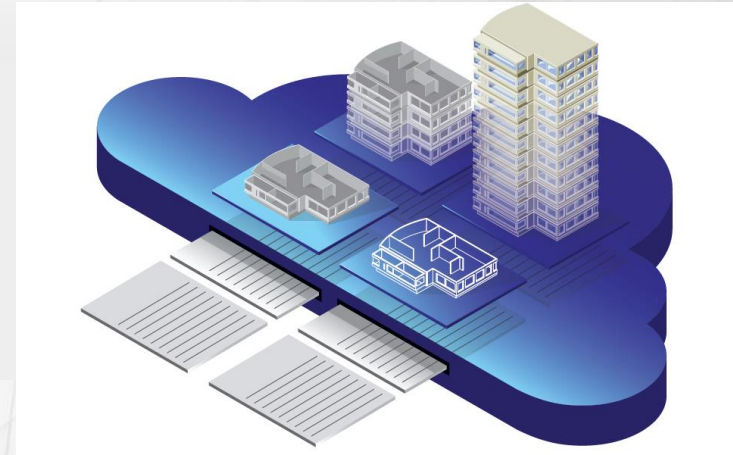


# Digital Transition Strategy - managing Building Information for the Asset & Workplace Life Cycle and the advantages it brings to our Industry.

George Harold

Integrated Facilities Solutions



Design & Construction



Handover & Close-out



Operations & Maintenance

# Managing multiple Projects' Information



# How did we get here



## 1.7.3. Information Required on Completion of Contract

Within three weeks of completion/handover of the works the Contractor shall submit three copies of As-Built Manuals as described below.

Each copy of the As-Built Manuals shall consist of a set of **hard cover spring folder files** and also two electronic copies containing the following.

- Index of Contents
- Index of equipment suppliers with reference telephone number, fax number, e-mail address, contact name.
- Index of As-Built drawing
- Copy of each As-Built drawing in individual plastic envelope. This not only includes As-Built editions of the drawings issued by the engineers, but **all equipment vendor drawings** and all interconnection diagrams required to record all terminations made by the Contractor.
- Original copy of manufacturer's brochure, for each item of equipment installed, where brochures cover several items of equipment, the exact units used shall be clearly highlighted.
- Original copy of manufacturer's specification sheets, drawings, diagrams, installation instructions, and maintenance instructions/recommendations for each item of equipment installed.
- Original copy of all testing and commissioning record forms and reports all duly signed and sealed as prescribed.
- Recommended list of spare parts
- Recommended list of maintenance activities for first 12 months following installation completion.
- All other drawings, specifications, information etc. necessary or useful to the Client as per Engineers requirements.

## 3.3 Operating & Maintenance Manual

The Lift Contractor shall supply two draft copies of an Operating and Maintenance Manual(s) for comment.

After receiving comments, the Lift Contractor shall submit **four copies** of the Operating and Maintenance Manuals incorporating all revisions and corrections **prior to the lift(s) being put into service.**

The manual(s) shall be specifically produced for the installation. A collection of manufacturer's leaflets will not be acceptable unless they provide all the information as required by this specification.

The manual(s) shall be of loose-leaf 'A4' type with a plastic bound stiff cover and clearly printed titles on **both the front cover and the spine.**

The manual(s) shall incorporate separator sheets each containing a clearly labelled index tab to enable quick location of each section.

## 3.4. Index

The index shall be comprehensively written and shall be sufficiently detailed to ensure that any item can be correctly identified and its location in the manual found quickly and easily.

# Operational Readiness / Soft Landings Workplace statistics



**80%** OF PROJECTS ARE NOT SPECIFIED CORRECTLY FOR HANDOVER



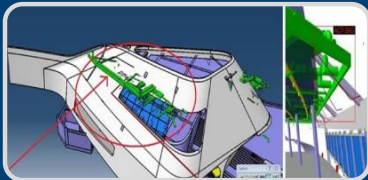
**75%** OF THE PROJECTS STILL SPECIFY MIXTURE OF PAPER, RING BINDERS AND BOXES OF PAPER FOR HANDOVER INFORMATION



**70%** OF THE PROJECTS, THE ON-BOARDING FACILITIES MANAGEMENT AND OPERATIONS TEAM HAVE MINIMAL INPUT, ENGAGEMENT AND INVOLVEMENT IN EARLY STAGES OF ASSET LIFECYCLE



**65%** OF THE DIGITAL HANDOVER INFORMATION IS STILL NOT FULLY REVIEWED, APPROVED AND AVAILABLE FOR THE FM TEAM AT PROJECT HANDOVER.



## **BIM MODEL FOR FM USE AND OPERATIONS**

THE ASSET INFORMATION MODEL NEEDS TO BE LINKED TO ASSET RELATED INFORMATION FROM THE FULLY REVIEWED AND APPROVED HANDOVER INFORMATION.



# Performance Specification for Digital Project Handover

## CLIENT – standard performance specification - Digital Construction Handover Information & Delivery

### Introduction:

The Candidate is required to include in their tender a detailed proposal for the co-ordination, production and delivery of the projects Digital Construction Handover Documentation. This shall be a comprehensive information source and guide for CLIENT Projects & Facilities Management team and provide a complete understanding of the building and facility, its intended performance, its systems and thus enabling it to be operated and maintained efficiently and safely.

### Digital Construction Handover Information (DCHI) Manager – role & responsibility:

The Digital Construction Handover Information (DCHI) and all its specified elements and requirements are to be collated and managed by specialist DCHI Manager Integrated Facilities Solutions Ltd. – [www.ifacsolutions.com](http://www.ifacsolutions.com) – **IFS Digital Project Manual PRO™**. The IFS DCHI Manager will be able to demonstrate a proven structured and strategic approach for the management, production, delivery and support of the DCHI application and associated coordination services. The DCHI Manager will provide a full professional technical service/solution which will result in the production & delivery of a comprehensive and project specific Digital Construction Handover Information Application as approved by the CLIENT Projects & Facilities Management team. The IFS DCHI Manager shall provide a full technical service solution which will produce a comprehensive and project specific CLIENT - IFS DIGITAL PROJECT MANUAL™.

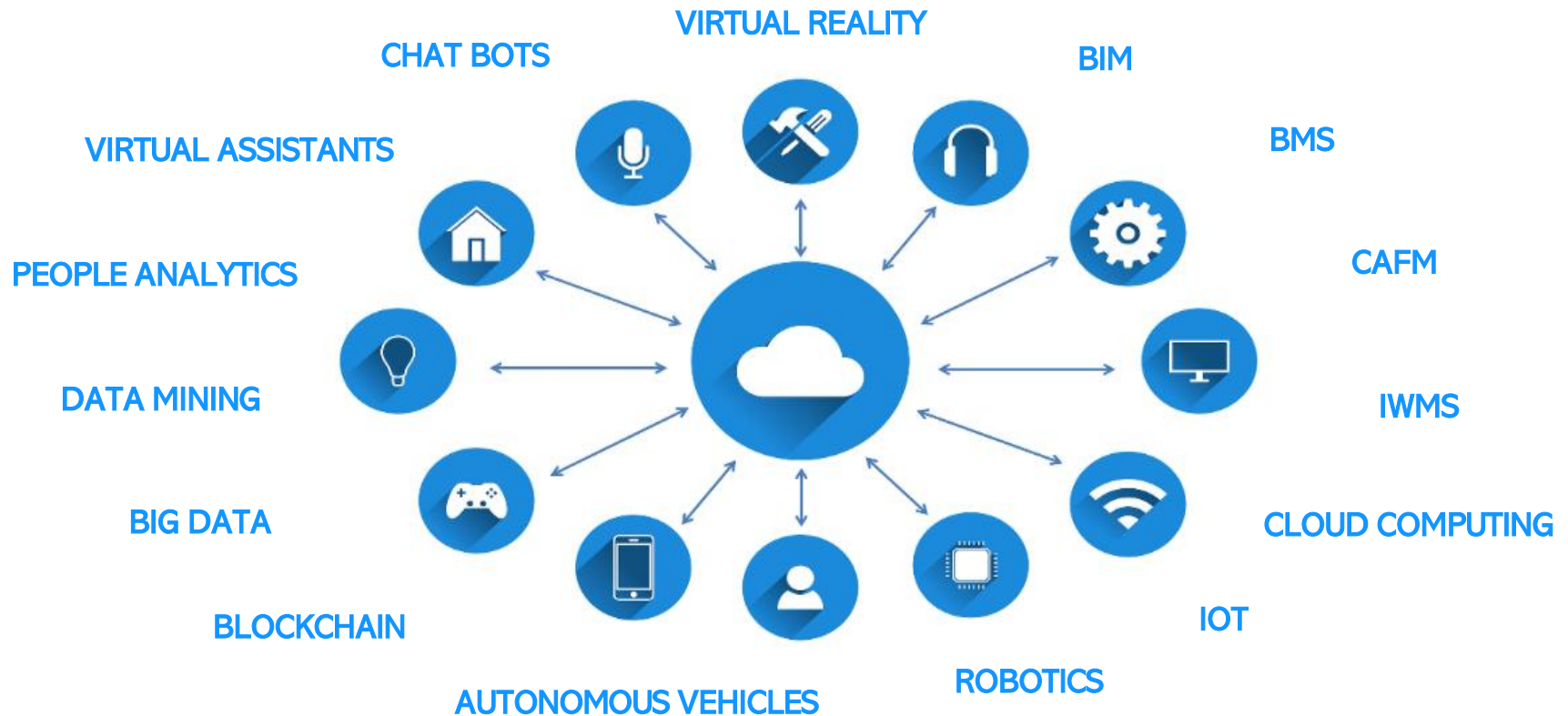
The IFS DCHI Manager should demonstrate their track record and capability (**ISO 9001**) with regards to Digital Construction Handover Information services to the architectural, engineering and construction industry, the DCHI Manager will detail the procedures and mechanisms they plan to use for the coordination, review and approval of the Digital Construction Handover Information from the various parties (project members) and through the projects Construction Project Collaboration application. The DCHI Manager will provide a methodology for the efficient & secure set-up, coordination, review and production of CLIENT Digital Construction Handover Information for the project at all Client required stages and practical completion, the DCHI Manager to detail the procedures and mechanisms they plan to use to ensure the integrity and security of the coordinated information.

**Digital Asset Management:** - The IFS DCHI Manager will be responsible for the collation and compilation of a comprehensive Mechanical / Electrical / Strategic Building component asset register to assist on boarding FM and operations teams. The CLIENT Digital Asset Register will be structured and organized system by system by the DCHI Manager. Core maintainable assets within the asset register will then be referenced to it relevant documentation (O&M Manuals, Commissioning certs, Drawings etc.). The CLIENT Digital Asset Register will be the foundation for development of Planned preventive maintenance programs based of SFG20 Maintenance specifications or relevant industry standards.

“This shall be a comprehensive information source [...] and provide a complete understanding of the building and facility”

“The Digital Construction Handover Information (DCHI) and all its specified elements and requirements are to be collated and managed by specialist DCHI Manager”

# Technology in AEC and FM industries



Existing & emerging Digital Technologies will have a direct impact on the AEC & FM profession because they will influence how we design, construct and manage the Workplace



## FACILITIES MANAGEMENT WORKPLACE TODAY - UNCONNECTED SILOS OF INFORMATION

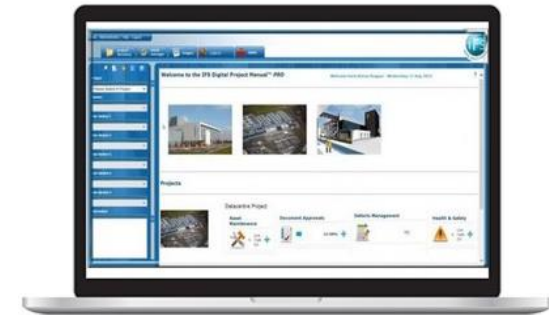
PROJECT  
COLLABORATION  
FOR DESIGN  
&  
CONSTRUCTION

HANDOVER /  
O&M MANUALS

BIM MODELS

SOFT LANDINGS  
FOR HANDOVER  
& OPERATIONS

BMS  
CAFM  
IWMS





# Building Information Manager activity stages

## OPERATIONS AND MAINTANANCE

- PPMs for core assets
- BIM to FM
- IWMS activities
- Building Information Management – Lifecycle Support

## PLANNING

- Building Information Management strategy
- Engagement with stakeholders (Design Construction, FM)
- Review Information security strategy
- Asses AIR / EIR determine BIM strategy

## HANDOVER AND CLOSEOUT

- Programme for Aftercare & Defects Period
- Development of Post Occupation Plan
- Operations and Maintenance information
- BIM setup for FM
- Comprehensive Asset Tagging and Validation

## DESIGN

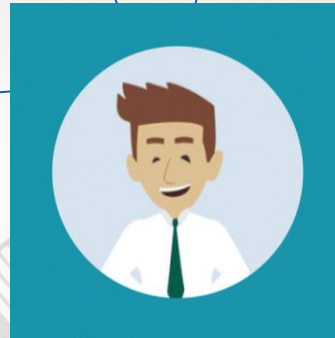
- BIM Execution Plan
- Information Delivery Plan
- Information transfer into AIM
- Integration With CAFM/IWMS system
- Information Submittal Dates

## Operational Readiness & Soft Landings

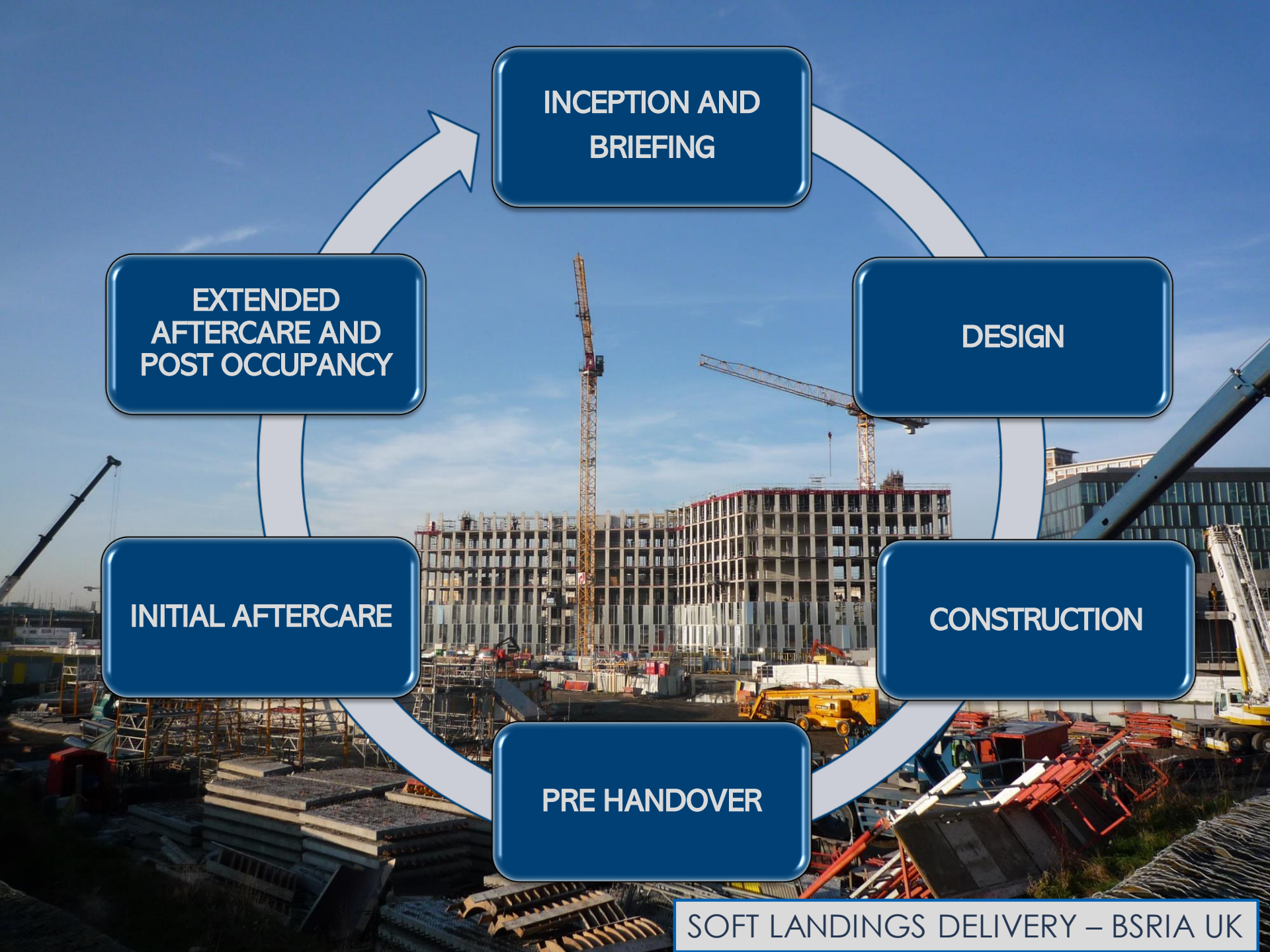
- Programme for Commissioning & Soft Landings
- FM and training Requirements
- Digital Construction Handover Information review & approval
- BIM validation

## CONSTRUCTION

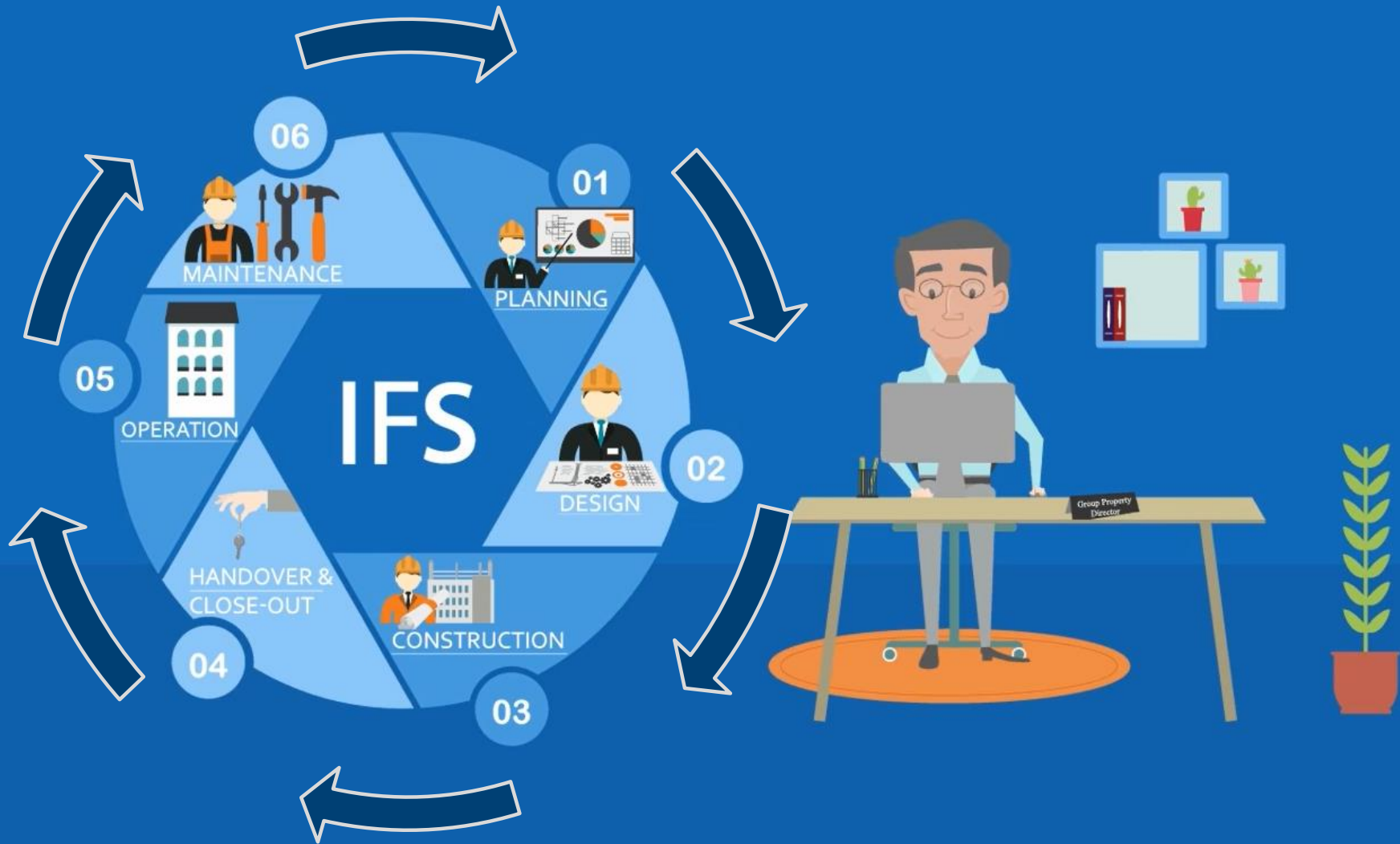
- Information Exchange takes place
- Ensure data delivery is accurate and in line with exchange points and correct formats
- Cloud Computing will ensure information is managed and exchanged in a consistent manner
- BIM Model validation and support



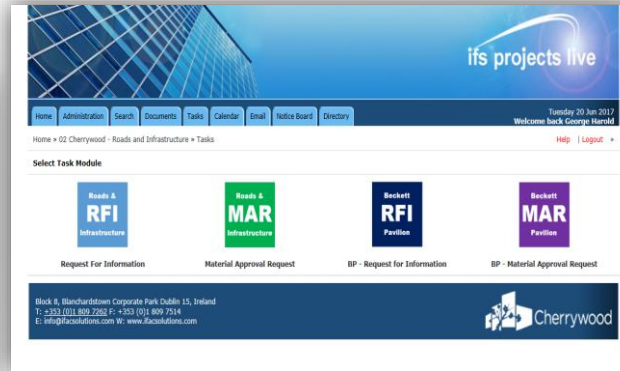




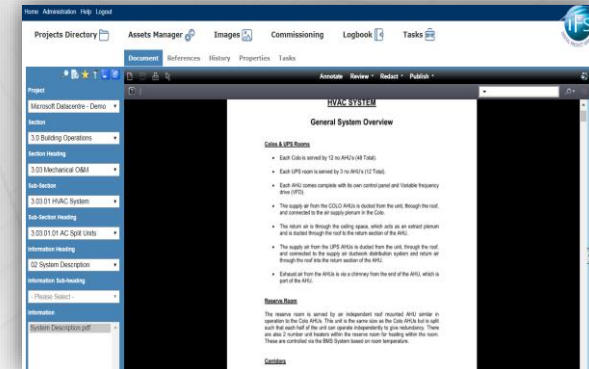
# Managing your Building & Workplace information for the Asset Lifecycle



# Building Information Management workflows for each stage of the Workplace Asset Lifecycle

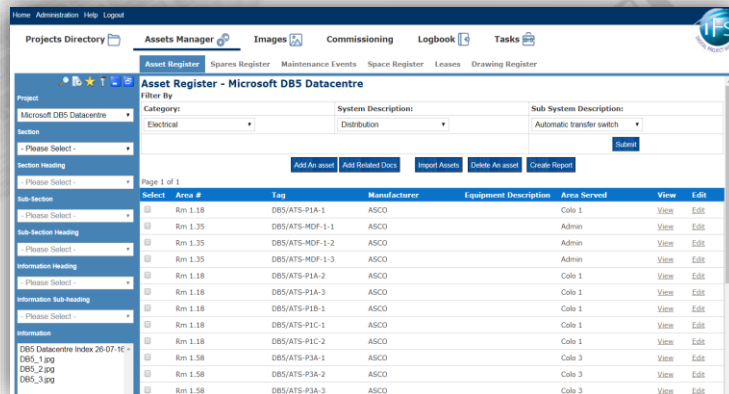


Design & Construction - Site Workflows

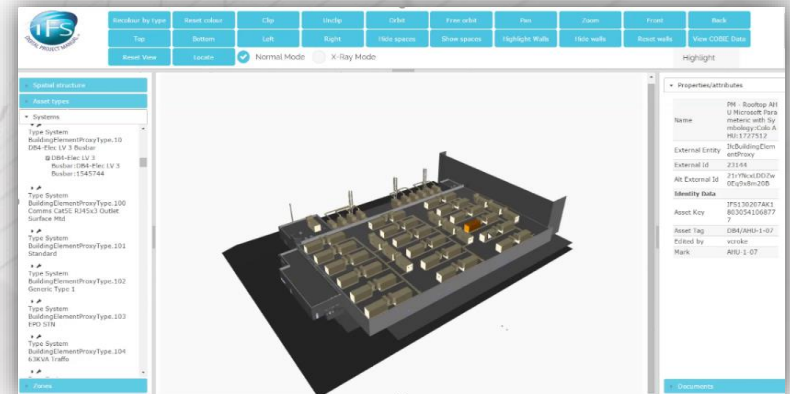


Digital Handover Approvals

Project Information - Collaboration



O&M - IWMS - Asset Management



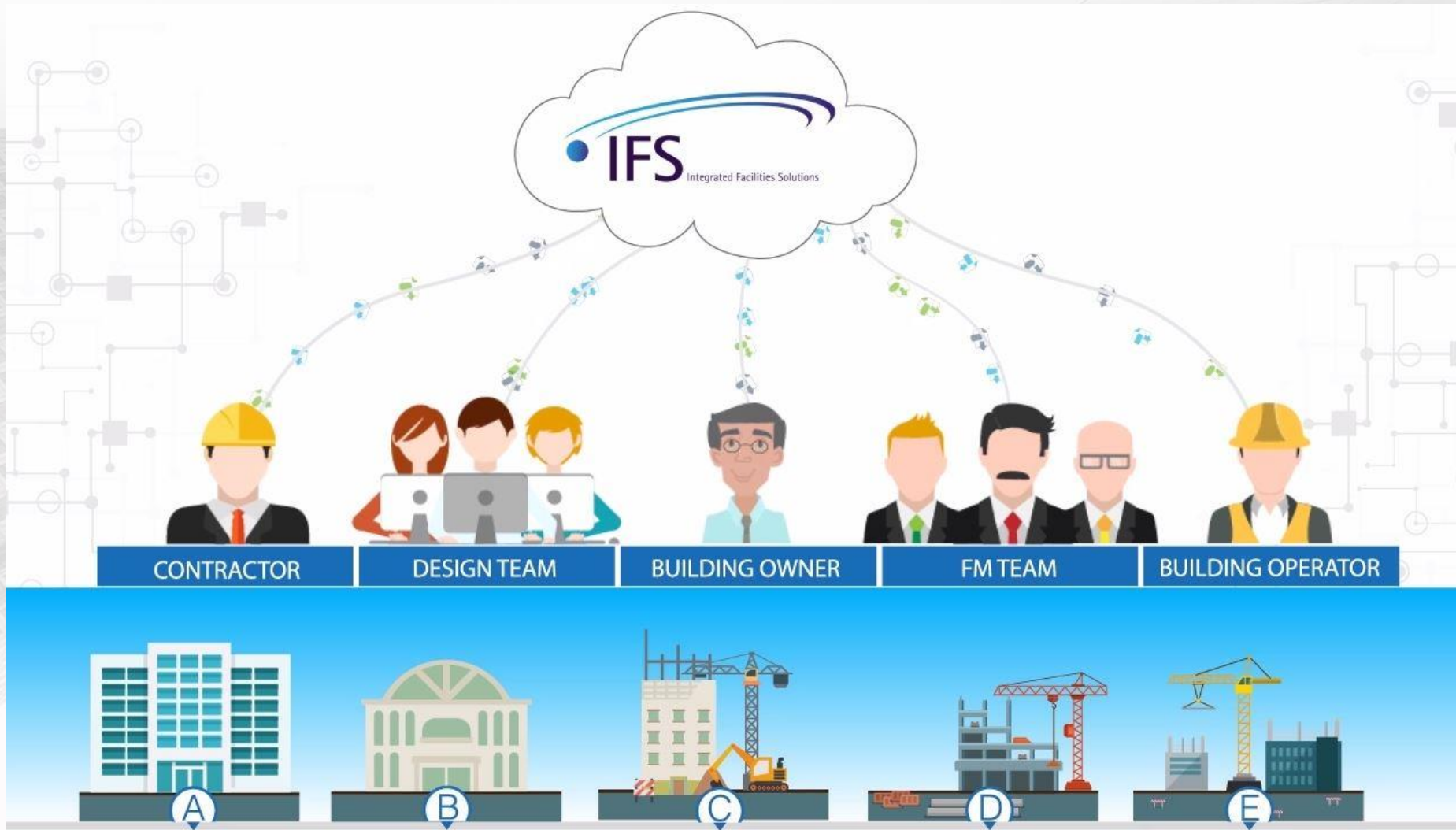
Asset Information Model Handover



# Developing Workplaces that have the end user in mind is key and this should be the starting point for any construction project

- ✓ ENSURE CORRECT SPECIFICATIONS AT EARLY STAGE
- ✓ EARLY ENGAGEMENT OF END USERS AND FACILITIES MANAGEMENT TEAM TO FOCUS ON WORKPLACE ENVIRONMENT & OPERATIONAL OUTCOMES.
- ✓ ENSURE DIGITAL STRATEGY IS PLANNED AND IMPLEMENTED FOR ALL STAGES IN THE ASSET LIFECYCLE
- ✓ FM ROLE SHOULD ENSURE THAT THE CLIENTS/WORKPLACE OPERATIONAL AND OCCUPATIONAL REQS ARE INCORPORATED INTO DEVELOPING THE PROPOSALS & MAIN CONSTRUCTION CONTRACTS
- ✓ ENSURE SINGLE SOURCE OF DIGITAL ASSET INFORMATION AMONGST DESIGNERS, OWNERS, OPERATORS, SUBCONTRACTORS.
- ✓ ENSURE QA/QC PROCESS OF ALL INFORMATION AT EACH STAGE SPECIFICALLY THE DIGITAL HANDOVER INFORMATION AND AS BUILT BIM
- ✓ TRAINING AND FAMILIARISATION OF BUILDINGS AND SYSTEMS TO END USERS, OPERATIONS TEAM AND FM TEAMS PRE HANDOVER.

# Digital Platform for Managing Building & Workplace Information



# DIGITALISATION OF ASSET LIFECYCLE

## Committing to Sustainability

Going paperless	=	Waste reduction
Storing in Cloud	=	Space save
Online communication	=	Travel decrease



## Ensuring Data Security

No paper	=	no mechanical damage
Secure online storage	=	no unauthorised access
Full audit trail	=	no accountability issues



## Building a Safer Future<sup>1</sup>

“There is a need to ensure that sufficient information is recorded during construction, and maintained during occupation to best inform the continued safe management of new buildings.”

“Government should mandate a digital (by default) standard of record-keeping for the design, construction and during the occupation of new HRRBs.”





# Digital Transition Strategy - managing Building Information for the Asset & Workplace Life Cycle and the advantages it brings to our Industry.

## Questions?



## INTEGRATED FACILITIES SOLUTIONS LTD

### AWARDS

#### 2016

- Facilities Management Awards 2016 - Best Use of Technology Winners

#### 2017

- Public Sector Awards – Excellence in Services to Business Management Winners

#### 2018

- IWFM Awards 2018 - Highly Commended for Innovation in Products and Services

### 2019 PROJECTS IN:

- Ireland, UK, Netherlands, Germany, US, Bahrain