Our Journey to BIM360

Clay Starr
Director of Engineering Applications - Arcadis

AUTODESK. UNIVERSITY

About me

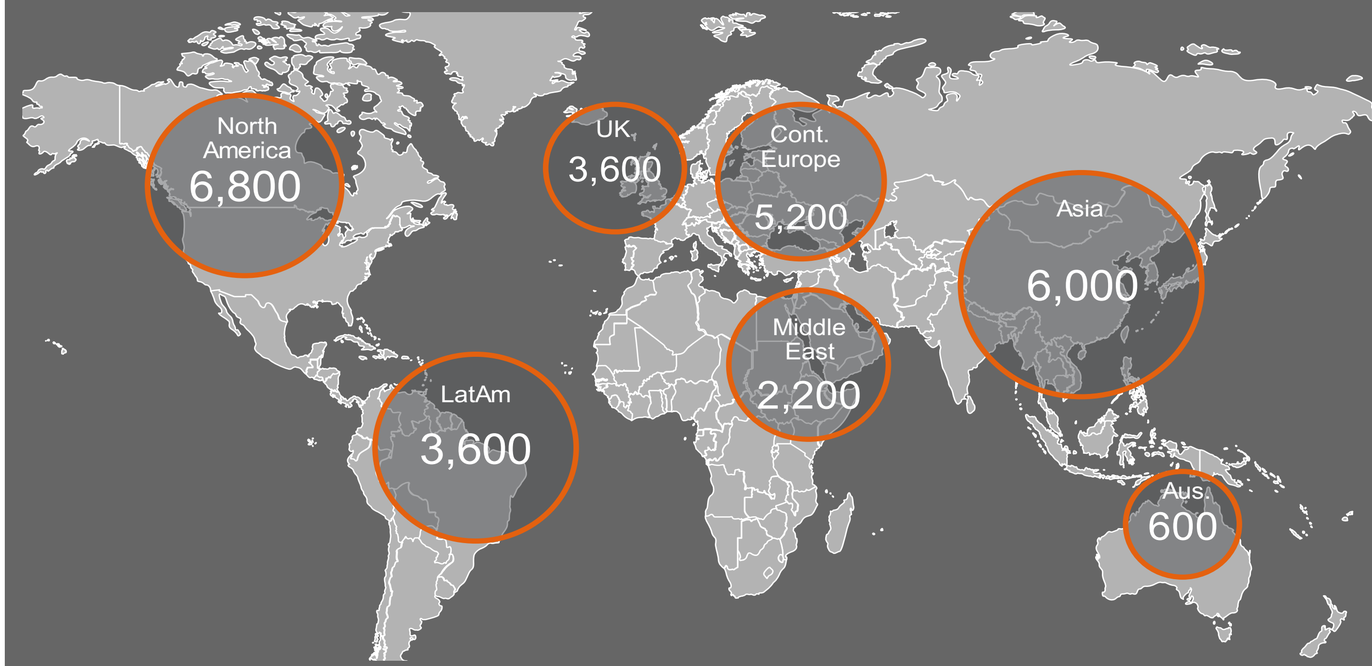
Clay Starr

- Architect
- Dallas, TX
- 19 years in AEC
- @claystarr
- Play 5 musical instruments

INTRODUCING ARCADIS
KEY FACTS

WE ARE THE LEADING DESIGN & CONSULTANCY FOR NATURAL & BUILT ASSETS

OUR PEOPLE ACROSS THE GLOBE



GLOBAL REACH.....
We have over 350 offices in over 40 countries around the world and are active in projects in more than 70 countries

€3billion
Gross Revenue

28,000
People Worldwide

Established
1888

OUR CAPABILITIES

PROGRAM MANAGEMENT

Assuring delivery of planned business benefits and outcomes for clients by developing delivery strategies and managing programs, projects and construction safely, to time, cost and quality.

COST MANAGEMENT

Be it a high rise office building, a state-of-the-art rail station or a large scale industrial development, the need to achieve value for money is central to every investment strategy.

ENGINEERING

Large civil engineering structures like dams, power plants or water treatment plants require strong capabilities in structural engineering, and the ability to apply them to large scale projects.

DIGITAL INNOVATION

Many companies know that digital tools and platforms can help their business but need guidance on the best ways to unlock their full potential. Our experts understand digital technologies and help our clients leverage them to generate value.

ENVIRONMENTAL SOLUTIONS

We all deserve a clean, safe environment in which to live. Now more than ever, businesses and governments recognize the need to incorporate environmental concerns into their decision making and translating the value of clean water, air and land into economic terms is crucial for success.

BUSINESS ADVISORY

Developing asset improvement and investment strategies that enhance value, productivity and reputation for our clients.

MASTER PLANNING & SUSTAINABLE URBAN DEVELOPMENT

Creating compelling, resilient urban visions which enhance competitiveness within urban areas and improve quality of life.

ARCHITECTURE

Through our leading architectural based design consultancy, CallisonRTKL,we enrich lives and design solutions to meet the complex issues of our clients, our world and our time.

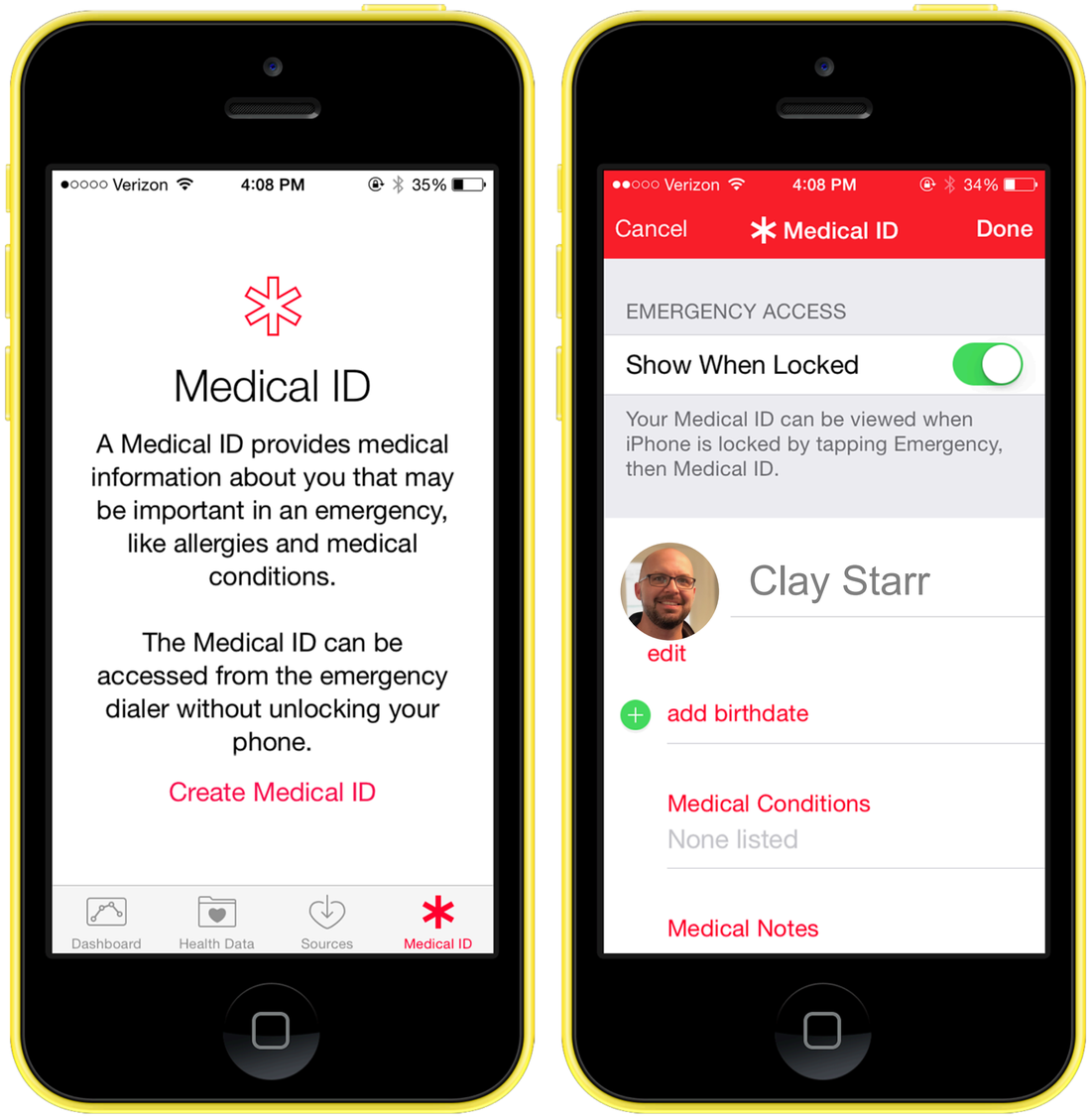
WATER SOLUTIONS

From source to tap and then back to nature, the planet's most precious resource should be cherished. Arcadis' specialist teams around the globe are uniquely positioned to provide safe and secure water across the full water cycle that is built to withstand the demands of a rapidly changing world.

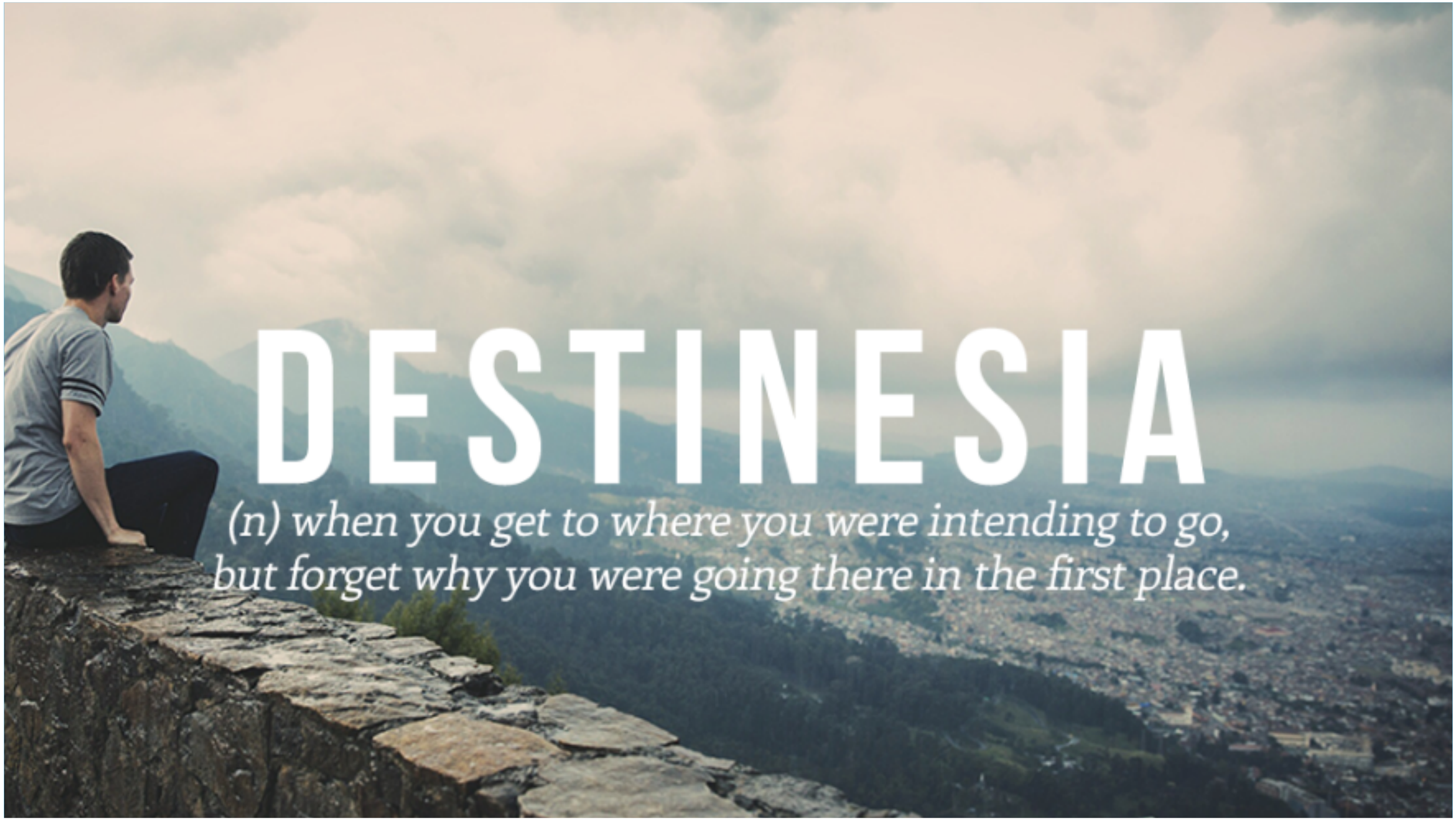
Health & Safety

Emergency Info

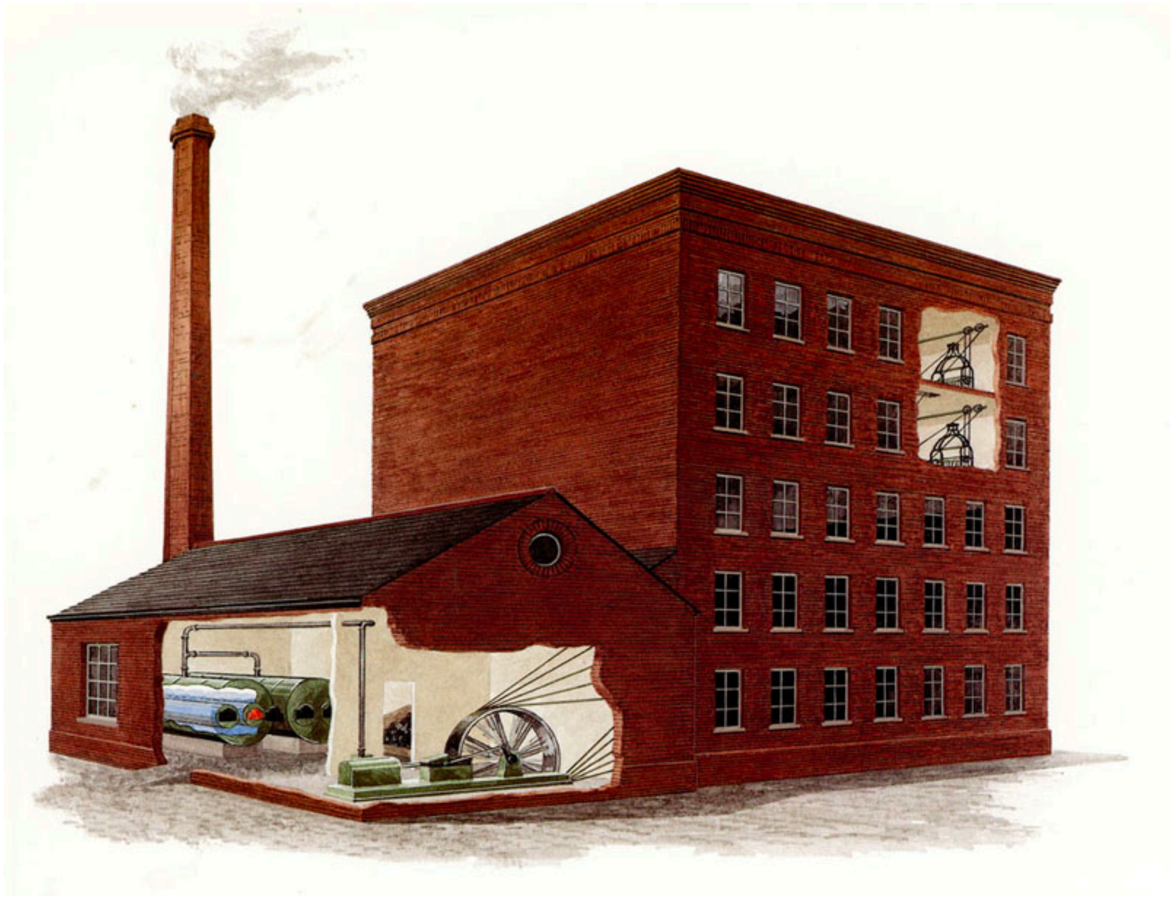
- Available since iOS 8 - Health App
- Personalize to keep important health information in case of emergency
  - Be sure the “Show When Locked” function is activated.
- Access from lock screen
  - Tap unlock
  - Tap “Emergency”
  - Tap Medical ID, on the emergency dial screen



- WHY DO YOU NEED A CDE?
- BIM360 GLOBAL STRATEGY
- ADOPTION TO DATE
- LIGHTHOUSE PROJECTS
- NEXT STEPS
- LESSONS LEARNED
- QA


DESTINESIA
(n) when you get to where you were intending to go,
but forget why you were going there in the first place.

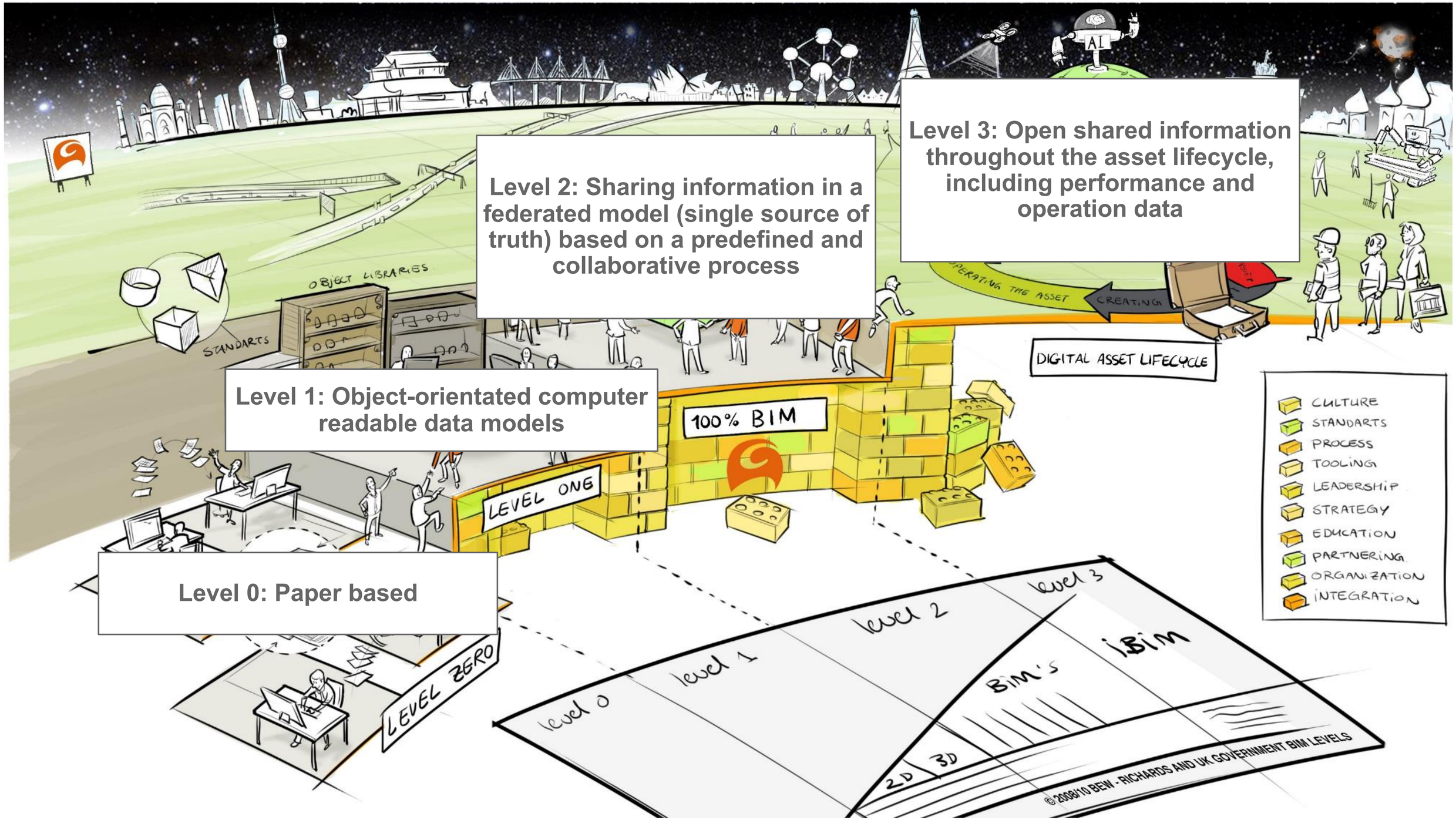
Overcoming the lag between technology and productivity

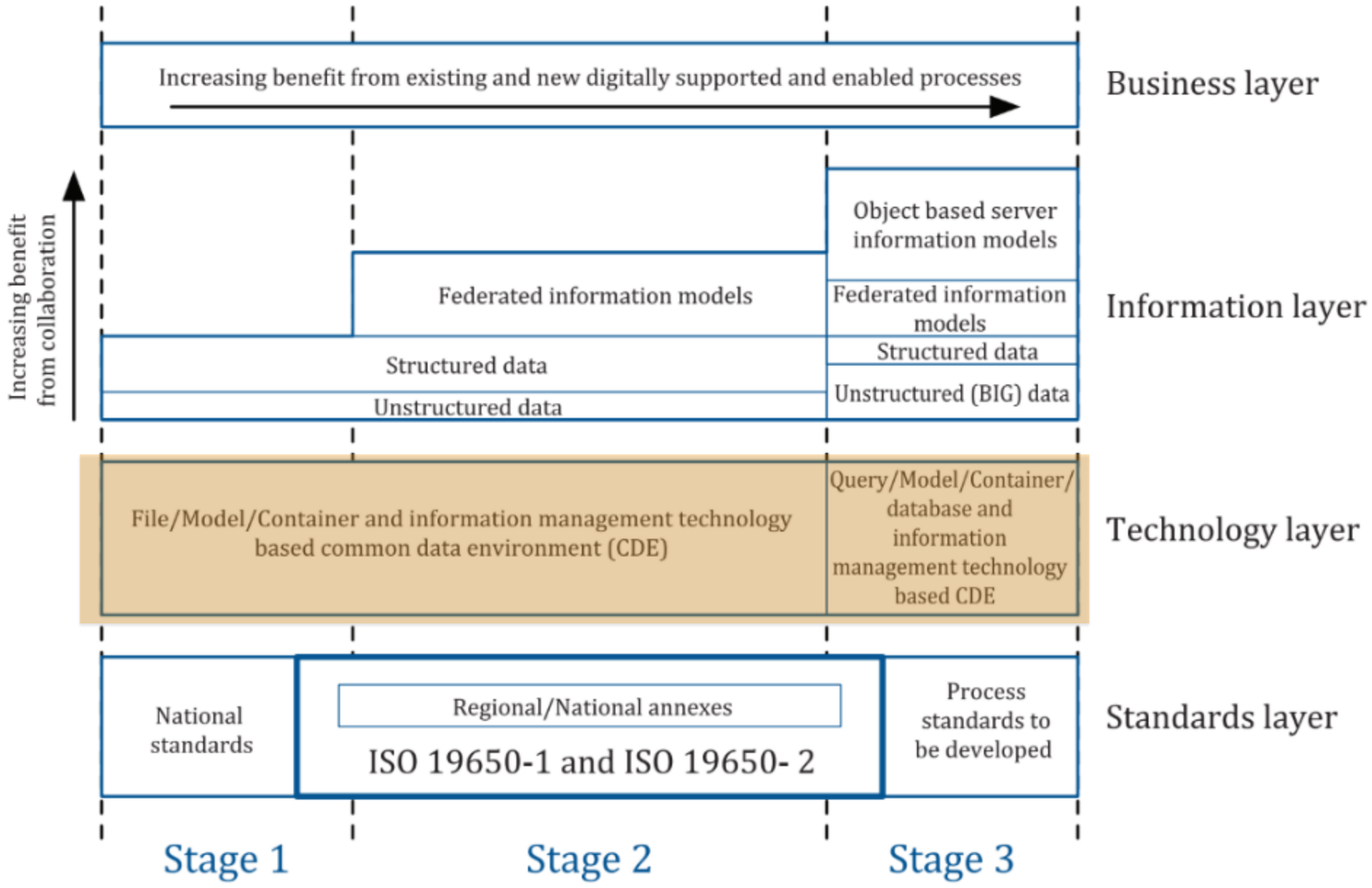


Steam-powered factories had to be arranged on the logic of the driveshaft.

Electricity meant you could organize factories on the logic of a production line.

Why do we need a CDE?


Level 0: Paper based
Level 1: Object-orientated computer readable data models
Level 2: Sharing information in a federated model (single source of truth) based on a predefined and collaborative process
Level 3: Open shared information throughout the asset lifecycle, including performance and operation data
OBJECT LIBRARIES
STANDARTS
LEVEL ONE
LEVEL ZERO
100% BIM
AI
CREATING
DIGITAL ASSET LIFECYCLE
CULTURE
STANDARTS
PROCESS
TOOLING
LEADERSHIP
STRATEGY
EDUCATION
PARTNERING
ORGANIZATION
INTEGRATION
level 0
level 1
level 2
level 3
BIM's
iBim
2D
3D
© 2008/10 BEW - RICHARDS AND UK GOVERNMENT BIM LEVELS



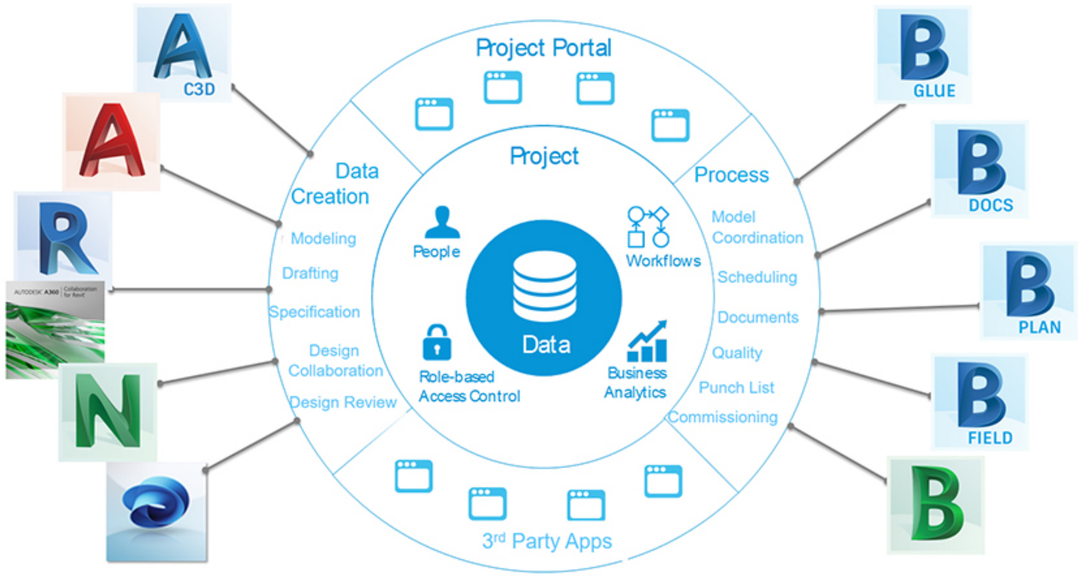
ISO 19650

Rethinking and streamlining BS1192 for tomorrow

CDE and BIM Level 2

A Pre-requisite to manage level 2 projects

- To provide a **controlled and manageable** environment to be able to **ensure information quality and consistency**
- Having **the ability to lead the BIM process on projects** with external parties



2017 Platform Selection Process
MoSCoW Prioritization

Must Have	Should have	Could have	Won't have
Non Negotiable "Without this I need to perform this function in another existing solution and removes the benefits of this platform"	Important but not vital "It should have this functionality, but without it I can find a way that doesn't take away all the benefit of this platform"	Desirable "This functionality would be useful to have, but I can find an easy way around it with very little impact on the benefit	No value "This functionality does nothing for me and brings no value or benefit"
3 pts	**2 pts**	**1 pts**	**0 pts**

Mapped against, available now, short term (1-2 years), mid-term (2-5 years)

Detailled results

	No.	Description	Weight based on MoSCoW	Vault		A360/CFR		Projectwise		Quadriserver	
				Score	Weighted score	Score	Weighted score	Score	Weighted score	Score	Weighted score
Solves current problems	8	Possibility to open previous versions	42	3	126	3	126	3	126	3	126
	1	Collaboration with external parties, outside the ARCADIS domain is possible	39	3	117	3	117	3	117	3	117
	13	Support for open standards like IFC, LandXML	38	3	114	3	114	3	114	3	114
	7	Versionmanagement of the models	36	3	108	3	108	3	108	3	108
	2	Support for linked files in Revit	33	3	99	3	99	3	99	0	0
	14	Security concerning access to the model (No access, read-only, edit)	32	3	96	1	32	3	96	3	96
	20	After updating the changes should be visible for everyone directly	32	3	96	3	96	3	96	3	96
	5	Support for all kind of software, not only Autodesk software	29	3	87	1	29	3	87	0	0
	38	Support for notifying users on certain changes to the model	29	3	87	1	29	3	87	1	29
	43	Good external support	28	3	84	3	84	3	84	3	84
	9	Highligh or hide selected aspectmodels in the overall model	27	3	81	3	81	1	27	3	81
	34	There is workflow support for peer reviews, client reviewing of versions of the model	27	3	81	3	81	3	81	3	81
	16	Logging - who has changed what at which date and time	26	3	78	3	78	3	78	1	26
	3	Support for Navisworks filestructure	25	3	75	3	75	1	25	0	0
	18	No working in central model but working in own local environment	24	3	72	3	72	3	72	3	72
	37	The system handles transformation among data in different coordinate systems automatically	24	3	72	1	24	0	0	3	72
	22	Creating remarks in the model	23	3	69	3	69	0	0	0	0
	35	The ability to work on parts of the overall model, supported by merging, checking in and out functions.	23	3	69	3	69	0	0	3	69
	36	Support for locking parts of the model	21	3	63	3	63	0	0	3	63
	42	Easy to use and learn	21	3	63	3	63	3	63	3	63
	48	possibility to work locally or centrally with similar layouts/environments	13	3	39	1	13	0	0	3	39
	4	Support for Xrefs in Civil 3D	12	3	36	3	36	3	36	1	12
	52	Product with recognition and dissemination in the sector	10	3	30	3	30	3	30	3	30
	56	Web based to allow access with no downloaded software	8	3	24	3	24	3	24	3	24
	57	Two tiered platform - designer side and client side	7	3	21	3	21	3	21	3	21
		SUB TOTAL SCORE (Solves current problems)	**629**	**75**	**1887**	**65**	**1633**	**56**	**1471**	**57**	**1423**
		SUB TOTAL SCORE (scale 1 - 10)	**1887**		**10.0**		**8.7**		**7.8**		**7.5**

Why do we need a CDE?

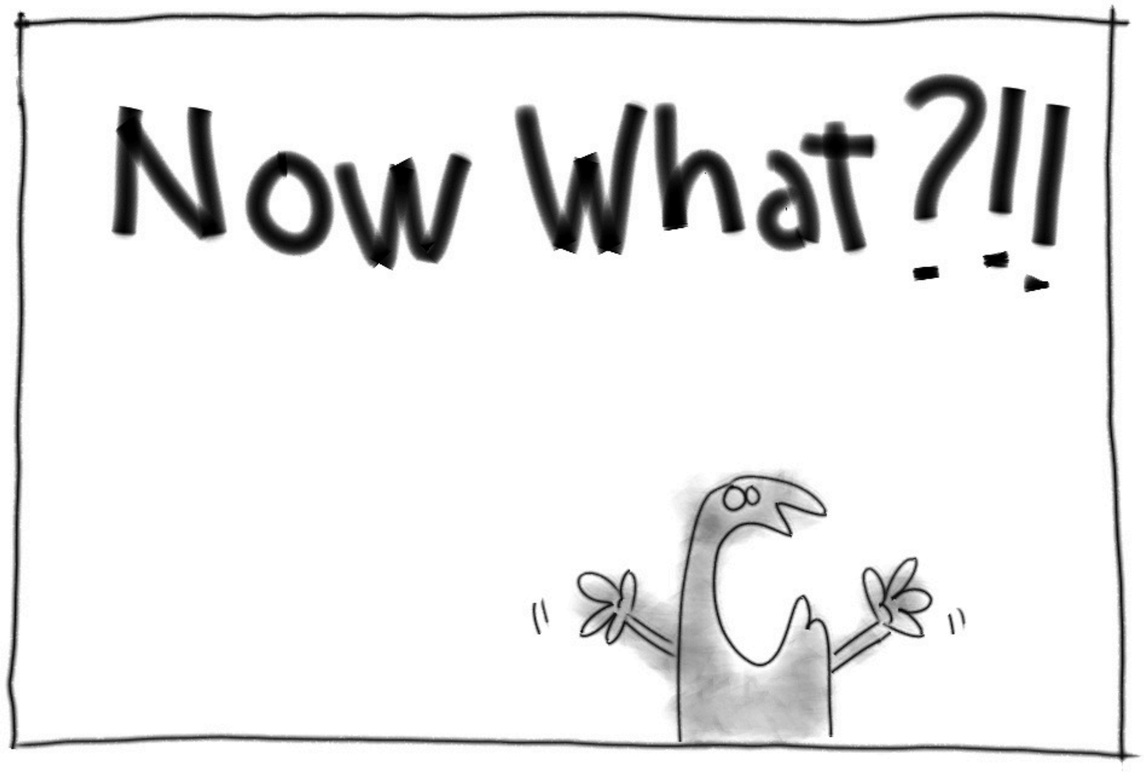
Solving current problems

	29	The system can be easily adapted to exchange data via client/domain specific information models based upon XML/GML.	23	0	0	0	0	0	0	3	69
	41	Clash detection	23	0	0	0	0	0	0	0	0
	10	Creating walk through for inspections	22	0	0	3	66	0	0	1	22
	12	Creating simulations	20	0	0	0	0	0	0	0	0
	17	Exchange with the requirement - Relatics	20	0	0	0	0	0	0	0	0
	40	Search capabilities for administrative properties of objects (example: find all objects that have reference to id 1234567)	20	3	60	3	60	1	20	1	20
	44	good graphical representation of model elements. (ie- little or no model triangulation for complex forms when viewed in an hidden line scenario)	20	1	20	3	60	0	0	3	60
	11	Creating visualizations	17	0	0	0	0	0	0	0	0
	21	Viewing on Android and IOS	17	3	51	3	51	3	51	3	51
	30	Support for multiple object type libraries (OTL) based on the System Engineering concept of partonomy and taxonomy in goals, requirements, functions, systems.	17	0	0	0	0	0	0	3	51
	50	Product being further developped and followed up	16		0		0		0		0
	51	Possibility to dialogue with supplier for product development	16		0		0		0		0
	33	The server system has an open interface for client software.	15	0	0	0	0	0	0	3	45
	39	Ability to assess the quality of the model through predefined rules (for instance defined relationships among objects in the OTL)	14	0	0	0	0	0	0	0	0
	49	Pricing compatible with the market prices	13		0		0		0		0
	23	Support for shortcuts in Civil 3D	12	0	0	0	0	0	0	0	0
	53	Speed, stability, WYSIWYG, selfexplaining, light	12		0		0	3	36	3	36
	24	Support for created Subassemblies with Subassembly Composer	10	0	0	0	0	0	0	0	0
	54	Support for Projectwise	10	0	0	0	0	3	30	0	0
	46	Support for infraworks	8	0	0	0	0	0	0	0	0
	47	Capacity to call & open component software from within the overall model	8	3	24	3	24	0	0	1	8
	55	Support for Bentley Navigator	8	0	0	0	0	3	24	0	0
	45	Support for vianova rail	6	0	0	0	0	0	0	0	0
	58	Auditable security processes and access controls within the application (where required on projects)	4		0		0	0	0	0	0
	61	Assurance with respect to long-term access to models and associated data (cloud based solutions)	4		0		0	3	12	0	0
	59	Support to and workflow associated with FM/AM applications	3		0		0	0	0	0	0
	60	Support to 5D applications	3		0		0	0	0	0	0
	31	~~Ability to map to different standards for relationship language (i.e ISO 15926-11)~~	0		0		0		0		0
	32	~~Support for externally hosted OTL's.~~	0		0		0		0		0
		SUB TOTAL SCORE (Solves future problems)	**550**	**15**	**295**	**21**	**420**	**20**	**283**	**31**	**641**
		SUB TOTAL SCORE (scale 1 - 10)	**1650**		**1.8**		**2.5**		**1.7**		**3.9**
		TOTAL SCORE (Overall)	**3537**		**2182**		**2053**		**1754**		**2064**
		TOTAL SCORE (scale 1 - 10)	**3537**		**6.2**		**5.8**		**5.0**		**5.8**

Solves future problems

Why do we need a CDE?

Solving future problems



- Arcadis

Structured Rollout

Stakeholders

INITIAL STAKEHOLDERS

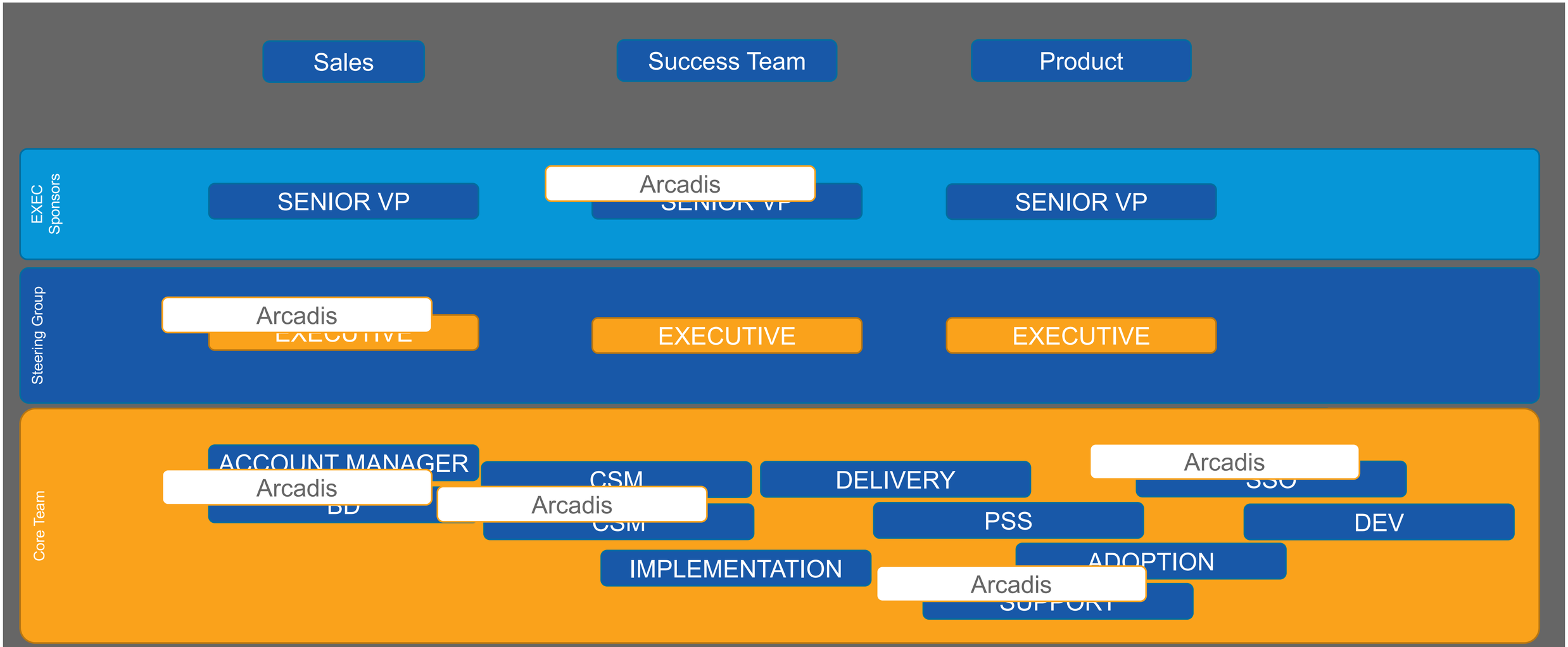
- BIM Managers, BIM coordinators
- IT (Global Engineering Applications Team)
- Digital Implementation sponsors
- Autodesk Customer Facing team and technical specialists

EXTENDED KEY INTERNAL STAKEHOLDERS

- Subject Matter Experts (BIM, Document Controllers, Engineering services, GIS)
- Key Business Units (Buildings- Residential, Commercial, Retail, Workplace, etc… Infrastructure-Roads, Stations, Rail, highways, etc…)
- Legal Department (Data Sovereignty, Ownership by licence)
- Broader IT (Data Security and compliance, Procurement and contract administration, support and maintenance, etc..)

EXTENDED EXTERNAL STAKEHOLDERS

- Potential Client (End client, contractor, etc..)
- Extended design team consultants (Architect, Structures, MEP, Façade Engineering, QS, etc..)
- Autodesk (Account representatives, extended technical teams)
- Potential 3rd party software support providers



Autodesk and Arcadis Partnership

Defining the scope for deployment, support, and optimization was critical.

Global Adoption

Train the Trainer

AUTODESK

CONSULTING SERVICES

Get set up correctly.

ARCADIS IT

APPLICATION OWNERS

Engage technology pros

GLOBAL

BUSINESS OWNERS

Encourage ownership

PROJECTS

PROJECT TEAMS

Increase productivity

Lighthouse Projects

Defining 12 projects to act as beacons to guide the rest of Arcadis in best practices

Multi-project Pilot Implementation Methodology

Planning & Champions Training

- Identify team, lead/shadow projects, & obtain buy-in
- Define pilot success criterion
- Determine Standard Operating Procedures (template) and Best Practices
- Champions Training
- Benchmark for customer success evaluation
- Lead/ shadow project deployment process with Champions
  - Autodesk leads first project implementations/Champions shadow
  - Champions lead with Autodesk mentoring & supporting

Benchmarks Analysis

- Review Initial Roll-out Results
- Re-benchmark to determine customer success
- Re-review and refine Standard Operating Procedures and Best Practices
- Optionally create custom training guide

Ongoing Project Implementations

- Customer Champions work with ongoing projects for set up and user training using Standard Operating Procedures (template)
- Customer Champions provide first level support to project teams
- Autodesk supports Customer Champions and project teams as necessary.
- Autodesk hosts cross-project management level reporting review(s)
- Autodesk hosts monthly implementation status (Champions call)

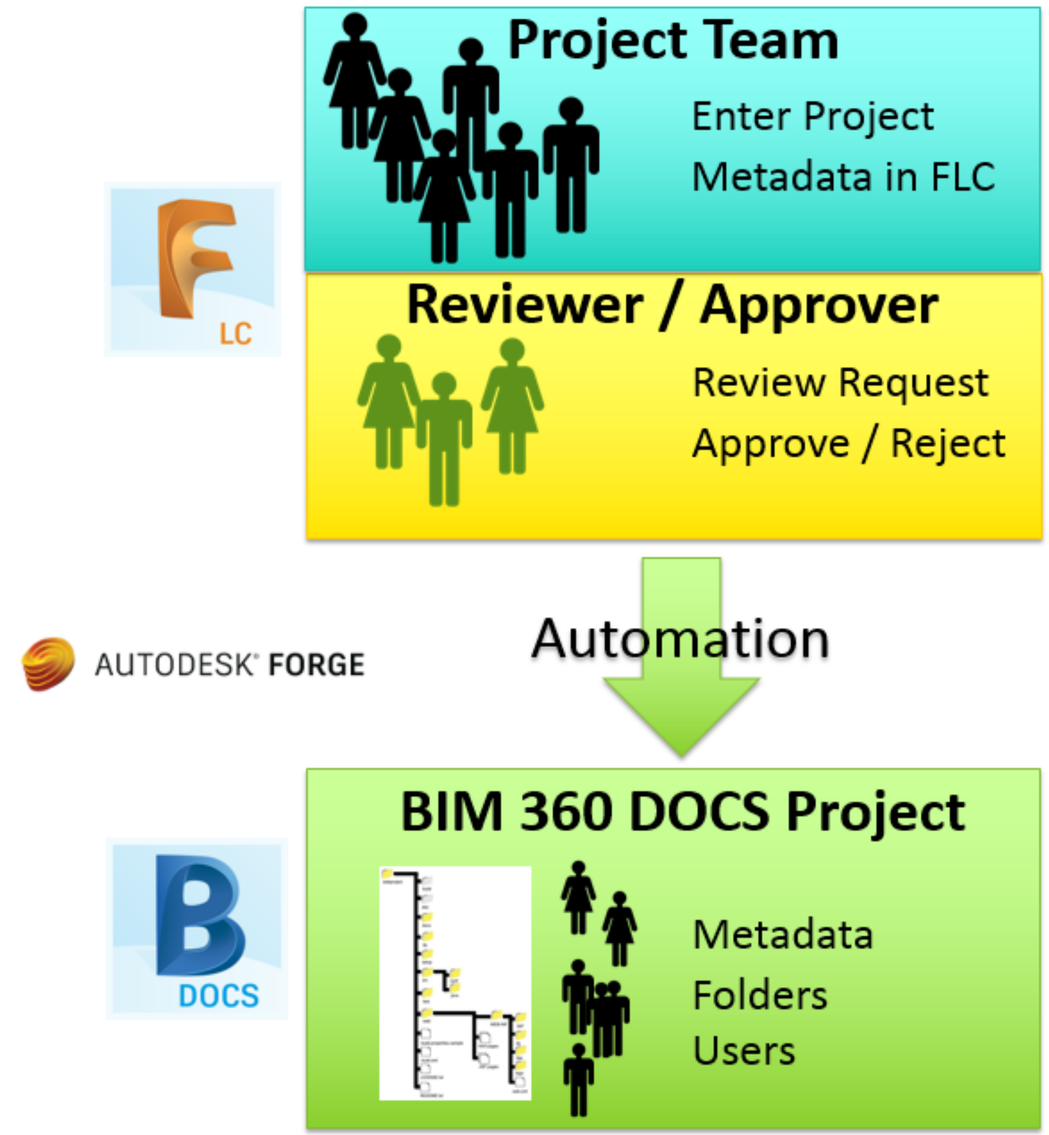
BIM360 BY THE NUMBERS

12.7k	6k	1.3k	36
USERS	PROJECTS	COMPANIES	ROLES
Internal and external for maximum coordination	Global reach across multiple businesses	Everyone is invited!	Roles drive access and keep things organized

Forge-ing a Future

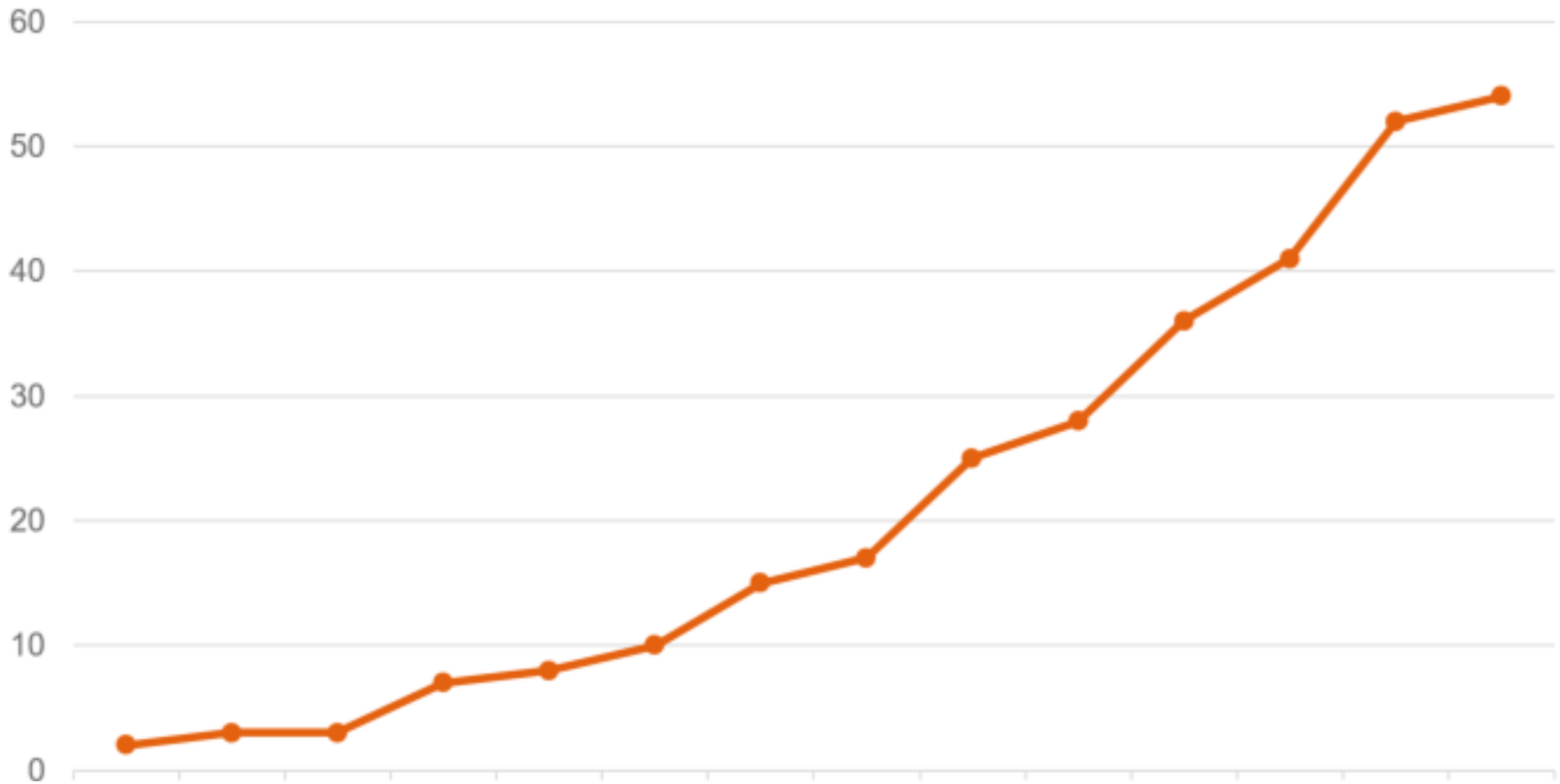
Optimized Project Creation

- **Goal:** Automated project creation process based on input from Project team
- Project Setup Request in Fusion Lifecycle
- Project creation in BIM 360 DOCS
- Setup of standardized folder structure
- Assignment of users



Lessons Learned

BIM360 Design Usage



1. Define Realistic Goals
2. Stakeholder Engagement
3. Empower the Willing
4. Maintain Communication
5. Be Flexible
6. Share!

AUTODESK®

Make anything™