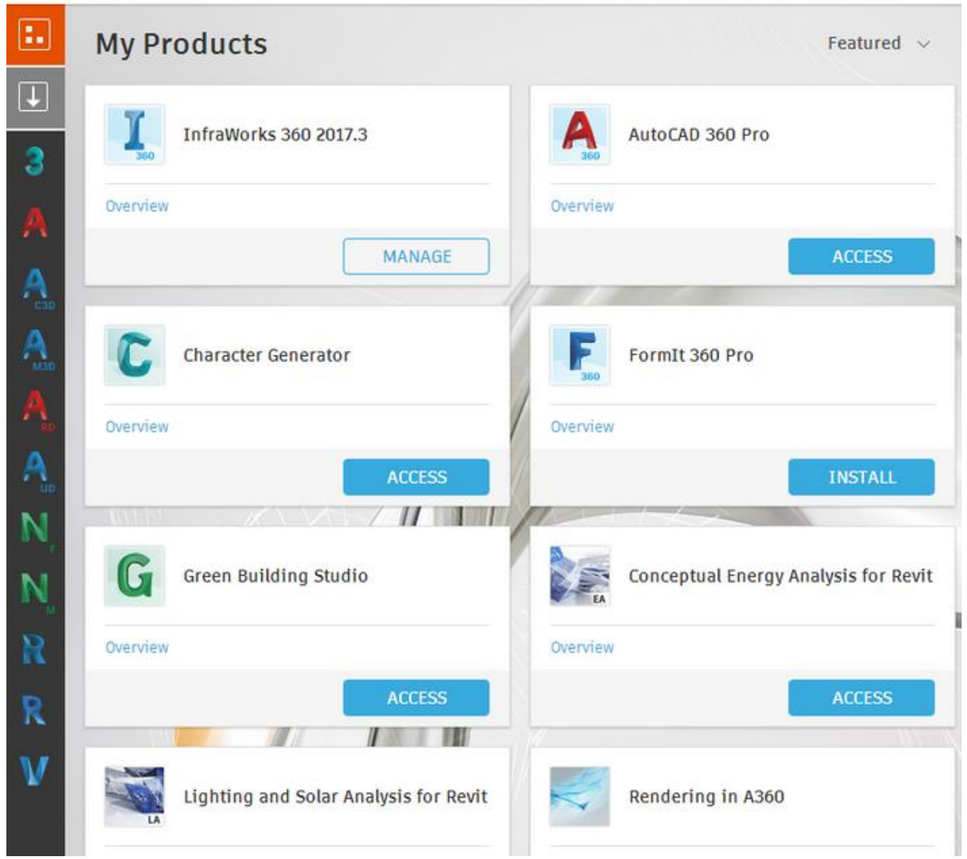
KeyShot 7 Plugin f…
(0)
Free

Column Splitter
(12)
Free

ElementRenumbering
(11)
Free

BIM Batch Suite (P…
(0)
USD 324.00

AUTODESK.



OTB or Subscription

Autodesk® Revit® Extension for Autodesk® Fabrication 2017
Apr 14, 2016 | 22.7 MB

Steel Connections for Autodesk® Revit® 2017 64-Bit
Apr 14, 2016 | 113.4 MB

Space Naming Utility for Autodesk® Revit® 2017 64-Bit
Apr 14, 2016 | 113.5 MB

DB Link v1 for Autodesk® Revit® 2017 64-Bit
May 1, 2016 | 113.4 MB

Batch Print v1 for Autodesk® Revit® 2017 64-Bit
May 1, 2016 | 114.6 MB

Worksharing Monitor for Autodesk® Revit® 2017
Jun 14, 2016 | 114.1 MB

~~Revit 2017 Site Designer v2 Enhancements~~
Sep 8, 2016 | 43.3 MB

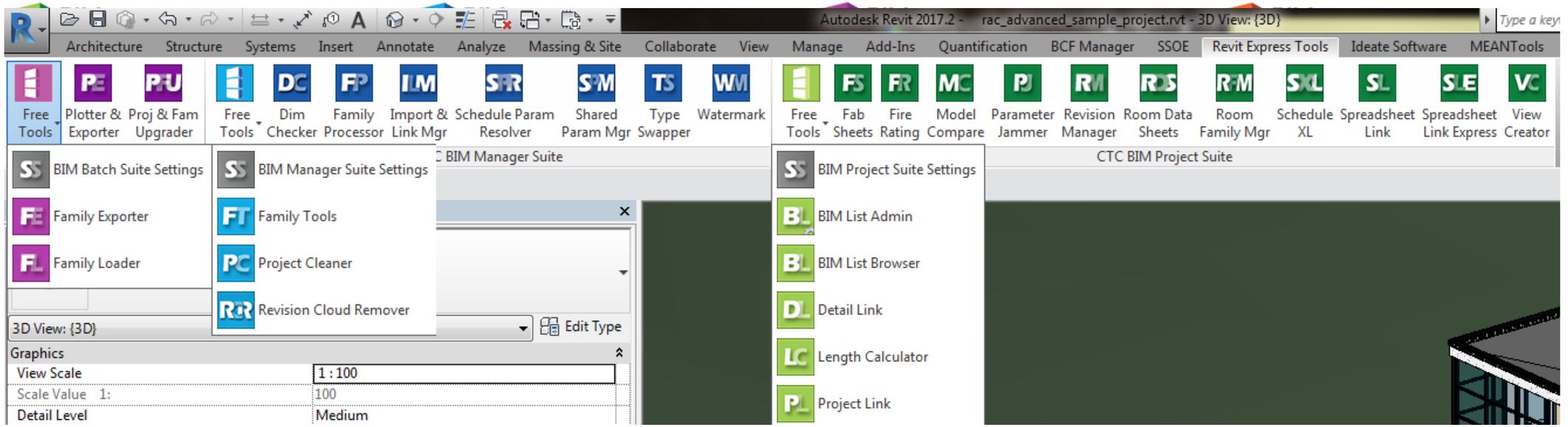
Dynamo

DYNAMO STUDIO

CTC CAD TECHNOLOGY CENTER
EXPRESS TOOLS

Revit Products

Software



Mechanical Productivity Pack

Healthcare Productivity Pack

Electrical Productivity Pack

Mechanical Electrical Plumbing Productivity Pack

BIMcollab®

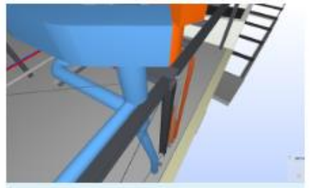
My projects | Issues | Import | Export

Search issue | Erik Pijnenburg

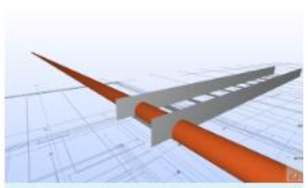
KUBUS EHV fase2

New issue

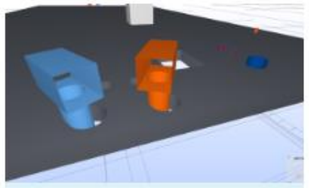
All 81 issues in this project — Set filter



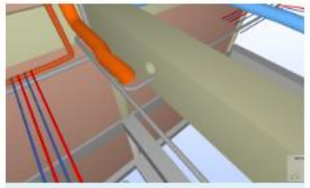
56. luchtkanalen door staalconstr...
Jan Rombouts
Active, Major
UITVOERINGSFASE, KANTOORVE...



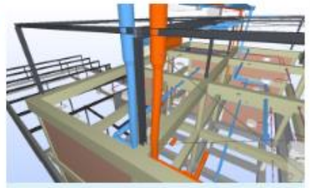
57. kabelgoot boven pluvia leggen
Marc Geenen
Active, Major
UITVOERINGSFASE, KANTOORVE...



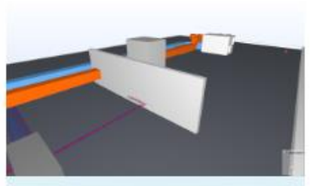
58. daksparingen stroken niet met ...
Jan Rombouts
Active, Major
UITVOERINGSFASE, KANTOORVE...



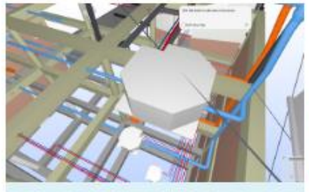
59. sparing zit te hoog voor conde...
Jan Rombouts
Resolved, Major
UITVOERINGSFASE, KANTOORVE...



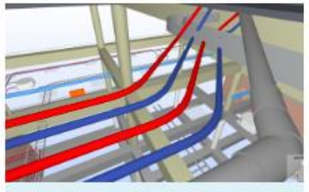
60. luchtkanalen door staalconstr...
Jan Rombouts
Resolved, Major
UITVOERINGSFASE, KANTOORVE...



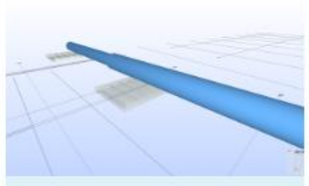
61. wand afsnijden tegen dak
Rob van Leuven
Closed, Normal
UITVOERINGSFASE, KANTOORVE...



62. plafondunit naast windverband...
Rob van Leuven
Resolved, Major
UITVOERINGSFASE, KANTOORVE...



63. koelleidingen boven kabelgote...
Marc Geenen
Resolved, Major
UITVOERINGSFASE, KANTOORVE...

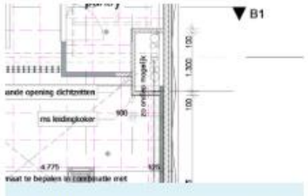


64. luchtkanaal zo hoog mogelijk l...
Jan Rombouts
Resolved, Major
UITVOERINGSFASE, KANTOORVE...

65. screen doek
Erwin van Lieshout
Closed, Normal
Undecided

66. Doorgang naar trappenhuis ve...
Erwin van Lieshout
Resolved, Major
UITVOERINGSFASE, WINKELS (BG)

67. afvoer 1e verdieping tpv toiletten
Henk van Doremalen
Closed, Major
UITVOERINGSFASE, KANTOORVE...



68. wijziging afmetingen schact 3d...
Erwin van Lieshout
Active, Major
UITVOERINGSFASE, KANTOORVE...

69. kozijn entree 1ste verdieping w...
Erwin van Lieshout
Resolved, Normal
UITVOERINGSFASE, Model

70. koelleiding waar deze in het zi...
Jan Rombouts
Active, Normal
Undecided, KANTOORVERDIEPING...

BCF Manager

Test.bcfzip — All issues

Nr	Modified	Title	Assigned to	Status	Modified
1	30-10-2017	Wrong Chair types	cberteaux@ssoe.com	Active	✓

Use quick zoom | Edit issue

Description	Interiors Modification
Type	Issue
Priority	Normal
Area	
Milestone	
Deadline	
Labels	Architecture

Created	Comment	Author
30-10-2017	Better check yourself foo - this is the right one! (Nancy said so)	cberteaux@ssoe.com
30-10-2017	Please swap out chairs with approved ones from client.	cberteaux@ssoe.com

KUBUS

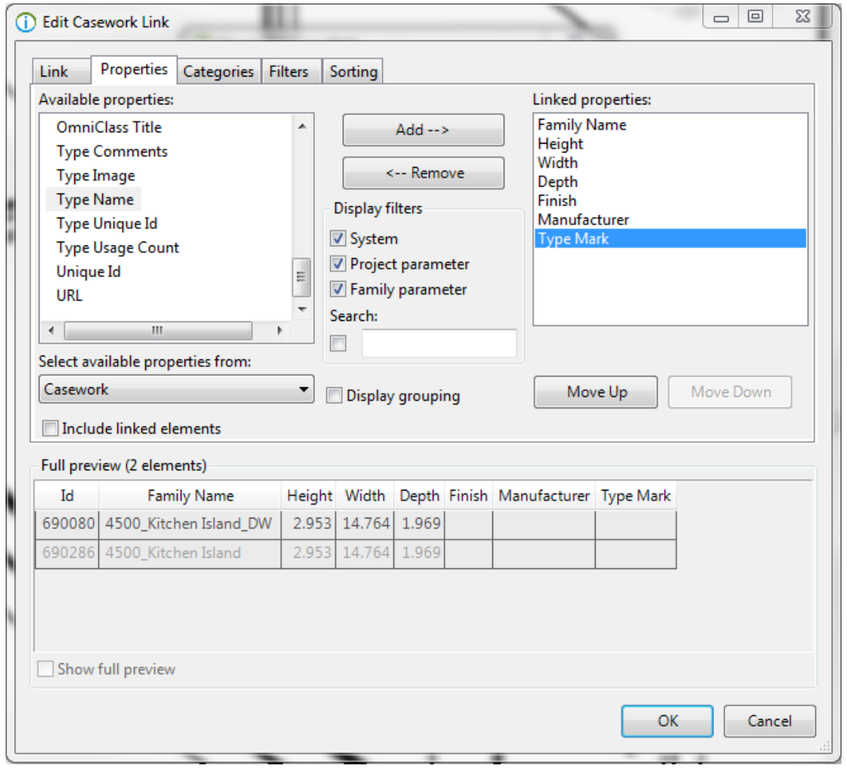
Ideate

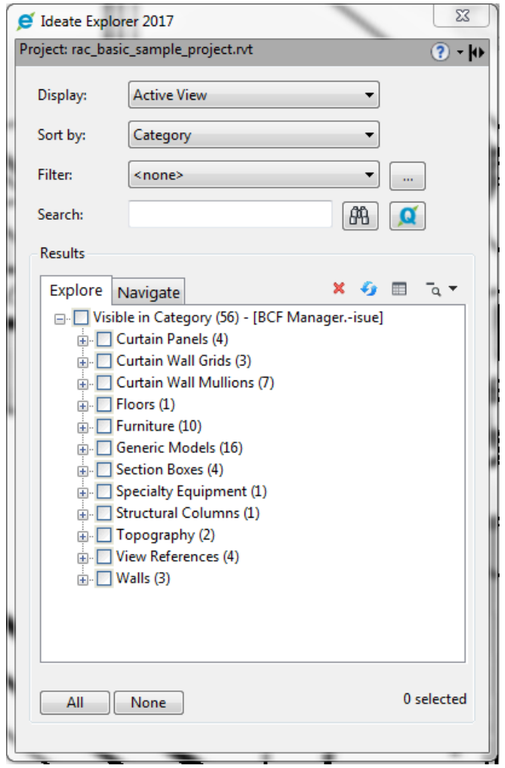
From Ideas to Reality

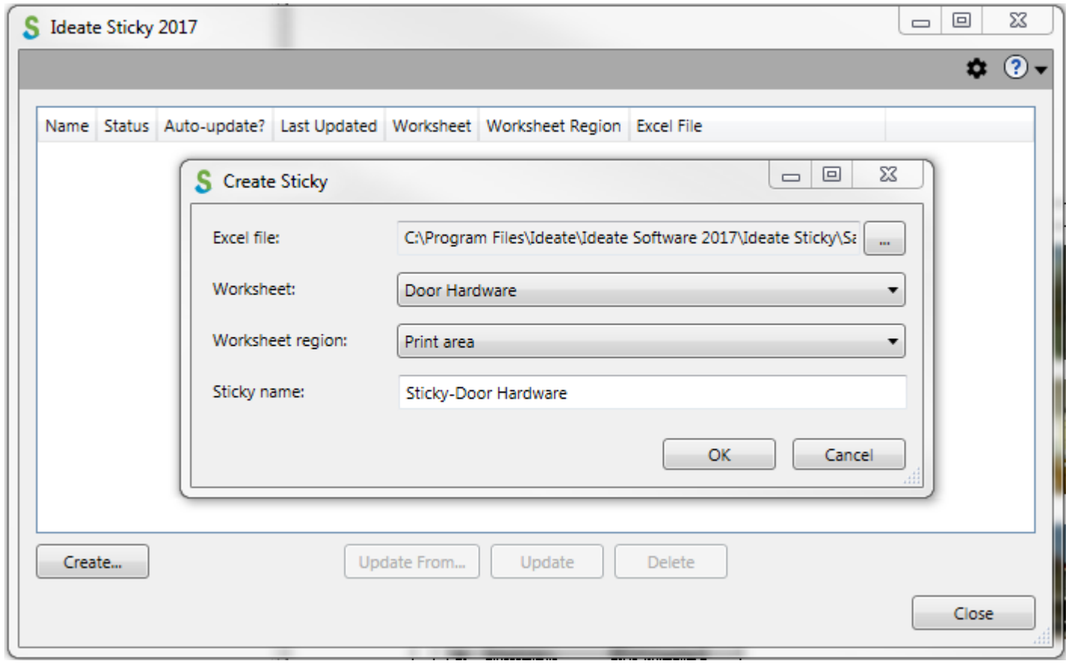
ideate BIMLink

ideate explorer

ideate sticky

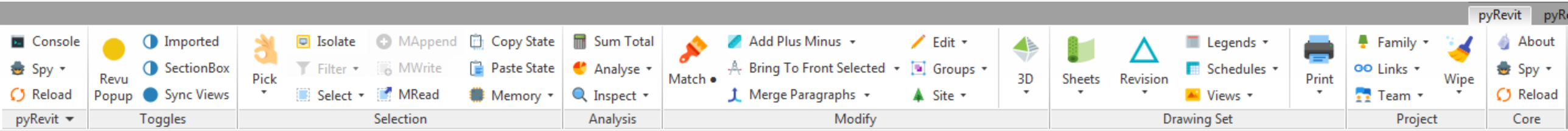






pyRevit

Ehsan Iran-Nejad



pyRevit is an IronPython script library for Revit. However, it is not really written as an example library. It is a working set of tools fully written in IronPython that explores the power of scripting for Revit and also adds some cool functionality. Download and install it, launch Revit and you will note the new ***pyRevit*** tab that hosts buttons to launch all the scripts provided by the package to easily run them without the need to load them in RevitPythonShell or some similar IronPython console. You can also write your own scripts and add them to pyRevit. There is even a Reload button than dynamically adds the new scripts to the current Revit session without the need to restart Revit.

GitHub

YouTube

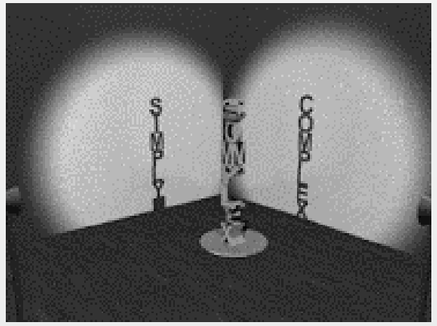
https://github.com/eirannejad/pyRevit

sixtysecondrevit

John Pierson

Rhythm for Dynamo

sixtysecondrevit.com



Simply Complex Podcast

PLURALSIGHT

An Introduction to Dynamo for Daily Use Within Revit

Dynamo

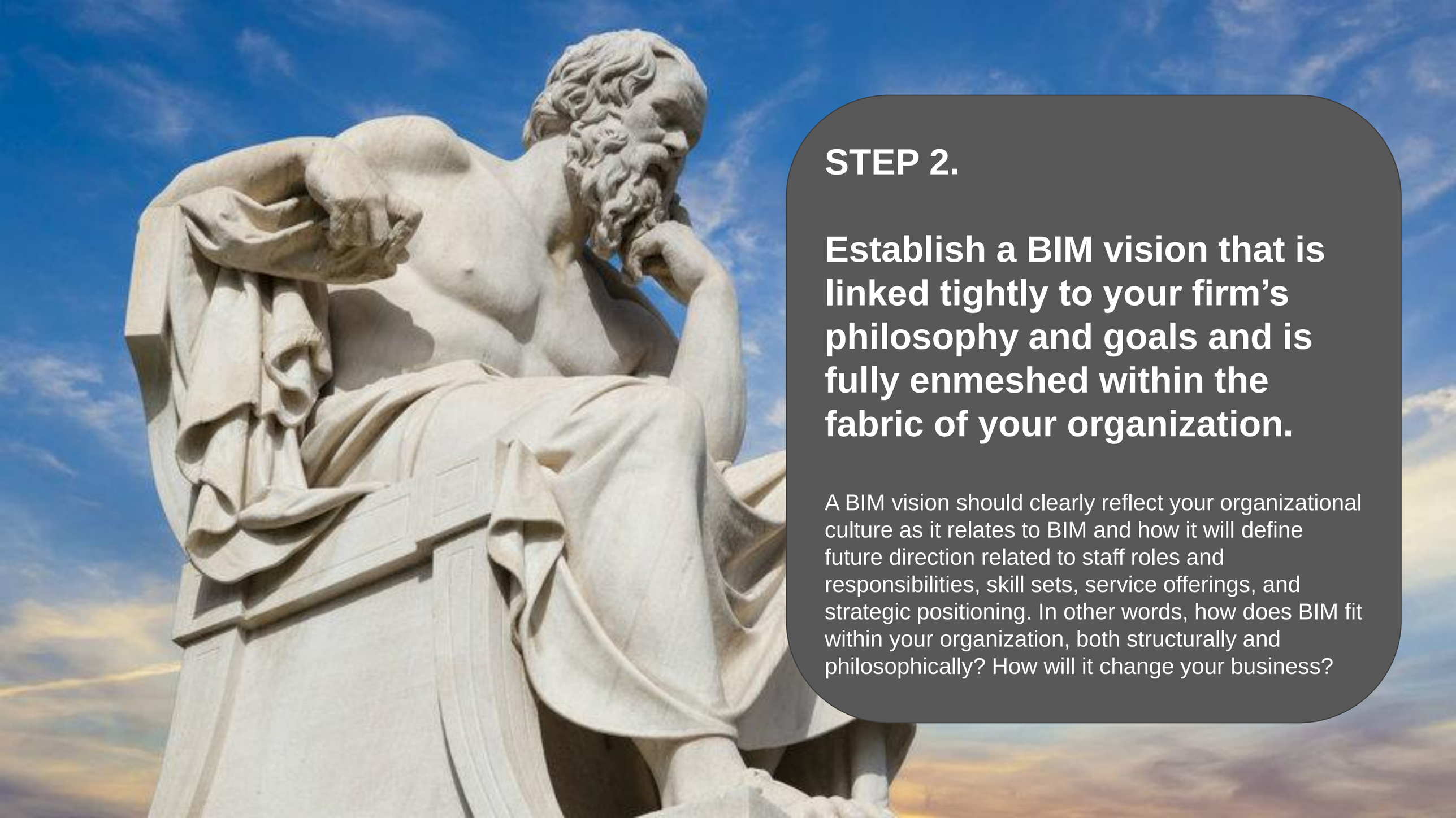
http://sixtysecondrevit.com/

8 Steps to Successfully Marketing BIM

STEP 1.

Recognize the business and marketing aspects of implementing BIM in your organization.

- Your organizational culture will look at BIM as a tool instead of as a business opportunity offering services beyond what AEC firms have traditionally offered.
- Your firm will suffer from a lack of BIM definition, capability, and expertise.
- Your client-facing staff will not understand your overall vision and goals for BIM.
- Your business development and marketing staff will rely on legacy capabilities instead of using new skills and capabilities that BIM makes available to your firm.



STEP 2.

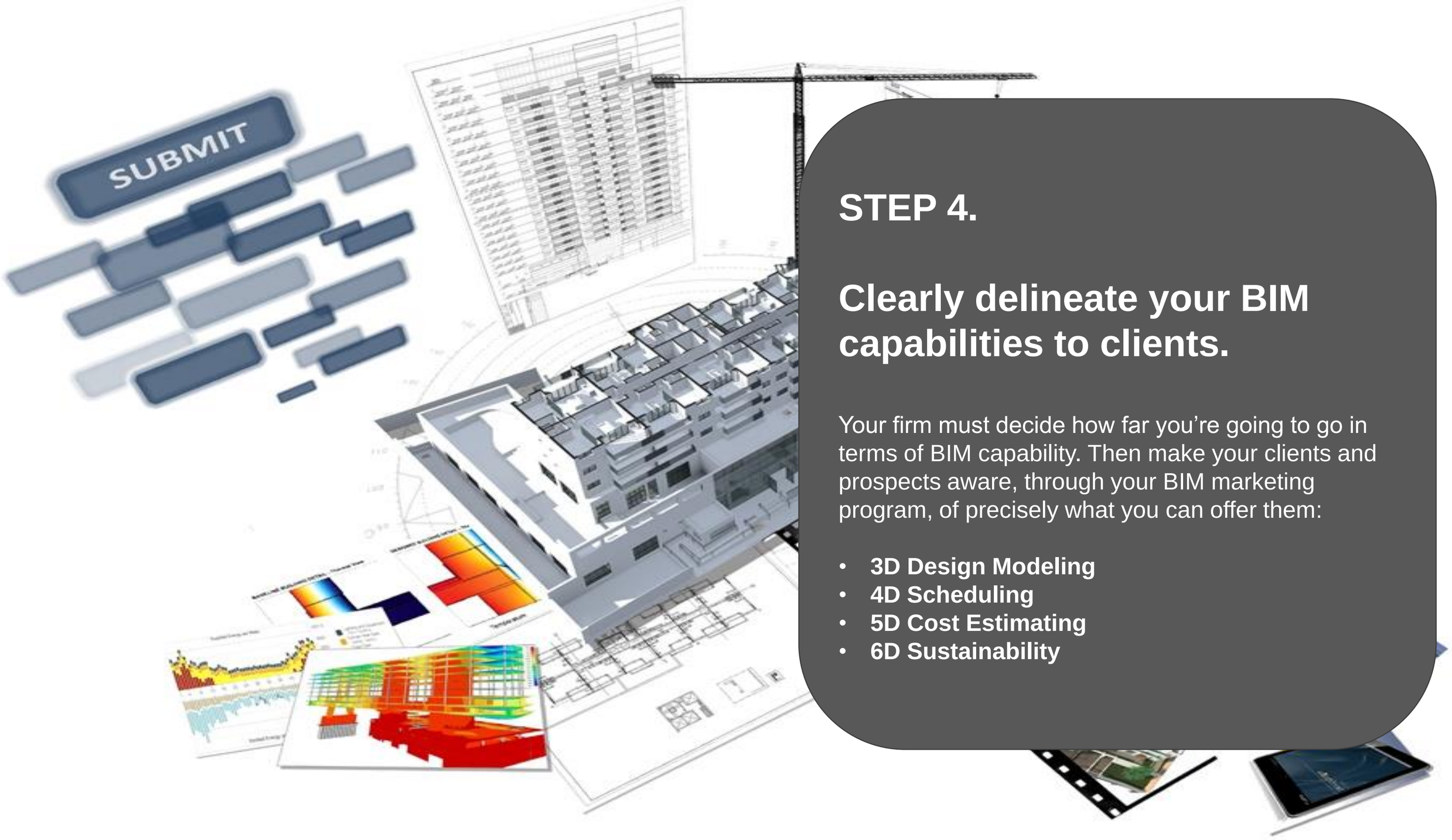
Establish a BIM vision that is linked tightly to your firm’s philosophy and goals and is fully enmeshed within the fabric of your organization.

A BIM vision should clearly reflect your organizational culture as it relates to BIM and how it will define future direction related to staff roles and responsibilities, skill sets, service offerings, and strategic positioning. In other words, how does BIM fit within your organization, both structurally and philosophically? How will it change your business?

STEP 3.

Identify a BIM champion within your organization to lead the effort.

As the face of BIM in your organization, your BIM champion will have to reach out to a wide group of stakeholders, both internal—marketing, finance, principals—and external—clients, prospects, and their representatives. The BIM champion must be the kind of person who can listen to and understand the needs of clients and prospects and implement business strategies to meet those demands most effectively. At the same time, this person must have the ability to push back on those who resist change.



STEP 4.

Clearly delineate your BIM capabilities to clients.

Your firm must decide how far you're going to go in terms of BIM capability. Then make your clients and prospects aware, through your BIM marketing program, of precisely what you can offer them:

- **3D Design Modeling**
- **4D Scheduling**
- **5D Cost Estimating**
- **6D Sustainability**

BIM PROJECTS

3D 4D 5D 6D 7D

STEP 5.

Embed BIM into your firm’s marketing content. Start by creating a BIM portfolio.

The BIM portfolio is your firm’s BIM résumé. You will need to combine your recent BIM project success stories with your core services to build a new presentation of your more robust capabilities. BIM can be presented as a set of processes, workflows, and technologies leveraged within your firm to aid in your core-service delivery. BIM portfolios should include a mix of media—images, animations, and roadmaps—that showcase your BIM capabilities.

YOUR COMPANY PROFILE

STEP 6.

Educate your client-facing staff on BIM trends, language, and culture.

Even the best marketing materials cannot win business without personal intervention. Client-facing staff, especially senior management and business development staff who interact with prospective and existing clients, need to know how to speak the language of BIM. They should not be expected to become technical experts, but they do need to stay on top of the trends in BIM within the industry and how your firm’s BIM vision addresses those trends.

STEP 7.

Customize responses to RFPs and tailor them to the BIM-related needs of the client.

- Standards and processes
- Strategy plan – template to develop a project BIM execution plan
- Software requirements for each discipline
- Workflow processes and methodologies: meetings, clash detection, takeoffs, and reporting
- BIM model management procedures, content management, and archiving

STEP 8.

Prepare a customized approach.

Here is where you show your understanding of the client’s needs and expectations relating to BIM. Ask questions and offer suggestions (if invited to do so). Appreciate the client’s motive for using BIM. Brief the client on potential processes or obstacles they may not be aware of. Finally, write the response around the client’s scope and showcase the BIM portfolio and capabilities.

551638
?

AUTODESK.
DO NOT FORGET TO
TAKE YOUR CLASS
SURVEYS IN THE AU APP

AUTODESK®

Make anything.

Autodesk and the Autodesk logo are registered trademarks or trademarks of Autodesk, Inc., and/or its subsidiaries and/or affiliates in the USA and/or other countries. All other brand names, product names, or trademarks belong to their respective holders. Autodesk reserves the right to alter product and services offerings, and specifications and pricing at any time without notice, and is not responsible for typographical or graphical errors that may appear in this document.

© 2017 Autodesk. All rights reserved.