

5,000 YEARS OF PROJECTS



What have we learnt?

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STEWART BRENNAN CENG FIMECHE



INVISTA™

DuPont SA™

ADVANSA
Europe's polyester leader

Artenius



TANTON TECHNOLOGY

TANTON
INDUSTRIES

Artlant PTA €500m



Stonehenge 2,500 BC



No metal tools

No wheels

150 miles transportation

No writing

Neolithic Beaker Folk

Tight schedule ?

Labour shortages?

Limited budget ?

HSE expectations?

Winter solstice 2499 BC – it had better work

Projects & Turnarounds..



- Be delivered safely and deliver safe, reliable, assets
- Be completed on schedule
- Be complete within budget

What have we learnt?



FLIXBOROUGH



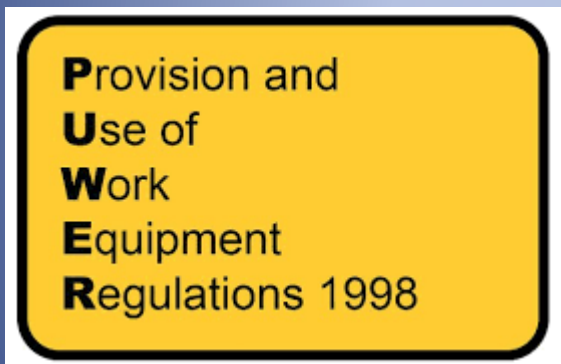
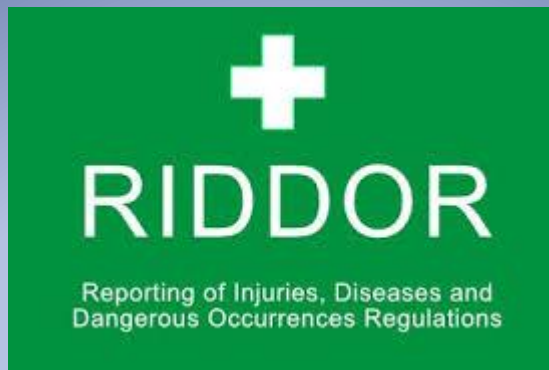
PIPER ALPHA



SEVESO



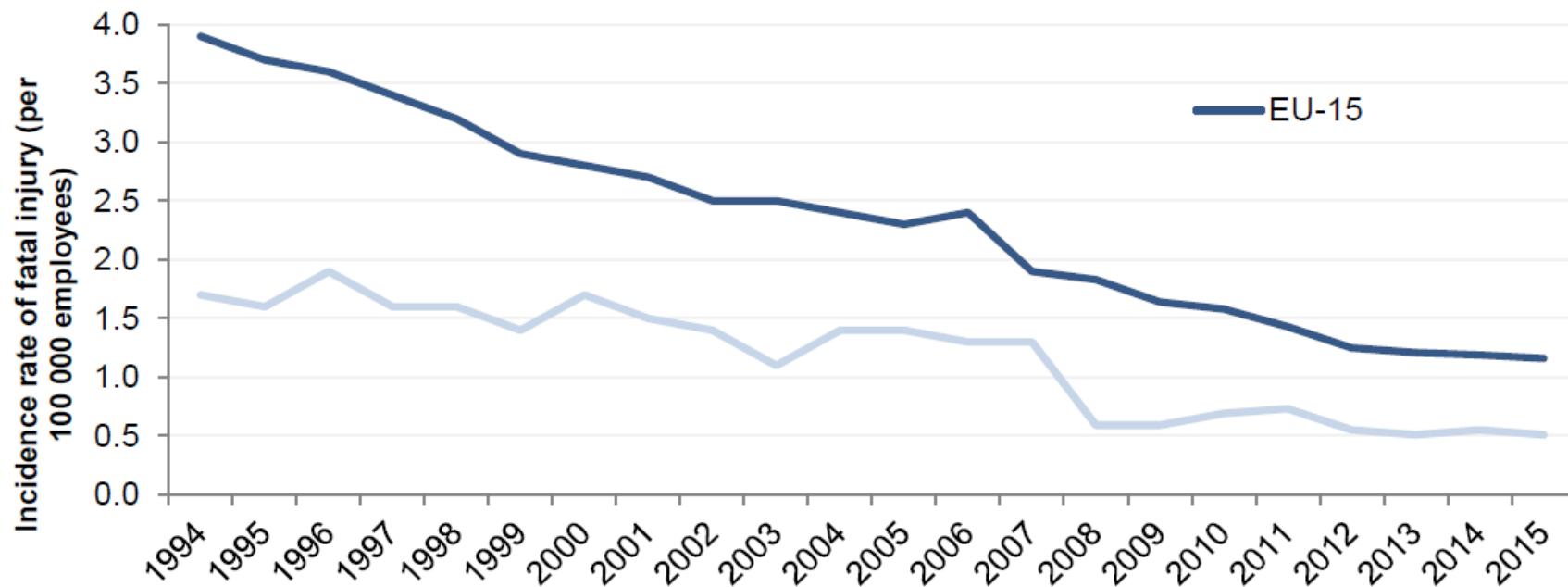
BUNCEFIELD



LIKELIHOOD	SEVERITY				
	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	Moderate Risk (5)	High Risk (10)	Extreme Risk (15)	Extreme Risk (20)	Extreme Risk (25)
Likely (4)	Moderate Risk (4)	Moderate Risk (8)	High Risk (12)	Extreme Risk (16)	Extreme Risk (20)
Possible (3)	Low Risk (3)	Moderate Risk (6)	Moderate Risk (9)	High Risk (12)	Extreme Risk (15)



Figure 1 – Standardised incidence rates (per 100,000 employees) of fatal injuries at work in GB/UK and the EU, 1994-2015 (Eurostat, ESAW, 2015)

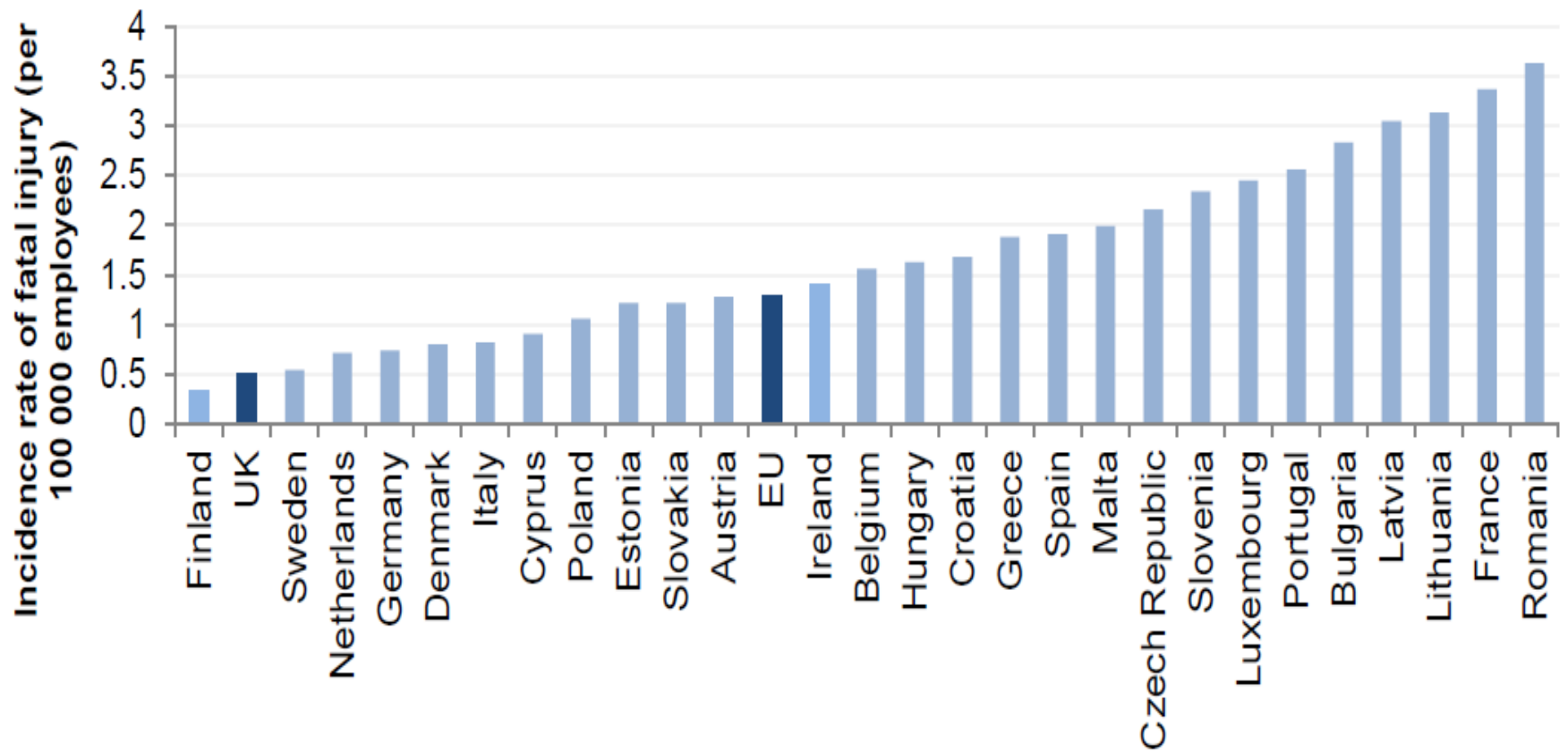


Notes:

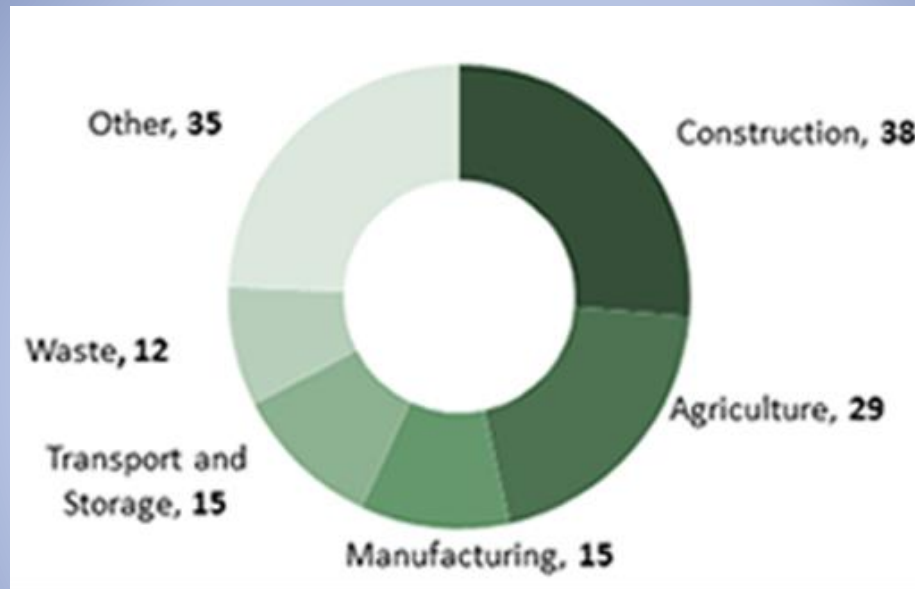
From 2008, the rate of fatal injuries was calculated using updated industry data so the series differs slightly from this point on.

Data for UK/GB: for the years 1999-2010 rates are based on GB data only, for 2011 onwards rates are based on UK data (including Northern Ireland).

Figure 2 - Standardised incidence rates (per 100,000 employees) of fatal injury at work, excluding road traffic accidents and accidents on board transport in the course of work for 2015 (Eurostat, ESAW, 2015)



Are we nearly there yet?

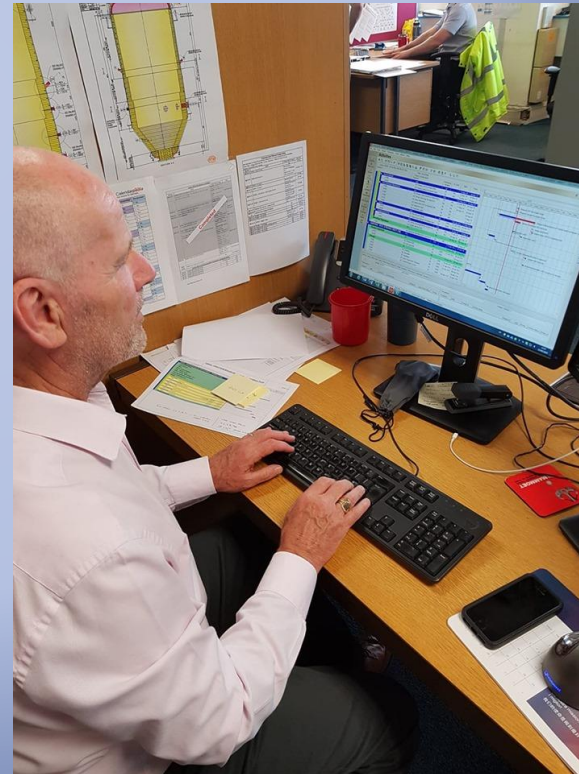


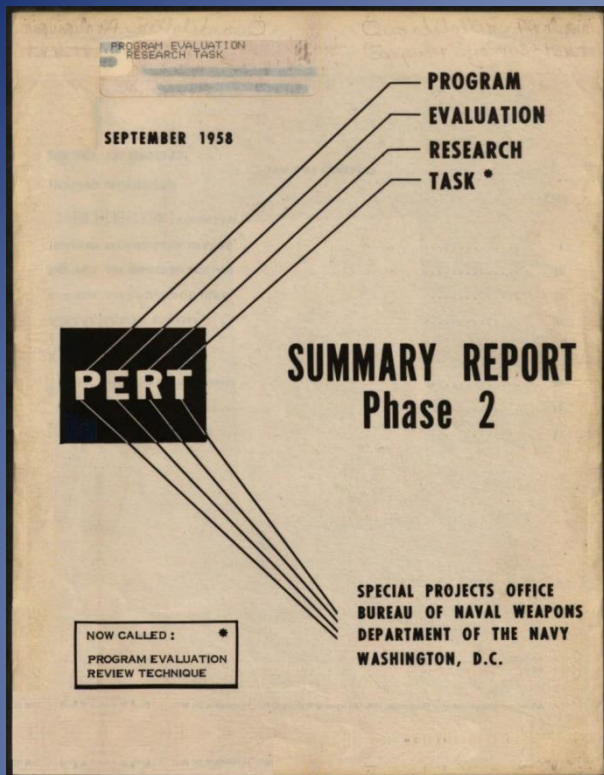
Time & Cost



CTC Overhaul planning on shuffleboards circa 1985

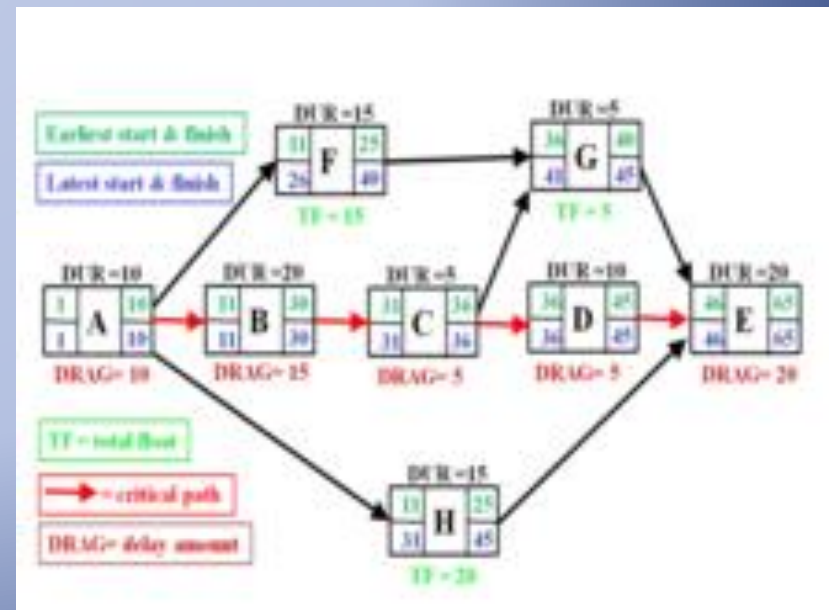
Venator project planning on Primavera P6 May 2019





PERT Analysis was developed in the late 1950's for the US Polaris missile submarine building program

CPM/CPA developed by DuPont in the late 1950's for complex process plant projects



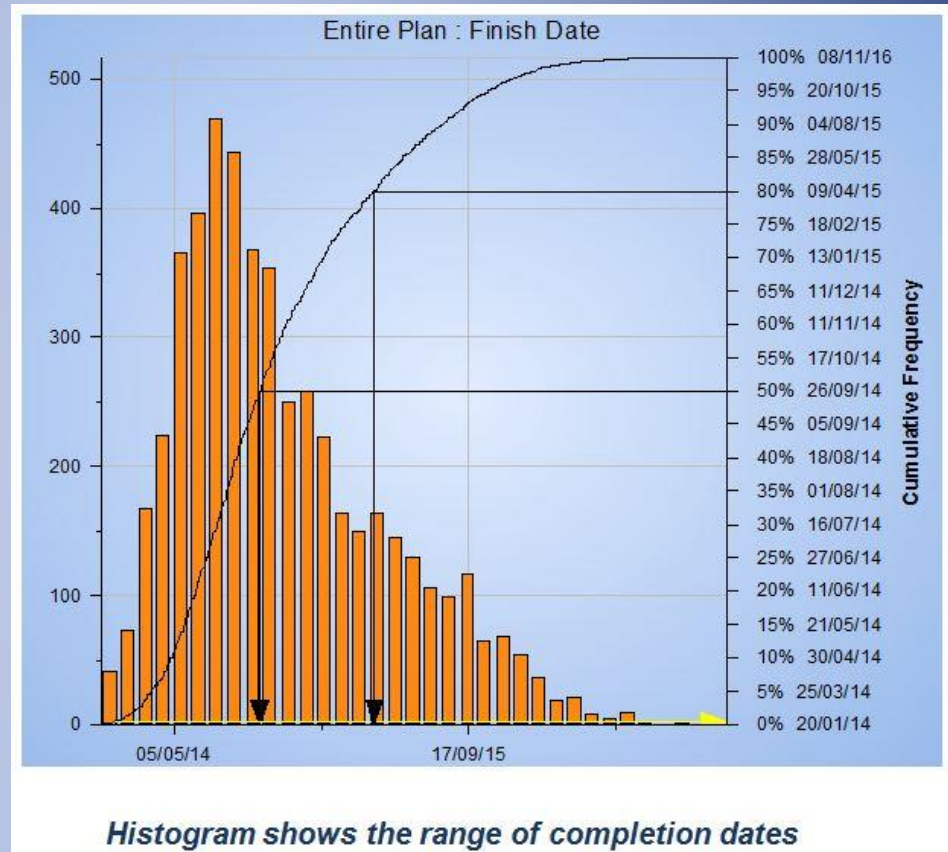
Increasingly sophisticated tools....

P6 – industry standard

EVM – common practice (SPI/CPI)

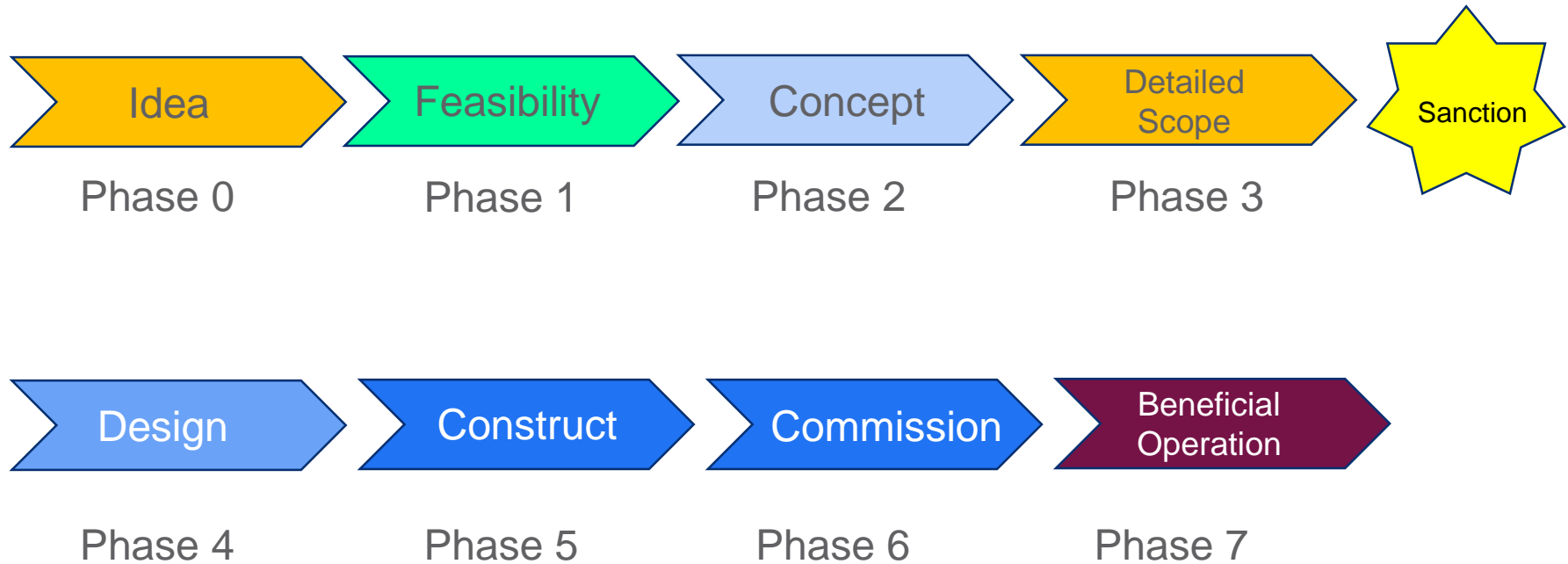
MC Schedule Risk Analysis – widely used

Schedule now linked into IPMS – 4D/5D systems



Q: Does this mean more projects are delivered on schedule?

H-Steps Project Phases



Project Processes best practice



- Multi-step phased approach
- Gate reviews
- Front End Loading
- External governance & scrutiny
- Stakeholder management
- Risk management

So..What's New?

- Fully integrated project management systems
- Construction field information
- Real time progress data
- Use of Lidar scanning & VR
- Supply chain integration

Notes to a younger self...



Notes to a younger self...

- Projects are about people...
- Make sure its going to work..
- Value your contractors and suppliers..
- Ensure you have time and money for when things don't work out
- Keep control of procurement
- Own it..