

## CIOB's Contribution to the Effective Management of Time in Construction Projects

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## Outline

- The state of scheduling world-wide
- ***The CIOB Guide***
  - Innovative ideas to avoid delay
- The new CIOB Contract
  - Implements ***The Guide***
- New CIOB Education Framework
  - Qualify people in Time Management
- Discussion

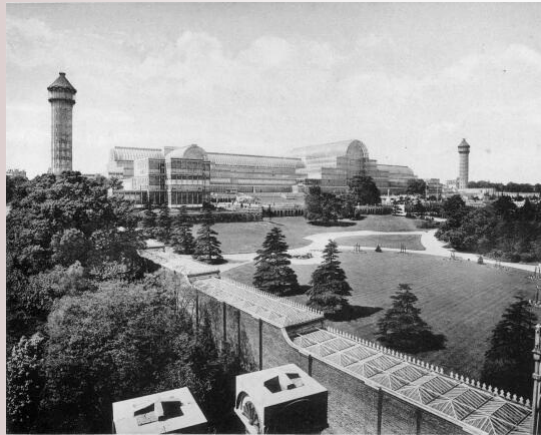
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## Crystal Palace

- We are not so good!
- Crystal Palace.....
- Built in 1851

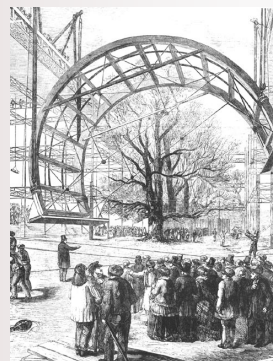
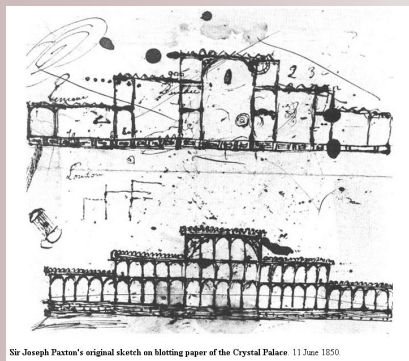


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## Crystal Palace



The Crystal Palace, was a building the size of a modern shopping mall: 1848 feet [563.3 meters] long, 408 ft [124.4 m] wide and 108 ft [32.9 m] high.

New technology - Prefabricated cast iron was used extensively.

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## Crystal Palace



From a rough sketch on blotting paper to the Great Exhibition of 1851 –

**How long?**

Royal patronage probably helped!!

**The Crystal Palace was built in eight and a half months starting on 15 July 1850, opening on 1st May 1851**

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## Burj Khalifa -v- Empire State Building



**Burj Khalifa Dubai**

**208 floors  
built in 5+  
years**



**Empire State Bldg.  
completed in 1931**

**102 Floors  
built in  
410 days**



The steel frame rose at the rate of four and a half floors per week

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# The Effective Management of Time

## Burj Khalifa -v- Empire State Building



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## Time -v- Money

- Money – keep until you spend
  - Symptom of other successes or failures
- Time – 60 seconds lost every minute
  - Can't change the past
  - Now is too late to change
  - Manage the future

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## Time -v- Money

- Things that don't work!
  - Contract terms and conditions / penalties
    - CIOB Report
    - UK Government metrics (Constructing Excellence)
  - Static contract programs
    - Measure failure
    - Used for claims and court actions after the event

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## Time -v- Money

- CIOB – Construction projects
  - *Managing the Risk of Delayed Completion in the 21st Century*  
[http://www.mosaicprojects.com.au/PDF/CIOB\\_TM\\_report\\_full.pdf](http://www.mosaicprojects.com.au/PDF/CIOB_TM_report_full.pdf)
- Gartner ICT projects
- Both show around 50% failure rate!

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## Skills and Knowledge

- Skills and Knowledge
  - Very few skilled planners and schedulers
  - Not used or respected by management
  - Except for the fights after the event
- A Brief History of Scheduling

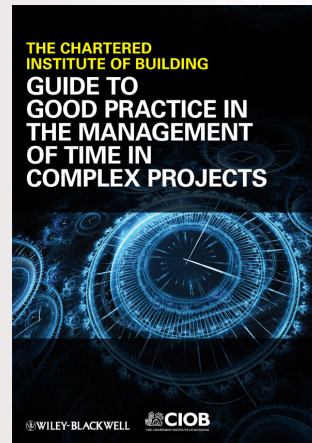
[http://www.mosaicprojects.com.au/Resources\\_Papers\\_042.html](http://www.mosaicprojects.com.au/Resources_Papers_042.html)

## Skills and Knowledge

- Solutions are being developed
  - Definition of good practices
  - Development training and certification
  - Education of management
- **These elements are the focus of the balance of this paper**

## *The Guide*

- *Guide to Good Practice in the Management of Time in Complex Projects*
- CIOB Initiative
- Work on 2<sup>nd</sup> Edition starting now – 2 years to complete



## *The Guide*

- Planning -v- Scheduling
- Schedule design
- Schedule Density
- Updating & Maintaining the schedule
- Reporting & Communicating

## Planning -v- Scheduling

- Project Planning
  - Strategic process
  - Focus on objectives and methods
  - Foundation for scheduling
- Project Scheduling
  - Develop and maintain an effective schedule

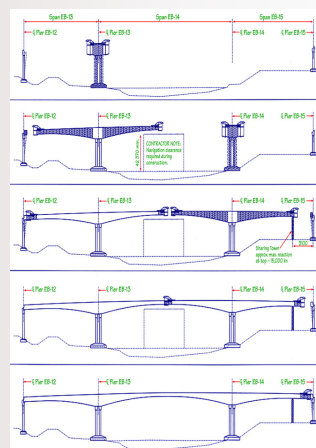
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## Project Planning

- Precedes Scheduling
- Focuses on methods and Strategy
- Creative - requires skill and knowledge of the project



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## Project Scheduling

- Requires good knowledge of scheduling
- Understanding of the scheduling tool
- Involves:
  - Designing the schedule
  - Developing the schedule
  - Maintaining the Schedule

See also: Core Papers @

<http://www.mosaicprojects.com.au/Planning.html>

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## Designing the schedule

- Schedule Levels & Schedule Density

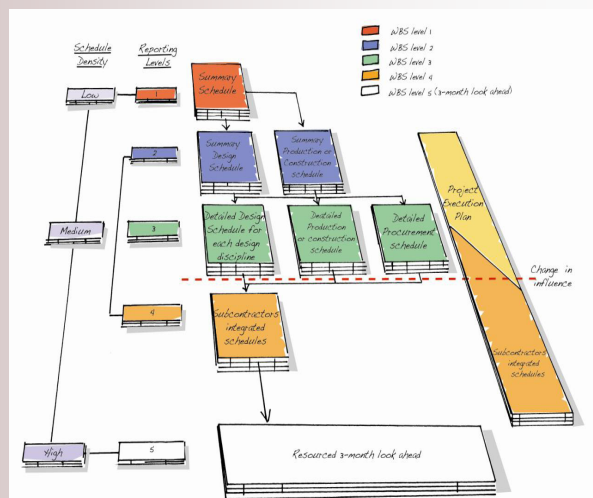


Figure © Guide to Good Practice in the Management of Time in Complex Projects

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## Schedule Density

- Schedule Density
  - Overall framework is essential for Time Management..... But
  - Detail planning requires the people doing the work to be involved
  - Therefore, add detail when appropriate

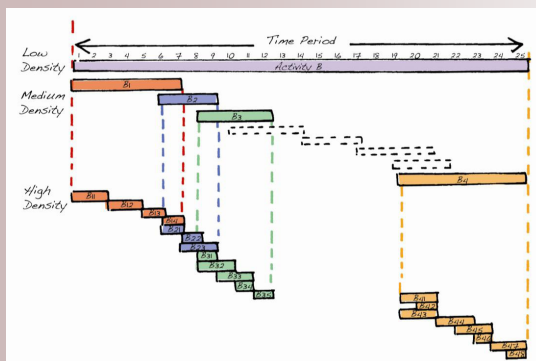
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## Schedule Density

Figures © Guide to Good Practice in the Management of Time in Complex Projects



Activities are progressively expanded to greater levels of 'density' as more information becomes available

Unless the work is designed in its entirety and all subcontractors and specialists appointed before any work commences, it is impossible to plan the work in its entirety, in detail at the beginning of a project.

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# The Effective Management of Time

## Schedule Density

High  
Med  
Low

3 months to go      9 months to go      12 months to go

Time (months)

Low-density is appropriate for work, which is intended to take place 12 months, or more in the future. Tasks may be several months in duration

Medium density is appropriate for work, which is intended to take place between 3 and 9 months after the schedule date. At this stage the work should be designed in sufficient detail to be allocated to contractors, or subcontractors. Task durations should not exceed 2 months.

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## Schedule Density

High  
Med  
Low

3 months to go      9 months to go      12 months to go

Time (months)

High-density scheduling is an essential prerequisite for undertaking work. The schedule is prepared with the people doing the work. Task durations should be no more than the update cycle

As the density is increased, adjustments to the plan take into account actual performance to date, resources, work content, and other factors necessary to achieve the overall schedule objectives.

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## Schedule Density

	Location	Zone	Area	Section	Item	Description	Activity ID
Low Density	A	B	A			Substructures	ABAZZ0000
Medium Density	A	B	A	A		Excavations	ABAAZ0000
	A	B	A	B		Piling	ABABZ0000
	A	B	A	C		Ground beams	ABACZ0000
	A	B	A	D		Floor slabs	ABADZ0000
High Density	A	B	A	C		Ground beams	ABACZ0000
	A	B	A	C	A	Formwork	ABACA0000
	A	B	A	C	B	Reinforcement	ABACB0000
	A	B	A	C	C	Placing concrete	ABACC0000
	A	B	A	C	D	Curing	ABACD0000
	A	B	A	C	E	Strike formwork	ABACE0000
	A	B	A	C	F	Backfill	ABACF0000

The activity coding structure (ID) maps high to medium to low density

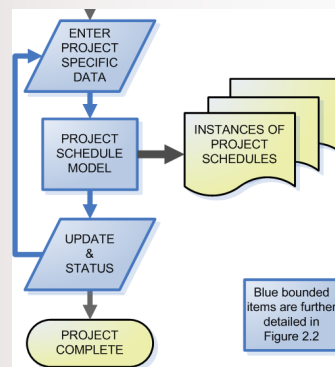
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## Maintaining the Schedule

- Maintain the High Density Schedule
- Record actual progress
- Reschedule from 'data date' (or Time Now)
- Roll up progress to Medium and Low Density Schedules



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## Maintaining the Schedule

- Edit for accuracy
  - No tool accurately manages all of the issues around partially complete tasks
- Focus on success – adapt the work
- Involve both task owners and managers
  - Use ‘their data’ not yours!

See: Managing for Success - The power of regular updates-  
[www.mosaicprojects.com.au/Resources\\_Papers\\_002.html](http://www.mosaicprojects.com.au/Resources_Papers_002.html)

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## Reporting Options

**Data is not information,  
information is not knowledge,  
knowledge is not understanding,  
understanding is not wisdom.**

Clifford Stoll

See: Beyond Reporting - The Communication Strategy  
[http://www.mosaicprojects.com.au/Resources\\_Papers\\_094.html](http://www.mosaicprojects.com.au/Resources_Papers_094.html)

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## Reporting Options

- The major challenge with scheduling is communicating complex data effectively
- This is achieved by effective reporting



See: Seeing the Road Ahead –  
the challenge of communicating schedule data  
[http://www.mosaicprojects.com.au/Resources\\_Papers\\_106.html](http://www.mosaicprojects.com.au/Resources_Papers_106.html)

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## Reporting Options

Which map is more useful  
If you are looking for the Dojo



'Useful', 'Accurate' and 'Fully Detailed' are not  
synonymous and may be contradictory!  
Ask for what you need.....

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## *The Guide*

- Summary
  - Developed by CIOB
  - International team
  - Focuses on practical time management
  - Designed to achieve on-time completion
- **Plan what you know!**
- **Adapt to changing circumstances!**

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## **CIOB Complex Projects Contract**

- CIOB's first major contract form in 140 years CIOB-CPC
- Designed to to put the CIOB's ***Guide to Good Practice in the Management of Time in Complex Projects*** into practice

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## CIOB Complex Projects Contract

- CIOB-CPC can be used:
  - With **BIM**, Building Information Modelling (or without BIM)
  - In any country
  - Under any legal jurisdiction

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## CIOB Complex Projects Contract

- CIOB-CPC can be used for most types of project:
  - Both building and engineering projects
  - Traditional construction only
  - Turnkey
  - Design and build
  - Part contractors design

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## CIOB Complex Projects Contract

- CIOB-CPC Documents include:
  - The Contract Agreement, the Conditions of Contract and the Contract Appendices.
  - Standard Forms:
    - Subcontract,
    - Agreements for the appointment of Contract Administrator, Project Time Manager and Design Coordination Manager
    - Collaborative services agreement for use with Building Information Modelling

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## CIOB Complex Projects Contract

- Key elements:
  - Detailed requirements for the identification and use of time contingencies
  - Detailed requirements for the identification and use of cost contingencies
  - Requires a collaborative, and competent, approach to how risks are managed
  - Uses transparent systems of data exchange

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## CIOB Complex Projects Contract

- Major innovations:
  - The contractor may keep the benefit of any time it saves by improved progress as its own contingency, which cannot be taken away
  - Claims must be processed promptly
  - The schedule is a tool for managing the use of time, not a tool for developing claims!

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## CIOB Complex Projects Contract

- CIOB-CPC Development:
  - Industry review process completed 30 July 2012
  - Review and assessment now under way
- Publication late 2012

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## Qualification Framework

### This section:

- Current certifications
- CIOB Time Management Credentials
- Planning Planet

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## Qualification Framework

- Current Qualification Framework
  - Association for the Advancement of Cost Engineering International (AACE) PSP
  - PMI Scheduling Professional (PMI-SP)
- Both focused on highly experienced schedulers 3 to 5+ years

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## Qualification Framework

- Limited training for PMI-SP or AACE
  - Assumed self study by experts
  - Mosaic's PMI-SP course one of the few available (and in low demand)
- Relatively low numbers of credentials awarded
  - Both less than 1000 after many years

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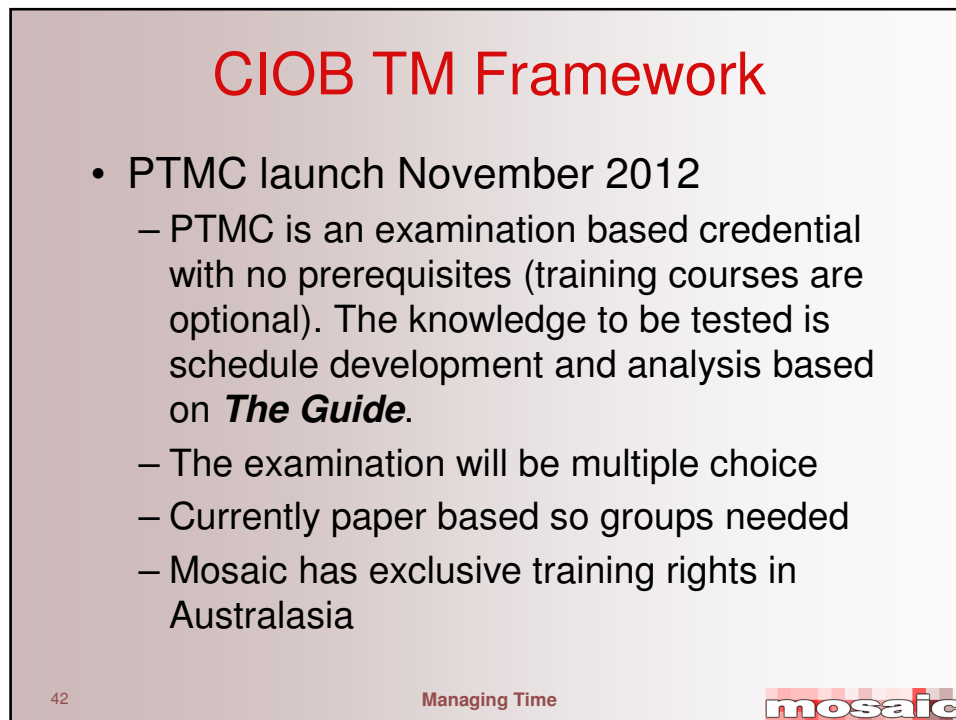
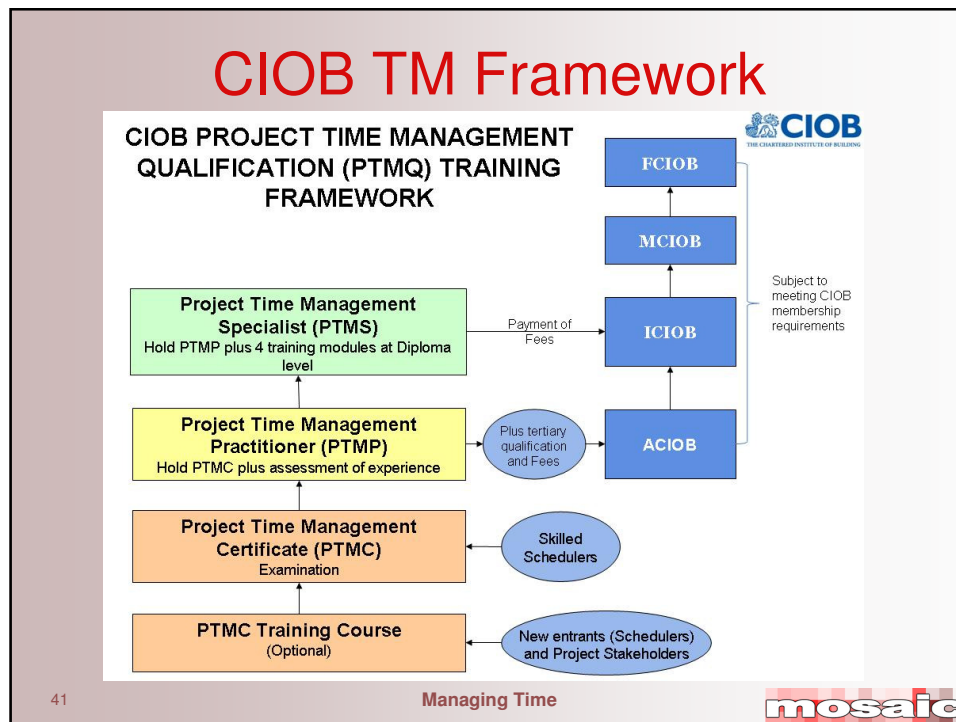
## CIOB TM Framework

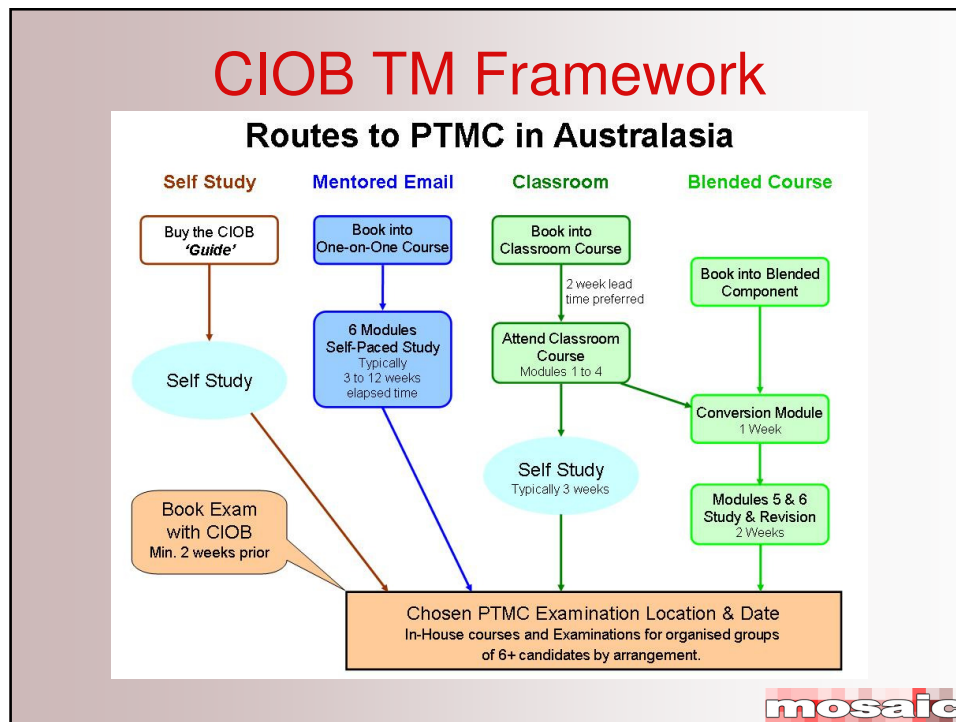
- CIOB – Time Management Credentials
  - Focused on the effective management of the use of time (not software)
  - Based on ***The Guide***
  - Launched Nov. 2012
  - Independent of other CIOB qualifications
  - Designed to create a career path
  - CIOB has 190 years of experience as a professional association

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## CIOB TM Framework

- PTMP launch 2013
  - PTMP is an assessed credential based on a pass in the PTMC certificate examination and demonstrated scheduling experience.
  - A candidate will need to demonstrate a minimum of 2 years practicing as a project scheduler and competence in their work environment (by submitted evidence).
- PTMS 2014?
  - An advanced, examined credential (Grad.Dip?)

## GPC – ‘The Guild’

- **International Guild of Project Controls (GPC)**
  - Centre of excellence for developing the skills, expertise and capability of professionals in the field of project controls
  - Launched 11/11/2011
  - Sponsored by Planning Planet and major corporate employers



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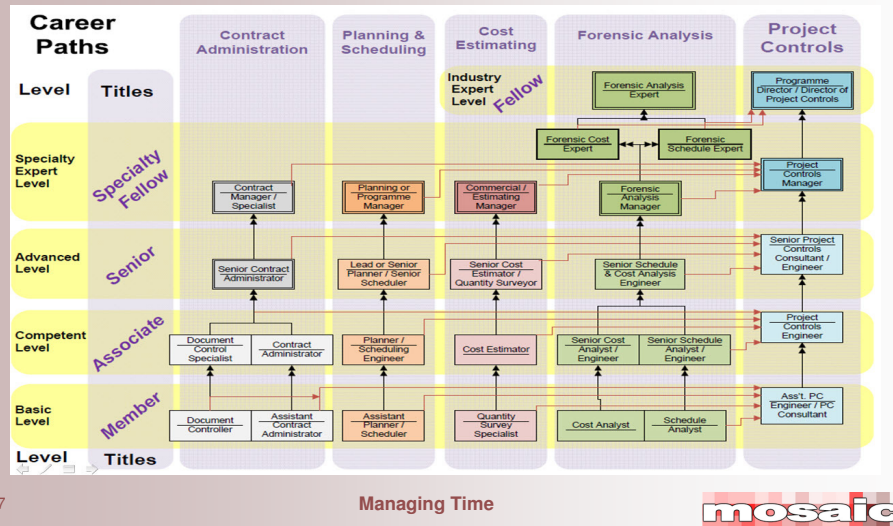
## GPC – ‘The Guild’

- The Guild is designed to support companies and individuals with:
  - Career Path / Professional development
  - Training
  - Certifications to Prove Competency
  - Mentoring
  - Project Controls Systems Resources

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## GPC – ‘The Guild’

- **Career Path & Membership levels defined**



## GPC – ‘The Guild’

- **Key elements. The Guild will:**

- Stay independent / not for profit / open book
- Use / recognise existing standards
- Use / recognise existing & future credentials  
**Including CIOB Credentials**
- Use independent examination providers
- Use knowledge AND capability benchmarks
- Offers a point of harmonization

- [www.TheGuild.net](http://www.TheGuild.net)



## What's Mosaic doing?

- We are developing a free resource at [www.mosaicprojects.com.au/Planning.html](http://www.mosaicprojects.com.au/Planning.html)

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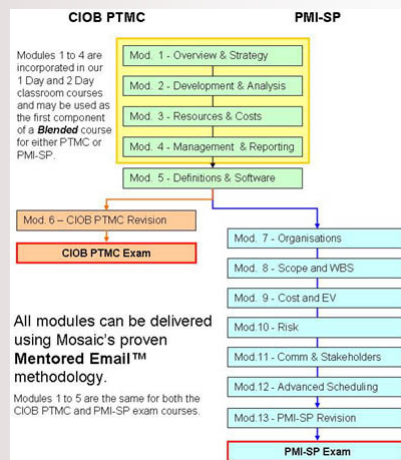
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## What's Mosaic doing?

- We are providing cost effective support for:
  - PMI-SP
  - CIOB PTMC
  - The GUILD

(Watch this space)



## Conclusion

- Definite trend towards:
  - Improving Time Management
  - Standardising planning and scheduling
  - Developing training frameworks
  - Accrediting Planners and Schedulers

## Conclusions

- We need a management re-education program
  - SOX, etc mandate the need for predictive process like scheduling
  - So why do so many projects have time 'set in stone' before anyone looks at a realistic schedule?
  - Senior managers need to understand the value of skilled schedulers

## Conclusions

- International credentials will help
  - Focused on new planners and schedulers
  - CIOB is leading the development of practical credentials
- **The Guide** and the **CIOB-CPC** provide the framework
- We have the opportunity to reinvigorate the role of time management

## Conclusion

- Challenges:
  - Keep training and credentials aligned globally, CIOB, PP, PMI, AACEi, etc.
  - Gain respect of management
- CIOB is making a difference!

**Useful schedule are useful  
because they are used!**



## Discussion

- Questions please
- Contact details:
  - Free planning and scheduling resources:  
<http://www.mosaicprojects.com.au/Planning.html>
  - Email: [patw@mosaicprojects.com.au](mailto:patw@mosaicprojects.com.au)