



Project Controls Expo – 18th Nov 2014

Emirates Stadium, London

Project Delivery , growth and collaboration

About the Speaker

- ***Ken Phillips is a Project Controls Professional / Lead Planning Engineer who has worked in projects for many industries including infrastructure, marine facilities, oil & gas, refineries, petrochemicals, chemical, nuclear, conventional power, pharmaceuticals and wastewater.***
- ***His experience includes all phases of engineering and design and extends through construction and commissioning. He is familiar with a wide range of planning software and planning techniques. Over 15 years experience of Middle East Projects and International Projects recently working in Qidong, near Shanghai on an FPSO Project at COSCO's shipyard.***

Project Delivery , growth and collaboration

The aim of this talk is to highlight how project organisations adapt to this change, quickly and effectively, which is at the core of Agile work flows and potential to impact Major Infrastructure Projects.

Many organisations are developing strategies and encouraging collaboration to allow their employees, customers and partners to intelligently connect and interact to improve successful Project Delivery and Growth and collaboration on Major Projects.

Appropriate Delivery Strategy

The appropriate delivery strategy will drive project cost, quality of design, construction, long-term maintenance, and project completion date.

- *Project delivery within an organisation should focus on what the business is trying to achieve especially customer needs including Health, Safety, Environment and Human Factors.*

- *Fast-tracking is not a method of delivery, rather, it's a management strategy within delivery methods.*

- *Consider why do projects fail?*

Project Delivery , growth and collaboration

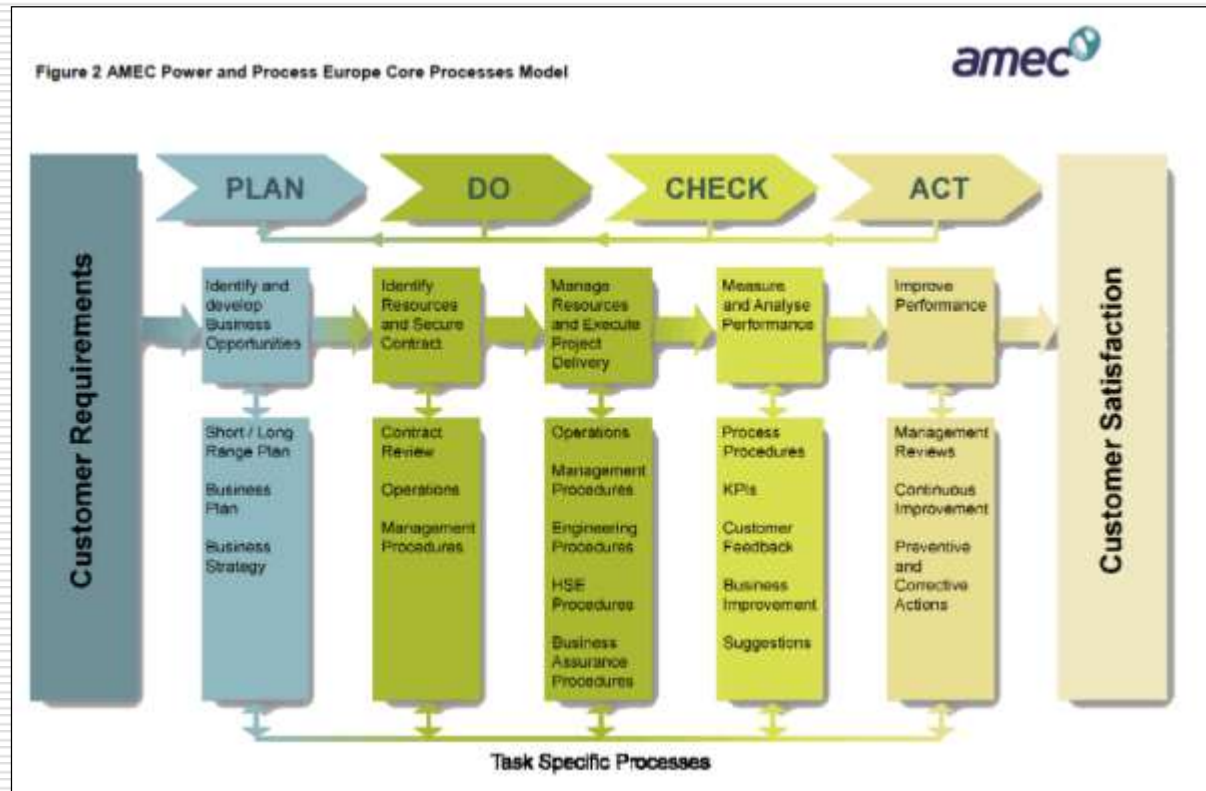
“Without continual growth and progress, such words as improvement, achievement, and success have no meaning,” Benjamin Franklin



“Failing to plan is planning to fail” (Franklin)



Plan – do – check - act



Extract from Engineering for Growth

For more information:

email media@raeng.org.uk

visit www.raeng.org.uk or www.engineeringforgrowth.org.uk

IMPACT

Engineering drives economic growth by adding value to products and services. Applying scientific principles, engineering transforms raw materials and energy into products and services as well as creating the structures and systems that underpin economic activity.

The engineering sector employs over 5.4 million people and manufacturing accounts for more than 50% of the UK's exports. The drive for more balanced, sustainable economic growth will have engineering at its core, yet the evidence shows that the demand for engineers exceeds supply across all skills levels and throughout all sectors of the economy.

28%

easily identifiable contribution of the engineering sector to the economy
(ONS Supply and Use Tables)

£481bn

gross value added of all sectors in 2009 where engineering is an important component
(ONS)

Interesting Facts
& Figures –
setting the scene

IMPACT

Engineering creates the infrastructure that provides vital services to society - such as energy, transport, water and communications. For business and industry, engineering improves safety, capacity and efficiency.

Investment in infrastructure and construction stimulates growth in other parts of the economy and raises UK competitiveness across many dimensions.

A systems approach to planning infrastructure brings understanding of critical interdependencies between sectors and creates opportunities for dual or multiple use.

44.3%

growth in passenger kilometres on UK railways in the last 10 years 2002/03 to 2011/12
(DfT stats)

£250bn

the value of the UK's infrastructure pipeline that includes over 500 projects and programmes
(HM Treasury)

Growth

Growth

The business analyst Igor Ansoff outlined some important strategies for business growth. He identified four key approaches to growing a business.

Beiersdorf's development illustrates all four.

i. Market penetration: Increasing market share for a firm's products in its existing markets..

ii. New product development: developing new products for existing markets.

iii. Market development: finding and developing new markets for current product lines. This is most suitable when existing products require only minor modifications to be suitable for new, overseas markets.

iv. Diversification: developing new product markets outside the existing business. A firm will pursue this strategy where new markets are highly attractive

Read more: <http://businesscasestudies.co.uk/beiersdorf/growing-a-business-by-developing-products-and-markets/ansoffs-growth-strategies.html#ixzz2hEq97EO3>

Meeting the Customers Known Requirements, what can go wrong?

Apologies to those who got it right!!

Customers
Original
Scope
Conceptual
Definition



<p>How the customer explained it</p>	<p>How the Project Leader understood it</p>	<p>How the Analyst designed it</p>	<p>How the Programmer wrote it</p>	<p>How the Business Consultant described it</p>
<p>How the project was documented</p>	<p>What operations installed</p>	<p>How the customer was billed</p>	<p>How it was supported</p>	<p>What the customer really needed</p>

Delivered
Design
OTIF –
totally
satisfied
customer



Lifting Off – Implementing the Strategic Vision for UK Aerospace

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/142625/Lifting_off_implementing_the_strategic_vision_for_UK_aerospace.pdf

IMPACT

Engineering is a prime focus in the growth of international investment. The trade is two-way: UK engineering groups such as BAE Systems and Rolls-Royce operate and invest in all major markets, while inward investment in sectors such as aerospace and automotive from such companies as EADS and Tata has regenerated UK industries.

UK engineering is a prime mover in international development as well: UK companies including Arup and Atkins are addressing the infrastructure needs of industrialising countries while many other UK engineering companies and individuals provide material help in the drive to tackle poverty, hunger and disease.

112,659

UK jobs created or secured through inward investment by foreign firms in the UK, 2011/12 (UKTI)

34,800
& 37,300

number of people employed (2011) by BAE Systems in the UK and the US respectively.



By working together in the Aerospace Growth Partnership (AGP), Government and industry have developed a shared vision for UK's aerospace industry to:

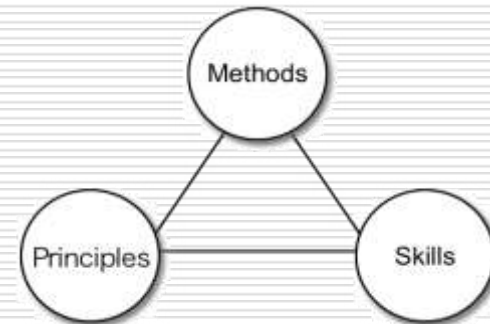
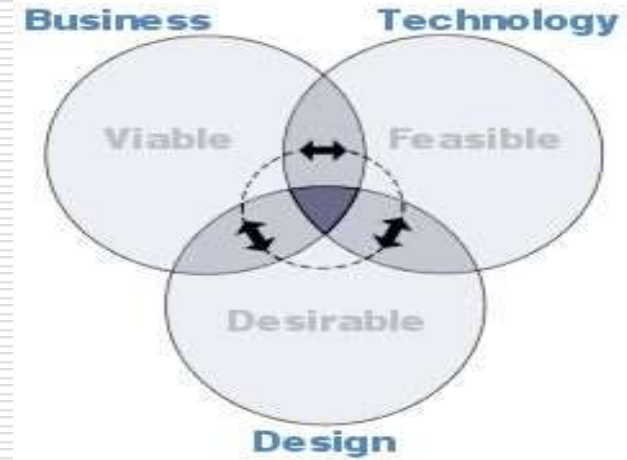
- ensure that the UK remains Europe's number one aerospace manufacturer and that it remains second only to the United States globally. This is an ambitious and challenging goal, given intensifying international competition and the rapid pace of innovation in the sector
- support UK companies at all levels of the supply chain to broaden and diversify their global customer base.

This will be critical given the entry into the market of new manufacturers of large civil aircraft.

Collaboration

- ❑ **With the rapid changes and demands for new projects and infrastructure taking place within today's hectic World, this is stretching project delivery and growth of Agile organizations**
- ❑ **The recent improvement in technology has provided the world with high speed internet, wireless connection, and web-based collaboration tools and has as such created a "mass collaboration." "Yammer" is one example.**
- ❑ **People from all over the world are very effectively able to communicate and share ideas through the internet, or even conferences, without any geographical barriers.**
- ❑ **Collaboration in technology encompasses a broad range of tools that enable groups of people to work together including social networking, instant messaging, team spaces, web sharing, audio conferencing, video, and telephony.**
- ❑ **Many large companies are developing enterprise collaboration strategies and standardizing on a collaboration platform to allow their employees, customers and partners to intelligently connect and interact.**
- ❑ **Enterprise collaboration tools attain collective intelligence and staff collaboration at the organization level, or with partners.**

How to Integrate & Improve



Safe & Standard Systems of Work

Projects in various organisations often fail because of lack of focus on Project Delivery:

- **Initial estimates of cost & time not updated with reality**
 - **TIME** - Plans are not used correctly or effectively to guide the project
 - **COST** – insufficient allocation of costs to activities
 - **BUDGET** – Insufficient initial budget, poor estimating
 - **COMPETENCE** – Project not within core competence
 - **RESOURCES** – Dilution of resources working on multiple projects
 - **SCOPE** – Inadequate scope definition at onset of project – Changes not considered
 - **COMPLIANCE** - ignored regulated controls & health, safety, environmental quality procedures

- **Project Managers & Lead Engineers are not trained to acquire adequate Project Control Skills**

- **Lessons are not learned on Time – Cost – Resources – Estimating**

- **Communications / feedback across the team are limited when satellite offices are involved.**

When things go wrong – Design, Construct, Operator Errors are all preventable from Pisa to Deepwater Horizon .



Using Failure as a Tool – Vinod Khosla



**More than lessons learned!! Consider Behaviour.
Get out there and engage. Are you in Touch with the Project?**

The New Economy

Old versus

a skill

managers

labor v. mgt

bus v. environ

security

monopolies

job preservation

wages

plant, equipment

New economy

life long learning

entrepreneurs

teams

encourage growth

risk taking

competition

job creation

ownership, options

intellectual property

<http://www.khoslaventures.com/papers-presentations.html>

Project Delivery

- Design, delivery information, history, invoicing, customer service contact can all be integrated and made available.
- Some of the technologies required to achieve this level of information sharing and availability have only become available recently. This open sharing of information is a key aspect of creating an agile operation.
- The appropriate delivery strategy will drive project cost, quality of design, construction, long-term maintenance, and project completion date.
- Project delivery within an organisation should focus on what the business is trying to achieve especially customer needs including Health, Safety, Environment and Human Factors.
- Fast-tracking is not a method of delivery, rather, it's a management strategy within delivery methods.
- Consider why do projects fail? When things go wrong.....

Project Delivery in AMEC



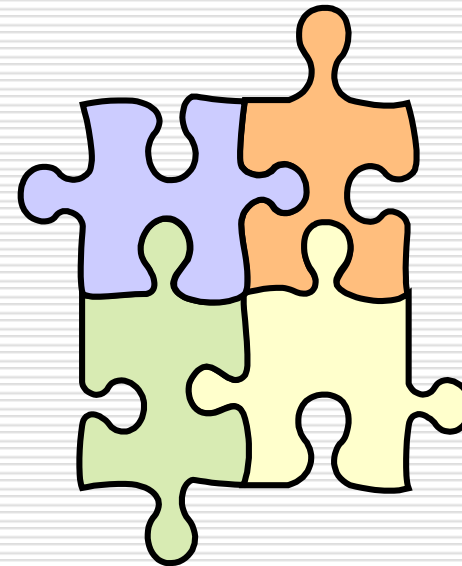
**Project Management focuses on technical delivery,
Programme management engages in relating design concepts to the business strategic vision of
the future.**

**Project Management is focussed on the nearer term objectives,
Programme Management tends to be focussed on longer term or corporate objectives.**



Near term objectives

**Longer term
objectives**



**How do they fit together with
Time, Costs, Resources &
Competence ?**

Enterprise Resource Planning

How Offshore Platforms are designed, fabricated and installed requires complex planning, collaboration & excellent project delivery including Safety.



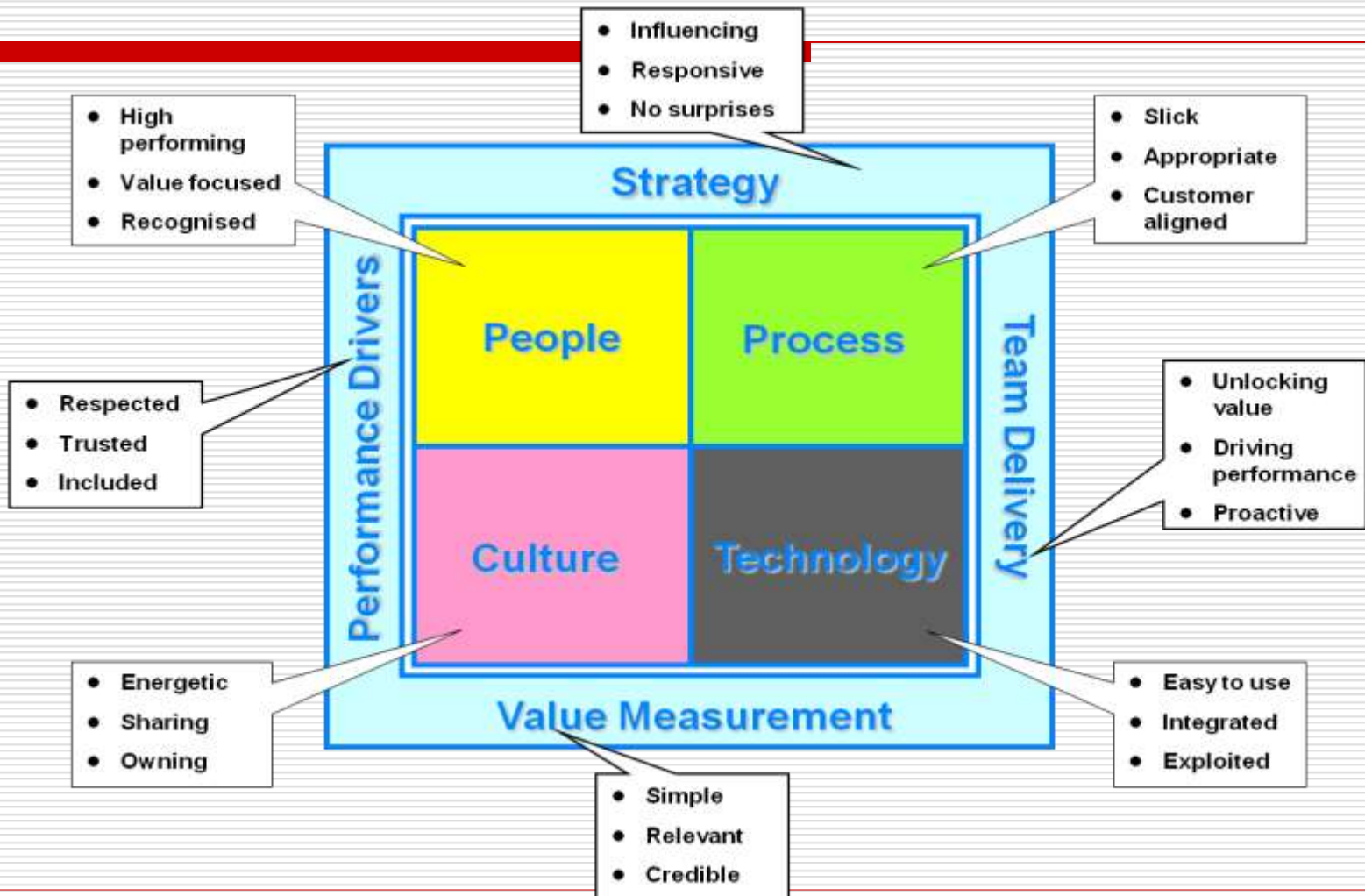
Scientists, Engineers and drilling experts are developing a new generation of state of the art platforms and innovative drilling technology, whilst battling the remote and challenging gas fields of the North Sea

<http://www.centrica.com/index.asp?PageID=1043&mediaid=530> (Mega Rig DVD – discovery channel)

Planning Processes

- *“begin with the end in mind.”*
-
- – *Stephen R. Covey, [Seven Habits of Highly Effective People: Powerful Lessons in Personal Change](#)*
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Collaborative Planning & Scheduling

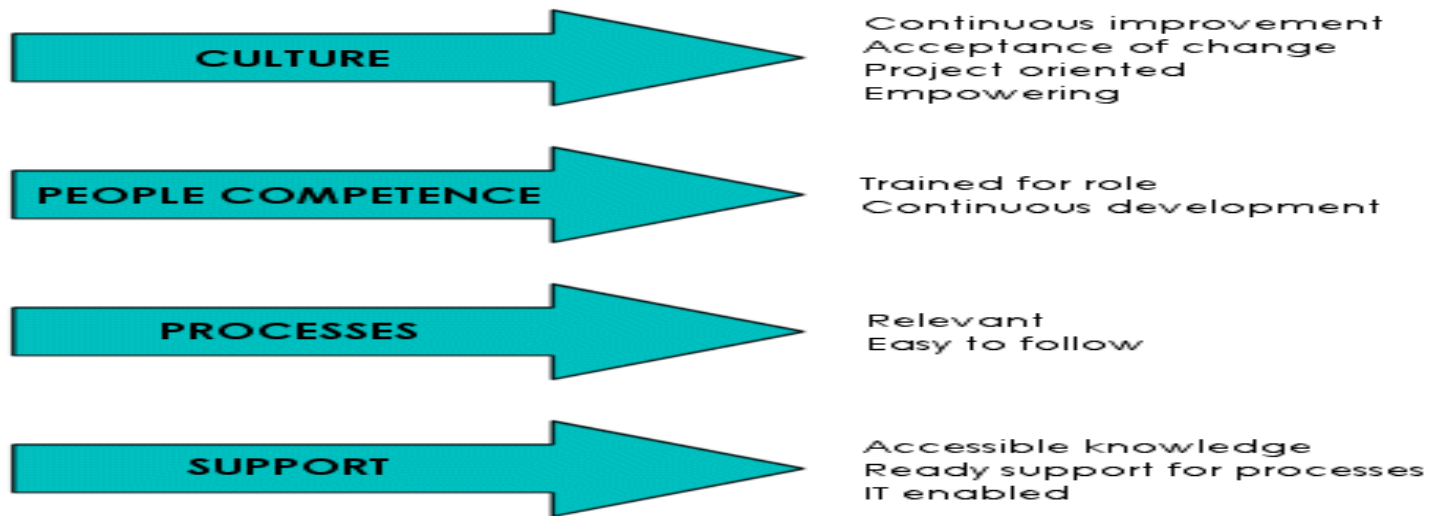


What has happened in the past in organisations?

Some typical issues

- Projects were not effectively prioritised
- Projects happened without authorisation
- No definitive list of projects
- Project benefits are not managed or realised fully
- Poor visibility of progress
- Shared Resources are switched from panic to panic
- Projects are not notified & financed in a timely manner
- Designated Project Manager not appointed at onset of project
- Projects not planned and estimated based on legacy projects
- Uncontrolled changes to project

Putting Systems, Processes & Support in place



Customer Focussed, Consistent, Controlled Project Environment

The two pillars of the Toyota Way

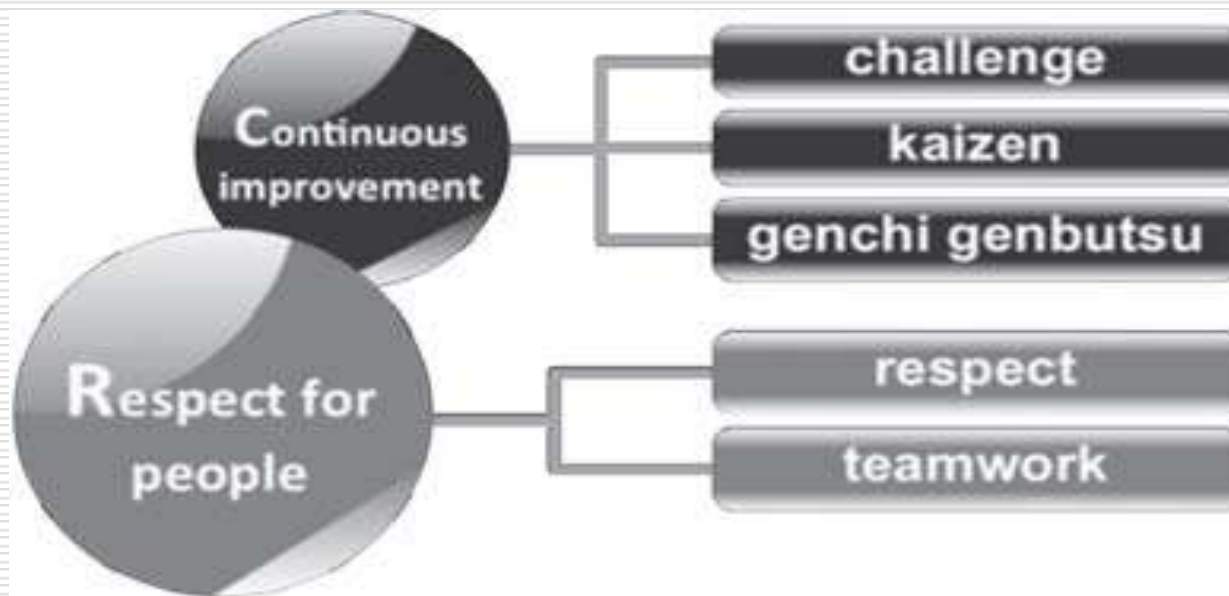


Figure 1: the two pillars of the Toyota Way – *kaizen* = *improvement*; *genchi genbutsu* = go see for yourself (source: Toyota 2001)

Industry Foundations

IDDS Elements

people

process

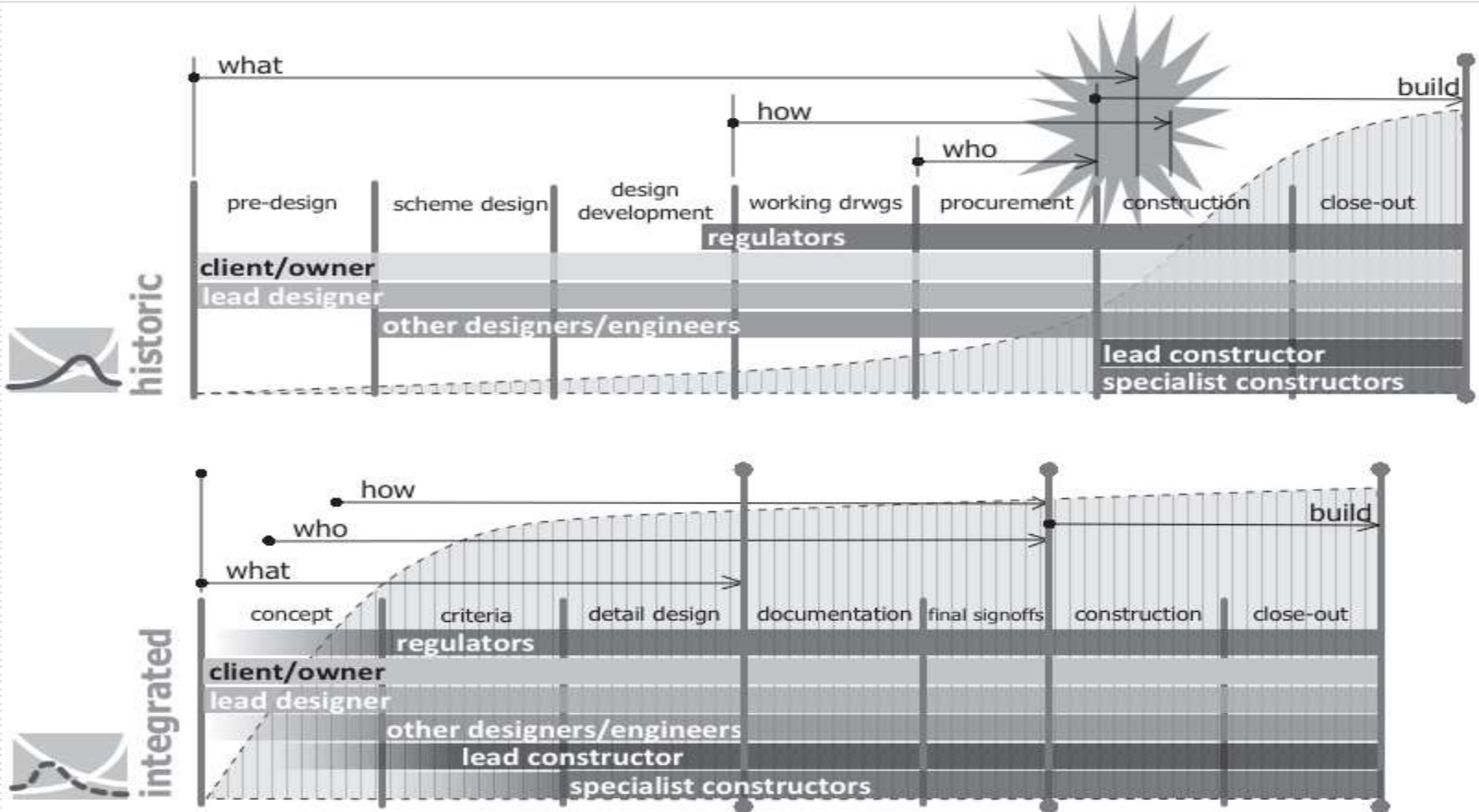
technology

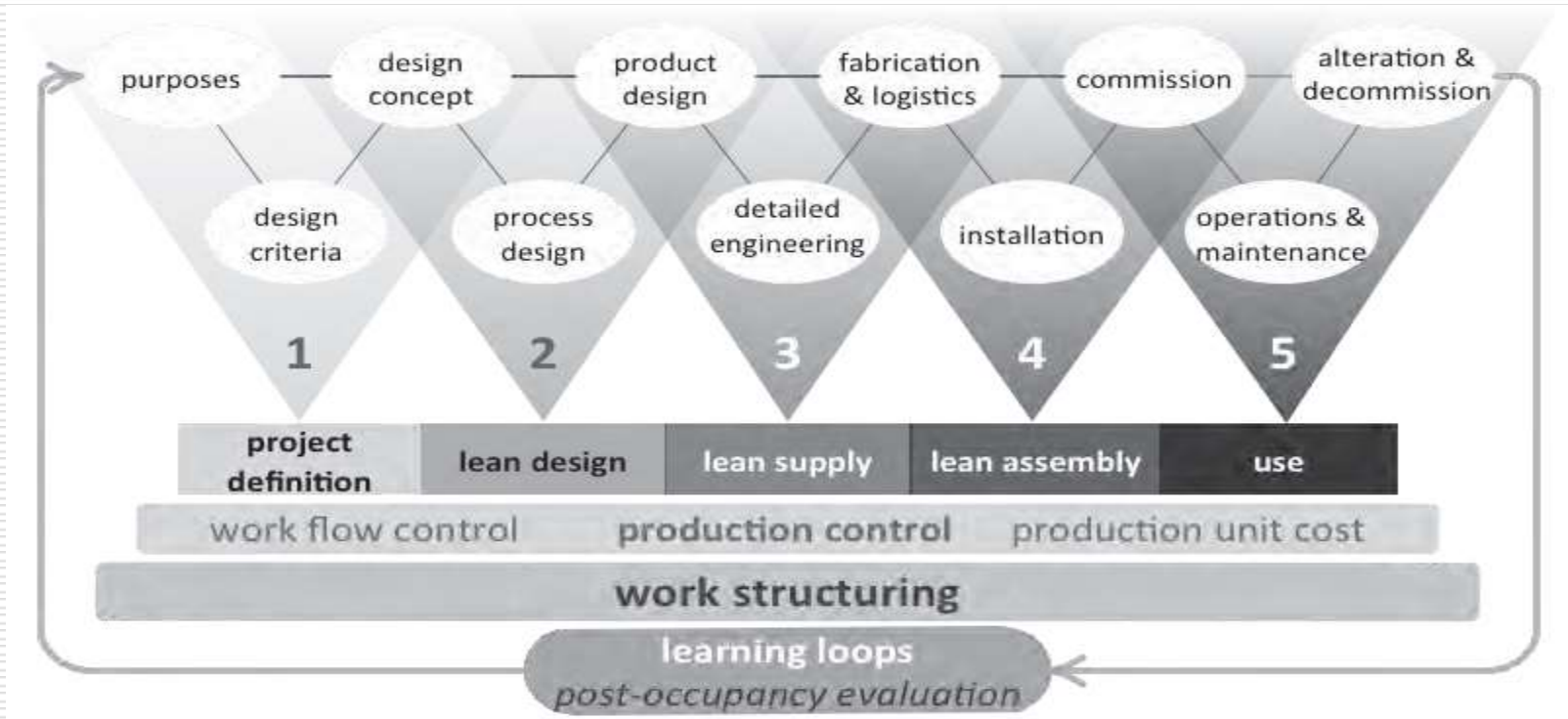
collaborative processes

enhanced skills

integrated information
& automation skills

knowledge management





High Value Engineering Centres

The presence of global players in the industry provides the following value additions:

Access to latest technology and equipment: For instance, a strategic partnership

between Reliance Industries Ltd. (RIL) and British Petroleum (BP) would help RIL to gain access to deep water exploration technology for its KG basin and augment its production levels.

Access to global project management and risk management capabilities

Elimination of out-dated practices and improved quality and work-practices due to increased competition

Competent players planning to diversify to new sectors without any prior experience in them — opportunity to move up the value chain by partnering with foreign players with sector expertise.

High Value Engineering Centres

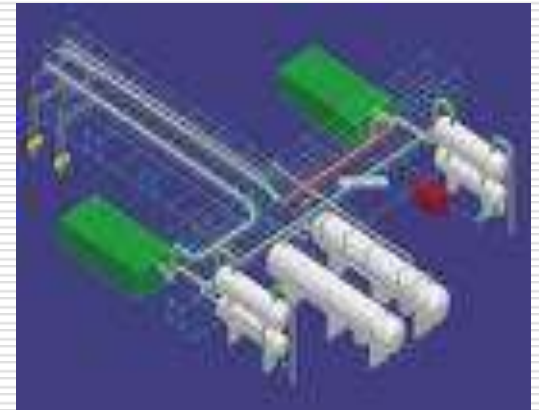
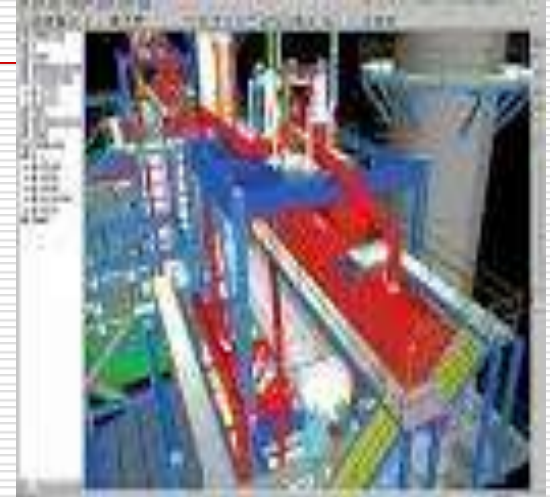
These help businesses create a number of hubs around the world from which Business can service international clients.

Each of these needs to provide the same competencies, use the same tools, provide the same level of delivery and have the same culture. For example Houston execution capabilities with Monterrey's support services.

Contractors, frequently discuss how to differentiate from competitors. In the Gulf of Mexico, for example, a clear differentiator is a high-value engineering center located a two-hour plane flight away in the same time zone as projects.

This is a fundamental component of growth strategy which ensures the ability to configure the work across time zones and at a cost to suit clients' requirements. and consistency in Project Delivery.

One example of is the adoption of of "SmartPlant 3D " for global work sharing capabilities that enable the use high value engineering centres, while maintaining full control over the progress in the project in real time



A Brief Thought Provoking Topical Moment – HS2



Remember these facts:

Crossrail construction began May 2009

Tunnelling began Spring 2012

Project due to open 2018

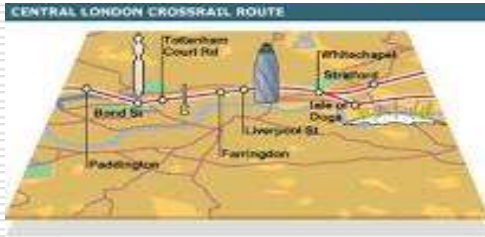
Cost £14.8 Billion

9 years of Construction!

The Key is Planning

Sir David Higgins hinted that HS2 could be delivered under the £50 billion budget by accelerating the project — though he refused to set a new date ahead of the scheduled 2035 completion..

Do you recall Crossrail facts from the last slide?



Crossrail construction began May 2009
Tunnelling began Spring 2012
Project due to open 2018
Cost £14.8 Billion
9 years of Construction!

He said: *“The key to this is planning. I don’t understand why it needs to take so long and time is money. We have some of the world’s best designers and contractors and we should challenge them to do it quicker.”*

He dismissed opponents’ claims that there was no demand for the link, saying it had dual benefits — boosting capacity on commuter routes into London Euston and speeding up journeys to the North.

He said: *“It is essential in this country to have a proper, modern rail. The thought that we could be living with this railway in another 30 to 40 years’ time is difficult for me to comprehend. Every morning 4,000 people arriving at Euston stand and that’s only going to get worse. In the North it’s about connectivity.”*

Think about the enabling works for such a project. Heavy goods Vehicles thundering down picturesque village lanes, Spreads the size of Motorways across the landscape for years while bridges and rail tracks are constructed.

Over the last 50 years when Government Projects are advocated backers downplay the costs to gain political support, the budget increases but the drive behind these projects make it very difficult to stop.

If the same money was injected into improving the existing rail infrastructure journey times could be reduced and more passengers carried without standing from Euston to Glasgow?

China & Japan do not seem to have the same problems as the UK in introducing new infrastructure. Perhaps we need centralized planning of infrastructure as suggested by Sir John Armitt 2013.

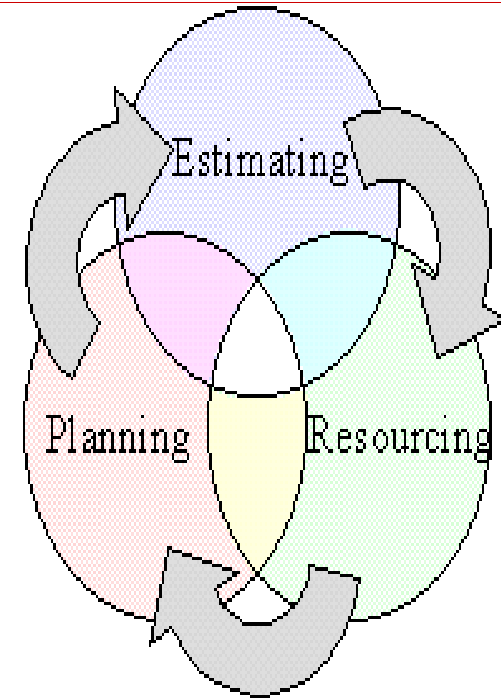
See [Business Insider Australia 108 Giant Infrastructure Projects that are reshaping the World.](#)

Sir John, the former Network Rail boss who chaired the Olympic Delivery Authority for the 2012 Games, was asked to review how Britain could improve its poor record of project planning and delivery. Last year, in its report on global competitiveness, the World Economic Forum ranked the UK 24th for the overall quality of its infrastructure.

Launching a new report into how to rebuild the country's crumbling transport, energy, telecoms and water infrastructure, Sir John Armitt called for the establishment of a new National Infrastructure Commission charged with evaluating the UK's needs 25 to 30 years out.

So what do Projects need to meet modern Project Delivery?

- Excellent time management skills
- Competent Planning, Resourcing, Estimating Ability
- Agile 'Can do' proactive attitude
- Adaptable, flexible.
- Fair – respecting different people's viewpoints
- Committed to the team and the project's goals
- Decisive and realistic
- Excellent communication skills
- Leadership
- Assertiveness

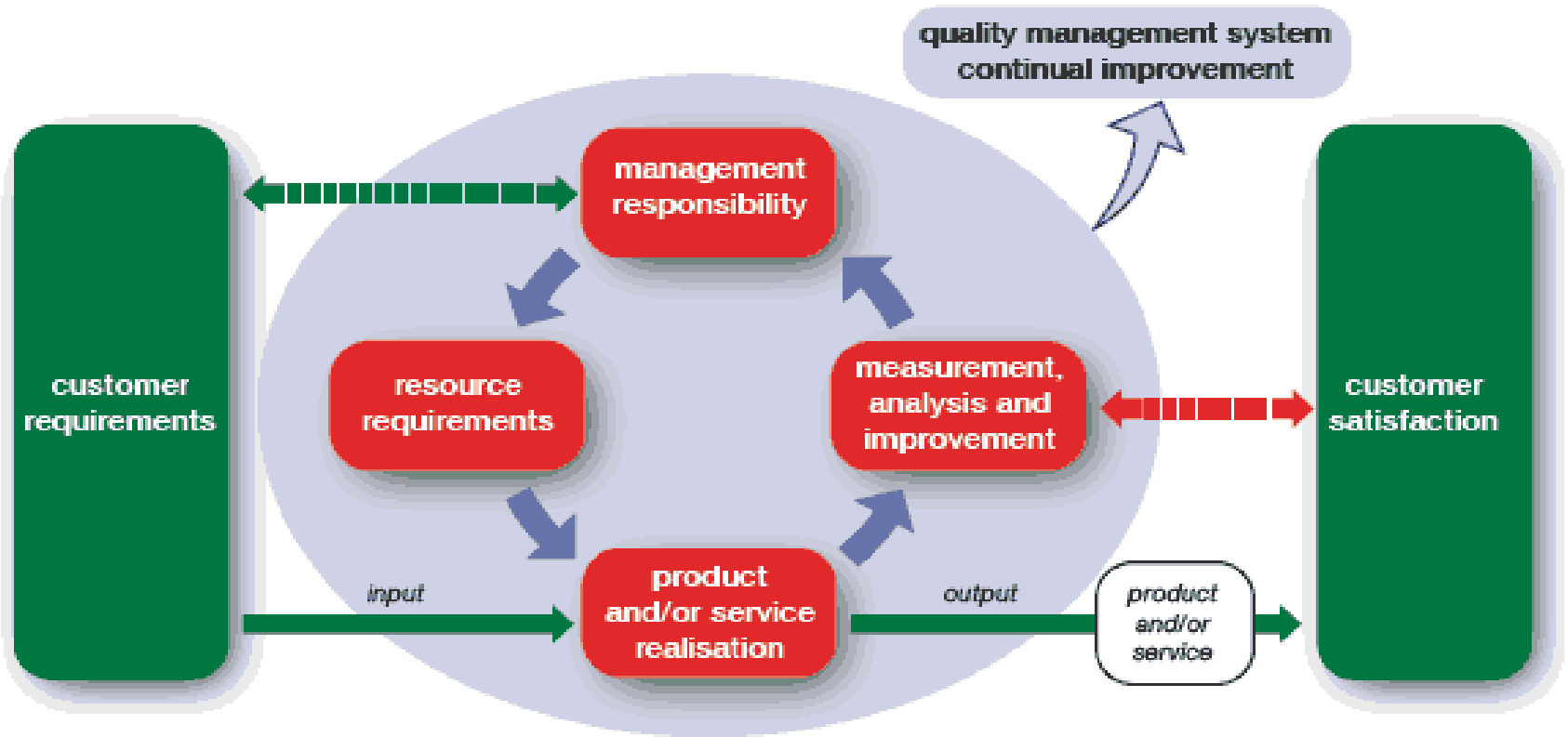


Where should we go ?

- ❑ We need to take a Pragmatic Approach to Projects,
- ❑ Many simultaneous projects, Need to manage resource pool & build up key skills & core competence
- ❑ Projects tend to be similar to each other
Plans tend to be simple - simple bar charts
- ❑ Move away from tendency to Crisis Manage, Fire Fight, Reduce pressure on shared resources to concentrate on key challenges & issues
- ❑ Introduce Due Diligence Team for Review of Bids prior to submission
- ❑ Future proofing - *proven technology is not only the most productive environment for plant design and engineering, it is also genuinely 'future proof', securing information assets through the entire lifetime of the plant and establishing Together with Integrated Project Management ensures competitive advantage.*
- ❑
- ❑ Ensure we are aware of Client requirements & programme needs at the onset of a project. e.g. Shutdowns, Road Closures etc
- ❑ Deliver Projects ON TIME IN FULL - A Given !!!!

Continual improvement

The heart of integrated project management & control



In conclusion to achieve effective delivery of projects, growth collaboration and drive to completion requires the following:

Ensure all HSE Safe working practices across all aspects of the Project.

High performing, Ethical Competent Project Management & Project Control Teams with experience in project delivery is essential.

Educating / Mentoring young people in the basics of project control systems & management is paramount. (Current average age of Project control specialists is around 50.)

Need to make Project Controls roles attractive with professional recognition.

Maximise use of high-value delivery centres (HVDCs).

Improve predictability by challenging norms and the traditional approaches.

Raise Profile of Project Control function within Project Management Organisations

Team based approach - Encourage creative teams with a “Can do attitude”

In conclusion to achieve effective delivery of projects, growth collaboration and drive to completion requires the following:

Well Defined Scope Agreed at the beginning with approved changes.

Meet current customer needs and deliver with minimal costs, waste and time

Adopt New Technology Quickly

Understand Risk

Collaborate with all Internal & External Stakeholders

Change the way of working, effect change rapidly

Co-location – integrated teams where practical

Check Understanding & Effective Communications

'The difference between what we are doing and what we are capable of doing would solve most of the world's problems.'

Mahatma Gandhi

Project Delivery , growth and collaboration

***** THANK YOU, ANY QUESTIONS *****

