

ITA – AITES World Tunnel Congress 2008

Contractual Practices Worldwide – Engineering Sector Views

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ITA Open Session 2008 - AGRA



Content

- Global frame
- Condition of success



Global frame

Project objectives

the Engineer/Designer is a key player

Construction ***

- Maximize Quality
- Minimize Cost, within the Budget
- Deliver on time
- Healthy & Safe process

Operation **

- Maximize Availability
- Reduce Operational Cost and maintenance (incl. demolition)

Reduce the whole Life Cycle Cost!
Keep the risks under control!
Make a reasonable profit!

Tunnelling project

Specific constraints

Numerous sources for risks

- Site and environmental conditions
- Ground and water conditions

Huge impact of the

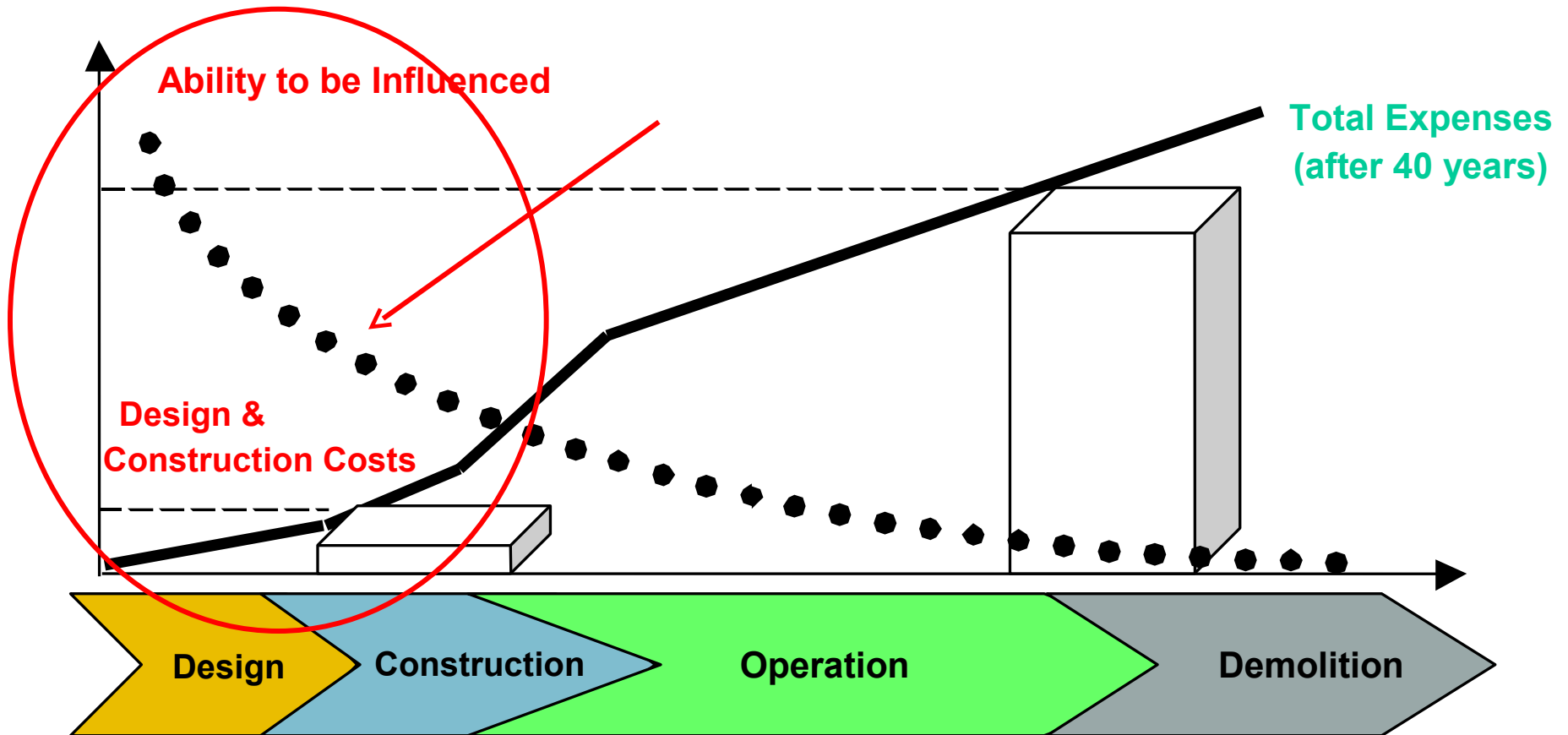
- Capabilities of the owner
- Quality of data from the owner
- Designer & Contractor level of practice
- Tunnelling methods
- Contract type

Health and safety at work and during operations

How to keep control on the daily work?

Contractor vision

(Bilfinger Berger – ITA PPP 2007)



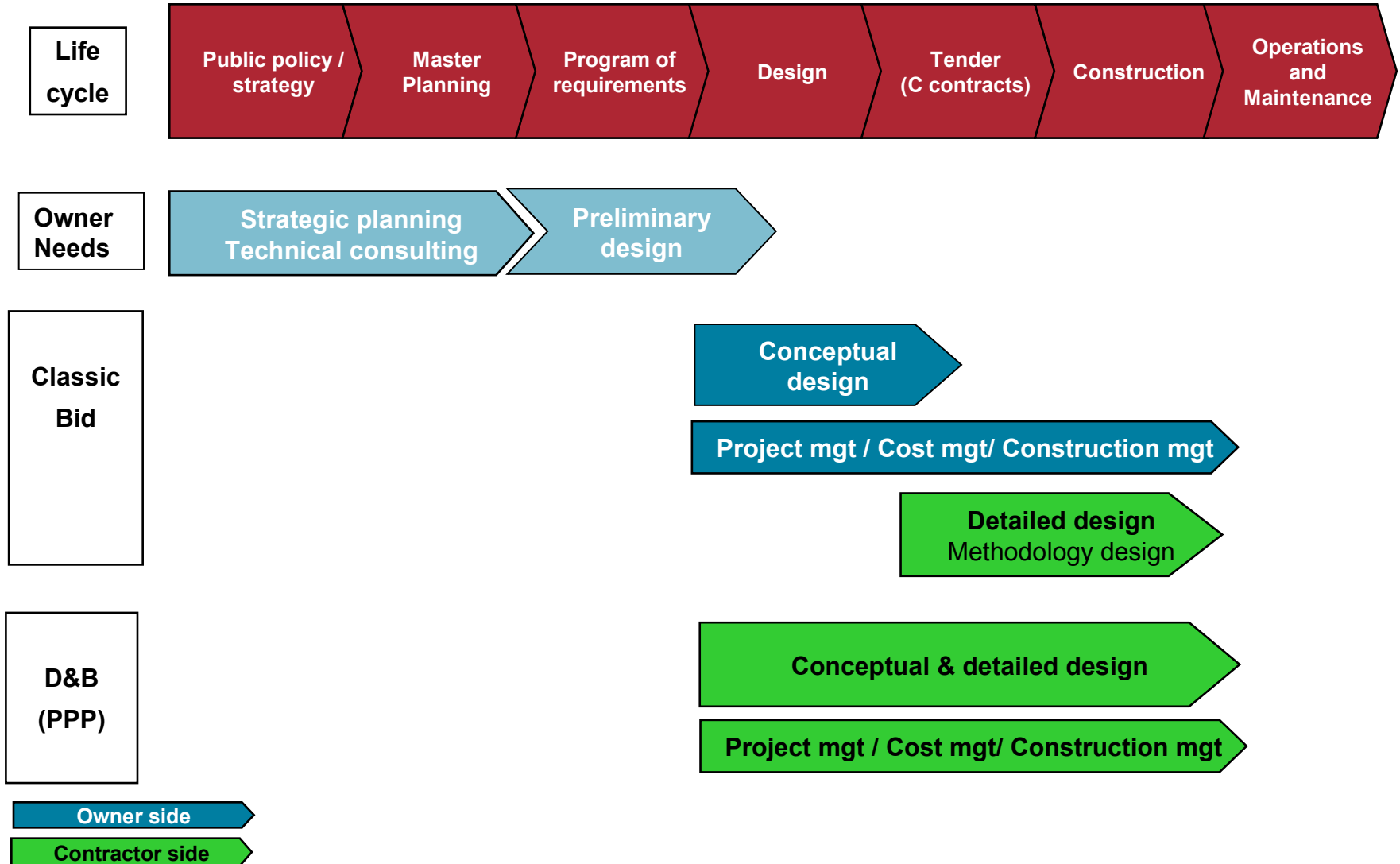
Insurer vision

(Munich Re – ITA PPP 2007)

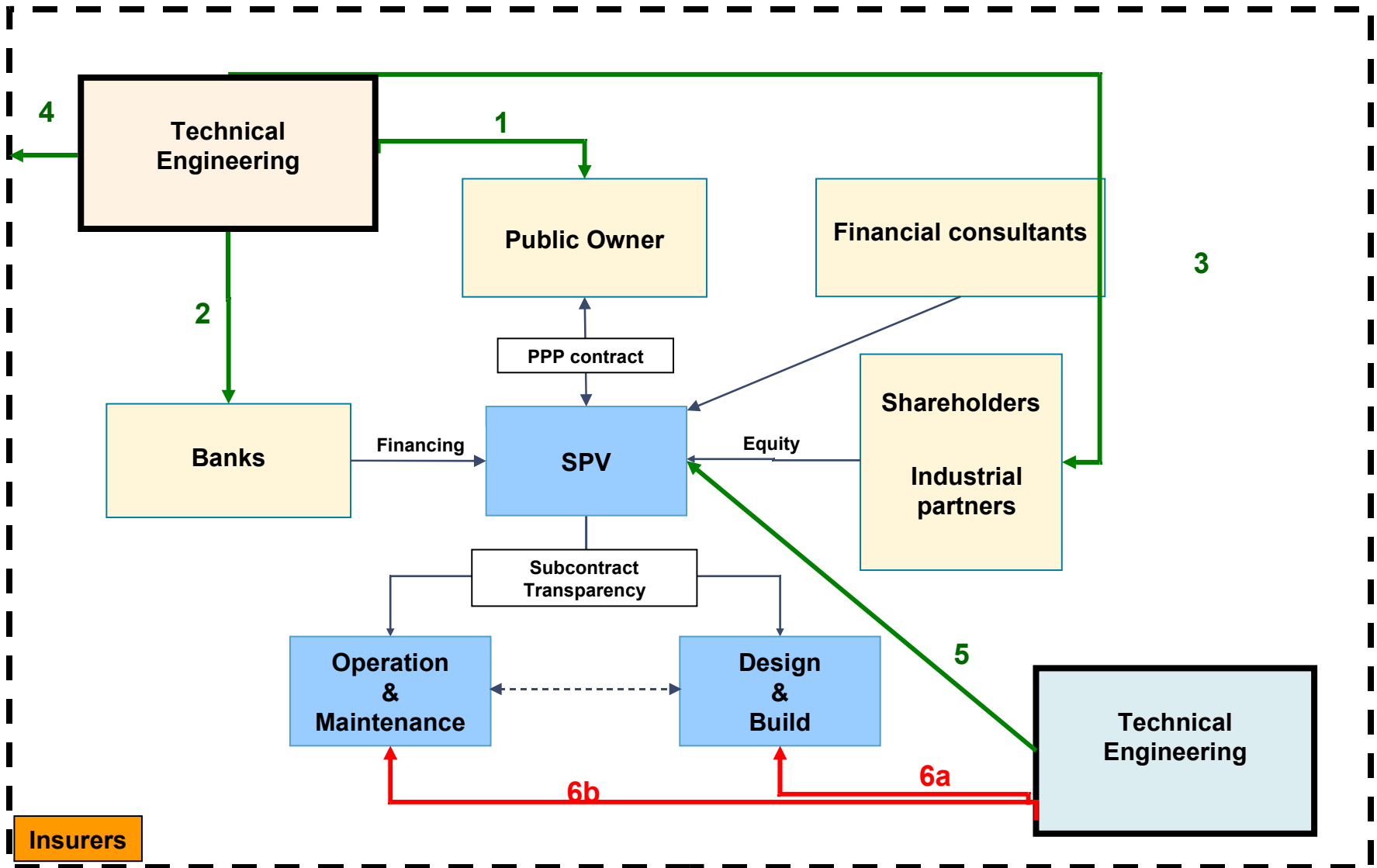


Engineer roles

Global scheme



Engineer roles PPP case



Risk (ITA Guidelines for Tunnelling Risk Assessment – ITIG code of practice)







Hazard

- a situation that has the potential for unwanted consequences

Risk

- a combination of the probability of occurrence of a defined hazard and the consequences (cost, delay) of this occurrence

Risk analysis

Frequency	x	Consequence	=	Risk level
Very likely		disastrous		unacceptable
				
Very unlikely		insignificant		negligible

Risk management

Global outline

Principles

- Identification / allocation / covering
- Risks to be allocated to the party best positioned to
 - assess and manage it
 - to bear the consequences of its materialization

Reality!!!

- Strongly depends on the local practices and regulations
- Limited liability or not / Immaterial damages or not
- Join and several liability or not
- Global PI cover for any stakeholder to the construction or not

Strong impact on the Engineer contract!

Conditions for success
Transparency
Fair equilibrium
Cooperation

The Owner

The Owner needs to be competent or assisted, to

- Define his needs
- Identify the main constraints (permits, land use, site, archeo., geotechnical, environmental, codes, contracts, finance, etc.)
- Estimate reasonable budgets and time frames
- Choose the contract formats
- Define clear scopes of works for the different players: designer, checker, contractor, DB..., etc
- Select and control the players
- Manage

The Owner

The Owner needs to be competent or assisted, to set up

- A transparent and equilibrated approach
- A continuous risk evaluation
- A liability program

If he is not competent in house, he needs

- To hire assistants/representatives
- To clearly state their responsibilities and interfaces
- In order to avoid any further conflict with the designer

The Designer working for the Owner Selection

Needs to be competent

- Technical skills / Innovation / References
- Prequalification phase

Bidding process

- To get a clear “scope of works + time frame” from the TOR
- To be selected on
 - his capabilities / availability
 - the methodology for his own tasks
 - his understanding of the overall conditions
 - his views on the methods/cost/risk management
- The price he offers needs to be secondary

The Designer working for the Owner Contract

Tasks and organisation

- List and extent, identify his own perimeter, e.g.:
 - who is responsible for defining, providing the geotechnical data and the site condition data?
 - has he to study alternatives from the contractor?
- Way to manage additional tasks and delays
- Organisation scheme between the different parts

Construction cost build-up

- Targeted construction cost
- Clear milestones to check the construction cost versus the design and construction stages
- Clear tolerance rules on the construction budget evaluation

The Designer working for the Owner Contract

Remuneration mode

- Strongly depends on local culture & regulations
- From “Cost based” (1) to “Lump-sum” (n), both unbalanced
 - (1) the Designer is liable only for the way he do his tasks
 - (n) need of a strict list of tasks and duties to avoid permanent conflicts; can prevent innovation/pro-action
- A fair approach
 - Lump Sum contract based on selected groups of tasks
 - Incentives rules +/- (on construction cost and delay)
 - Flexibility, mainly during the construction period
 - Clear payment conditions

The Designer working for the Owner

Agility

Flexibility

- In order not to reduce the quality for staying in the budget
- Contract amount and associated budgets (investigations, etc.)
- Reasonable time
 - to make his own tasks
 - to allow time to the contractor (e.g.: tender 3 + 10 months)

Risk management

- Solid team with the Owner, base on a joined risk assessment
- Fair risk sharing, related to economical weights in the project
- Transparent and fair insurance cover: neither Sole and Several Liability nor Unlimited Liability nor Immaterial Damages
- Rules for the resolution of disputes

The Designer working for the Contractor

Detailed design in a classic bid

The interest of the position is very high but depends on

- The quality of the conceptual design which
 - can lead to a semi conceptual – detailed design
 - with no specific budget
- The Contractor culture and organisation
 - is he associated to the bidding phase and the choice and adaptation of the construction methods?
 - is he considered as a commodity or as added value?

**He will suffer time pressure, source of mistakes
but he will learn a lot**

The Designer working for the Contractor

D&B to PPP

Create a positive partnership (specific items in addition)

- Never accept to work for nothing (esp. bidding phase)
- If a cost based agreement for the bidding phase, need for a success fee linked to the effort made on his own
- To be careful in front of the so called compensation in shareholding in the SPV (PPP case)
- Risk sharing + Profit sharing?
- Who has the right to stop the ongoing work on site?

Never forget that your client is a big player!

As a conclusion
**Never signed a black
box contract**

Some references

- Guidelines for tunnelling risk management - ITA WG2 (2004)
- A Code of Practice for Risk Management of Tunnel Works – ITIG/ITA (2006)
- Comment maîtriser les coûts de son projet – AFTES (2007)
(to be published in English)
- ITA Open Session 2006 – Seoul – Risk Management on Tunnel Project
- ITA Open Session 2007 – Prague – PPP for Tunnels

Thank you for your attention
Have a nice time in
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