

# Project Controls Expo 2015

## Deliverables Management A Strategic Opportunity



13<sup>th</sup> Oct 2015

Jason Matthews



Stand 9 & 10



# Agenda

- **Introductions**
- **Industry Context**
- **Deliverables Management**
- **Scale of The Challenge**
- **It's Not All Bad News**
- **Summary**
- **Q & A**

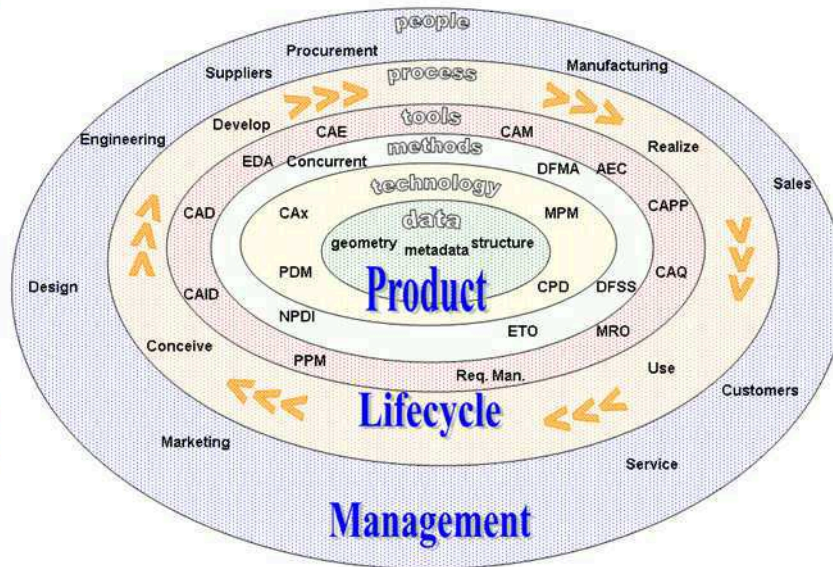
# Presenter

## Jason Matthews

- Father in Construction
- Mechanical Engineer
- Oil & Gas, Roads, High Rise, Residential, Water
- Over 20 Years experience in industry
- Complex Lifecycle Management
- 3D PLM to E & C – BIM / E & C Lifecycle
- Specialising in helping Primavera customers last 5 years
- EPC's & Owners



# Complex Lifecycles



Courtesy of Wikipedia

# Complex Lifecycles

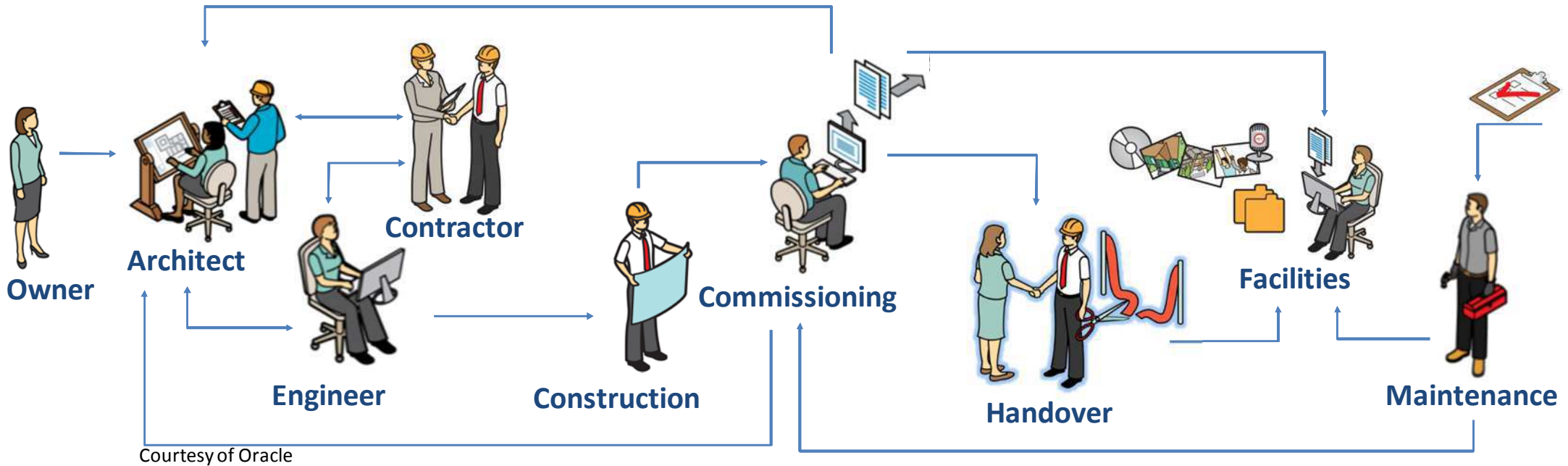


Design

Construct

Handover

Operate

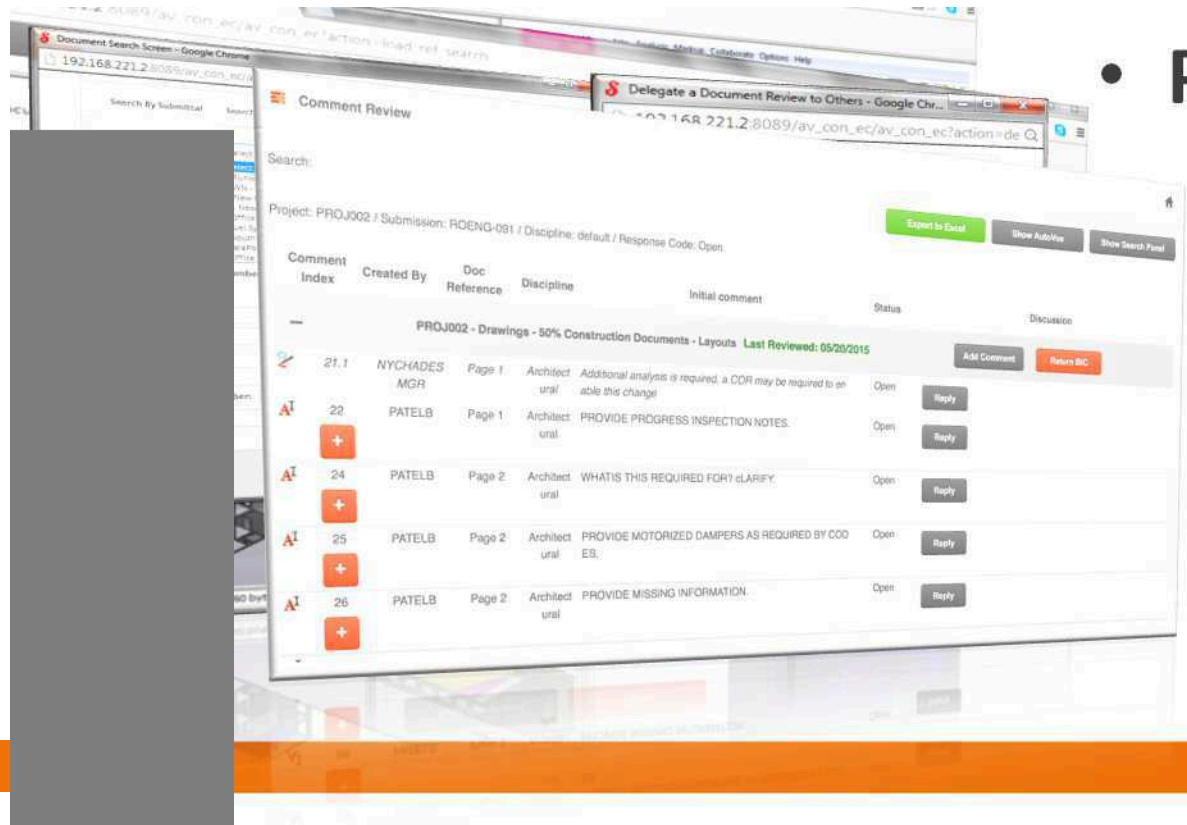


Courtesy of Oracle



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Exporting / Reporting / Maintenance

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# Digital Workbench

- **Consolidated View**
- **Project Dashboard**
- **Integrated**
- **Process Driven**



# Context of Industry





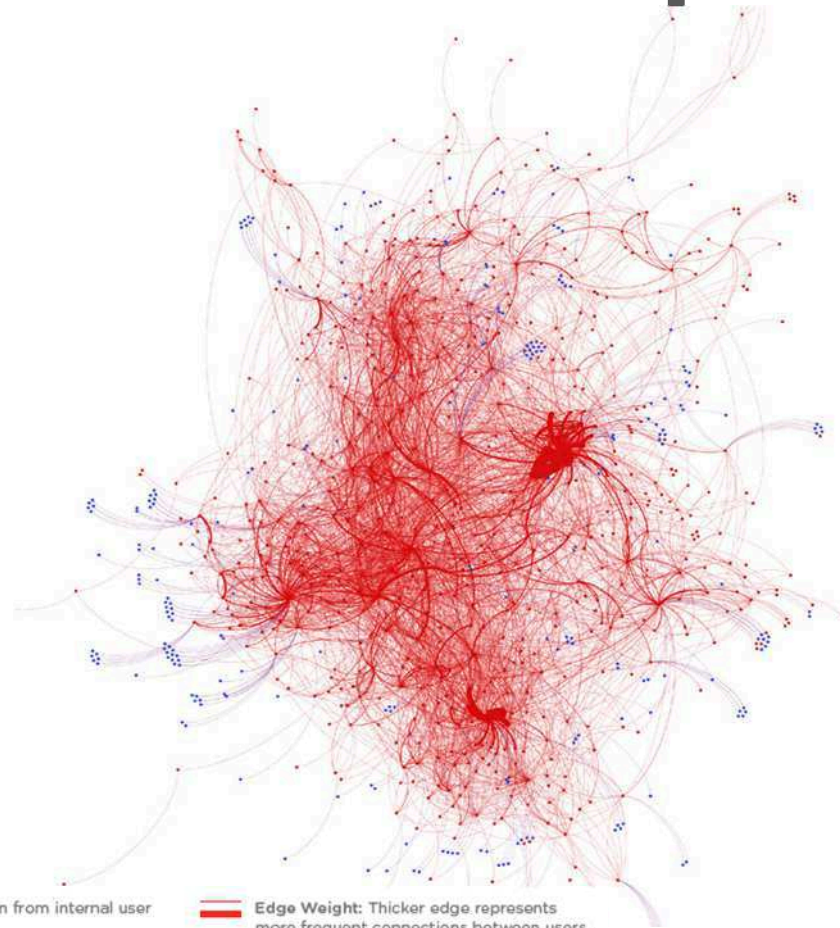
# What's So Important Here?

- Drive top and bottom line benefits
- Dramatic increases in productivity
- Highly collaborative

# Collaboration Complexity

Industrial  
Manufacturing

Internal discussions  
Supply chain  
More manageable  
Control



Courtesy of Oracle

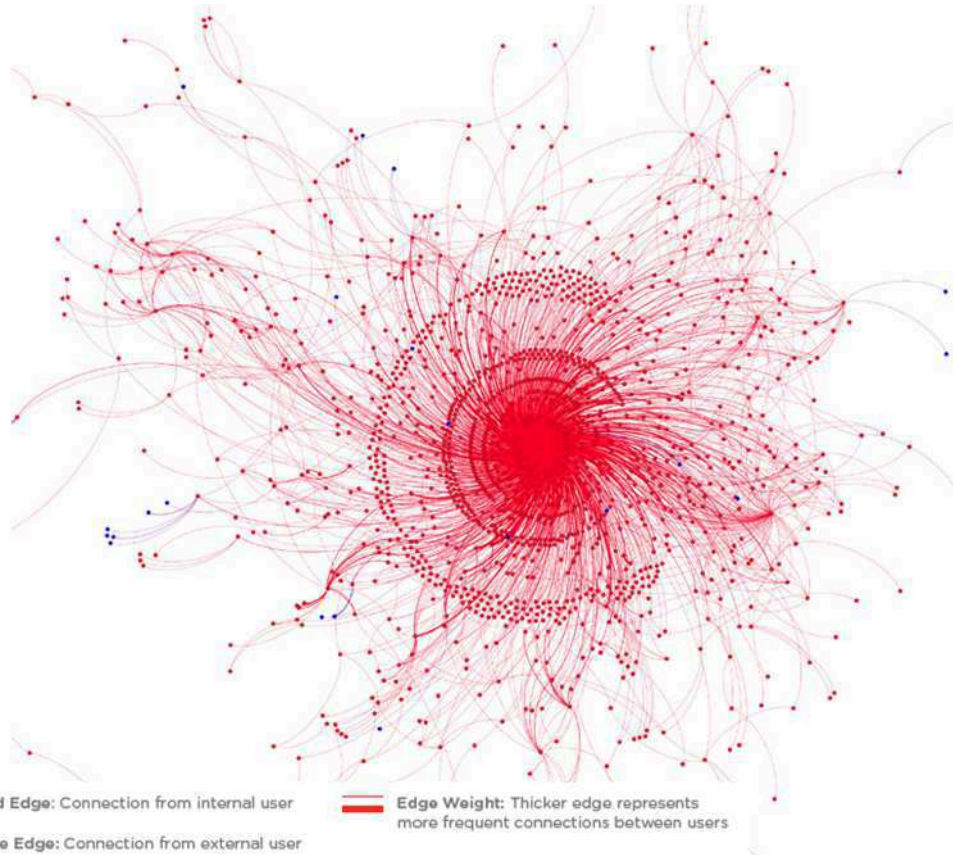
- Red Node: Individual company user
- Blue Node: Individual external user
- Red Edge: Connection from internal user
- Blue Edge: Connection from external user
- Edge Weight: Thicker edge represents more frequent connections between users

# Collaboration Complexity



Financial  
Services

Highly regulated  
Connected systems

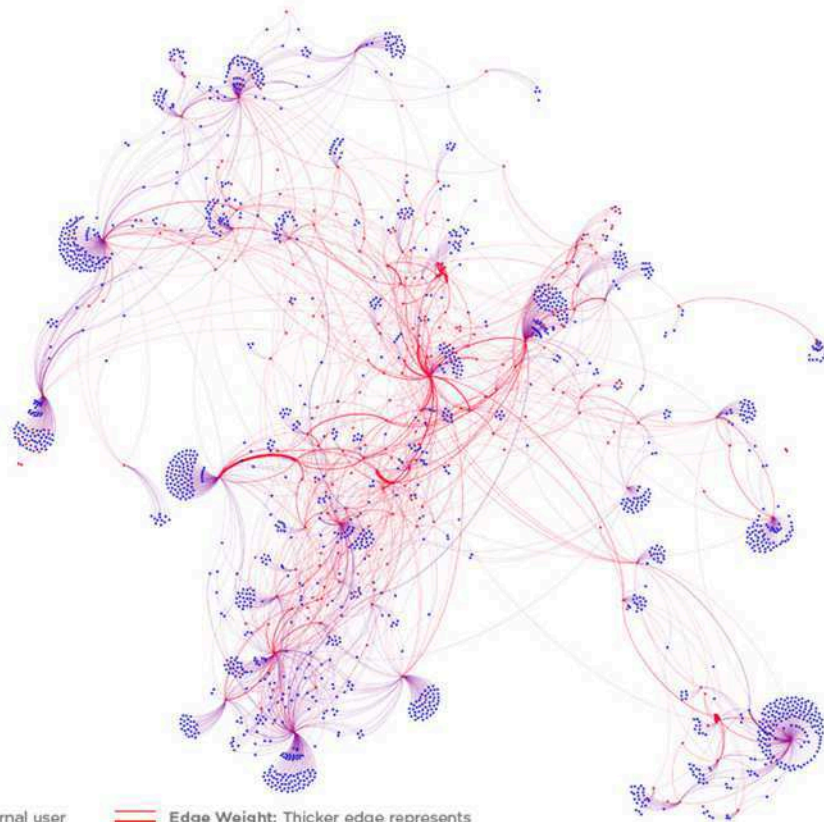


Courtesy of Oracle

- Red Node: Individual company user
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# Collaboration Complexity

## Construction



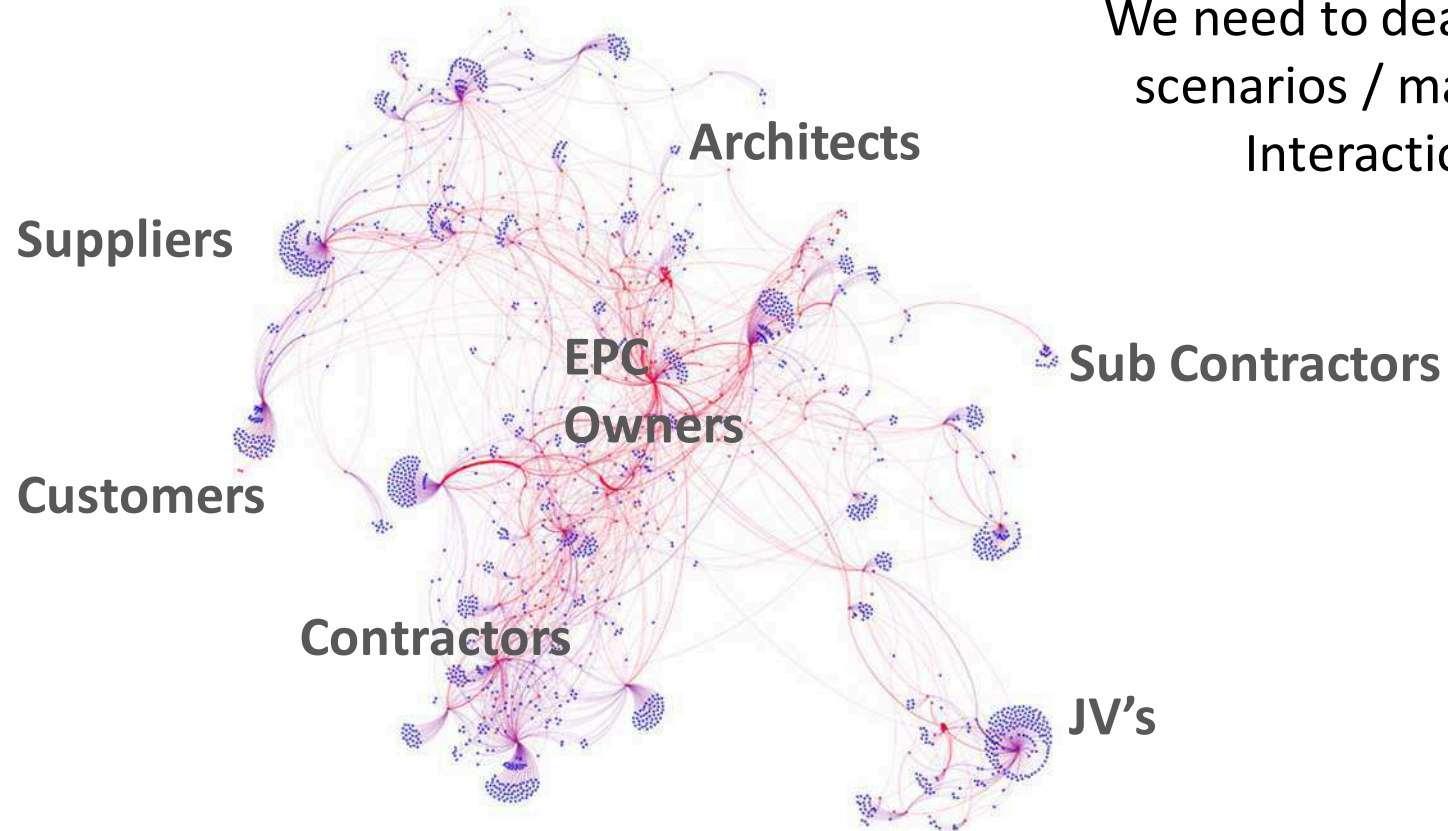
Highly distributed  
Much less control  
Own systems if at all  
Very small to very large

Courtesy of Oracle

- Red Node: Individual company user
- Blue Node: Individual external user
- Red Edge: Connection from internal user
- Blue Edge: Connection from external user
- Edge Weight: Thicker edge represents more frequent connections between users

# Fact of Life

We need to deal with all scenarios / maturity / Interactions



Courtesy of Oracle

- Red Node: Individual company user
- Blue Node: Individual external user
- Red Edge: Connection from internal user
- Blue Edge: Connection from external user
- Edge Weight: Thicker edge represents more frequent connections between users

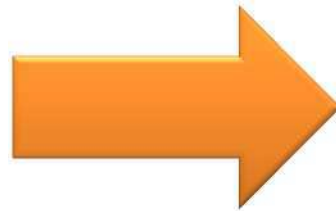


# Deliverables Management



# Why Does DM Exist?

- Contractual Obligations
- Cash
- Progress
- Project Man
- Quality

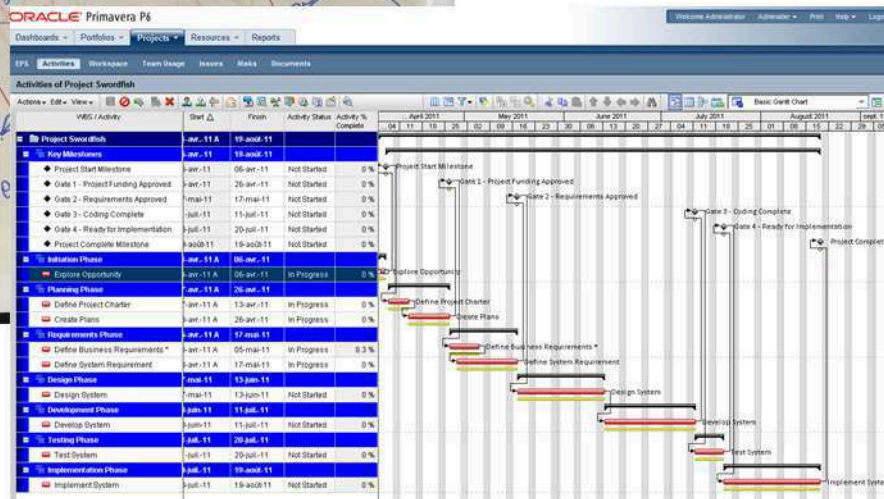
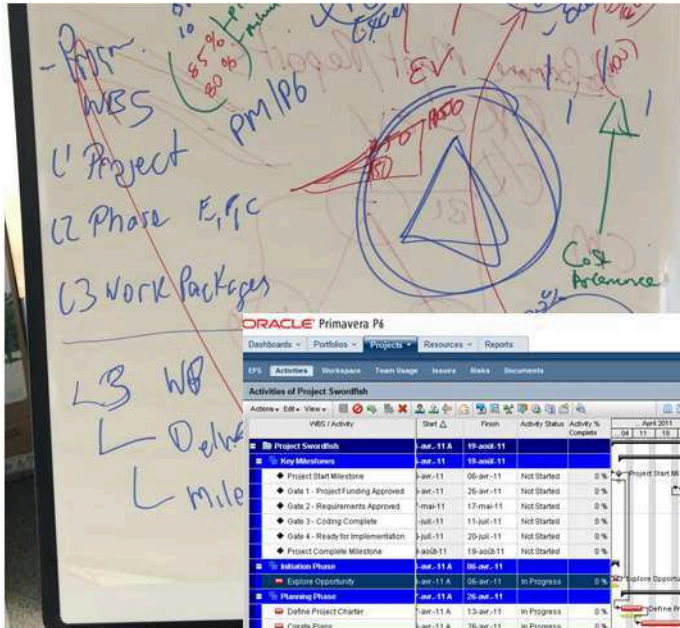


- Risk
- Safety
- Diligence
- Validated
- Evidence

**Protect Your Company  
Proof (Liquidated Damages)**



# How Are Key Deliverables Determined?



- Defining the objective for the entire project.
- Major components leading up to the objective: these are the key deliverables.
- Specific tasks that need to be completed.
- Dependencies - in other words, tasks that need to be completed before another task can begin.
- Completion dates are assigned for each task and deliverable.

# What Are Key Deliverables?



**Under The Triple  
Constraints of Scope,  
Time & Cost**

- Due date
- Tangible, measurable and specific.
- External or internal customer
- Satisfies a milestone or due date
- In the project plan

# Examples Across the Lifecycle



- In Engineering ,production of workshop drawings
- In procurement ,material arrival on site
- In construction, completion of sectional milestone mentioned in condition of contract
- In commissioning, availability of tested and working equipment
- In handover the completion of the O & M

# How are Deliverables Progressed?

Milestones  
No. of Docs  
Hours



Milestones  
Packages  
Budgeted Hours



Quantities  
Budgeted by Quantity  
Quantity Installed



Milestones  
No. of Docs  
Hours



Courtesy of Brian King

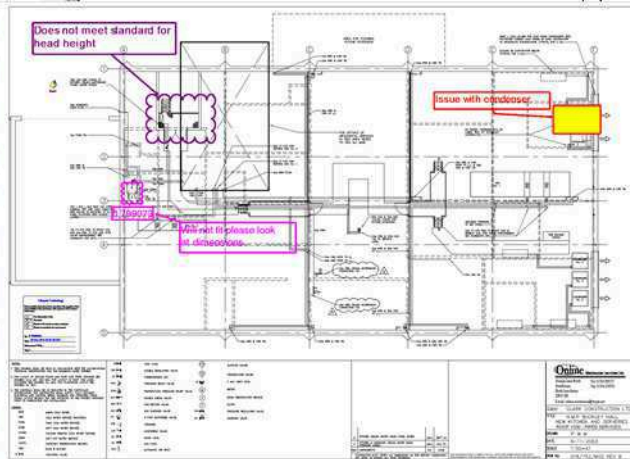
# Progress Measurement



- Assigned a budget in terms of man hours that it takes to produce the document.
- Progress is measured against budgeted hours
- A pre-defined set of weighted milestones
- Rules of Credit
- Earned all its budgeted man hours.

# Revisions & Comments

No.	Sequence #	Revision Type Value
001	1	A0
002	2	A1
003	3	A2
004	4	A3
005	5	A4
006	6	A5
007	7	A6
008	8	A7
009	9	A8
010	10	A9
011	11	A10
012	12	A11
013	13	A12
014	14	A13
015	15	A14
016	16	A15
017	17	0A0
018	18	0A1
019	19	0A2
020	20	0A3
021	21	0A4
022	22	0A5
023	23	1A0

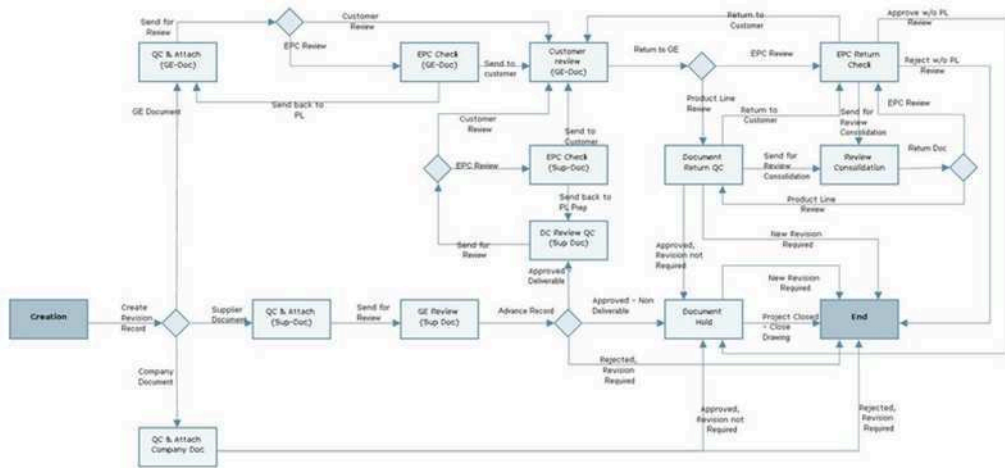


Annotation / Comments for the review of document:  
 'PROJ002 - ROENG-092-014 - 001 - LSDEMO2'

No.	Annotation Type / Name	Author	Page	Date	Reviser's comments	Revisor's comments
1	Scope DISCIPLINE LEAD REVIEW	NYCHALECENG	1	2/10/15		
2	Note 1 INTER-DISCIPLINE REVIEW - Civil Engineer_United1	NYCHALECENG	1	2/10/15	Since the Fire Alarm system is not a consultant's scope this consultant set of drawings for the new reviews in the Solar Resource Electrical Rooms (required by NYC-EC (smoke/heat detectors) will be installed). Additional comment: the fire alarm devices shall tied into a fire alarm panel for a Code compliant installation and the panel shall have the capability of being connected to a central monitoring station.	
ER - E REVIEW - Engineer_United1		NYCHALECENG	1	2/10/15	The symbol indicated on the symbol list for fused disconnect switch resembles the symbol for a fuse. Please correct.	
ER - E REVIEW - Engineer_United1		NYCHALECENG	1	2/10/15	The symbol described as 'emergency battery pack' seems to be an emergency lighting fixture. 2 adjustable heads, with battery pack. Please correct.	
ER - E REVIEW - Lead Initiated1		NYCHALECENG	1	2/10/15	multiple switches could controls multiple fixtures in rooms indicate specific fixture switching. Indicate 3-way and 4 way switches if used.	

	A	B	C	D	E	F	G
	Comment #	Reference	Comment	Response Code	Response	Status	
13						10/7/2014	
14	1	General	1. Sprinklers drawings have not been submitted before. Correct Submission information in the titleblock. 2 Drawing numbering is not consistent (SP-001 and SP-102)	1. A 2. A			
15	2	SP-001	1. Indicate name of the Room to be provided with sprinkler protection. 2. Coordinate Water Flow Switch with Fire Alarm. 3. Pipe size appears to be oversized (1-1/2" for only one head)	1. A 2. A 3. U		3. U	
16	3	SP-102	1. Indicate name of the Room to be provided with sprinkler protection. 2. Coordinate Water Flow Switch with Fire Alarm. 3. Pipe size appears to be oversized (1-1/2" for only one head)	1. A 2. A 3. U		3. U	
17	4	Specifications	Provide specifications for the Sprinkler System.	1. A			
NEW COMMENTS (based on review of submission dated 6/26/14):							
18							
19	1	Specification 21.13.13	1 This section shall be edited to be more specific to the project (e.g. scope, type of system, valves, pipe material, etc)			1. U	

# Workflow Processes



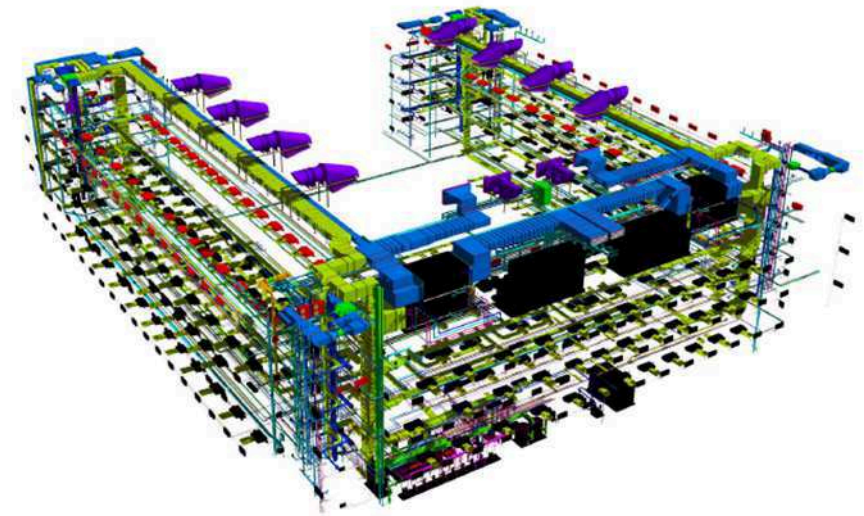
- Following stringent rules
- Predecessor gates
- Complex interactions
- Multiple systems
- Internal & external

# Industry Processes

## BIM

### Key Processes

- Estimation / Bill of Quantities
- Contracts
- Request for Information
- Potential Change Orders Early Warning (EW)
- Request for Quotation Compensation Event Notification (CEN)
- Change Order Compensation Event Quotation (CEQ)
- Schedule of Values Compensation Event (CE)
- Pay Applications



*Courtesy of Scott Wilson*

FIDIC / JCT

NEC 3 – Manage Change



# Scale of The Challenge



# Maturity?

- **Where is your business on the curve?**
- **Advanced Excel**
- **Excel Hell!**
- **Siloed Systems**
- **Systemised**
- **Or something in between**

# The Dreaded Spreadsheet

- Document / deliverables register
  - Multiples in project
  - Time sheets
  - Milestones measurements
  - Correspondence register
  - Ball in court reports
  - Contractor reports
  - Supplier reports
  - Documents / folders / versions
  - Markups
  - Comments progress
- My Spreadsheets...



# Wrong Tools for The Job

- Inefficient
- Uncontrolled
- Manual
- Error prone
- No process
- Workflow
- Consistency



# Quantities are Significant

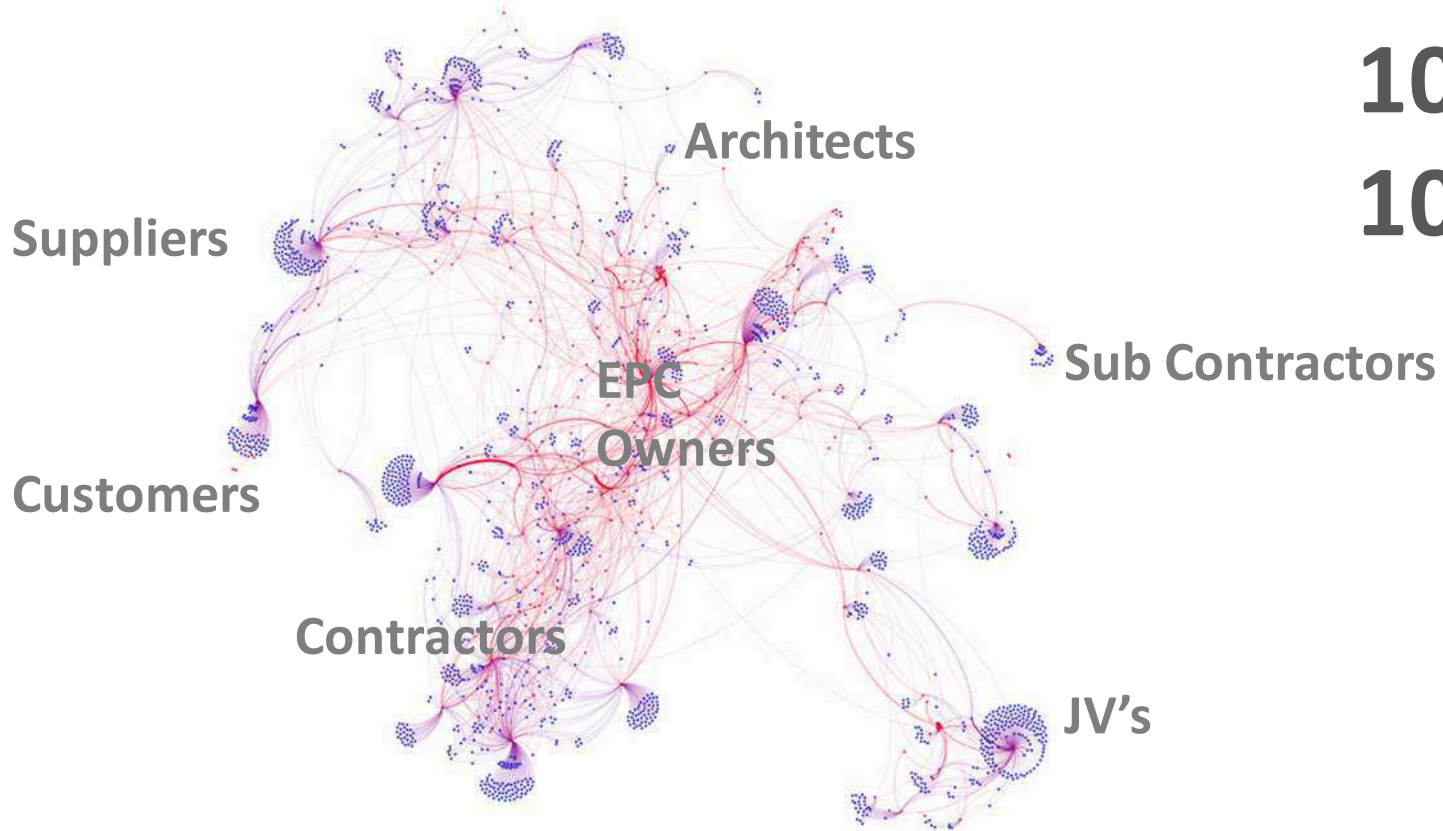
- Planning System
- Cost Control System
- Deliverables Management?
  - Email
  - Folders
  - Excels
  - Document Control System

**150,000 Ball in Court tasks!!**

**20,000**

**Documents!**

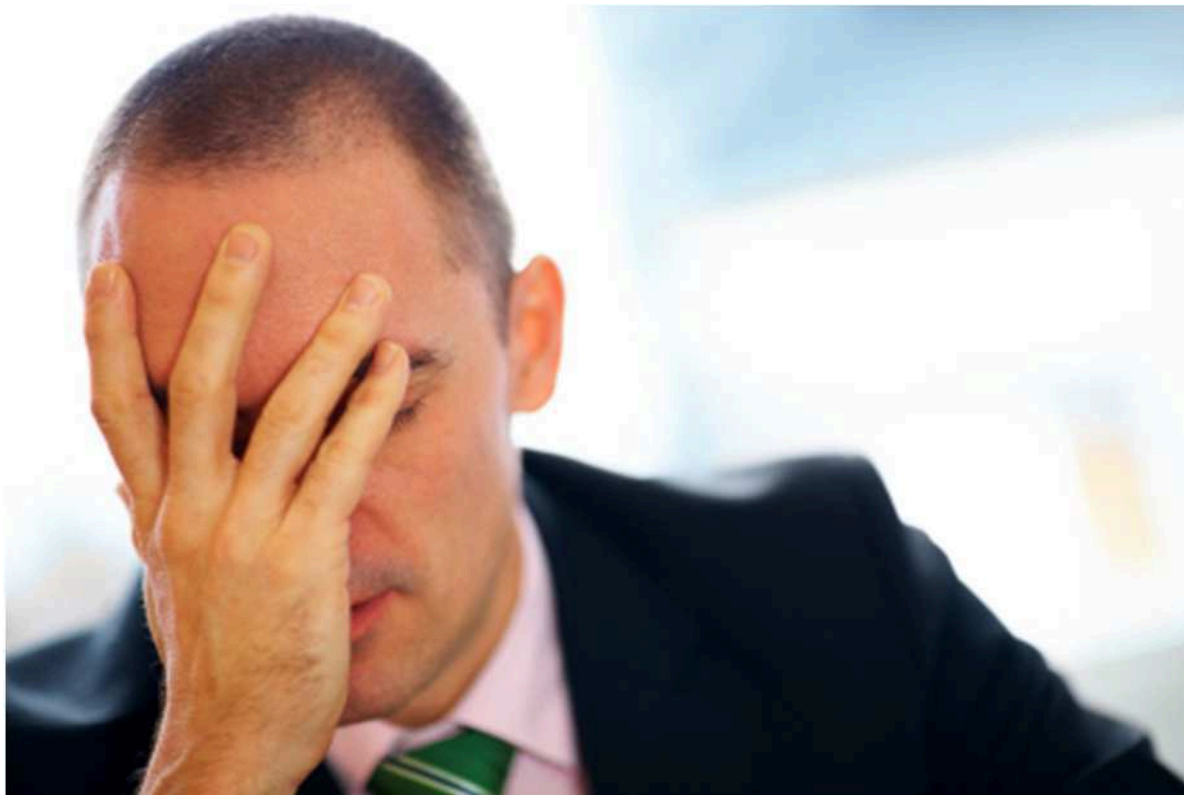
# The Spaghetti



**100's of vendors**  
**100's of PO's**



# Major Impact to Your Business



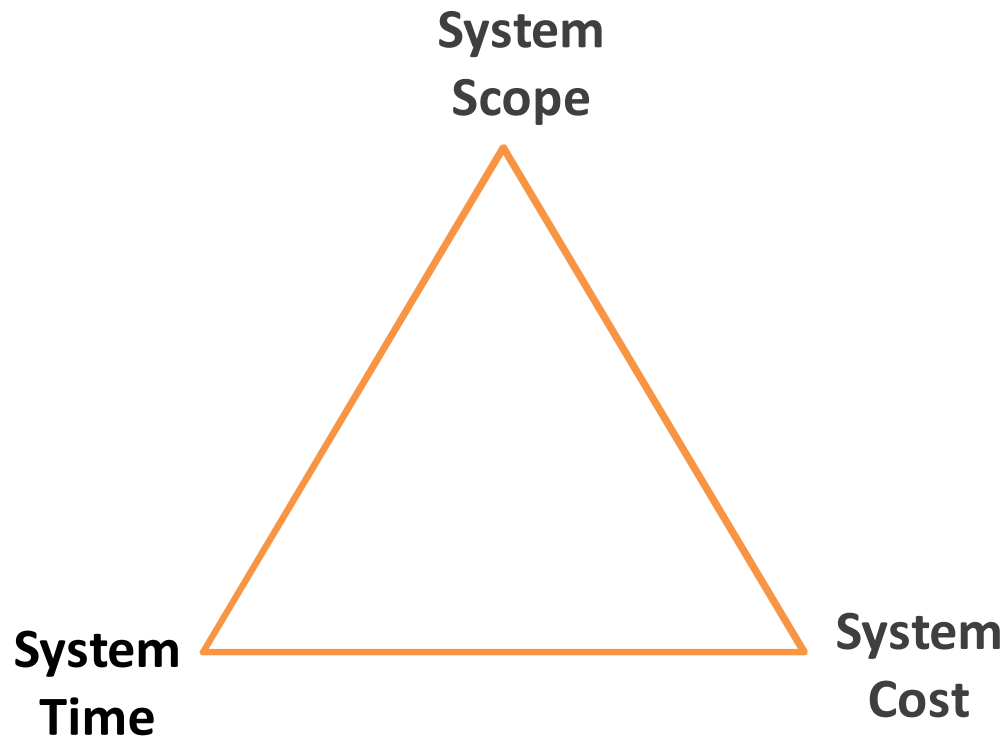
- **When things go wrong**
  - Cost Overrun
  - Schedule Overrun
- **Visibility**
- **Profitability**
- **Efficiency**
- **Reputation**
- **Audit**

# It's Not all Bad News



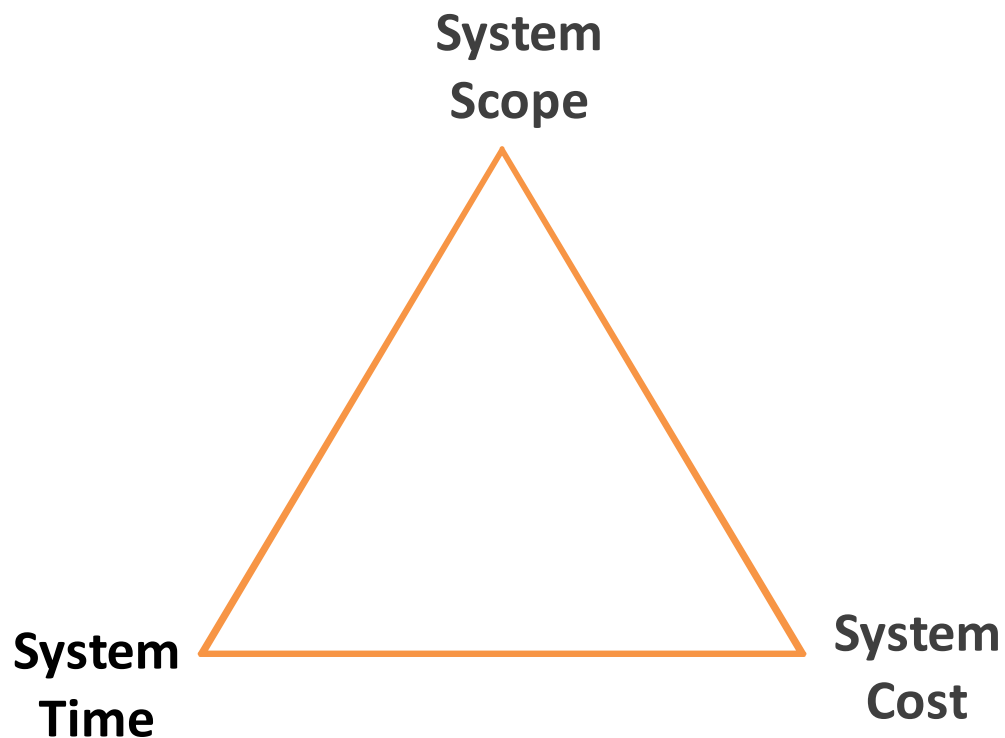


# Disparate Systems



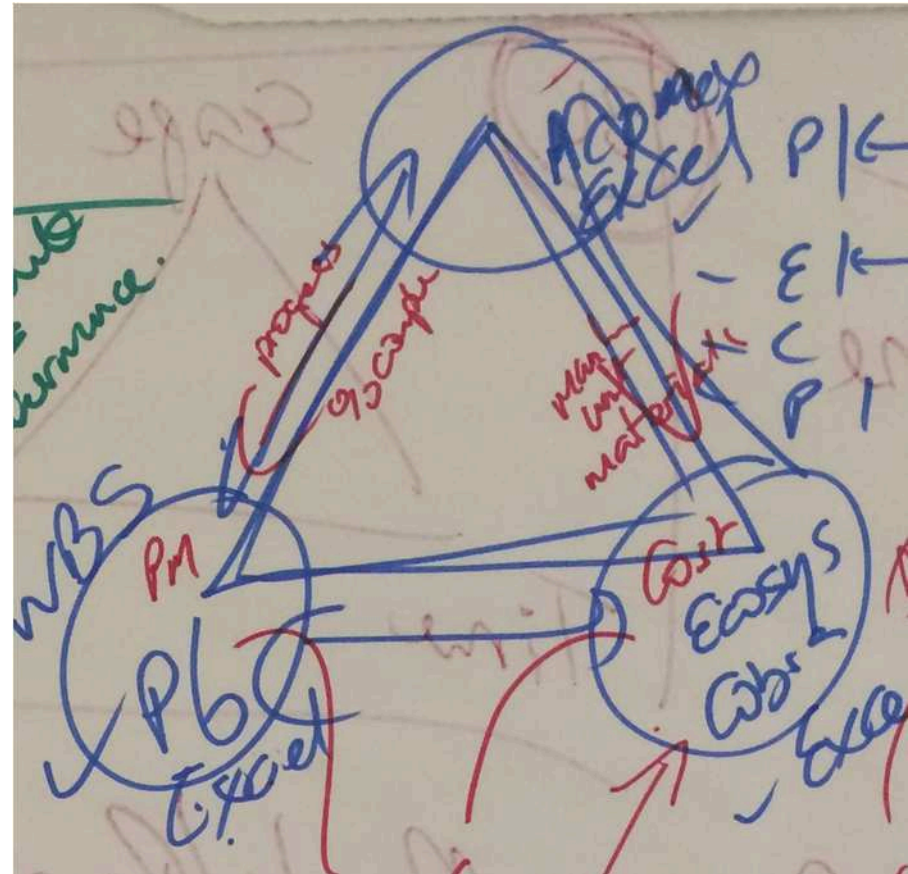
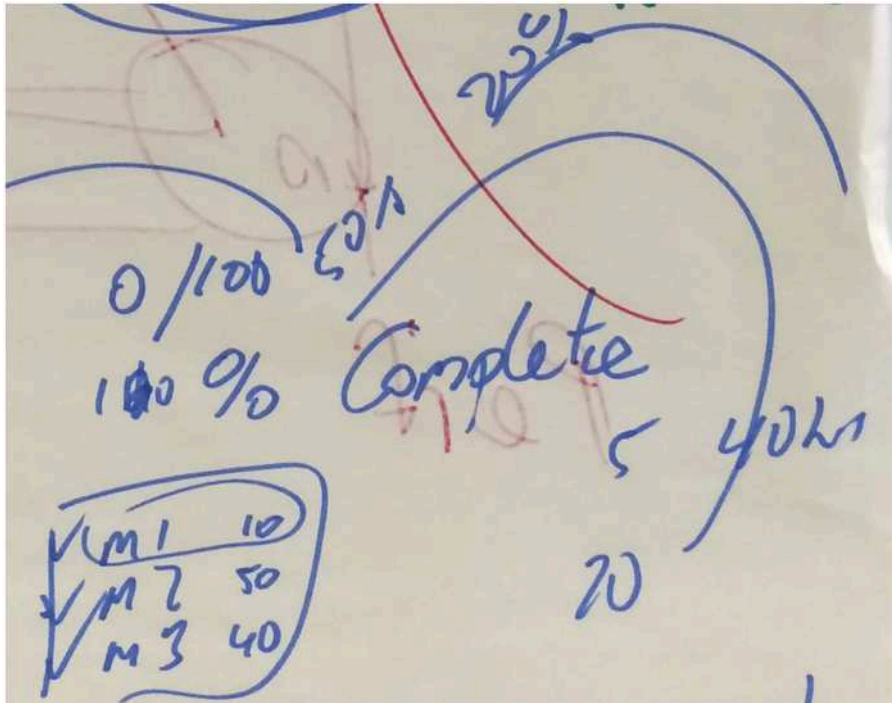
- **Project Planning**
- **Cost Control**
- **Deliverables Management**
- **Document Control**

# An Approach



- Siloes
- Complicated
- Excel
- Email
- Re-keying
- Difficult to manage
- No single version of the truth
- Workflow
- Control / Audit

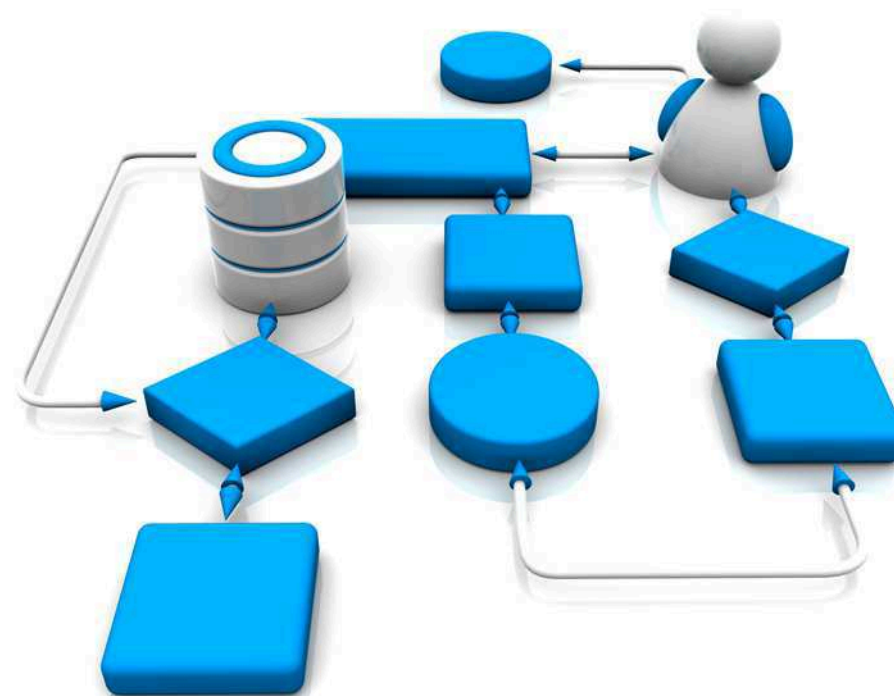
# Connecting The Dots



# Ask Questions



# Question?



# EPC's & Owners - Hunt for Excel

- **Projects**
  - Create, defaults, Configure, update
- **Configuration**
  - Global Masters
  - Project Masters
  - Project Configuration
- **Security**
  - Access Control (granular)
  - Modules, Forms, Attributes, etc
- **Document Registers**
  - Technical Document Register (TDR)
  - Vendor Document Register (VDR)
  - Construction Document Register (CDR)
  - Etc
  - (bulk import/update from client/contractors)
- **Document Records**
  - Document Numbering Schemes
  - Linked to Contract (cost, CBS)
  - Linked to Activity (schedule, WBS)
  - **Document Lifecycles**
  - **Document Milestones**
  - **Document Progress, Rules of Credit**
    - Milestone % Progress
    - Latest Progress (role up to document record)
  - **Dates**
    - Planned, Forecast, Actual (internal, external)
  - **Approval Codes**
    - Approval Code schemes (Code 1,2| A/AWC/R | etc)
  - **Revisions**
    - Revision Numbering Schemes (01, H1, A1, R1, XX)
    - Latest Revision (role up to document record)
    - Internal / External Versions
  - Attachments
    - Office, 2D, 3D formats
- **Document Processes / Workflows**
  - Document Revision/Release
  - Document Review/Approval
  - Document Change Control
  - Transmittals
  - Inter Discipline Checks (IDC, DC, IDIT)
  - RFI, TQ, DCR, VOR, etc
  - Correspondence
  - Etc
- **Distribution Matrix**
- **Document Visualization/Mark-up**
  - Office, 2D, 3D formats
- **Reports**
  - Create, Run, Schedule

# Summary



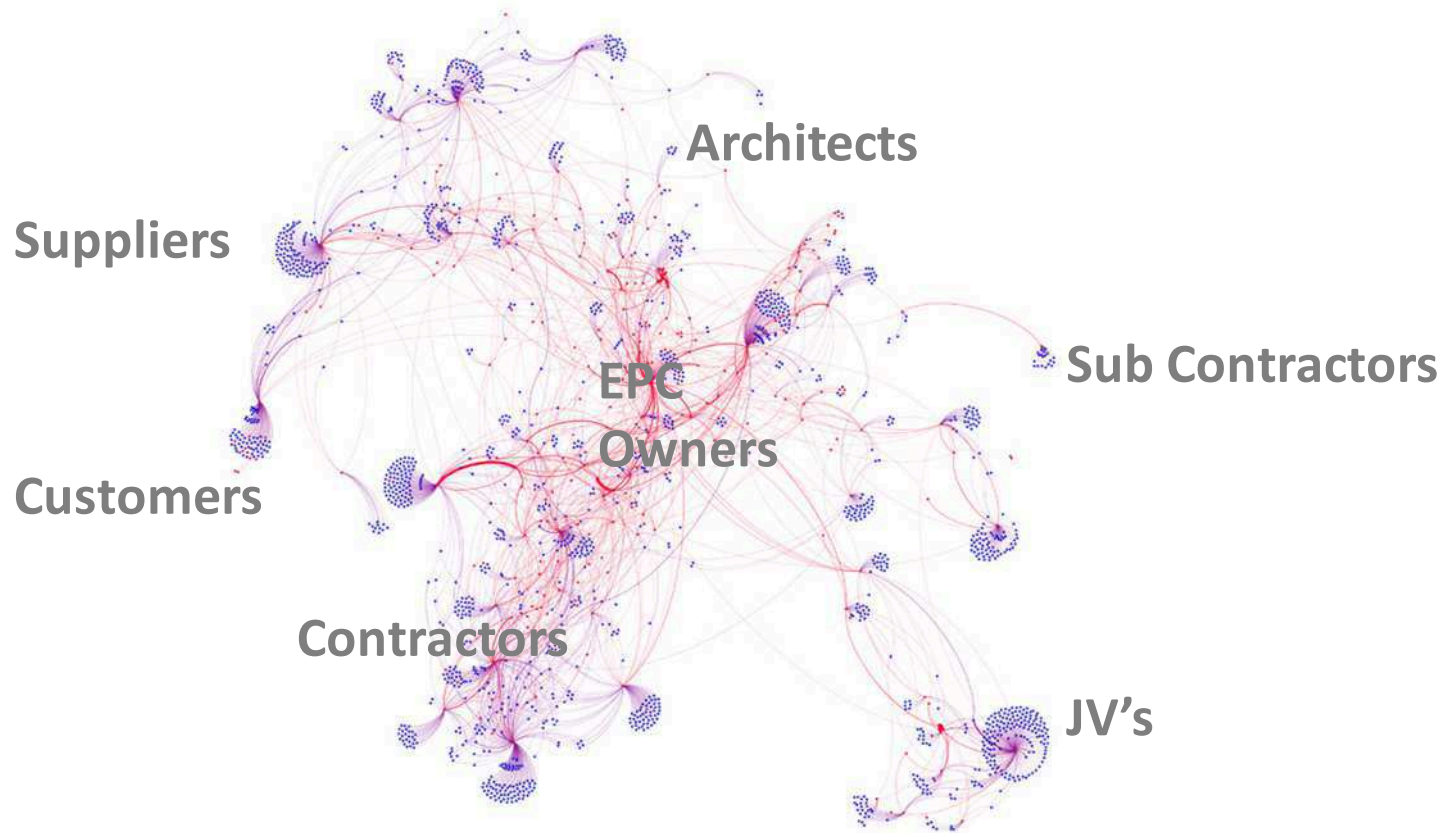


# Top Solution Considerations

- Demonstrable time to value
- Highly configurable / self sufficient
- Integrated to the 'triple constraints'
- Highly Collaborative



# It is what it is





# Strategic Directive

- Drive Top & Bottom Line Benefits
- 30% Reductions in non value add work
- Huge gains in productivity
- In control, single version of the truth, audit
- Differentiation in service to clients
- Collaborative supply chain



# Marketing 2.0





# Strength in Partnership

- Strategic Partnership with RPC UK Ltd
- End to end implementation of Unifier
- Delivering enhanced packages
  - Deliverables Management
  - Secure Collaboration Portal
  - Document Control & Document Management
  - NEC 3
- Enhanced Web Services
- Integration

# Thankyou

- Stand Number – 9 & 10

[jmatthews@lifecycle-tech.com](mailto:jmatthews@lifecycle-tech.com)

[Keith.Hogben@rpc.uk.com](mailto:Keith.Hogben@rpc.uk.com)

