CONSTRUCTION SYSTEMS
PRODUCTIVITY
PARTNERSHIP
building value

Productivity Partnership

Presentation to the CCG, Wellington, 17th July, 2013

TWENTY BY 2020

Presentation to the CCG, Wellington
BIM Acceleration Strategy

CONSTRUCTION SYSTEMS
PRODUCTIVITY
PARTNERSHIP
building value

- BIM, what is it?
- BIM, how it works
- BIM, the benefits.
- Geobuild Components
- BIM acceleration, necessary building blocks

TWENTY BY 2020

BIM – What is it?

Suggested definition – “a model needs only two essential characteristics to be described as a BIM model. The first is that it must be a three-dimensional representation of a building (or other facility) based on objects, and second, it must include some information in the model or the properties about the objects beyond the graphical representation.”

Source:-Australian National Guidlines for Digital Modelling Source

BIM models are described as 4D, 5D or 6D depending on whether they include Scheduling (time), Estimating (costs) or Life Cycle Management, cumulatively.

A BIM model, when fully utilised, will allow several parties to view the same project at different levels of detail for the different stages of a project. And allow a contractor to go from generic model detail to branded product purchasing meeting the time-phased project plan; and providing the client with an as-built project model on handover underpinning the ongoing facility management plan.

BIM – How it Works

- BIM:-

» Sets a minimum project management standard

» Forces greater co-operation between different disciplines on a project ie Integrated Project Delivery (IPD)

» Reduces the transactional cost of managing a project (ie rework, “what if” analysis, production of drawings, speed of information flow etc.)

» Allows greater understanding of the project and its processes through 3D representations of the build process

» Can utilise specialist “add-ons” eg clash detection (both physical and programme); structural calculations; energy use calculations

BIM – The Benefits

Much quantitative data exists on BIM, the following comprises extracts from a number of sources:-

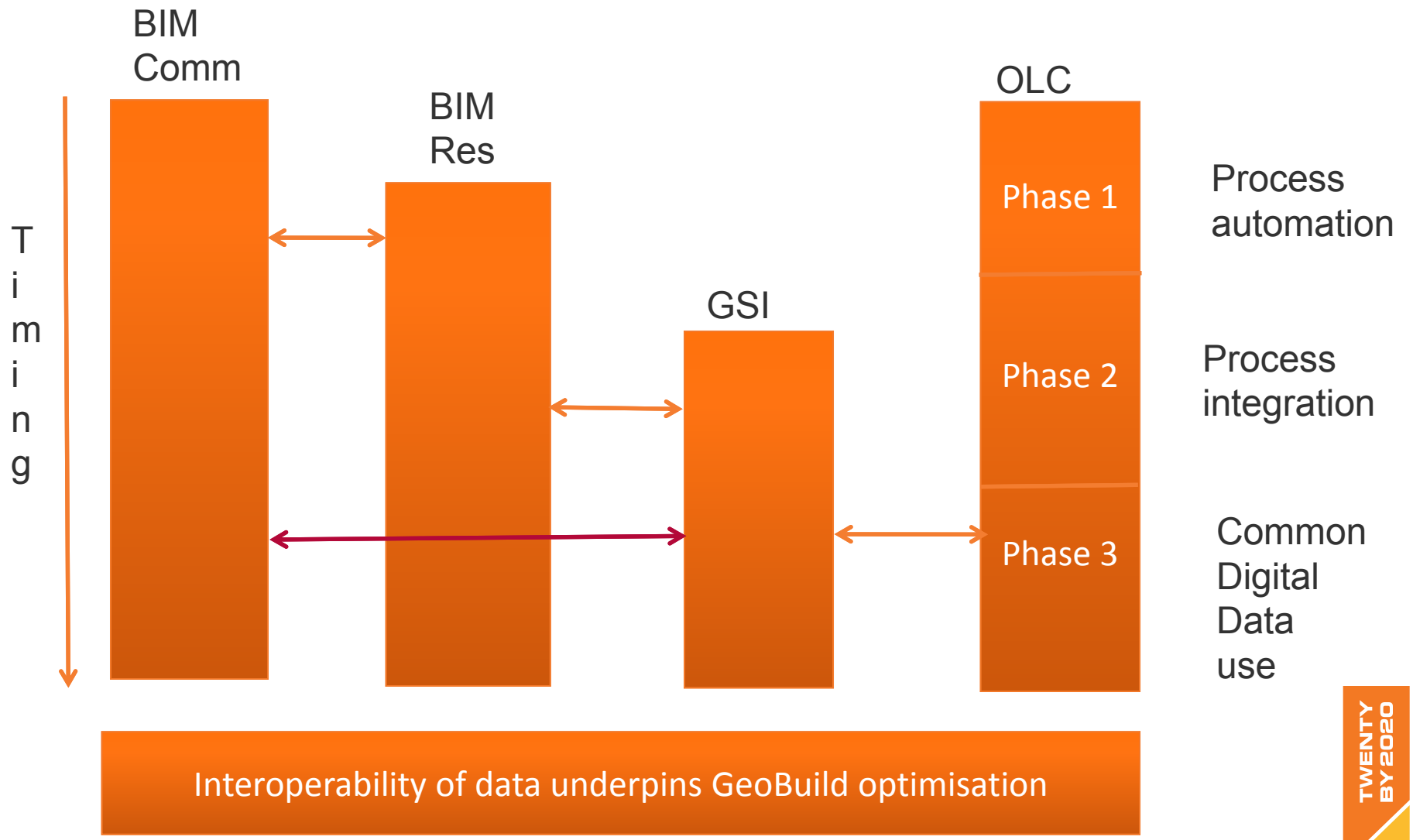
- The UK Government is being quoted as BIM providing an 18% productivity gain on projects (source: PP 2013)
- 60% fewer Requests for Information (RFI) than expected for a project of the same complexity (Staub-French and Khanzode,2007); and field labor savings ranging from 20 to 30 % for all the MEP subcontractors (Khanzode et al. 2008) due to increased productivity, less rework, and decreased schedule.
- Better than expected value — 70 per cent of users who measure return on investment (ROI) saw a positive return on the use of BIM, and 20 per cent of those recorded ROI of more than 50 per cent. (McGraw Hill 2009)
- Improved productivity — BIM technology reduces rework and duplication, with 80 per cent of experts saying that BIM brings high to very high value to a firm. BIM also has the potential to improve productivity and reduce conflicts and changes during the construction stage of a project. (McGraw Hill 2009)
- However, it is estimated that BIM technology can reduce the time to complete a project by 7 per cent, as all stakeholders have access to critical information, including schedule and budget information, materials quality and costing information, performance, utilisation, and financial information (Brown, 2008, p. 10; CRC for Construction Innovation, 2007a).
- In Australia, Engineers Australia estimated that a 10 per cent improvement in efficiency in the construction industry would increase GDP by 2.5 per cent over five years (Engineers Australia, 2005).
- The Stanford University Centre for Integrated Facility Engineering (CIFE, 2007) reviewed 32 major projects and attributed the following benefits to the use of BIM technology (Brown, 2008, p. 12):
  - •7 per cent reduction in project time;
  - •10 per cent saving of the contract value through clash detection;
  - •40 per cent elimination of unbudgeted change;
  - •80 per cent reduction in the time taken to generate a cost estimate, with cost estimation accuracy within 3 per cent

BIM – Acceleration

i) BIM delivers significant productivity benefits
ii) The Govt benefits both as a client and through the impact on the economy
iii) It makes sense therefore for the Govt to nominate projects to be BIMmed (selected to start, blanket in due course)
iv) BIM is here today, Online Consenting will take a long period to achieve maturity
v) If BIM is co-ordinated with OLC then synergies exist (National Product Database)

Geobuild Components

CONSTRUCTION SYSTEMS PRODUCTIVITY PARTNERSHIP
building value



TWENTY BY 2020

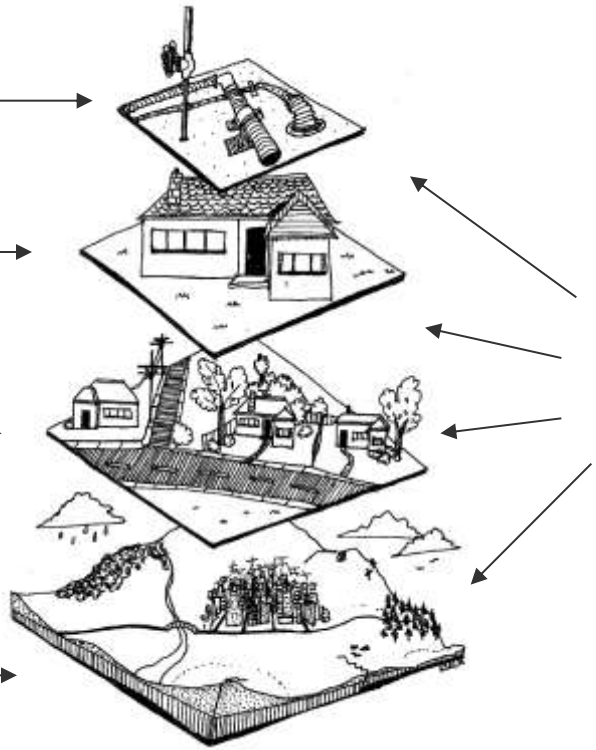
The GeoBuild Strategy
An interoperable approach

Infrastructure Modelling (IM)

Building Information Modelling (BIM)

Built Environment Information Modelling (BEIM)

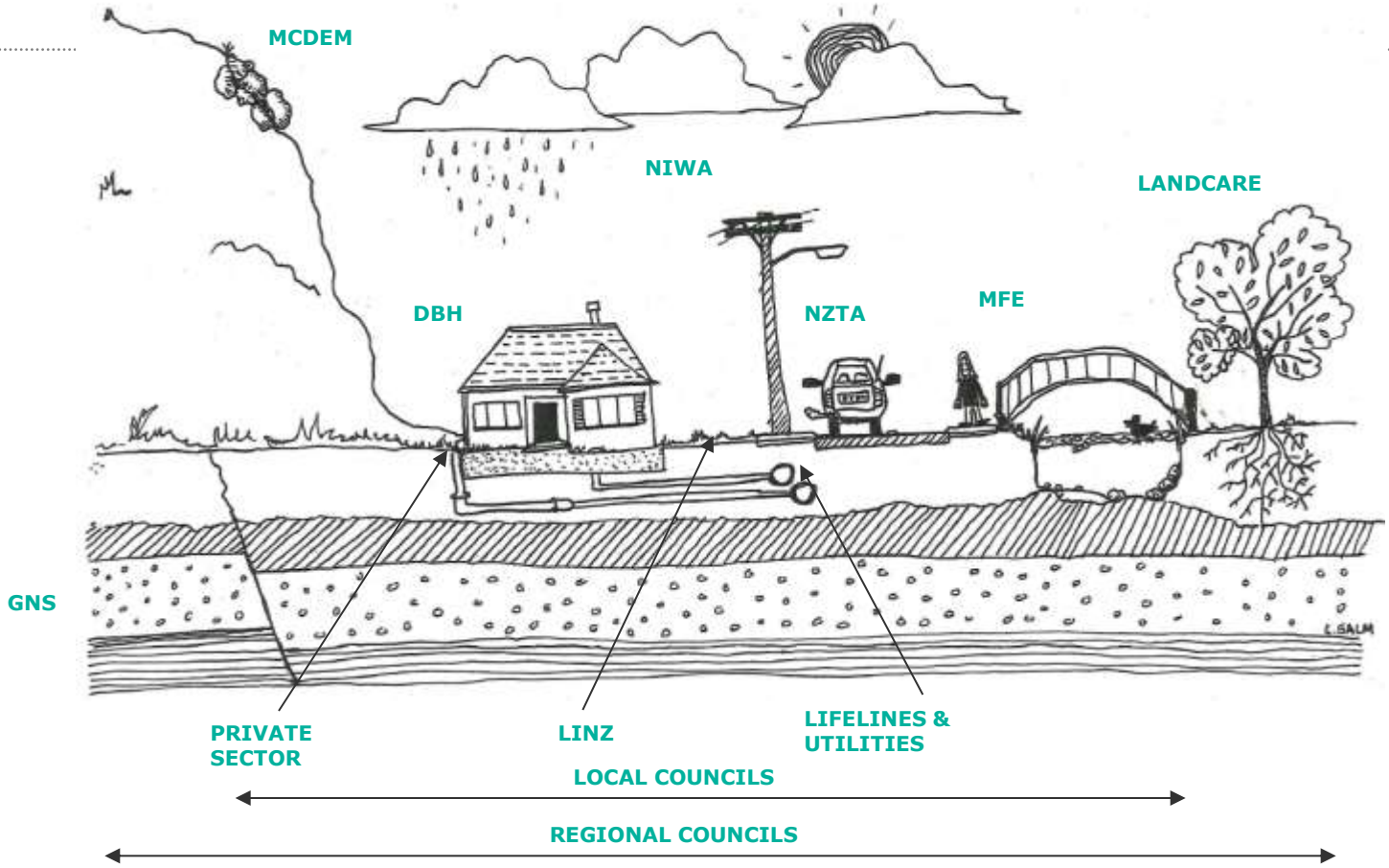
Whole of Environment Geospatial Information Modelling (WEIM)



National Online Consenting System

The GeoBuild Strategy
A Whole Environment Information Model

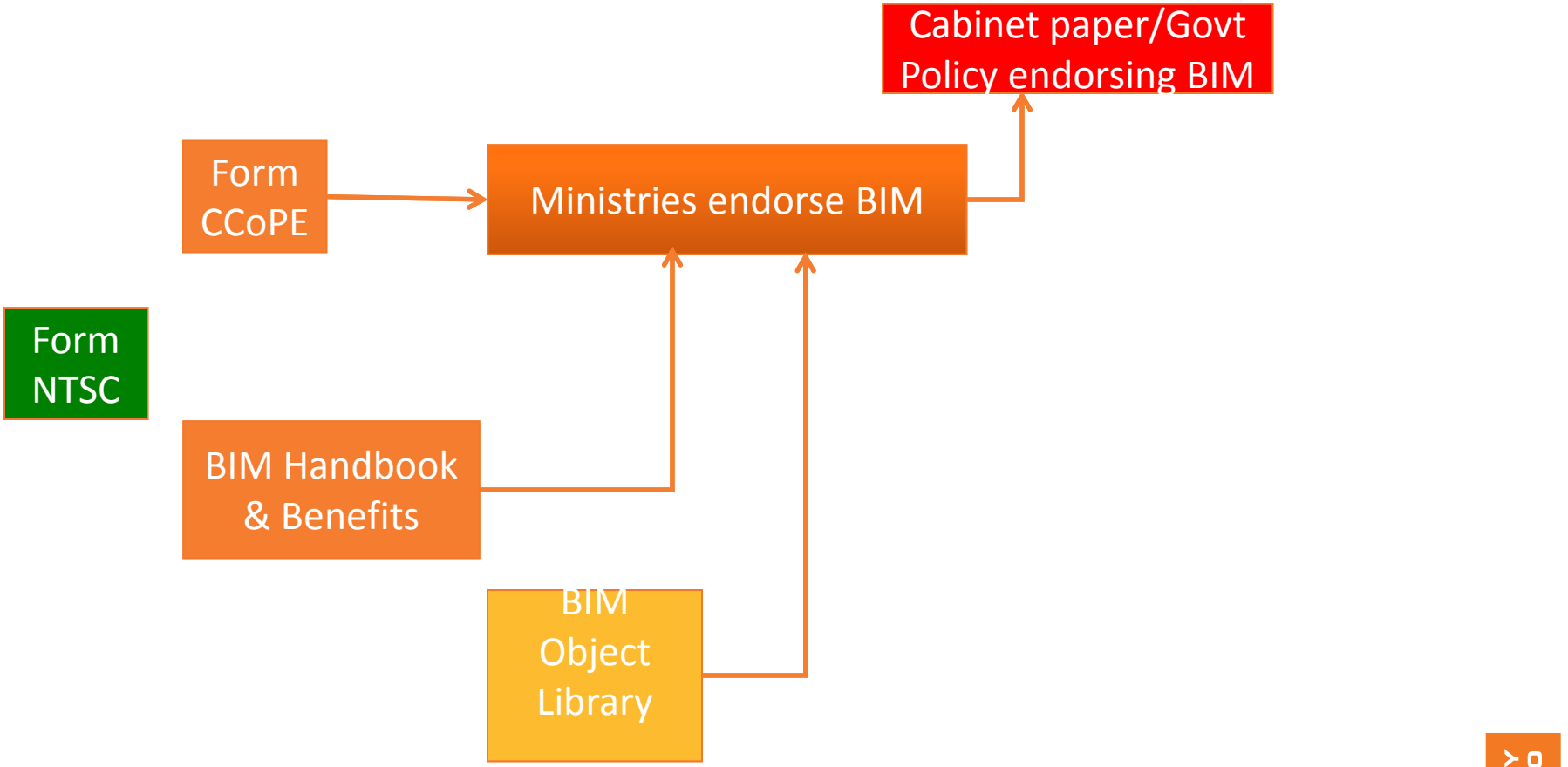
CONSTRUCTION SYSTEMS PRODUCTIVITY PARTNERSHIP
building value



TWENTY BY 2020

Bim Acceleration – the Building Blocks

CONSTRUCTION SYSTEMS PRODUCTIVITY PARTNERSHIP
building value



TWENTY BY 2020