




Advances in *fabrication management* technology and BIM

*... Maximising Value from the Structural
Supply Chain.*

Australian Steel Institute Conference 2010

Paul Daynes
Head of EPC Division
AceCad Software

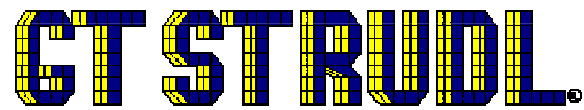




**Our Business is to
Reduce Cost, Schedule
and Risk across the
Structural Supply Chain**

AceCad[®]
software

Our Associate Vendor Partners



NOUMENON CONSULTING LIMITED

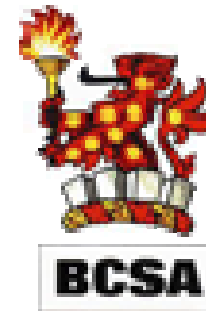


Our Associate CNC Supplier Partners

Peddinghaus



Steel and Construction Associations



AceCad
software

Solutions

StruPLANT

evolution

acecad software®

**A complete Structural Supply
Chain solution environment
for the Plant industries.**

StruAEC

evolution

acecad software®

**A Structural BIM solution
environment for the Building
& Construction industries.**

**Fabrication
Information
Modelling
(FIM)**

StruAEC

evolution

aeccad software®

StruPLANT

evolution

aeccad software®

**Engineer/
Model**

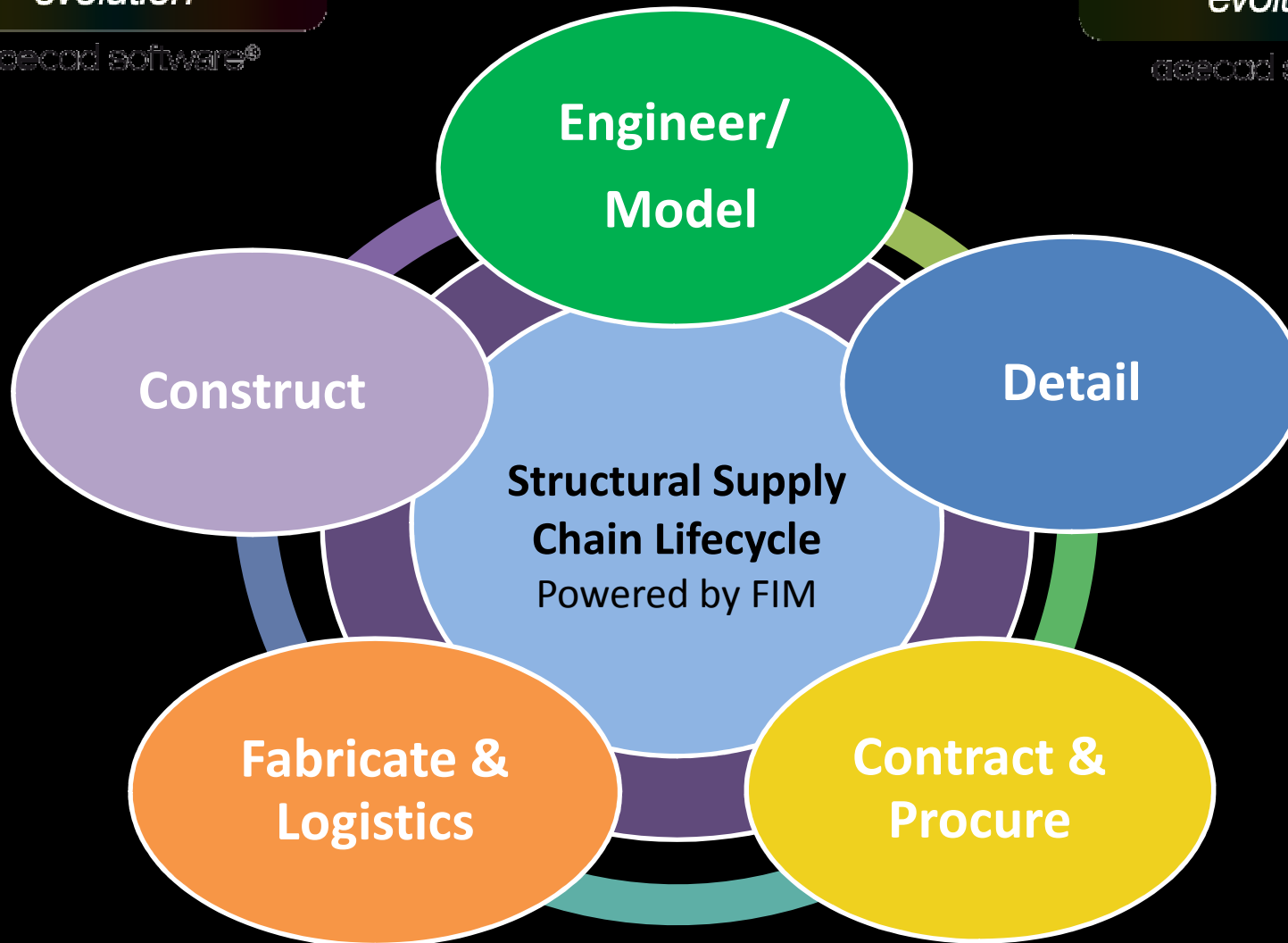
Construct

Detail

**Structural Supply
Chain Lifecycle**
Powered by FIM

**Fabricate &
Logistics**

**Contract &
Procure**



Defining the Structural Supply Chain



We have come a long way ...

Visualise what's possible



**...The Holy
Grail...**

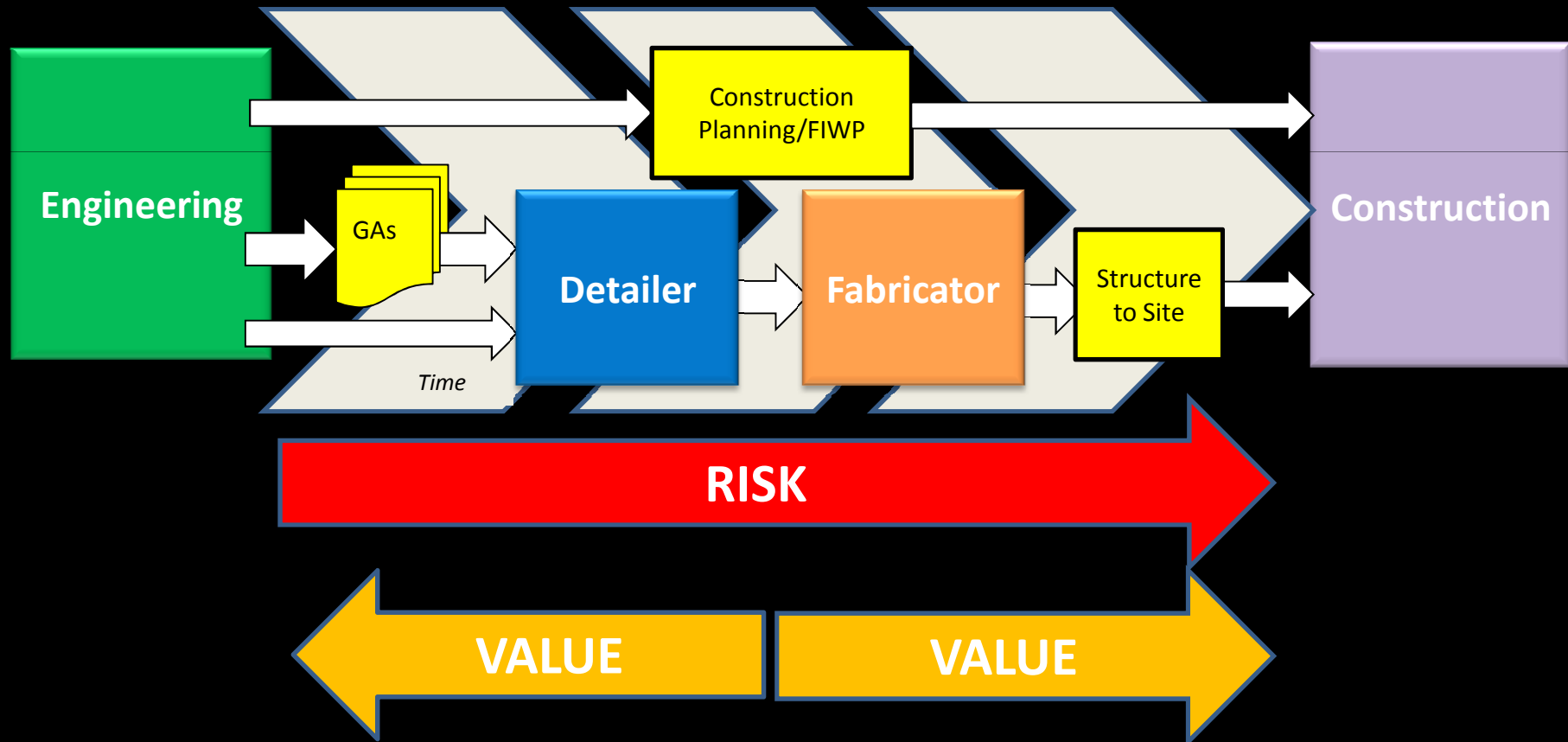
**'No loss of
information and
data'**



Fabrication Knowledge Management

Structural Supply Chain Challenges:

Business Practices Inhibit Value
Fragmented Workflows
Error & Inaccuracy
Rework



Industry Trends



Streamline



Co-Ordinate

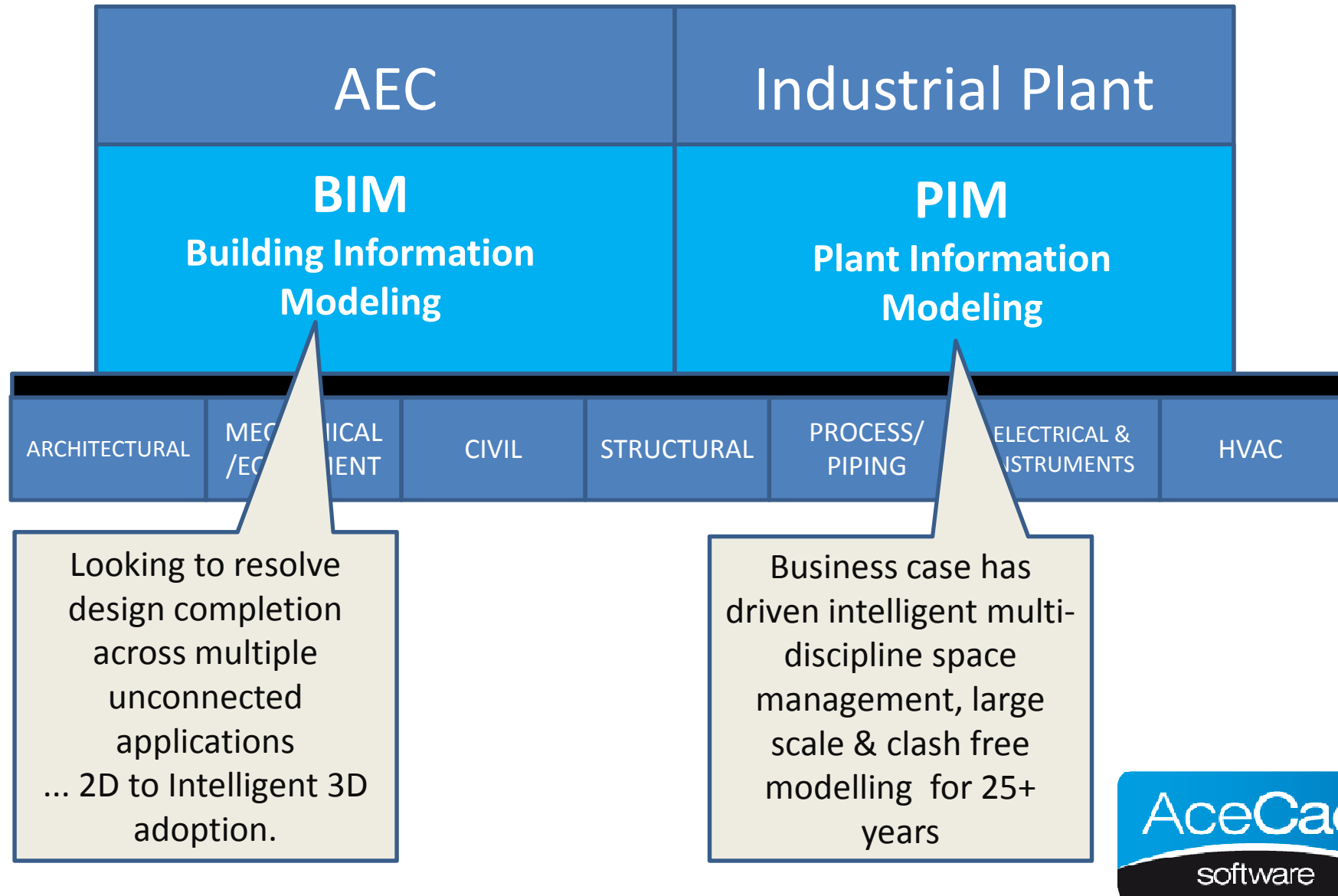
Collaborate



Simulate

Diversify

Market Sector applicability

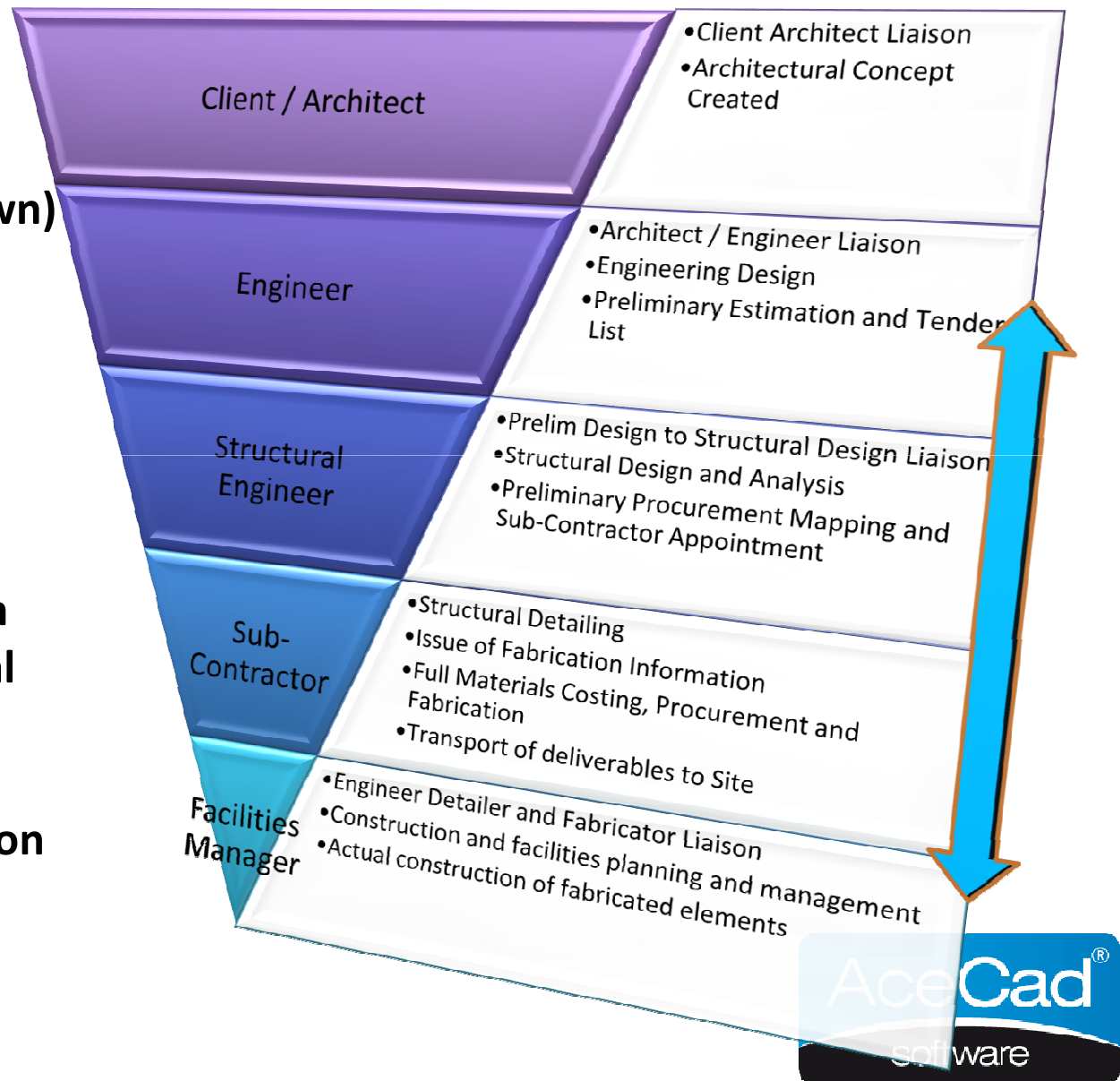


Does BIM /PIM help fabrication?

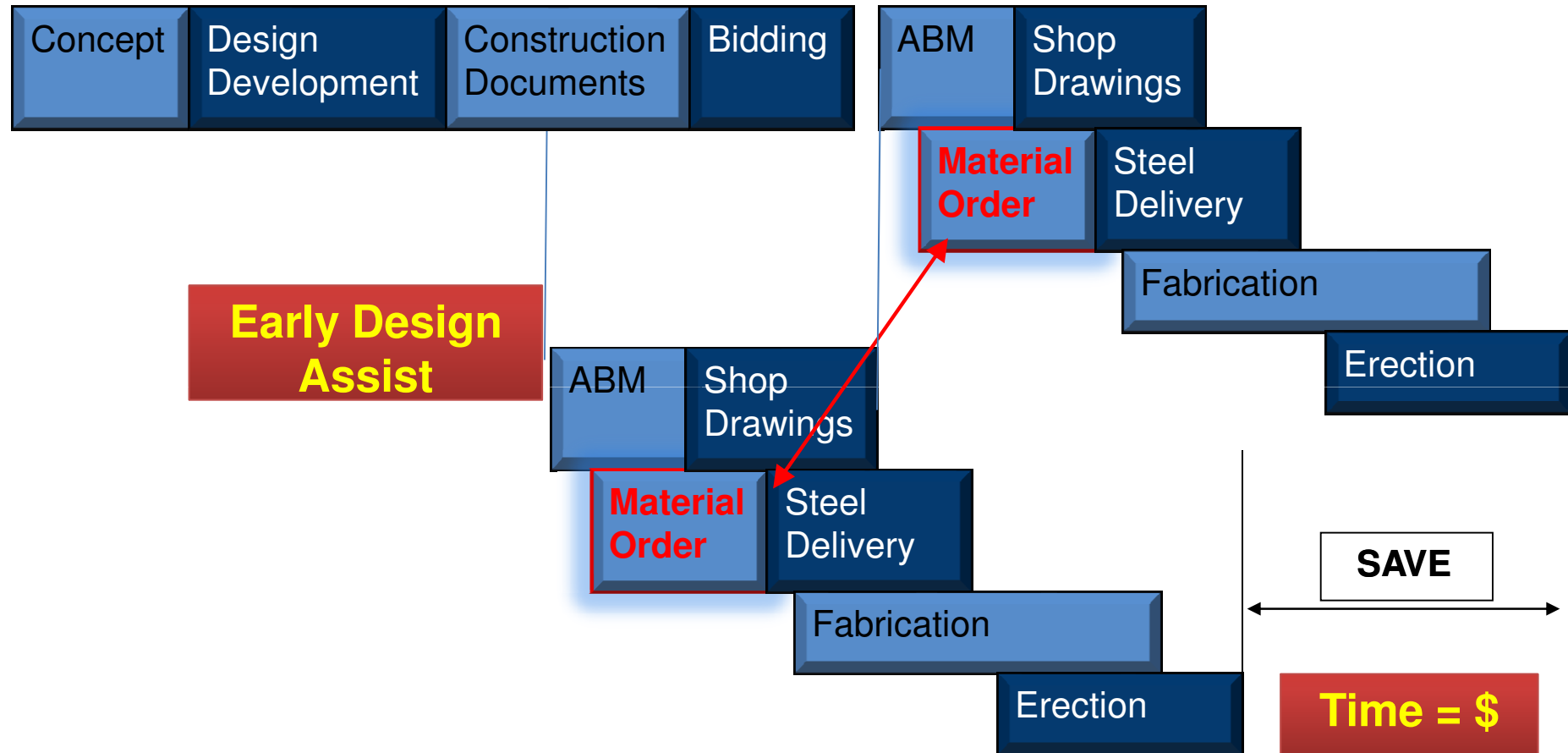
BIM is not unlike a funnel, it very efficiently collects information to a central location (Top Down)

It acts as a vehicle for passing this information downstream.

...But, what about the upstream communication of the status of Structural elements, throughout Estimating, Detailing, Procurement & Fabrication Processes?



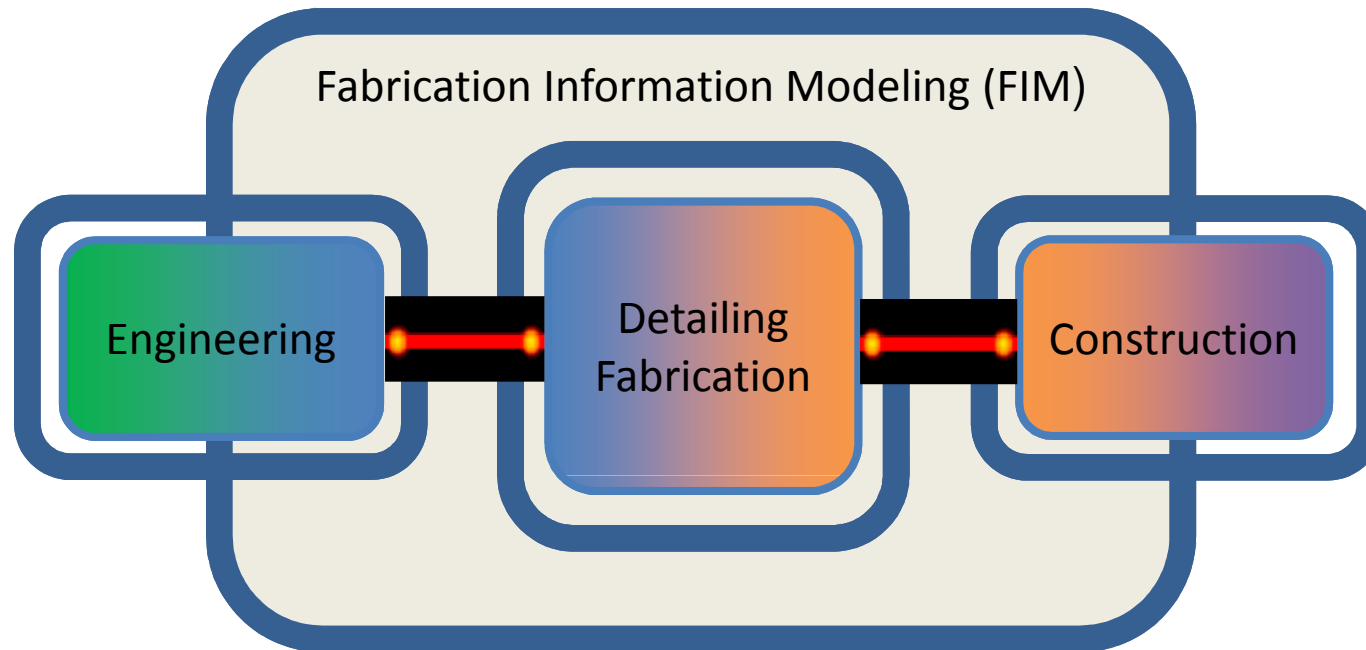
Methods Employed To Reduce Structural Workflow Schedules



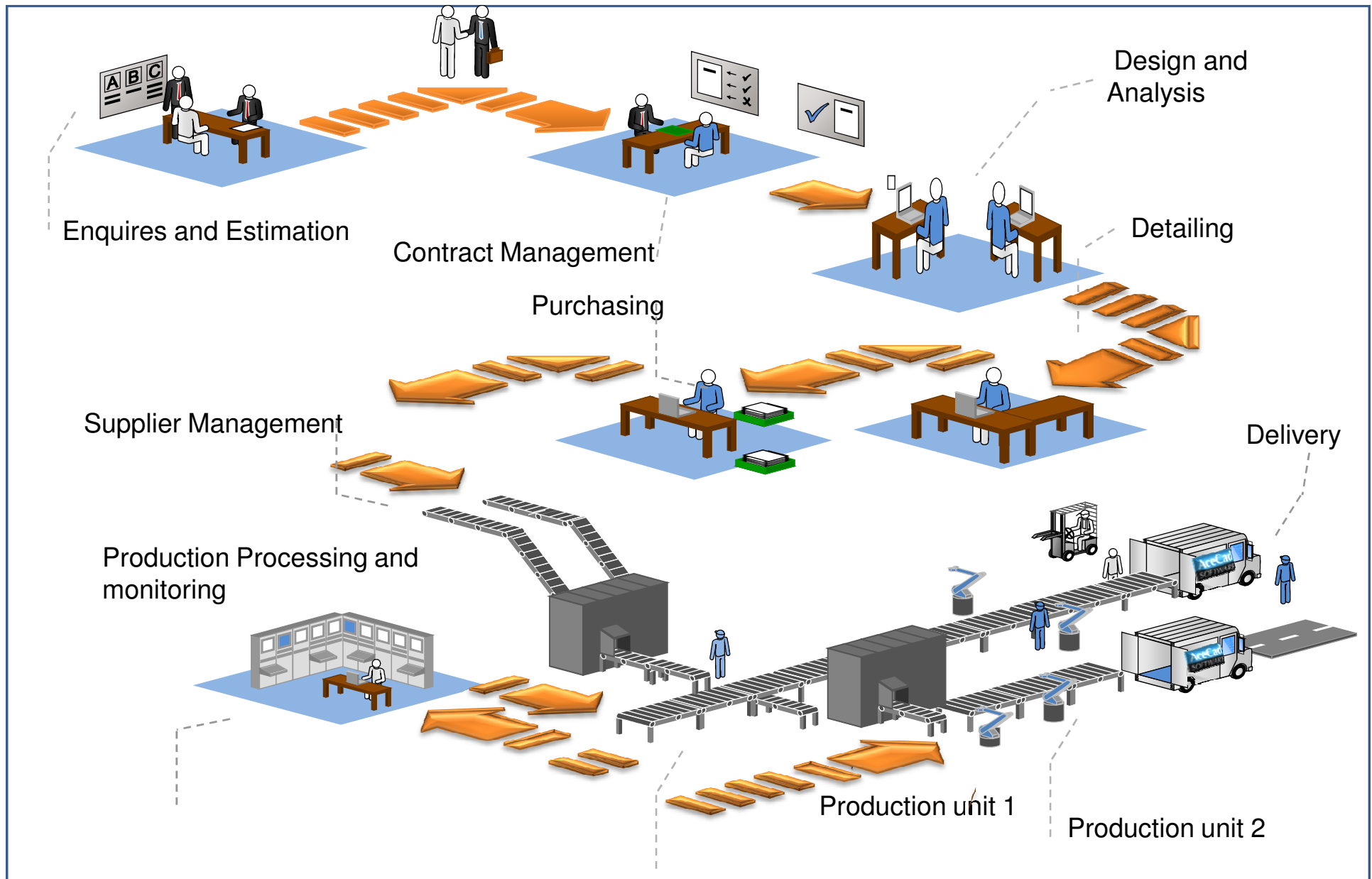
Courtesy Of



The Structural Supply Chain

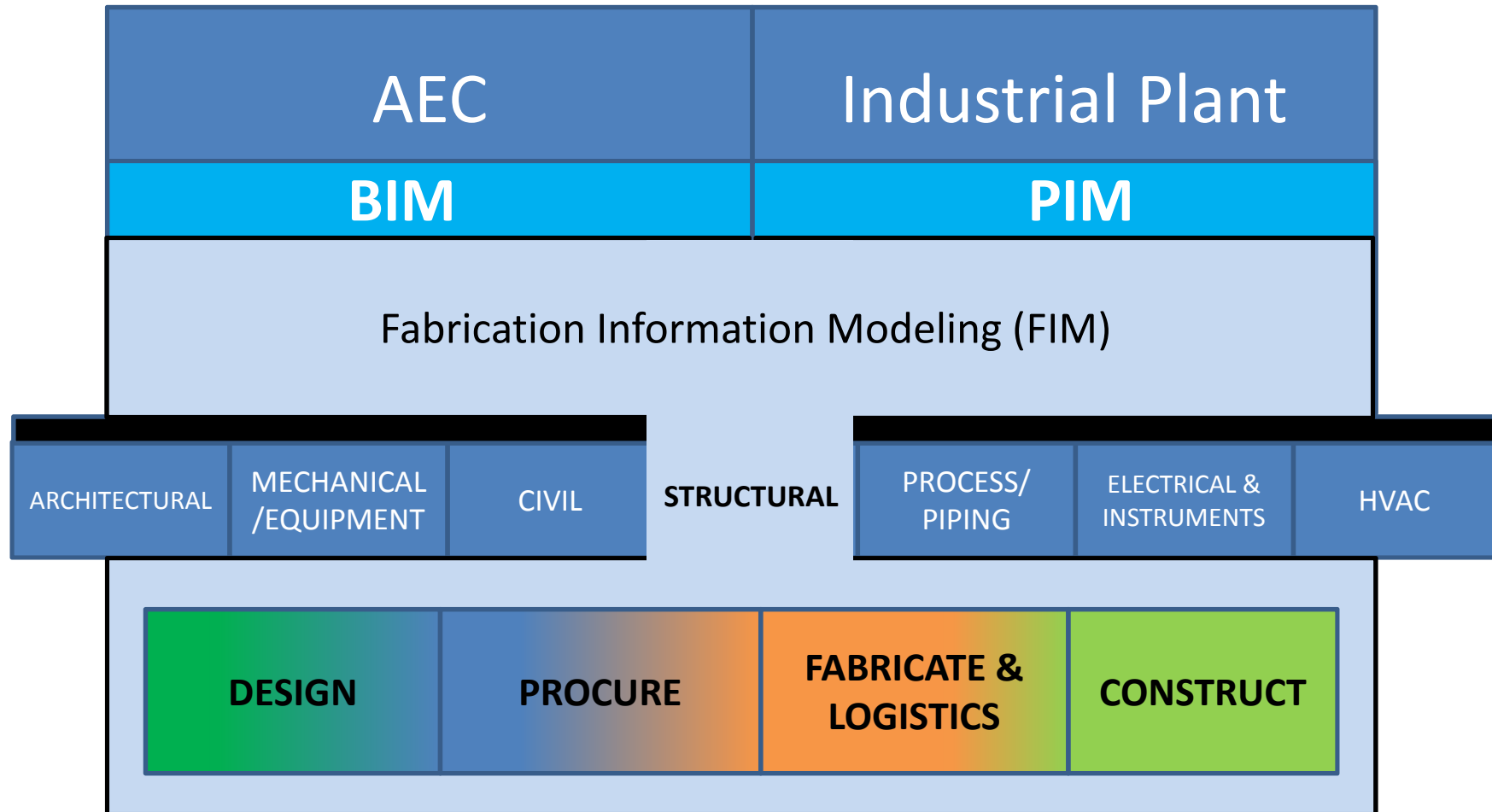


*FIM (n. abbr): **Fabrication Information Modeling**. A Business Strategy Methodology that Harnesses the Structural Supply Chain & Workflows Between Engineering, Fabricators & Construction Companies through Open, Best Practice Solutions & Standards Based Integration.*



Fabrication Information Management

Market Sector applicability



Perspectives across the Supply Chain

Engineering/EPC:

Detailer:

Fabricator:

Construction:

Perspectives across the Supply Chain

Engineering/EPC :

- Value of Fixed price v Reimbursable contracts?
- Need for richer design model, including joint design.
- Early material lists: Estimate accuracy & factoring e.g. extras, labour.
- How to control structural model issue across multiple contractors?
- What is the status in fabrication? ..time spent analysing activity reports from fabricators?
- What is the cost and impact of change?
- Timing for ordering steel - best market price for steel?
- What fabricators have capacity?
- Impact of rescheduling priority fabrication?

...

Perspectives across the Supply Chain

Detailer :

- Up selling detailers experience e.g. Connection and joint knowledge.
- Fixed price contracts prohibit value of up-selling structural design experience early in the project.
- Design optimisation for fabrication and erection
- Communication of design change intent.
- Reconciliation of change with client.
- Management of change variations ... across multi-user projects.
- Productivity: design and deliverables.
- ...

Perspectives across the Supply Chain

Fabricator:

- Up selling fabrication experience and project progress e.g. Production constraints and real-time contract information
- Utilising fabrication knowledge base for accurate estimates
- Reconciliation of change variations with client.
- How to collate communicate change.
- Production efficiency: *JIT manufacture.*
- Material procurement; when, best price ...
- Control of material costs; Utilising material wastage.
- Contract budget controls.
- Payment from client – structure deliver to site tracability
- Production agility: changed priorities.
- ...

Perspectives across the Supply Chain

Construction:

- Up selling construction experience e.g. constructability reviews.
- How to balance project plans with material delivery and resources?
- Material to site, and where: *JIT construction*?
- Understanding and communicating erection sequence, inc. safety management?
- How to produce FIWP in conjunction with utilities planning and plant management?
- What is the impact of change on site?
- ...