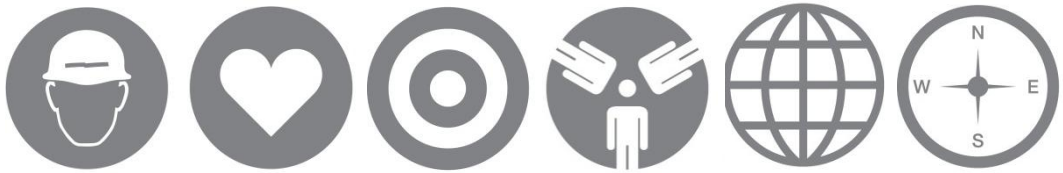
IFC
the Main Contractor
perspective

Professor David Philp – Head of BIM



Safety First | Integrity | Client Focus | Opportunity | One Mace Worldwide | Pursuit of a better way

mace

8th April 2013

0% Data loss
Interest Free Credit (IFC)
*Credit subject to acceptance

mace

Our commitment:

At Mace we believe our customers should receive the very best experience. The purpose of the Mace BIM, delivery model ALi360 is to optimise outcomes and service delivery for our clients at all stages of the project life cycle.

ALI 360

Asset life cycle integration

ALi360 is pivotal to our mission of operational excellence; it utilises digital tools, integrated processes and structured data sets to visualise, simulate and optimise the asset. This is underpinned by our people and culture of innovation and collaborative working.

In support of these objectives we have formulated a set of ALi360 commitments that we will strive to deliver to each of our customers, project teams and stakeholders:

- Deliver level 2 BIM_2 on all relevant projects by 2015
- Actively engage and support our supply chain to help them develop their BIM capability and share knowledge in the spirit of teamwork
- Create a culture of collaboration and creativity in which our project teams and stakeholders can thrive
- Enhance outcomes in safety, efficiency and sustainability through a collaborative BIM working environment
- Enabling a digitally integrated process where we build twice: once virtually and once on the site
- De-risk and add value through enhanced 3D communication and transparent data transactions
- Support an ethos of BIM platform neutrality, encouraging open workflows which allow all project members to work in a collaborative environment

mace

Open Data Standards Are Worth Fighting For!

mace

IFC is an important issue!

The Role of the contractor in the BIM process

Defining programme / project level data requirements

Creation of data (£/Time)

Info Management / Integrator / Transactions & Queries

mace

We want to:

Transact / query our asset data sets

- **COBie UK 2012**
- **IFC**

Talk to earth and sustainability

- gbXML(energy)
- CityGML(city models)
- landXML(roads)

mace

The vision

Well managed construction data

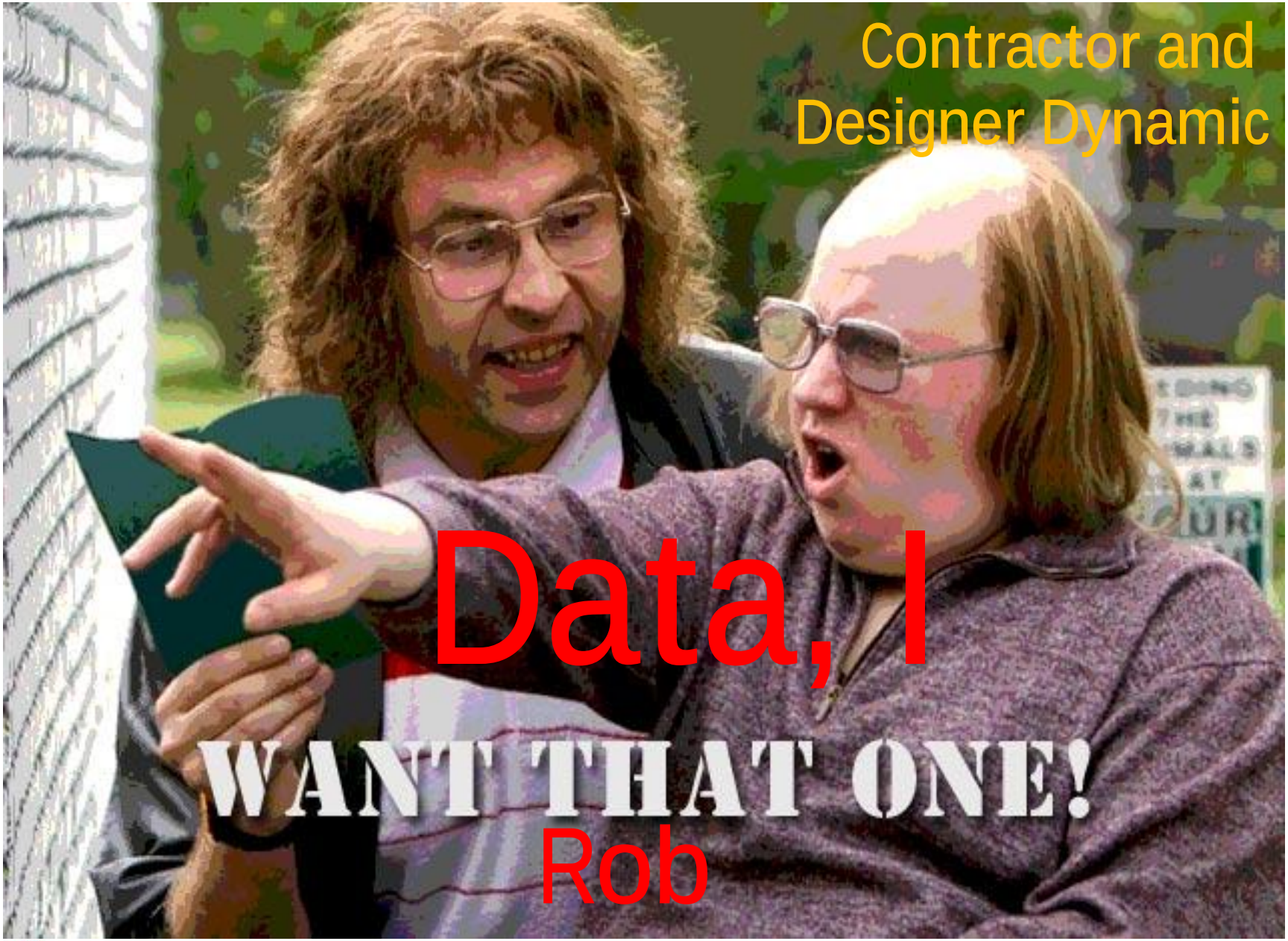
Shared across disciplines

Running through the asset lifecycle

Real time evaluation

Active management of post occupancy performance

mace

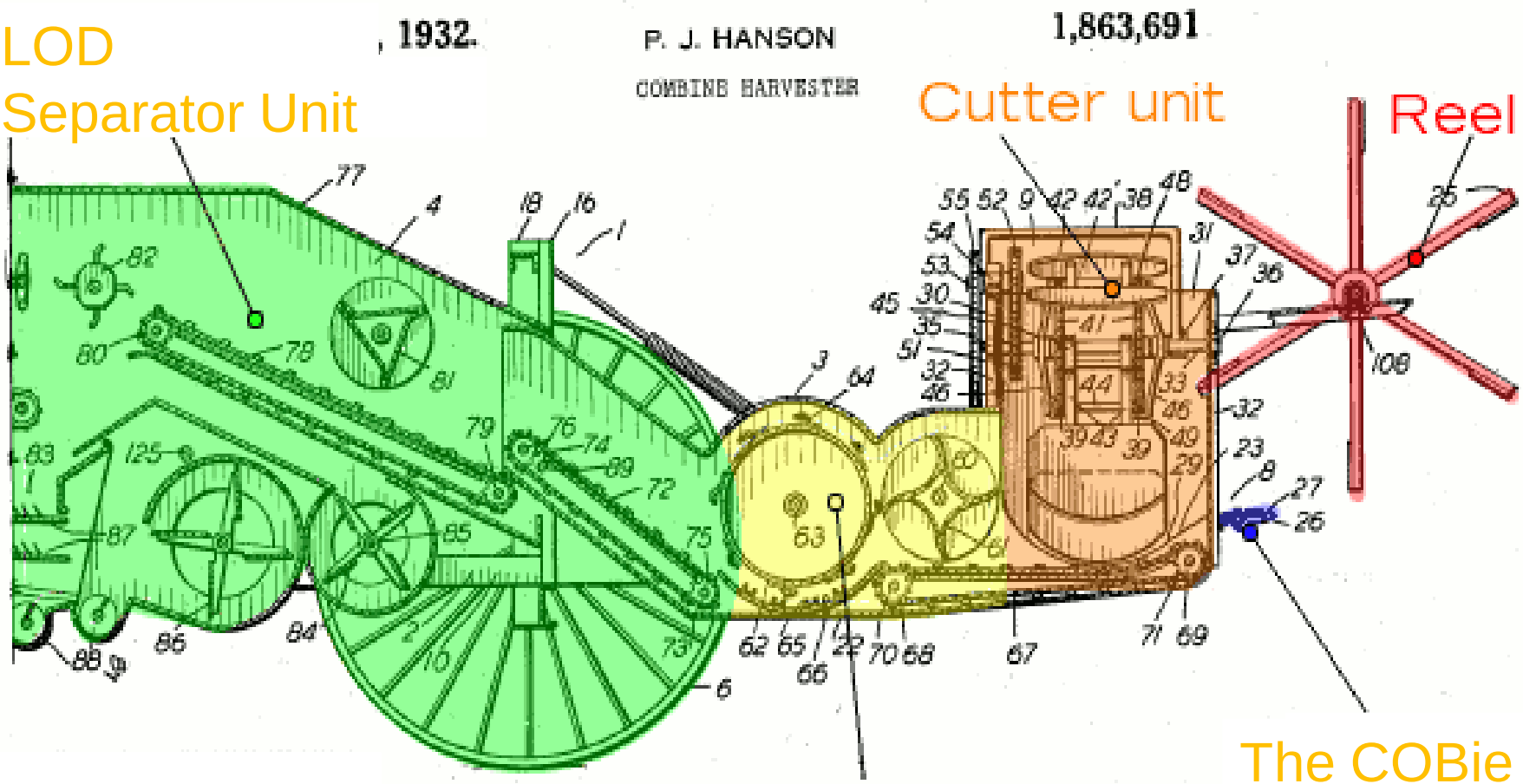


mace

The reality is our designers and specialists use a cornucopia of tools in the BIM battlefield and generally, they don’t play well together

Designers
Inputs
Main Contractor
Outputs
The fields Of Data

We generally, don't really care what happens in here!



We need to be good at defining Our data needs

mace

We are interested in the end results – did we get the data we needed?

mace

We want to be able
To test and validate it

mace

mace

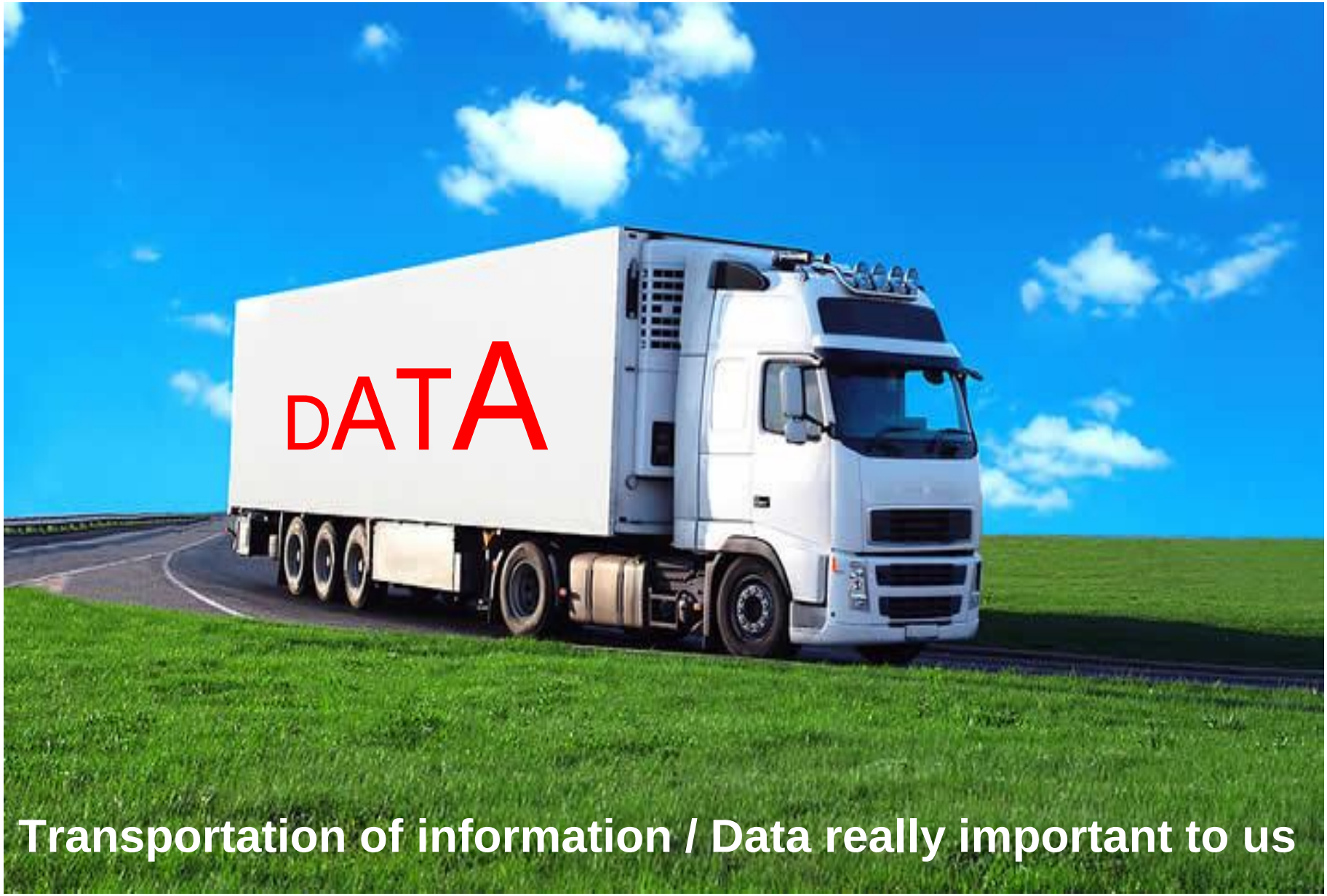
We want to do things with it!

View it

Cut things from it

Query it

mace



Transportation of information / Data really important to us

mace

Instant
Translation

Of our BIM data

Safe transportation of our data worldwide

mace

Its important that we don’t loose anything in the shipping process

mace

We don’t just want to
ship 3D data but also
alphanumeric information to
building objects and
maintain these relationships

mace

Its important that everyone can play on a level field, especially SMEs

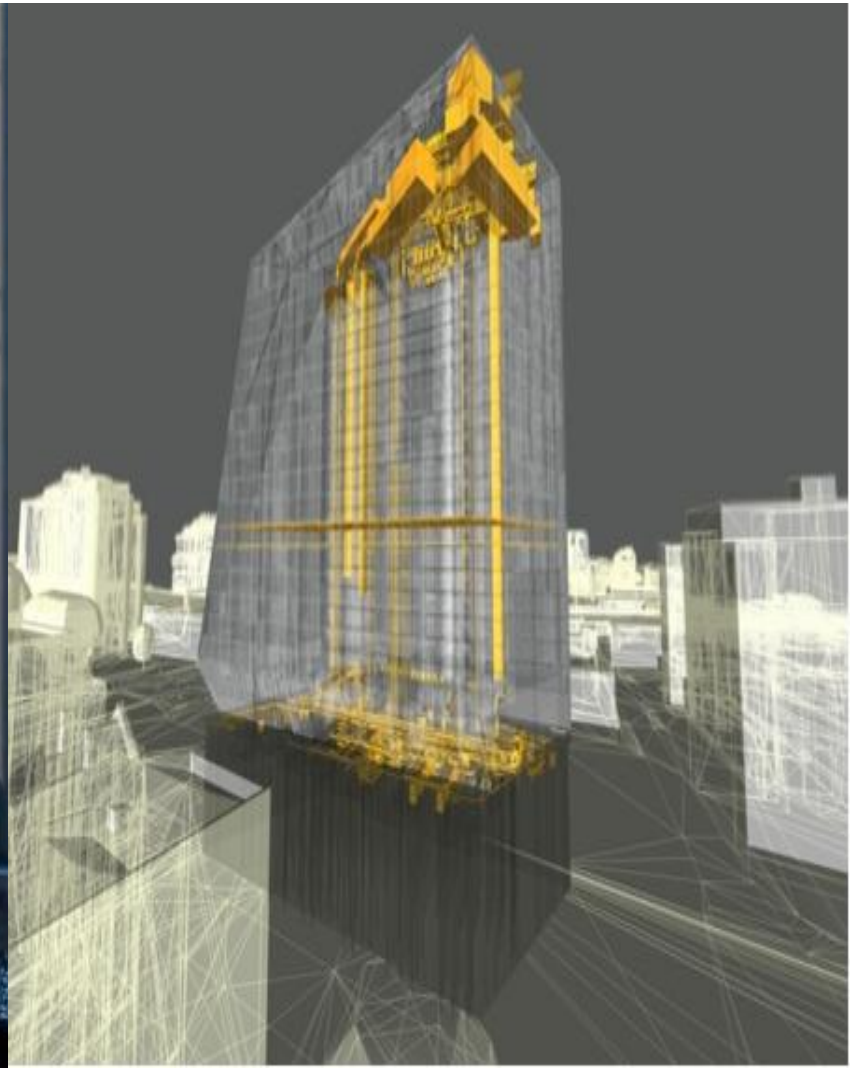
mace

We want a supply chain that can collaborate

mace

To view, To Validate

mace



That works for both vertical and linear assets

mace

We really want interoperability!

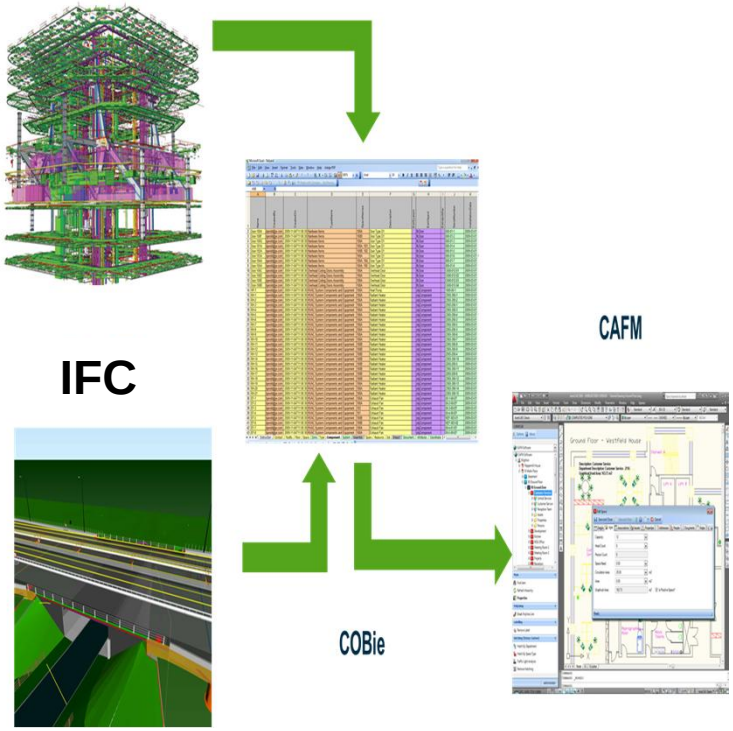
mace

Lets us cut COBie easily

IFC as an intermediate format to produce COBie datasets.

COBie is all about the objects and their property sets. So the hierarchical nature of IFC (building, spaces, type objects, component objects, property sets) makes this map perfectly to COBie.

COBie is a subset of IFC



mace

Not just about IFC in isolation

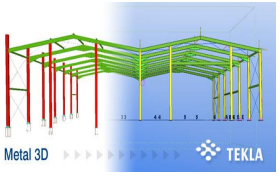
- IFC – The Rules
- Standards: BS8541, COBie UK 2012
- Classification systems

mace

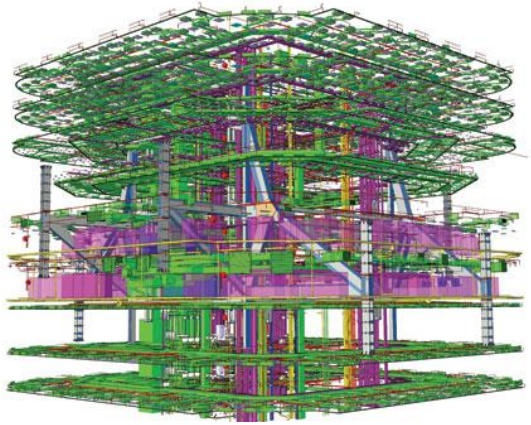
Putting procurement of data without a detailed understanding of BIM and IFC is a challenge?

mace

Lack of parametric functionality in operation is a problem though!



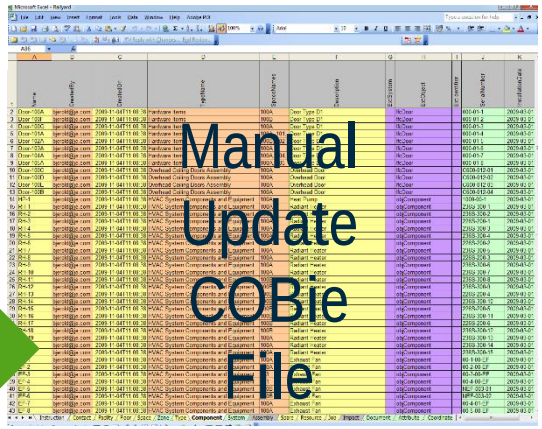
Update Native Files



IFC to Proprietary Systems

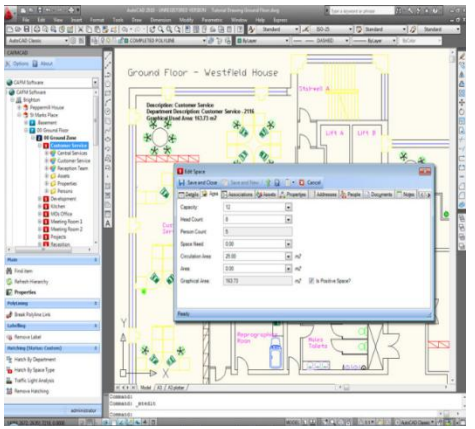
Federated IFC

Alteration to asset



Manual Update COBie File

CAFM



mace

Digital Ecosystem

- Lighting Equipment, Bridge and Tunnel – Autodesk Inventor
- Ecological and pollution Design – ArcGIS, AutoCAD Map 3D
- GIS Portal and overnment data – AutoCAD Map 3D, Mapinfo, Regional GIS portal and Russian Public Cadastral Portal
- Auxiliary models – SketchUP
- Conception Visualization – Autodesk InfraWorks, AutoCAD Raster Design, SAS Planet
- Road Design – Autodesk Subassembly Composer, Robour Roads

mace

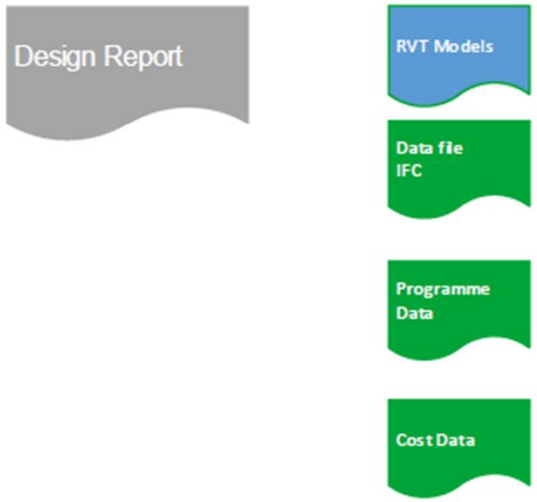
brydenwoodrus

GUTENBORG
СЛАВНЫЙ КВАРТАЛ

ОТБ
РЕНОВАЦИЯ
новая жизнь
городских кварталов

“Stage C” Data Drop 5 – Gateway E

Data drop 5

Plain Language Questions	BIM
1) What is the pre-design solution? In particular what are the layouts? 2) And does the architecture meet the vision? 3) Does the design’s performance meet the design brief? 4) What is the outline proposal for structural design? 5) What are the output requirements from services systems? 6) What is the commissioning strategy and how can it be tested? 7) Can the designers show the project can be delivered safely? 8) Has the concept been designed for efficient manufacture and assembly? How easy is it to build? 9) What is the preliminary cost estimate? 10) Does the design optimise the use of library components versus bespoke components? 11) Is the Architectural, MEP and Structural design coordinated ? 12) What is the initial revenue (FM) cost? 13) Does the design require any special exception from state expertise or any planning department?	

Pro's:

- It works in both Solibri and CostOs
- Good that more use of IFC is being recognised by vendors

Cons:

- Massive file size compared to DWF for CostX, CostOs machines struggled to handle the file size.
- It impinges on Revit workflows as Revit can not export one IFC file of linked files, very difficult at early stages when re-using whole floors.
- No allowance for infrastructure and civils which is one of the major key interfaces.
- Still some information is not exported.
- IFC file structure is very complex.
- Issues with export of spaces from Revit.
-
- Even though it is in the designers contract it was hard/impossible to get them to make anything but native revit files with the exception of one designer. In the end we made the IFC files ourselves to be sure that they were made consistently and from the matching Revit Data. (real trust issues)
-
- Validation process is a mix of Document Control Validation, Revit validation, Navis validation and Solibri Validation.

mace

Being driven by industry is a good thing!

mace