Digital Transformation:

Software Design,
Management +
Practical Implementation

CSC4008

Dr. Barry McCollum, Dr. Des Greer

Session Overview

Recap

Predictive Analytics

Case Study

Aims

1. Work collectively to develop an innovative industrially informed IT solution.

2. Revolutionise estate management with products and services employing available data.

Objectives

1. Work as part of a team
2. Plan, manage and execute a software engineering project
3. Understand Industrial and Commercial Setting
4. Identify potential opportunity and scope solution
5. Plan product development
6. Delivery of MVP and future plan
7. Appreciate, legal, social and ethical aspects

The Components

1. Teams
2. Background to Area
3. Market Evaluation
4. “You have the Data”
5. Software Development Methodology
6. Industrial Input
7. Start up Mentality
8. Background Research and Innovation Plan

Assessment

Background and Plan:	20%	Background Research and Innovation Plan to submit week 4 Introduction, Background Research, Opportunities, data sources, possible features, Benefits
Design:	20%	Software Process Choice, Software architecture and design to submit week 6 Create Design Document identifying individual contribution
Solution:	40%	Report outlining solution delivery, critical analysis of solution, team and individual performances. Lessons learned. Week 12
Pitch	20%	Presentation and Demo week 13

Solution

- Background
- Scoping and market evaluation
- Project planning
- Software Realisation
- Documentation
- Product Roadmap
- Legal, social and Ethical Implications
- Critical Analysis and Lessons Learnt
- Potential Business Context and Future Planning
- Individual Contribution

Predictive Analytics

Background

Executive Decision Making

Optimising Resources

Combination of Techniques

- Data Mining,
- Statistics,
- Machine Learning,
- Predictive Modelling – Scenario Planning

Business Intelligence Tools e.g. IBM Cognos Intelligence

http://bigdata-madesimple.com/top-business-intelligence-bi-tools-in-the-market/

Background

Need to understand what data is available / could be available

What is the driving business need and objectives

Clients often are vague about what the want

Use of available Tools or in house development

You are creating the later with the potential aim of ‘Market Readiness’

Predictive Analysis Process

Define Project

Business Objectives, Outcomes, Deliverables, Scope of Effort,

Collect Data

Review Data Availability and Gathering mechanism

Analysis of Data

Inspecting, cleaning, transforming, Combining, Modelling, concluding

Reporting and Presenting on KPI’s

ONE MET MODEL 2020

Case Study: Smarter Workplaces

METROPOLITAN POLICE

ONE MET MODEL 2020

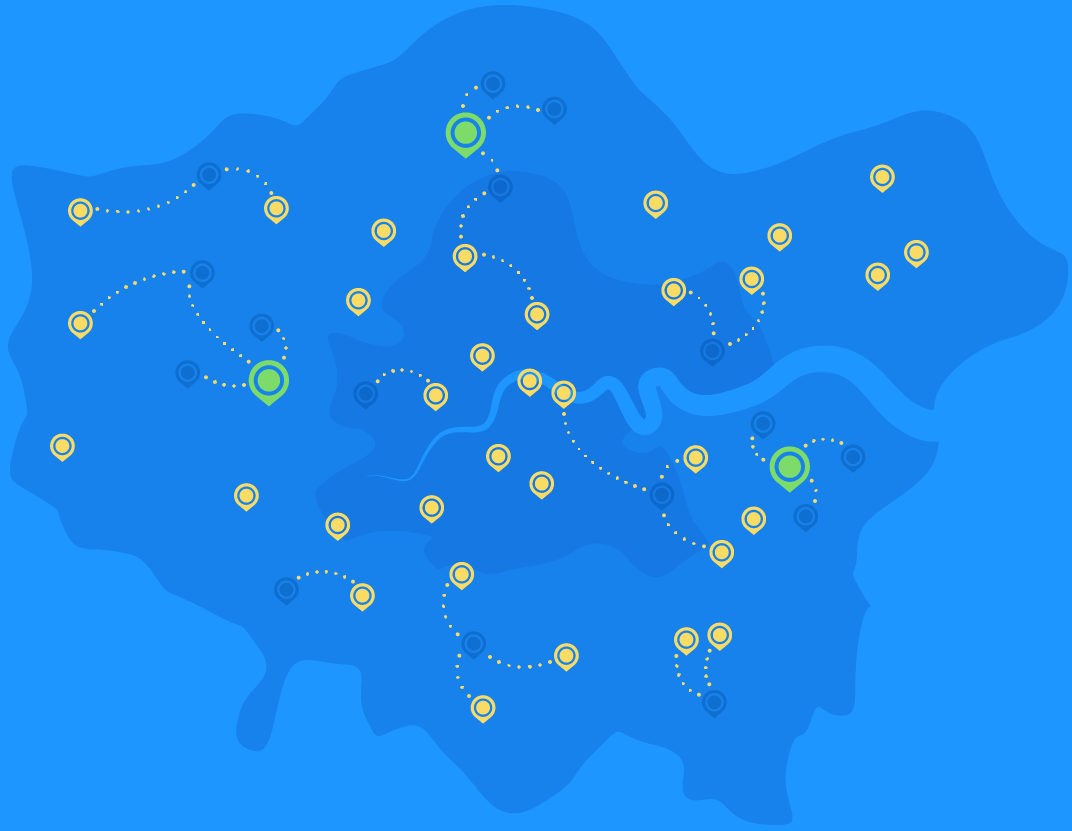
Data Analytics Function:

Survey, Modelling, Analysis,

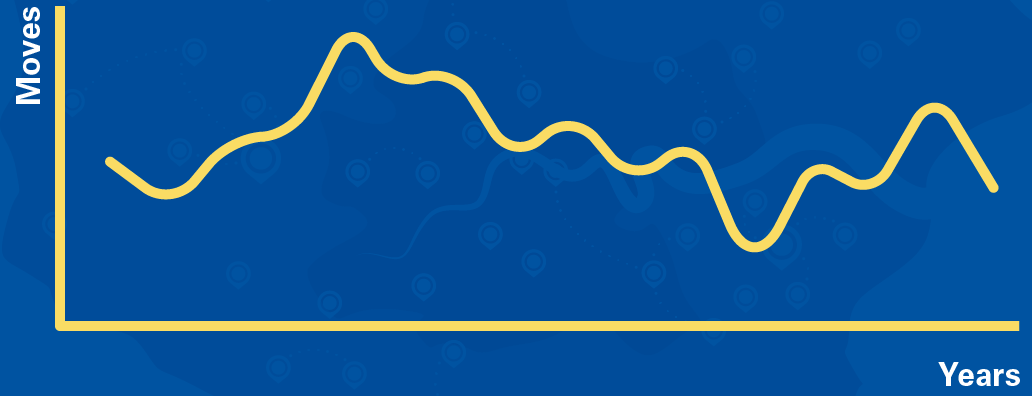
consraints, Options,

Estate reorganising

Estate reorganised

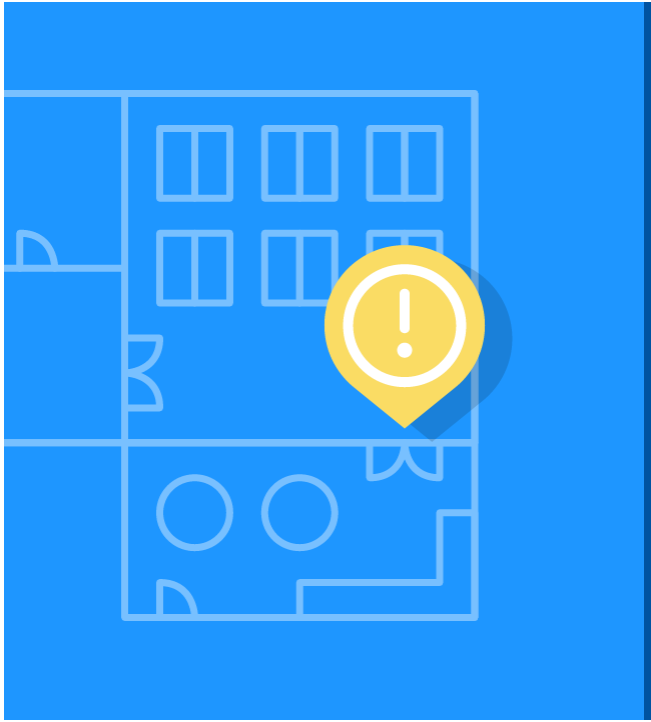


Incremental moves

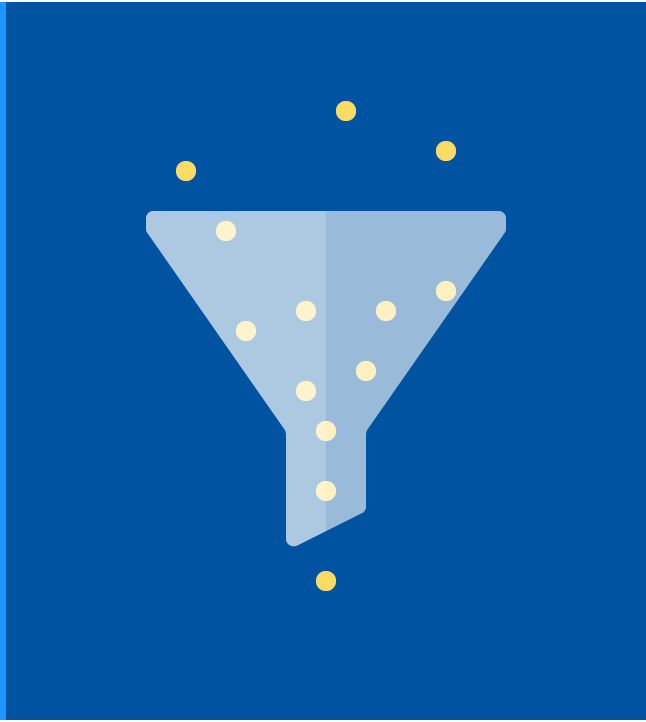


Analysis

Building plans vs. design Guide

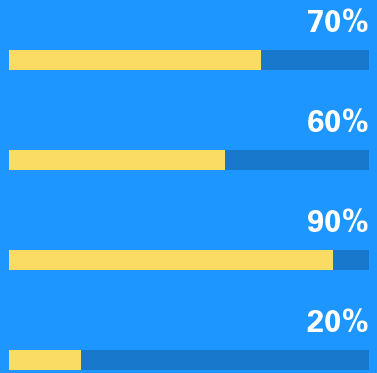


Analyse move schedule



Building use survey and post occupancy survey

Resource modelling and analyse



Agile working logistics

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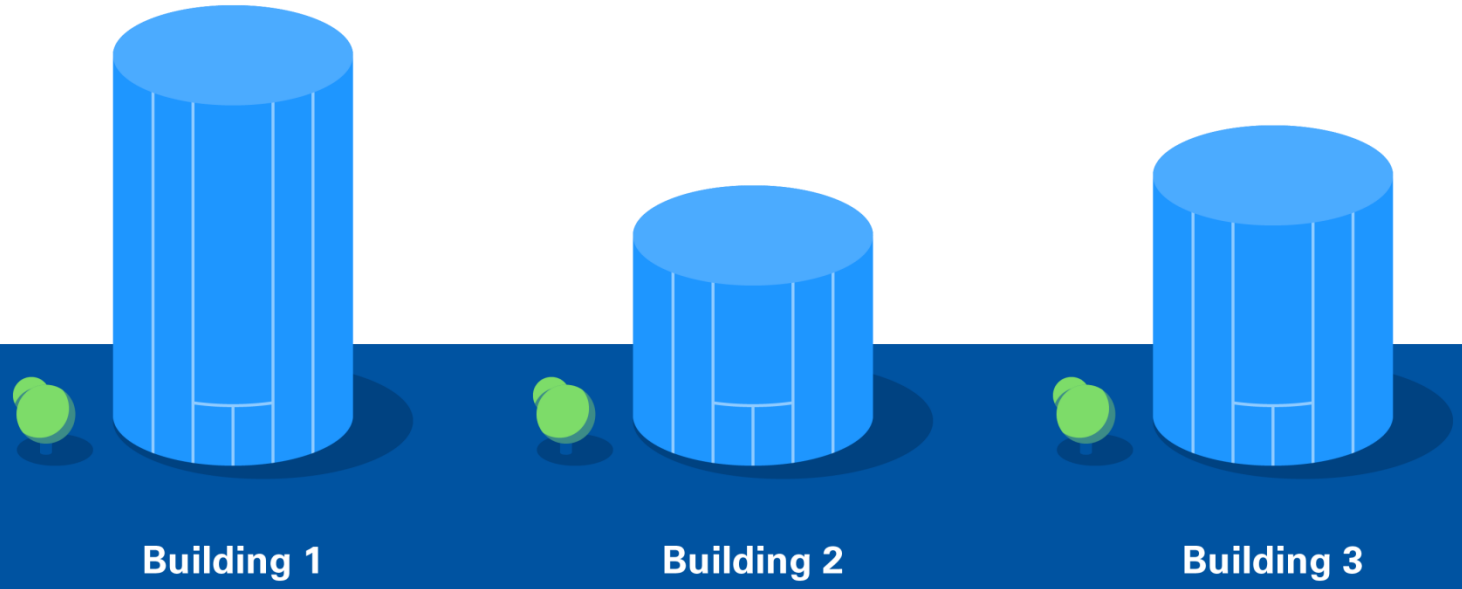
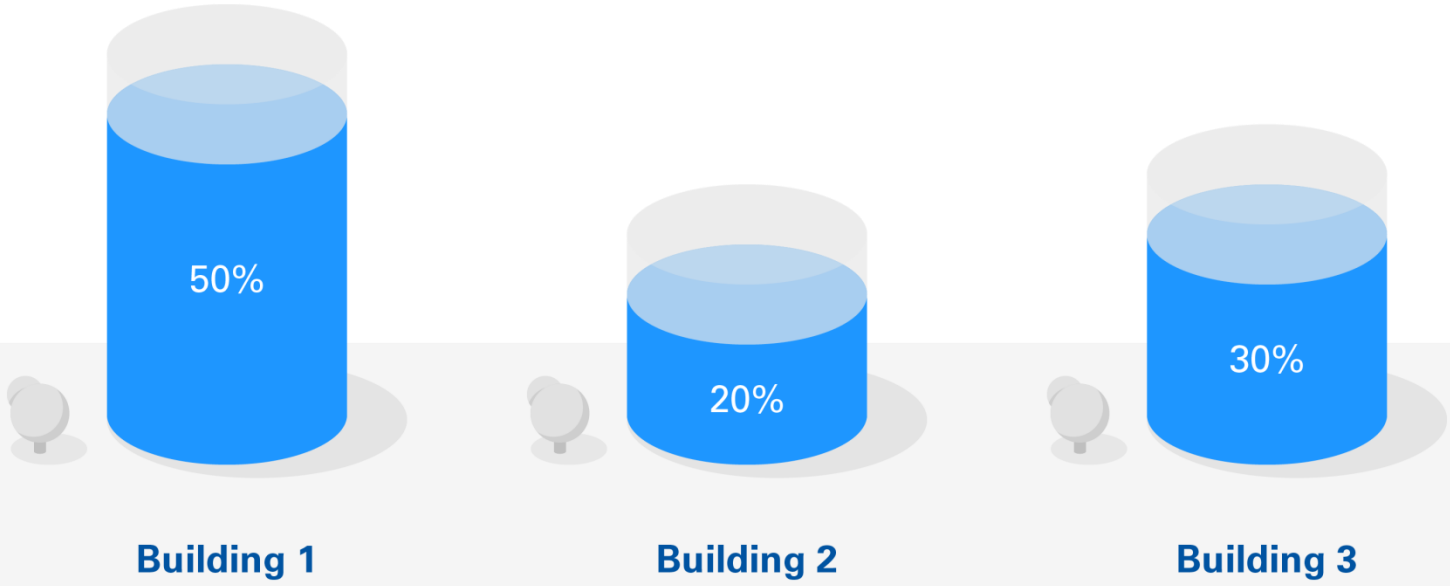
Move Analysis

Current estate

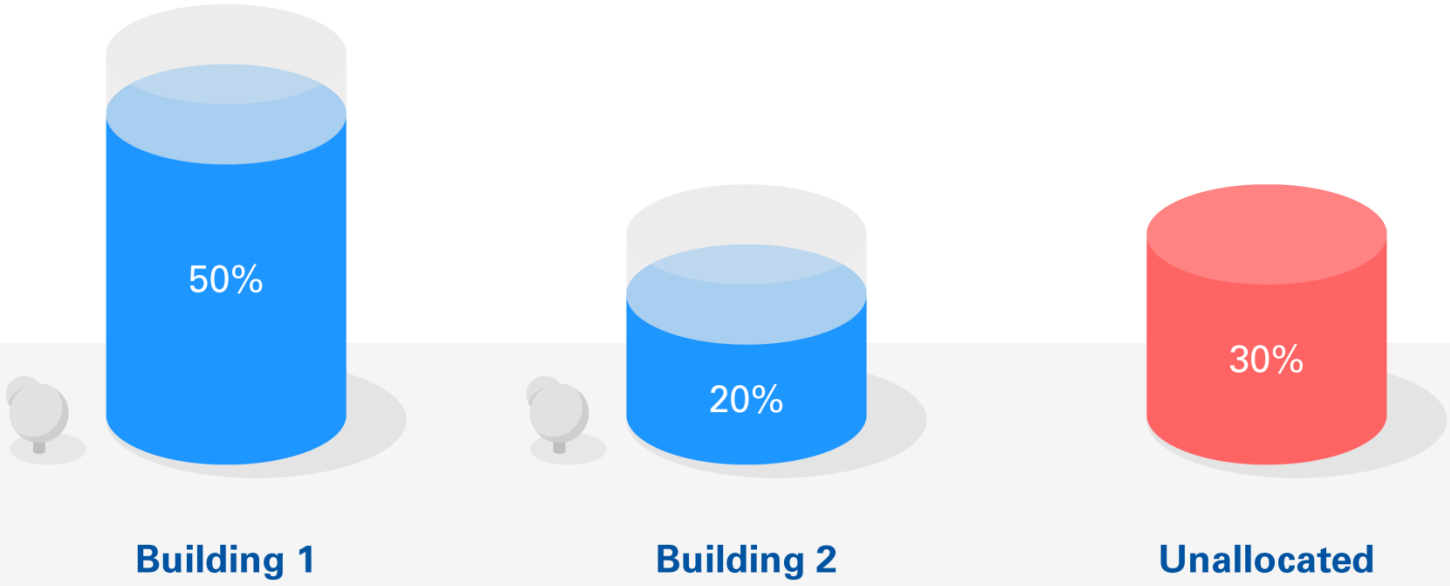


Current estate

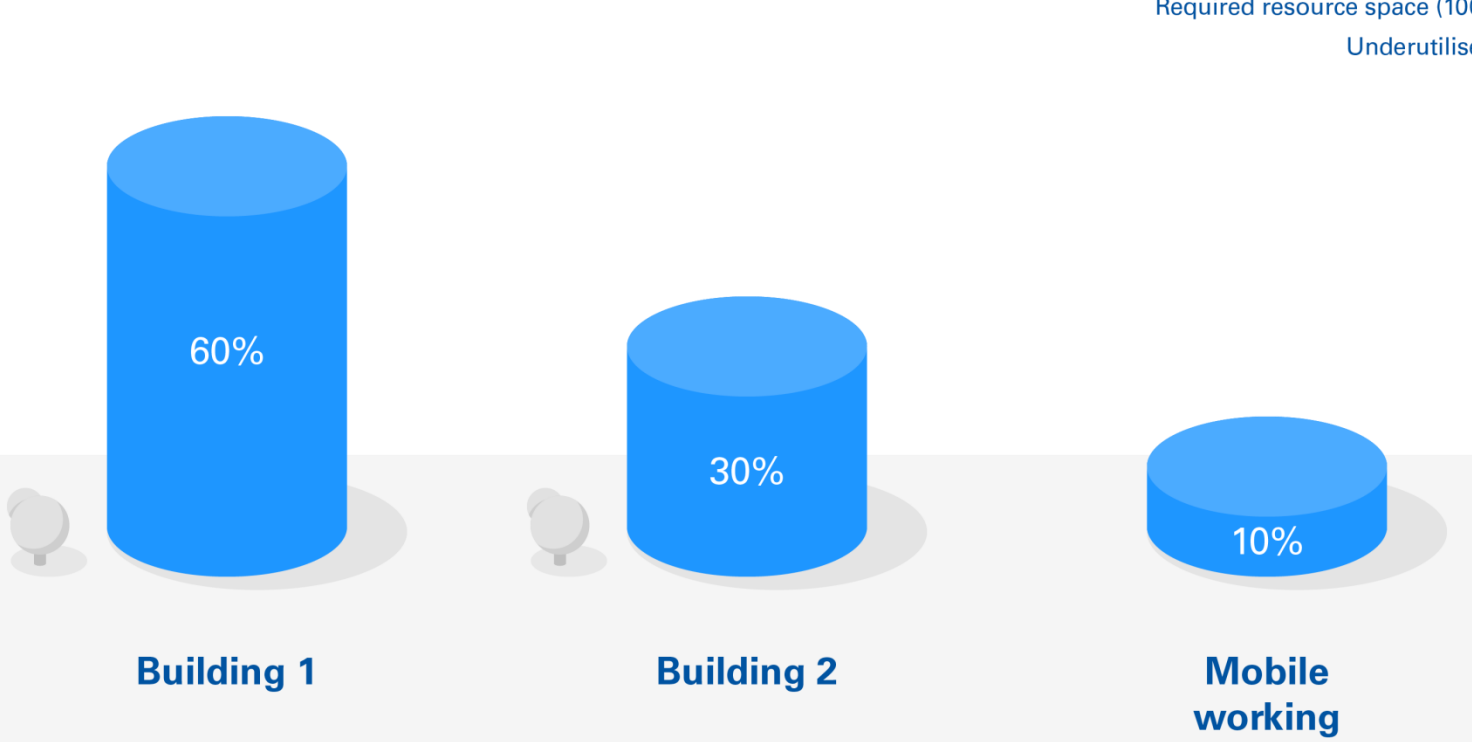


Reorganised estate

Reorganised estate



Reorganised estate



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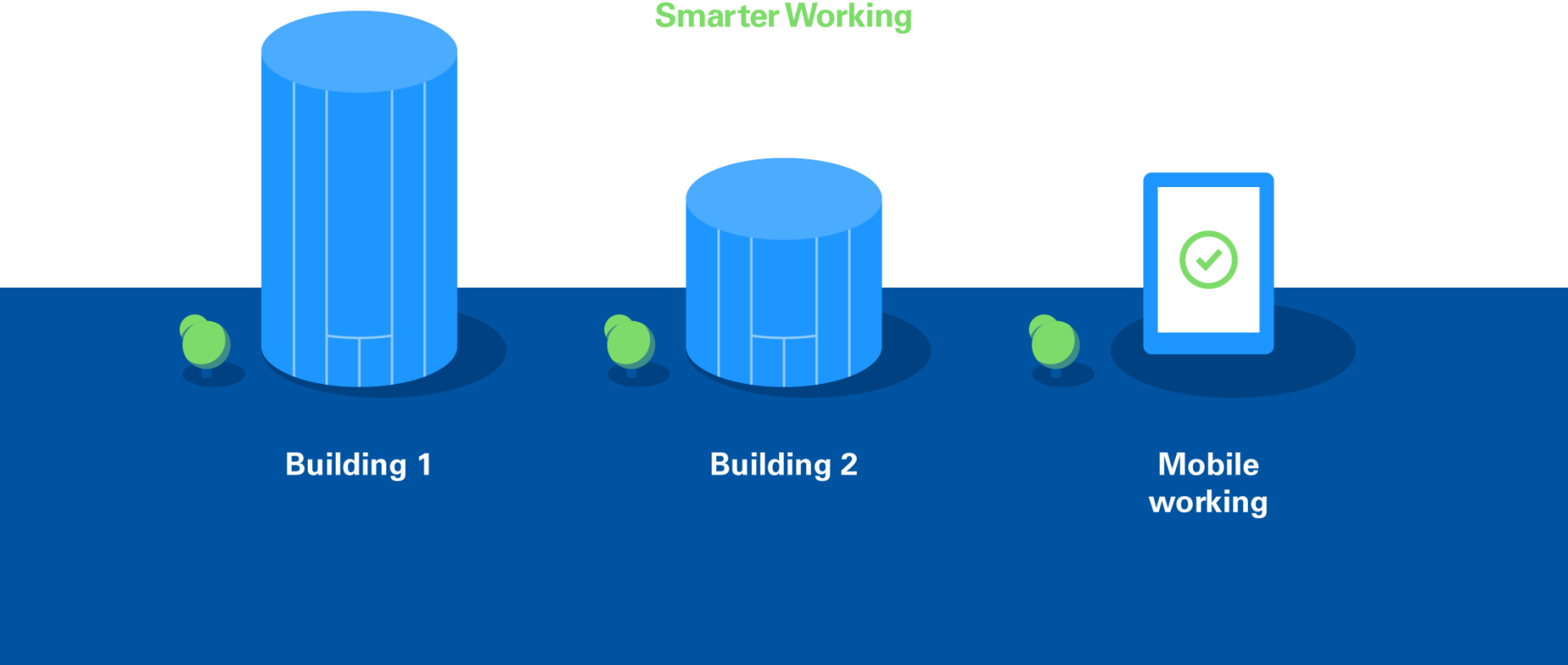

The Tools

The Estate: Current and Future Design

- Schedule moves based on operating requirement and resource availability
- Model Estate in terms of existing and required capacity
- Analyse Estate data to determine asset availability bottlenecks
- Scenario planning based on projected agile working
- Impact analysis of adopted working styles on allocated estate
- Impact analysis of adopted Operating models

These activities will deliver an effective decision support mechanism allowing senior managers to understand what intervention is required when. These will also serve to mitigate the risk within the overall Transformation delivery.

The Move: Supporting Awareness

- Survey Buildings to ascertain space types, usage patterns and effectiveness of space in relation to delivery requirement
- Gather data on access, wifi and computer login and analyse
- Model usage and provide potential usage options
- Model move options making best usage of buildings and estate
- Gather data through physical survey on usage patterns Post Move e.g. space type utilisation, fixed/mobile/field

A standard set of procedures, tools and activities is required to gather and analyse data during the move process. This will allow for a standardised and efficient approach to ensuring buildings are used optimally. This would therefore supplement and enhance existing move transition planning process.

Modelling: Constraints, Dependencies, Requirements and Preferences

- Survey building occupants to establish requirements and constraints
- Stakeholder engagement to define existing individual and team requirements
- Stakeholder engagement to define potential future individual and team requirements
- Creation of Transformation Model based on requirements and constraints
- Buildings in terms of set up and what constraints this applies to move schedule
- Survey buildings to make recommendation how ‘fit’ they are from a smarter working perspective.

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Conclusion

Complex Predictive Analytics Process

Will require length and multiple Proof of Concepts

Business understands objectives - Predictive analytics allows these to be met

Predictive analytics de risks the deliver through provision of information to Executives

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