

Health & Safety for the Digital Age

Benjamin Legg & Prakash Senghani

Agenda

- Introductions
- SHE Moment
- Technology Moment
- Construction Technology
- HSE and BIM
- The Future

SHE Moment

Distracted Brain

Hold a hand over you eyes for 5 seconds – 72km/h

4x likely to crash

How they distract:

Visual – Eyes of road

Mechanical – Hands off wheel

Cognitive – Mind off driving

We look at our mobile phones on average 150 times per day

Research has shown we touch our mobile phones over 2,500 times a day



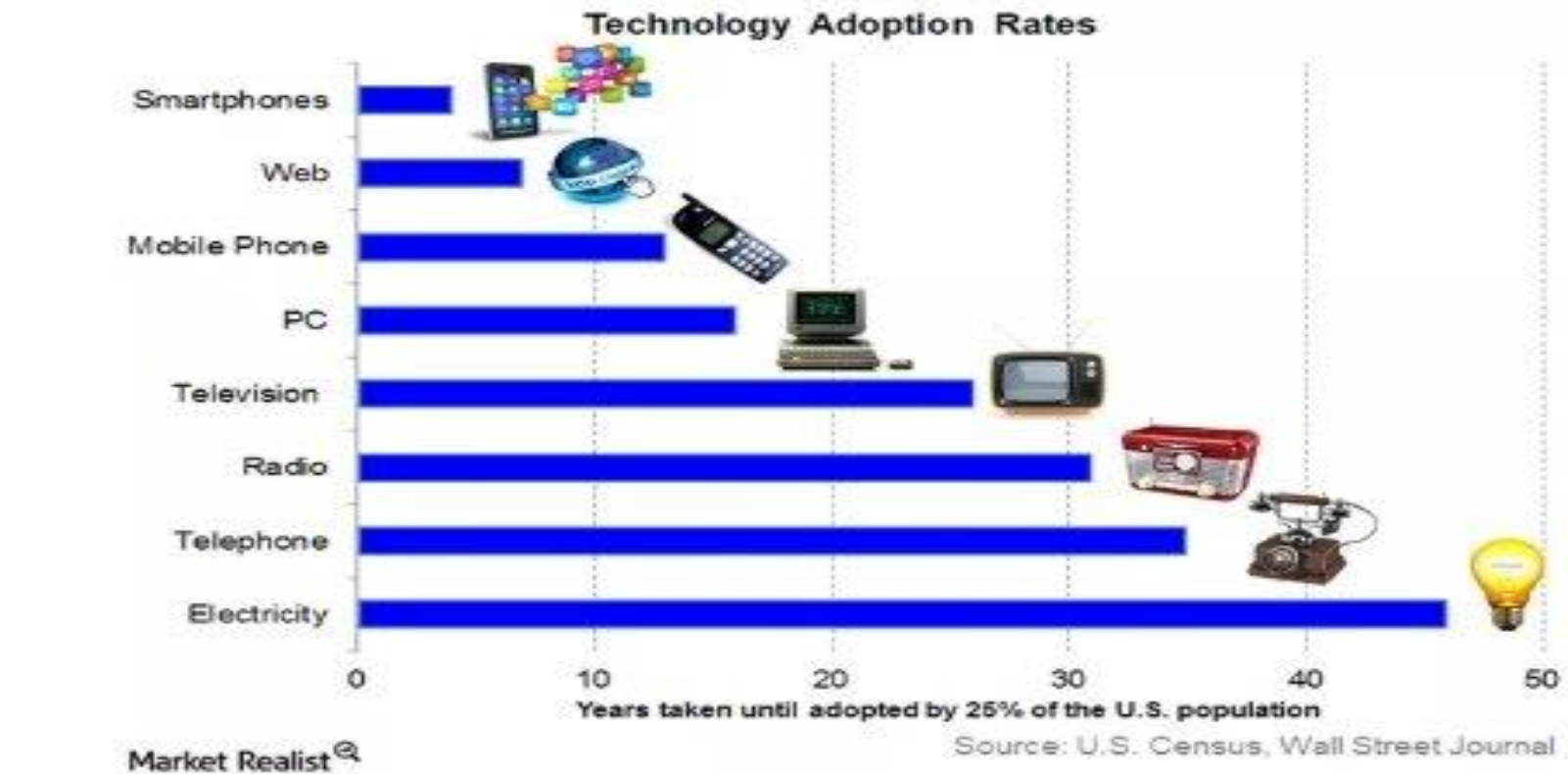
Technology Moment

MAKING predictions about future trends in the tech industry is risky business.

- 1876: “The Americans have a need of the telephone, but we do not. We have plenty of messenger boys.” — William Preece, British Post Office.
- 2007: “There’s no chance that the iPhone is going to get any significant market share.” — Microsoft chief executive Steve Ballmer.

Adoption of Technology in general

Technology Adaption Rate Rises on 3rd Platform Waves



vmware



Adoption of Technology in general



Technology in Construction

The MGI Industry Digitization Index

2015 or latest available data

Relatively low digitization  Relatively high digitization

● Digital leaders within relatively undigitized sectors

Sector	Over-all digitization ¹	Assets		Usage			Labor			GDP share %	Em-ploy-ment share %	Produc-tivity growth, 2005–14 ² %	
		Digital spending	Digital asset stock	Transactions	Interactions	Business processes	Market making	Digital spending on workers	Digital capital deepening				Digitization of work
ICT											5	3	4.6
Media			1								2	1	3.6
Professional services											9	6	0.3
Finance and insurance											8	4	1.6
Wholesale trade											5	4	0.2
Advanced manufacturing					4						3	2	2.6
Oil and gas											2	0.1	2.9
Utilities			2								2	0.4	1.3
Chemicals and pharmaceuticals											2	1	1.8
Basic goods manufacturing											5	5	1.2
Mining											1	0.4	0.5
Real estate	●										5	1	2.3
Transportation and warehousing	●										3	3	1.4
Education	●										2	2	-0.5
Retail trade	●										5	11	-1.1
Entertainment and recreation											1	1	0.9
Personal and local services											6	11	0.5
Government	●										16	15	0.2
Health care											10	13	-0.1
Hospitality	●		6								4	8	-0.9
Construction											3	5	-1.4
Agriculture and hunting											1	1	-0.9

1 Knowledge-intensive sectors that are highly digitized across most dimensions

2 Capital-intensive sectors with the potential to further digitize their physical assets

3 Service sectors with long tail of small firms having room to digitize customer transactions

4 B2B sectors with the potential to digitally engage and interact with their customers

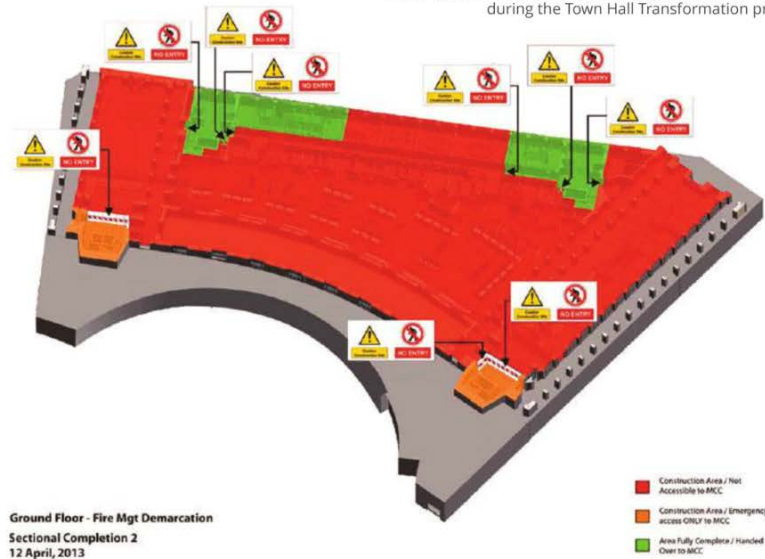
5 Labor-intensive sectors with the potential to provide digital tools to their workforce

6 Quasi-public and/or highly localized sectors that lag across most dimensions

HSE and BIM – PAS 1192 - 6

- Integration of Safety data into BIM process – 4D
- Transfer of risk information through project life cycle
- Standardisation of information capture and storage

Figure 11 – Use of risk symbol annotation to BS ISO 3864-3:2012 thematically coloured according to the likelihood of the risk (Credit: to follow)
Model used for emergency planning by Manchester City Council during the Town Hall Transformation programme



Column	Facility
Name	B005
CreatedBy	role@company.com
CreatedOn	2017-02-12T11:00:00
Category	En_20_15 : Administrative office entities
ProjectName	P005
SiteName	S005
LinearUnits	millimeters
AreaUnits	squaremeters
VolumeUnits	cubicmeters
CurrencyUnits	Pounds
AreaMeasurement	Indicative
ExtSystem	AEC3 BimServices
ExtObject	IfcProject
ExtIdentifier	1TB8MXxf6BAI7EOFPDWY8
ExtSiteObject	IfcSite
ExtSiteIdentifier	1TB8MXxf6BAI7EOFPDWYA
ExtFacilityObject	IfcBuilding
ExtFacilityIdentifier	1TB8MXxf6BAI7EOFPDWY9
Description	Office building 5
ProjectDescription	Design and construction of new office building 5
SiteDescription	Site 5, North London Redevelopment
Phase	CIC 6 : Handover

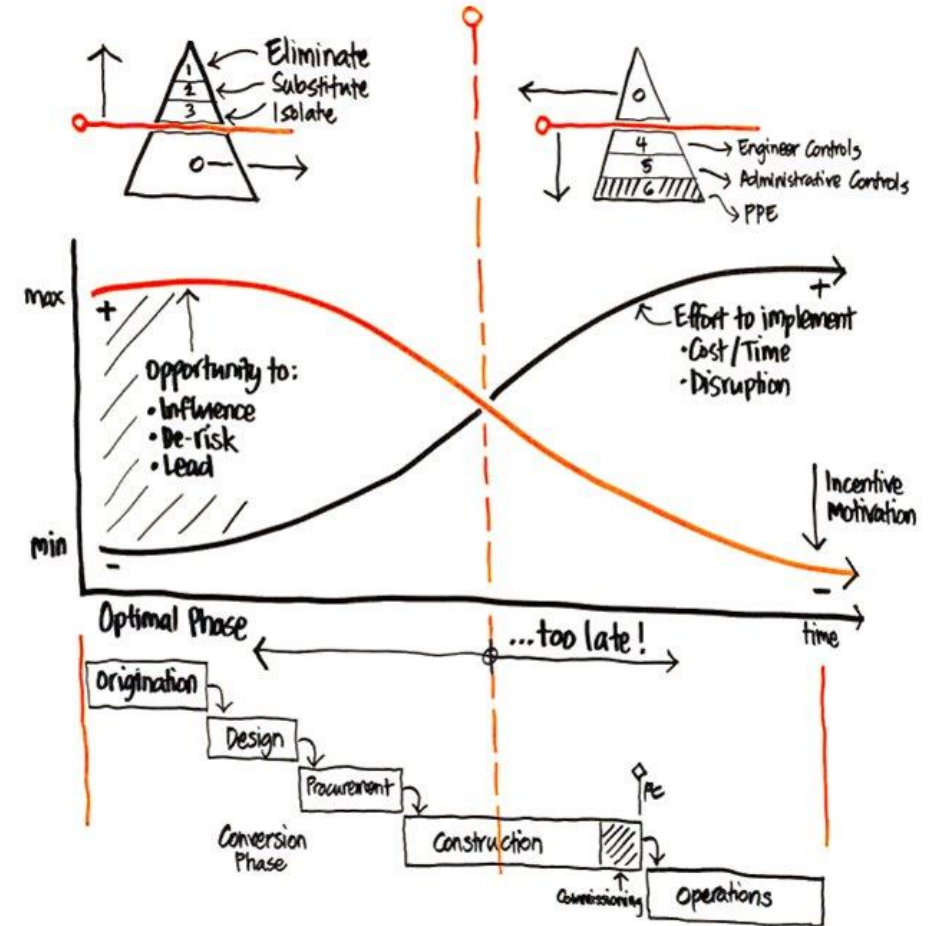
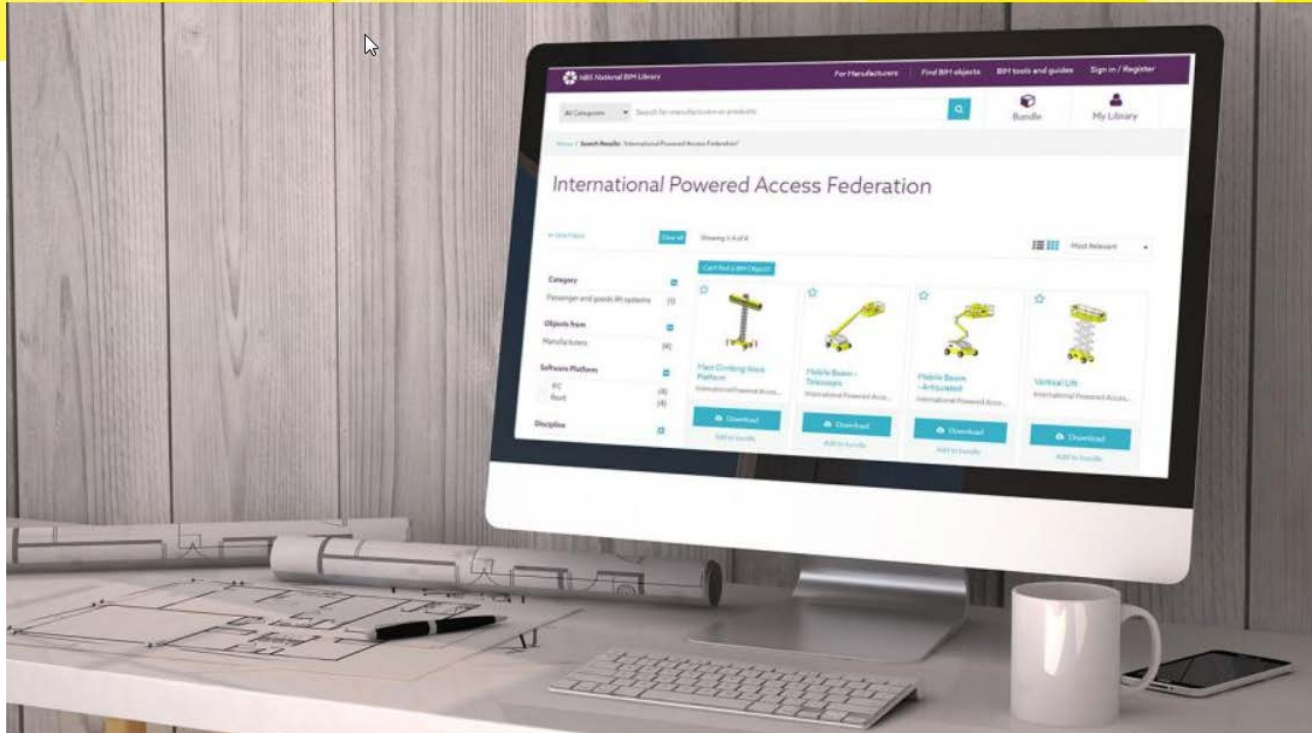
Table 9 – Use of the COBie Facility sheet (transposed) indicating the context of the risk assessment

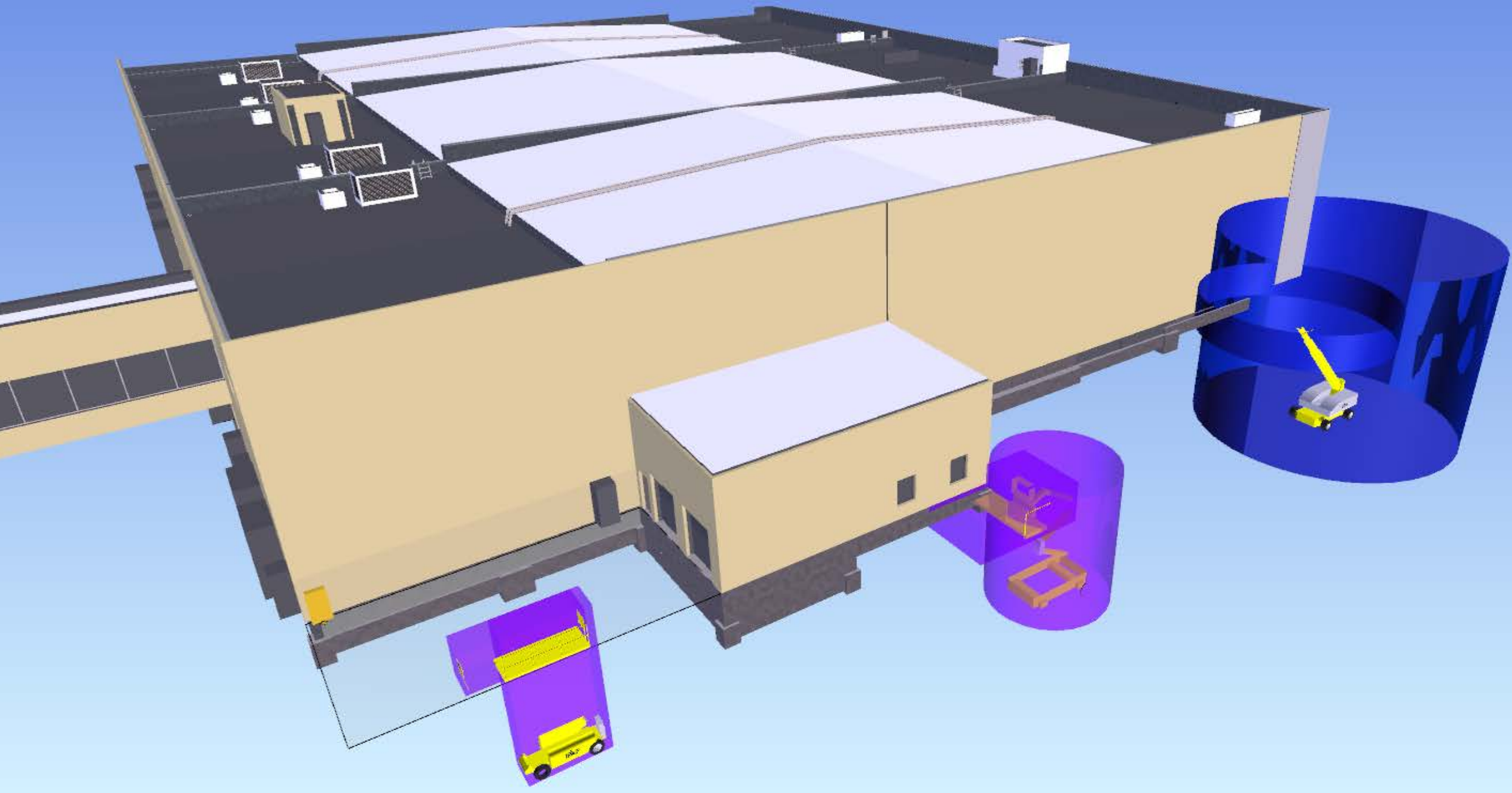
Column	Issue
Name	AAA12
CreatedBy	role@company.com
CreatedOn	2016-11-04T11:08:38
Type	Struck by falling object
Risk	Moderate
Chance	Low
Impact	High
SheetName1	Space
RowName1	Roof Terrace
SheetName2	Type
RowName2	Large feature planter
Description	Falling branches from height in heavy wind
Owner	role@company.com
Mitigation	Wind protection and ensure distance from edge
ExtSystem	
ExtObject	HS_Risk_UK
ExtIdentifier	

Table 10 – Use of the COBie Issue sheet (transposed) indicating a managed risk

HSE and BIM

IPAF MEWP & MCWP BIM MODELS





VR Training Video





REALITY CAPTURE

Actual Reality

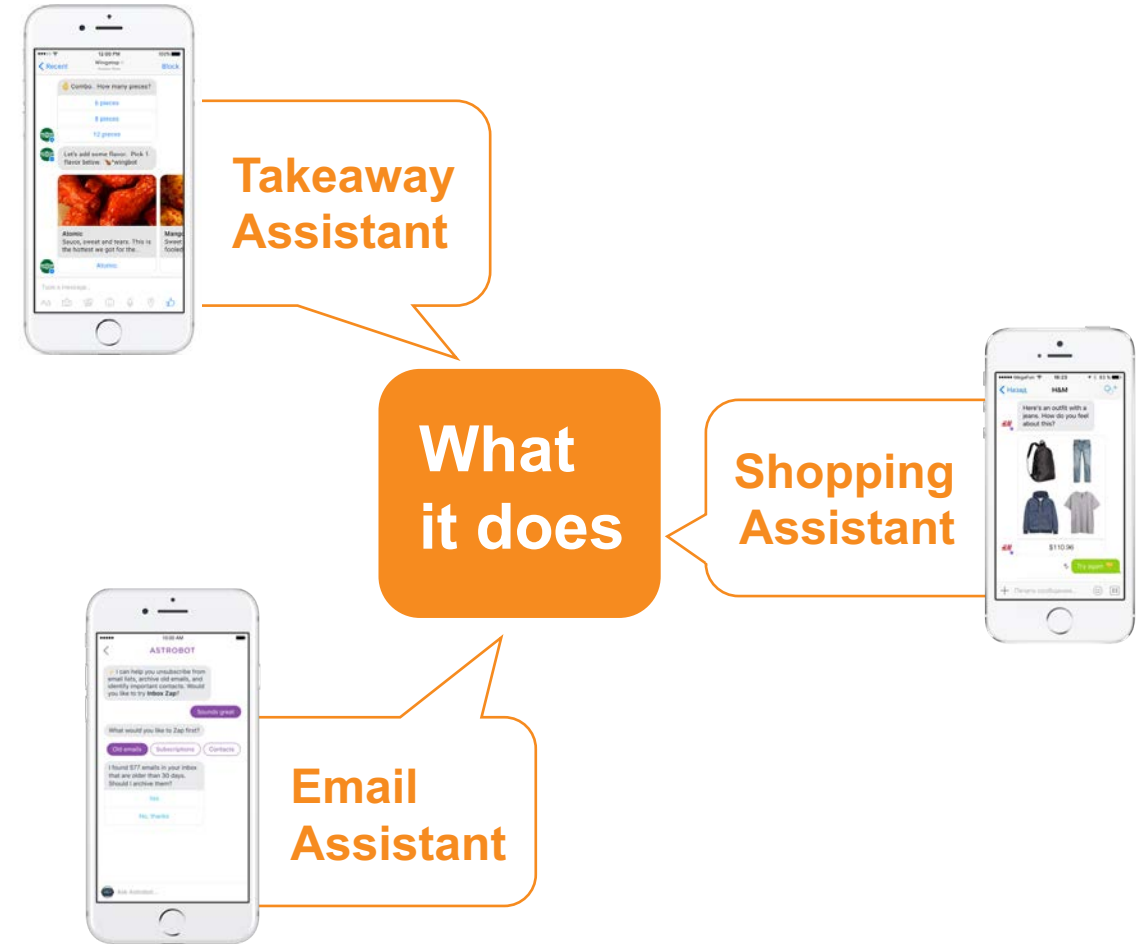
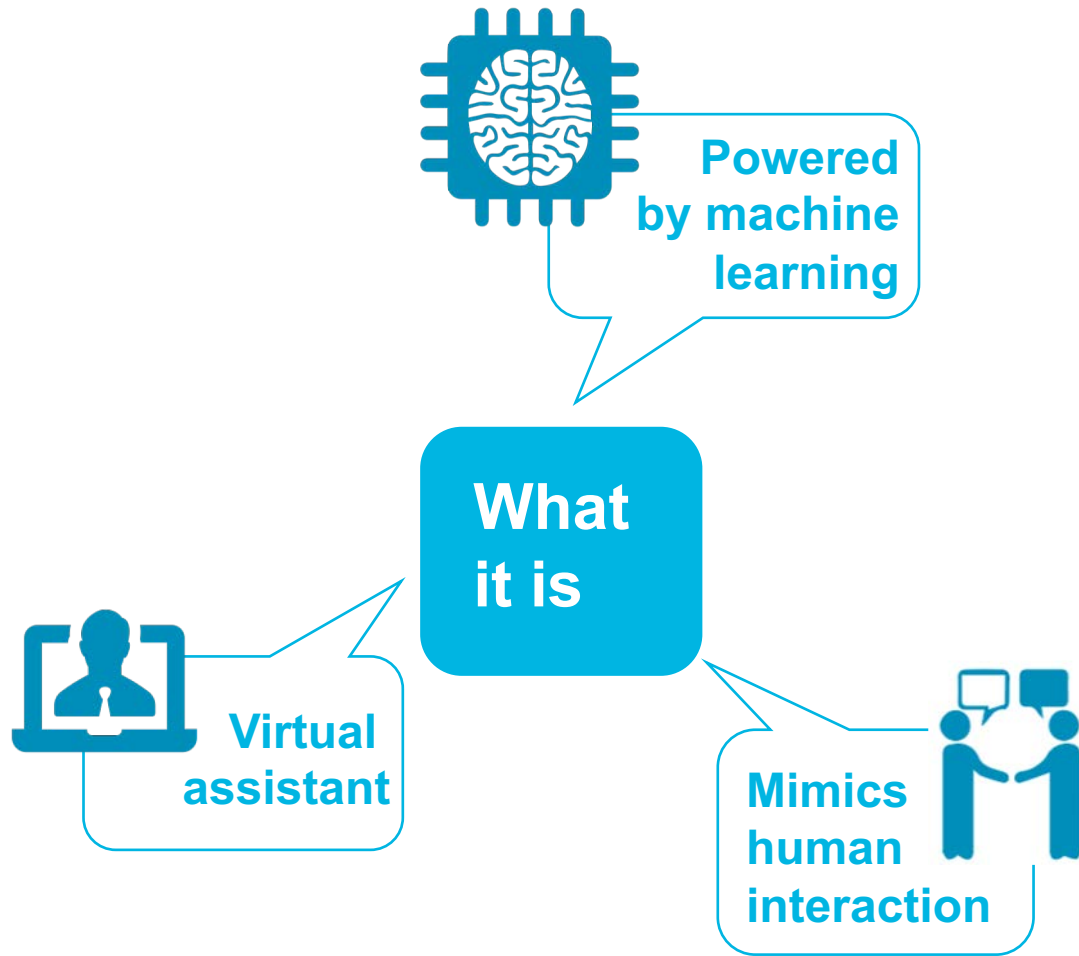
Future – Today!

AECOM Assistant

Let's chat about Health and Safety



What is a Chatbot assistant?



Chatbots in numbers

34%

of business executives say that the time freed up from using digital assistants allows them to focus on deep thinking and creating

PwC

\$8_{bn}

Chatbots will be responsible for cost savings of over \$8 billion annually by 2022, up from \$20 million in 2017

Juniper Research

42%

of consumers already use digital assistants, while 72% of business execs and 53% of millennials are using them

PwC

85%

Chatbots will power 85% of all customer service interactions by the year 2020

Gartner

75%

By 2019, 75% of workers whose daily tasks involve the use of enterprise applications will have access to intelligent personal assistants to augment their skills and expertise

IDC

What is AECOM Assistant?

24/7 safety
advisor

Asks
you why

Naturally
teaches

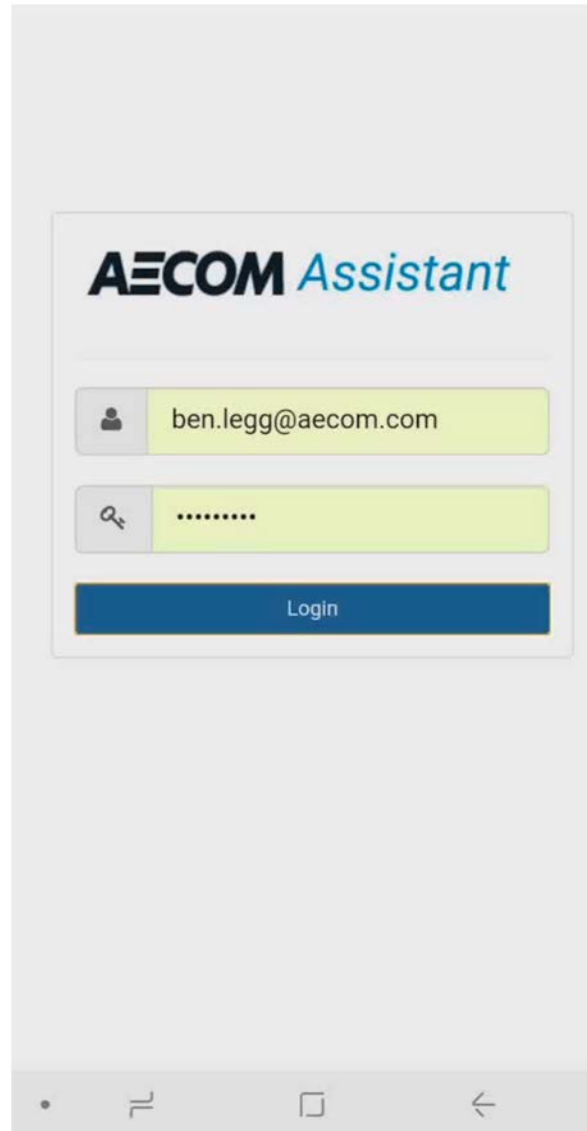
Advices
you of what

Tells
you how



Reminds
you when

AECOM Assistant in action



The image shows a mobile application interface for 'AECOM Assistant'. The title 'AECOM Assistant' is at the top, with 'AECOM' in bold black and 'Assistant' in blue. Below the title is a horizontal separator line. There are two input fields: the first contains the email 'ben.legg@aecom.com' and is preceded by a person icon; the second contains masked characters '.....' and is preceded by a key icon. Below these fields is a blue 'Login' button. At the bottom of the screen is an Android-style navigation bar with icons for home, back, and other functions.

AECOM Assistant

ben.legg@aecom.com

.....

Login

– “...because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns - the ones we don't know we don't know.”

Donald Rumsfeld

US Secretary of Defense 1975-77 ; 2001-06



AECOM

Imagine it.
Delivered.

