# Delivering World Class Infrastructure Projects in Wales

**Cardiff** 

**24<sup>th</sup> October 2013** 



#### **Richard Wilson**

# Deputy Director, Commercial & PPM Division

**Welsh Government** 



#### Jane Hutt AM

### **Minister for Finance**



# Major Project Delivery

Peter Chamley

24/10/2013

## **Agenda**

- Introduction
- We can deliver great major projects
- While others are struggling......
- There is good advice and expertise out there
- Key factors for success

## **Successful Major Projects**

UK plc has learned how to deliver great projects

- HS1 Channel Tunnel Rail Link
- Olympics
- New Forth Bridge Crossing
- Regulated Water Business

#### **HS1 - Channel Tunnel Rail Link**

- First High Speed Railway in the UK
- Delivered to Budget and Time
- No major disputes
- Contented Stakeholders
- Successful Operational Performance



## **UK Water Company Investment**

- Investment spend 2005 2015 of £45billion
- Significant improvements in water and wastewater quality
- Set the standards for new procurement methods
- Early adopters of NEC

## **London Olympics**

- On time and under budget
- Alignment of objectives
- Clarity of scope
- Decisive leadership



## **London Olympics**

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- Clarity of scope
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## **New Forth Bridge Crossing**



- Reduced estimated cost from £4bn to £1.5bn
- Overcome strong opposition
- Strong Contractor/Client Relationship
- Public and Political Support

## Who would expect this in Germany?



## Strategic Infrastructure Delivery

WORLD ECONOMIC FORUM

COMMITTED TO IMPROVING THE STATE

- Setting goals for economic infrastructure
- Prioritizing infrastructure investment
- Value for money procurement
- Maximising finance efficiency
- Project management

Industry Agenda

#### Strategic Infrastructure

Steps to Prioritize and Deliver Infrastructure Effectively and Efficiently With Appendices

Prepared in collaboration with PwC

September 2012



## **Influences on Successful Project Delivery**

- People and Attitudes
- Client Structure
- Clarity of Scope
- Delivery Strategy
- Interfaces

## **People and Attitudes**

- Project Champion
- Political will
- Leadership with experience
- Key Factors
  - Skill and Competence
  - Enthusiasm
  - Trust
- Stronger than Process

#### **Client Structure**

Recognise limitations

Controlling mind

• Be prepared to change as project moves through phases

• "Thin" structure

Devolved decision making powers

## **Clarity of Scope**

Alignment of all parties

Inclusive of all stakeholders

- If well defined and no change:
  - Planned Workflow
  - Controlled Outcome
  - Success
- If unclear and post award change:
  - Hard work
  - Changing Workflow
  - Uncertain Outcome

## **Clarity of Scope**

"Start 6 months too early and you finish 18 months late"

Cheaper and quicker to get Scope right than start too early

## **Delivery Strategy**

• Prepare the Plan at outset

Look for value for money and quality rather than lowest cost

 Plan to do things early, eg contract documentation to allow thinking time and proper review periods

Be honest and very clear about identifying and allocating risk

Keep it constantly under review

#### **Interfaces**

If not understood these will kill the job

Define them

Package the Works accordingly

Manage them relentlessly

## **Applying this to projects in Wales:**

- Valley Lines electrification
- M4 Corridor
- Circuit of Wales
- A465 Heads of the Valleys

## **Major Projects delivered from Wales**















# Atkins at Heathrow Airport

### Broad ranging airport capability and experience

- Design & Engineering
- Information Technology
- Environmental Analysis
- Process Design & Modelling
- Asset Strategies





# IT Projects Background

- Heathrow Airports Limited (formerly BAA)
  - IT Outsource May 2011
- Atkins portfolio of 30 to 40 IT Projects
  - ICS in Construction Cabling, Fibre, CCTV, Access Control, Wayfinding, Wireless Connectivity
  - Ground Radio
  - Specialist IT Passenger Management, Biometrics, Security Queue Measurement, Baggage
  - Building and Asset Control Systems Strategy



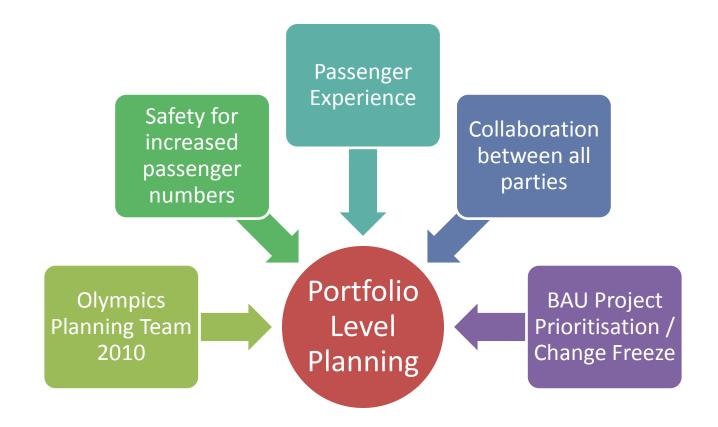
# Complex Project Environment

- Multiple stakeholders
- 4 Individual Terminals
- Security Controlled
- Safety Critical
- Passenger Experience
- At Capacity
- 4 to 6 hour on-site working window
- Media & Public Attention





## London 2012 - A Good First Impression





# Olympics Specific Projects

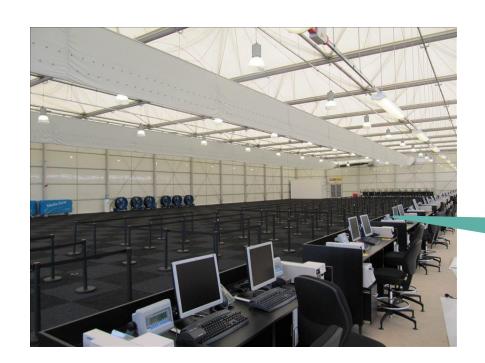
#### **LOCOG Desks**

Provided the required IT for LOCOG, which included the welcome and accreditation desks for processing the athletes, enabling them to pass through the terminals as quickly as possible.





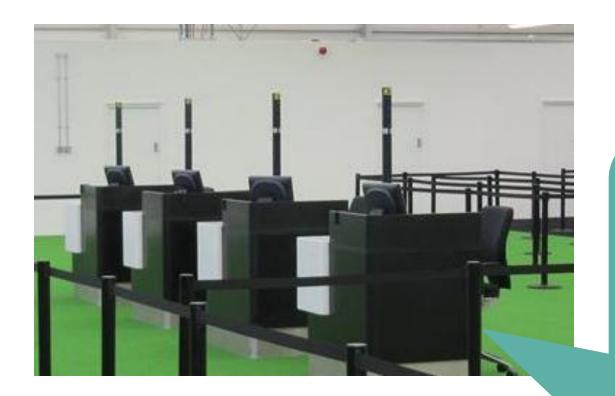
## Olympics Specific Projects



Temporary Terminal
structured cabling, CCTV,
flight information displays,
security access control,
wireless connectivity,
check-in desks, commonuse terminals, security
search lanes and
telephony



# Olympics Specific Projects



Atkins PASS2 system
Upgrade across
airport to allow both
domestic and
international
passengers flying
from all terminals to
pass through the
temporary terminal



# **Project Delivery Challenges**

- Complex Stakeholder Environment
- Resources right level at the right time
- Controlled Change
- Immovable End Date no second chance



#### Lessons

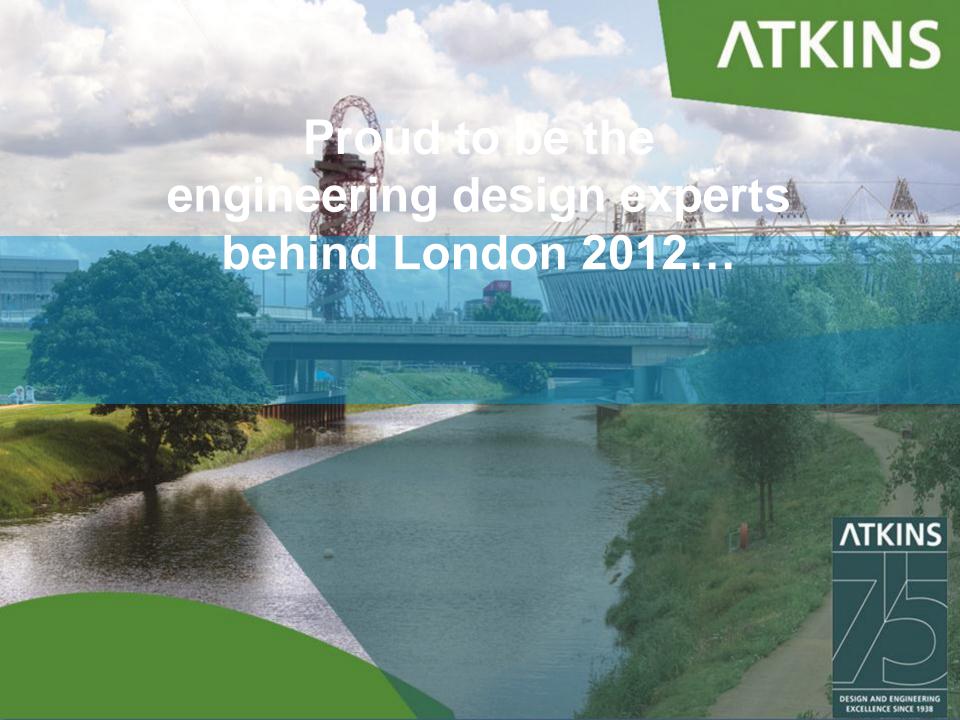
- Expert Project Management
- Built in Contingency
- Rigorous Risk & Change Control
- Tried & Tested Governance Procedures
- Take Action as soon as you suspect it is needed!



# Any Questions?







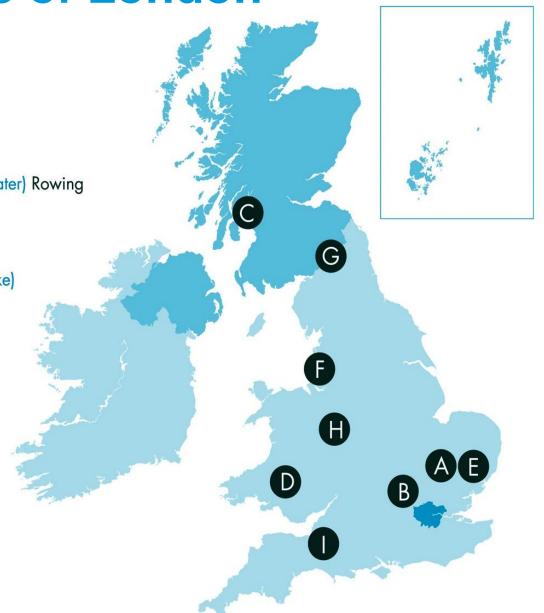




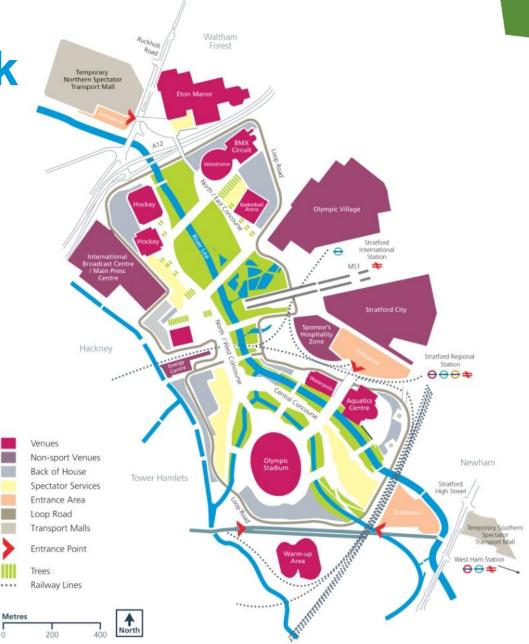
### **Venues outside of London**

- A Broxbourne Canoe/Kayak (Slalom)
- B Eton Dorney Rowing, Canoe/Kayak (Flatwater) Rowing
- Mampden Park Football
- Millennium Stadium Football
- Mountain Bike venue Cycling (Mountain Bike)
- Old Trafford Football
- G St James' Park Football
- Villa Park Football
- Weymouth & Portland Sailing, Sailing





**Olympic Park** 





## The Key Players

# The London Organising Committee of the Olympic and Paralympic Games (LOCOG)

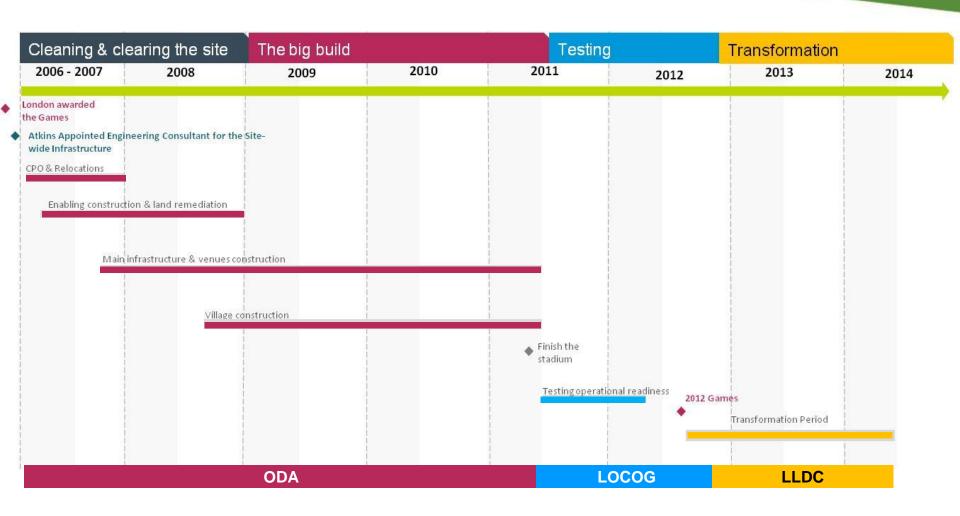
- Preparation and Staging of Games
- Design and delivery of temporary venues and overlay for the Games
- Direct link with International Olympic Committee
- Relate with and other sporting bodies such as International Swimming Federation (FINA)
- Upholding the commitments made in the 'Bid Book'

# Olympic Delivery Authority (ODA)

- Create infrastructure and facilities associated with the Olympic Park to time and agreed budget
- To deliver Games legacy venues
- Deliver necessary transport infrastructure
- Deliver agreed sustainable legacy plans

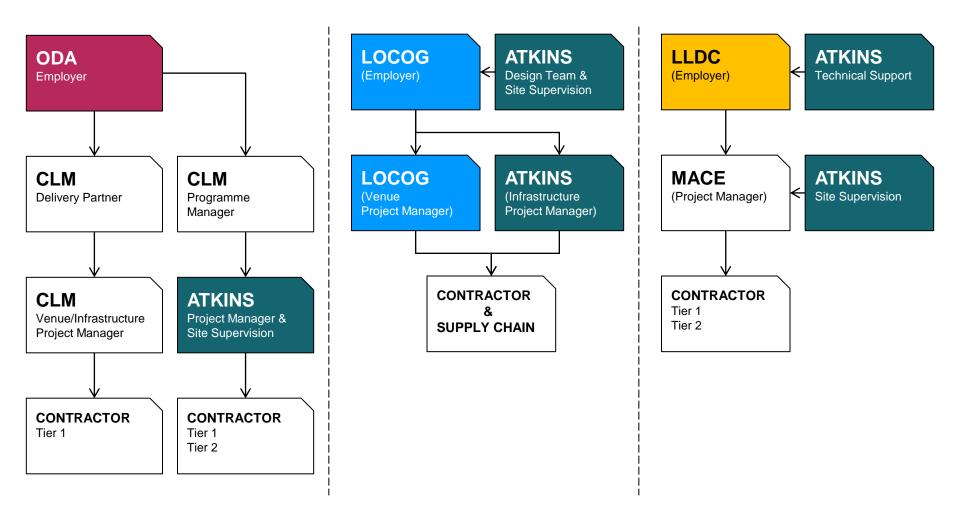
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## The programme

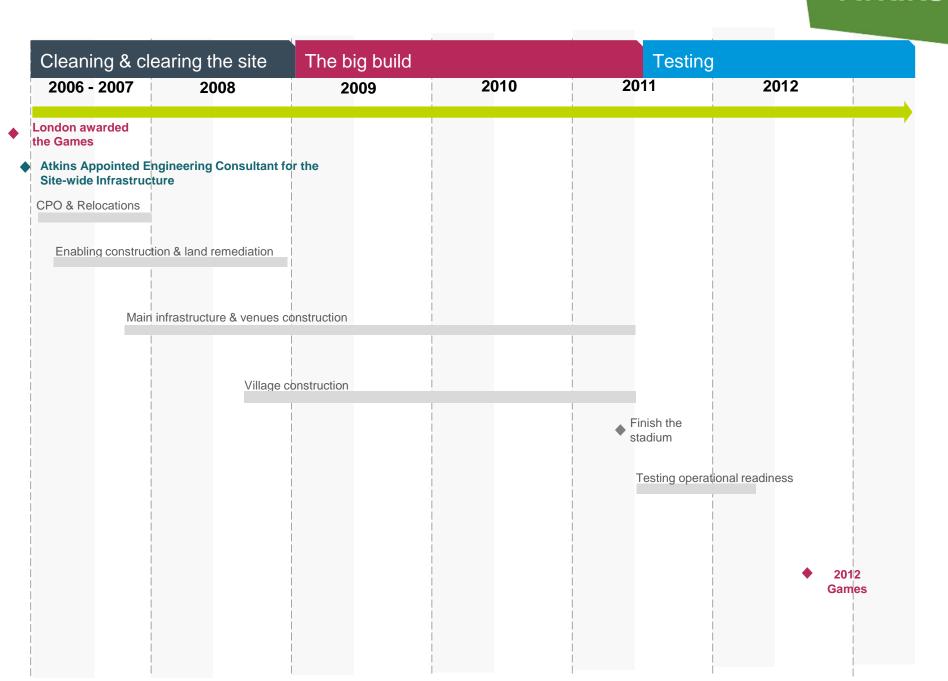




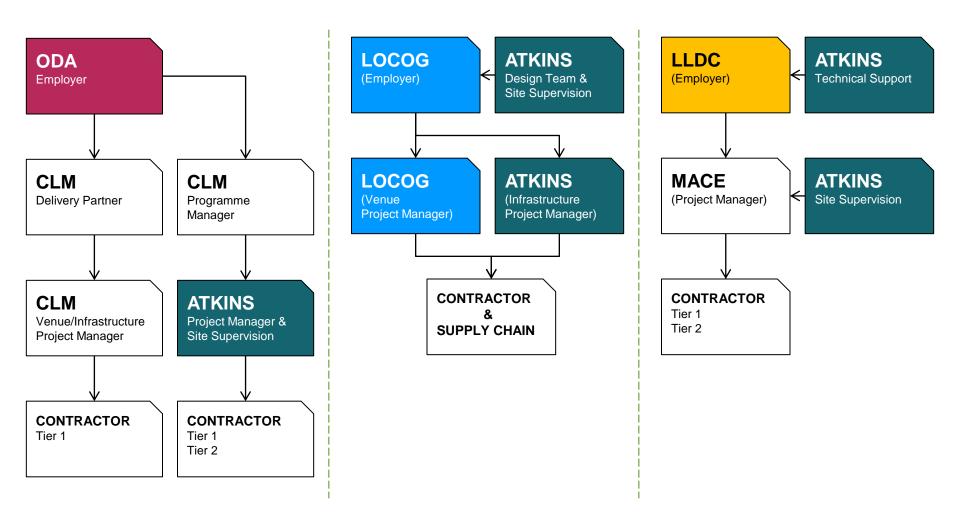
### The teams







#### The Teams



## **LEADERSHIP**

London has promised the world the greenest, most sustainable Games ever and we've helped to keep that promise

#### Mission

To deliver venues, facilities, infrastructure and transport on time for the London 2012 Olympic and Paralympic Games that are fit-for-purpose and in a way that maximises the delivery of a sustainable legacy within the available budget.

#### Overarching themes

Time, cost and fit for purpose

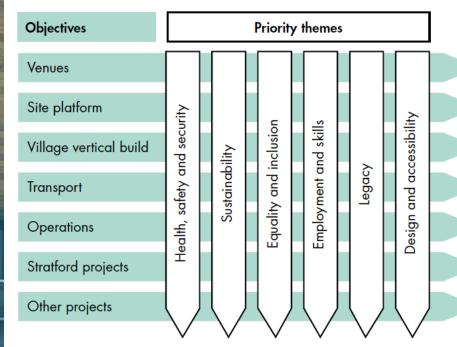
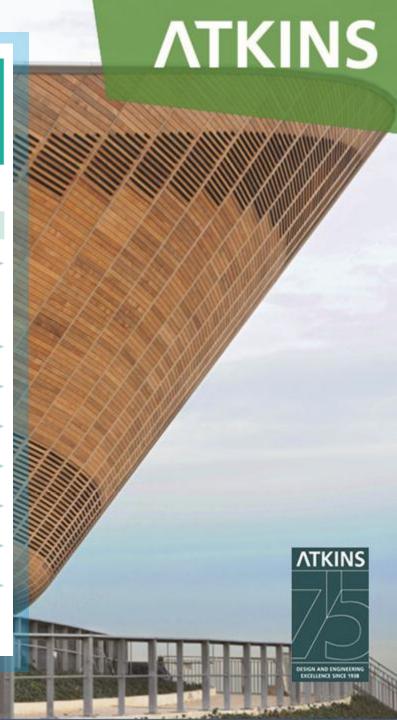


Figure 2: Details of the London 2012 policy values and priority themes

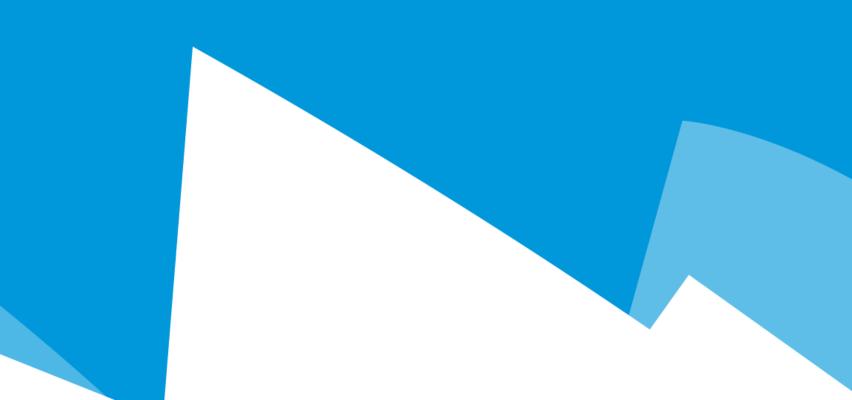


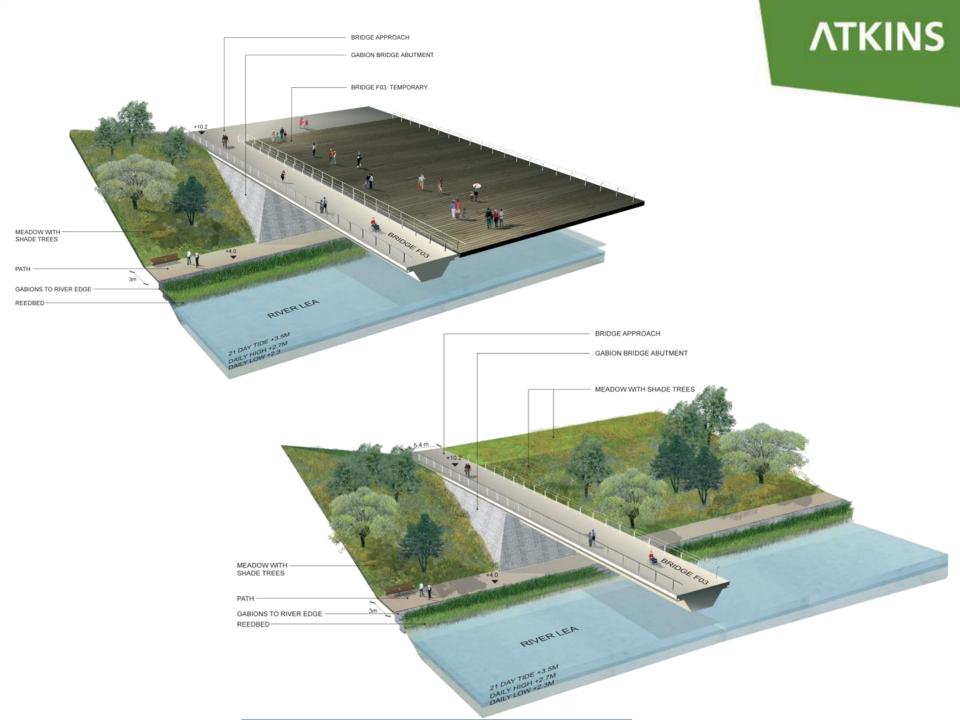
# Venues





# **Appropriate Standards**





# Demolition & Site Clearance – 97% Reuse



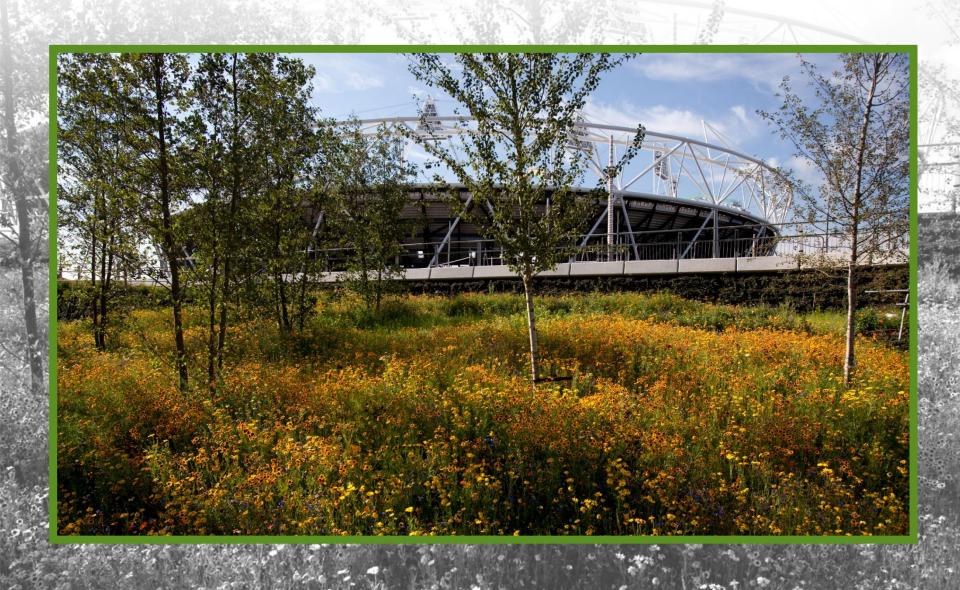
# **Landscape and Public Realm**



# **Change Mangement**

## <u>Infrastructure</u>







# Planning, Integration, Behaviours, Standards

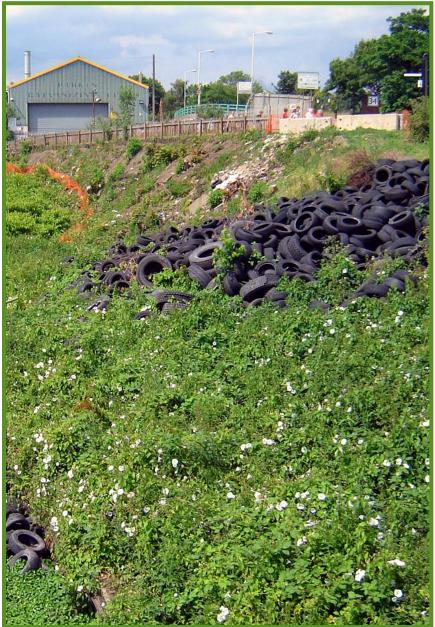
























## The challenges

Contamination

Occupation

Scale

Minimising disruption to communities

...all on Time, on Budget and to Quality required by follow on contractors...







#### 4. REMEDIATION

Insitu remediation



The remediation strategy was to keep as much soil on site as possible. Techniques include soil washing, bio-remediation, chemical and geotechnical stabilisation. 98% of demolition material was reclaimed and reused. Archae bugs were used to clean the groundwater

of soil retained and reused

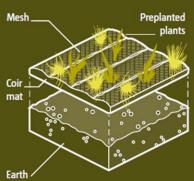
#### 5. ECOLOGY



Despite the presence of 200 buildings, this brownfield site also contained habitats for a wide range of flora and fauna including invertebrates, birds and moths. Where possible species were collected and translocated or their habitats maintained

of created habitat

#### 6. COIR MATTING



After exhaustive testing coir pallet planting was found to be the most successful way of delivering native wetland plants back to this challenging section of the River Lea. Seedlings are delivered to site ready planted in coir mats

Individual wetland plants

#### 7. PLANT TYPES



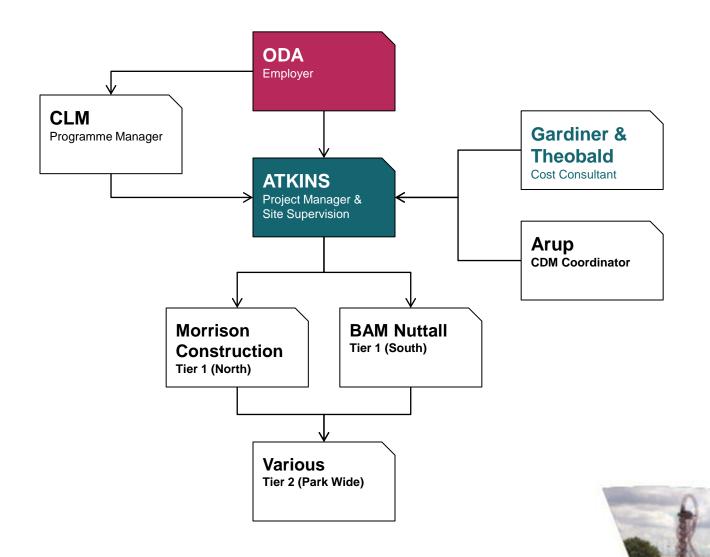
A year-long planting trial identified which wetland species coped best with the site's tough conditions. These include emergent grasses, yellow irises and purple loosestrife, which should be in flower during the games

15,000m<sup>2</sup>

of wetland planting



# **Enabling The Olympic Park – Delivery Team**





# Bulk Earthworks – 2.2 Million m<sup>3</sup>















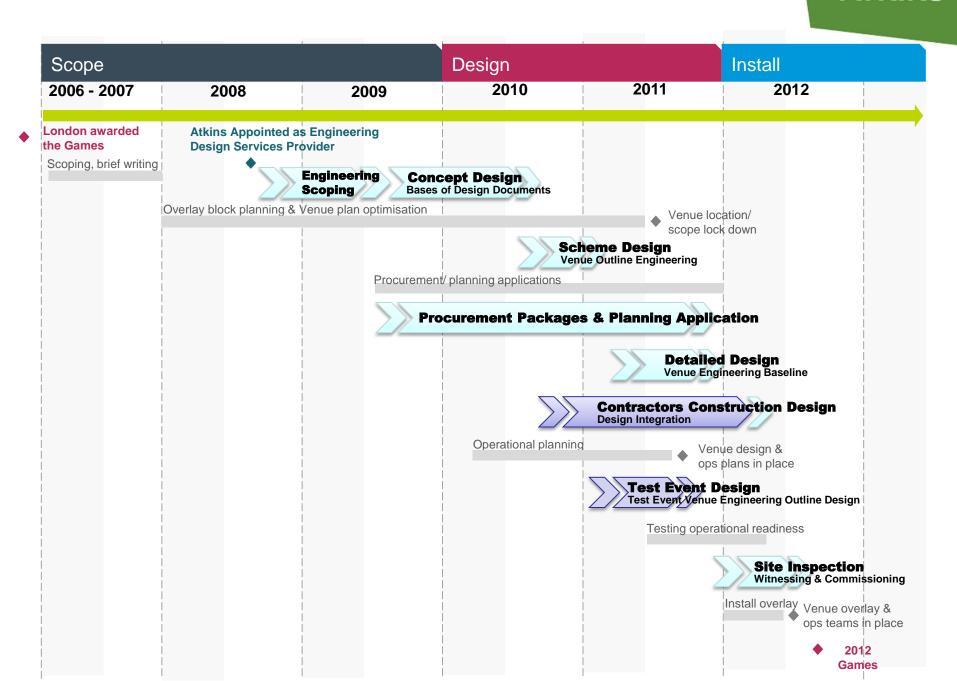




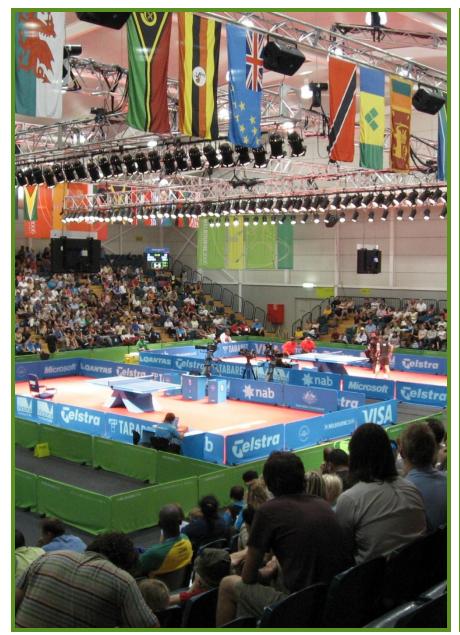
Olympic Park Completed – Januar **ATKINS** 2012



















# Value for money and innovation

Through the whole piece – standards, integration, and asset re-use





# Temporary Overlay (LOCOG) -

**Greenwich Park** 





# The London 2012 Games offered a unique transport challenge delivering 10 million spectators to 29 different venues over 27 days of competition.

#### **Types of traffic**

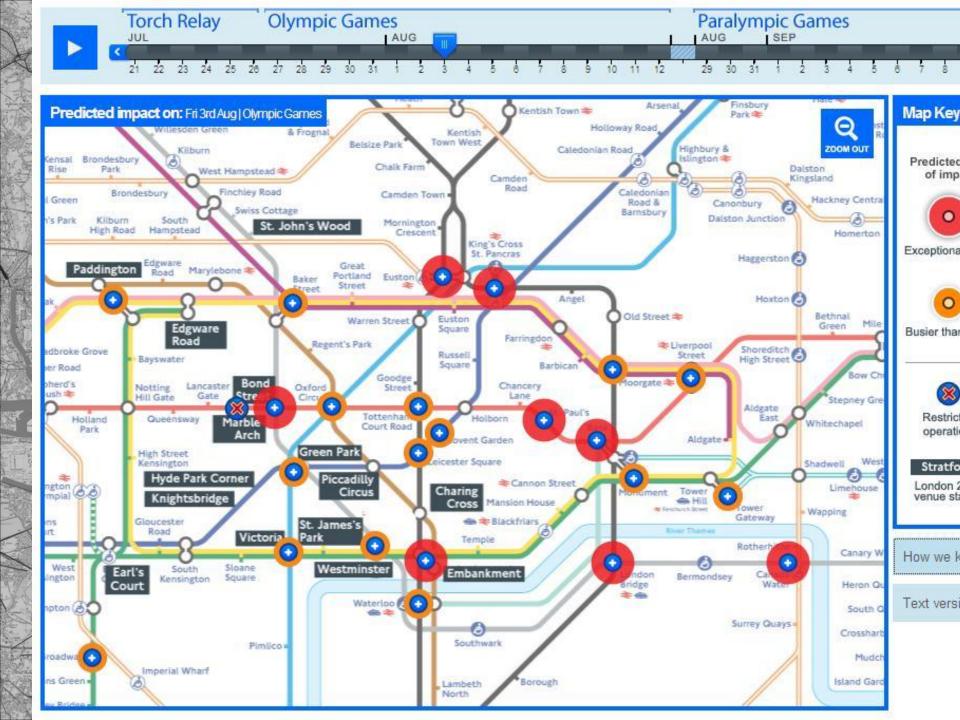
- Games family
- Media
- Spectators,
- Officials
- Normal London traffic

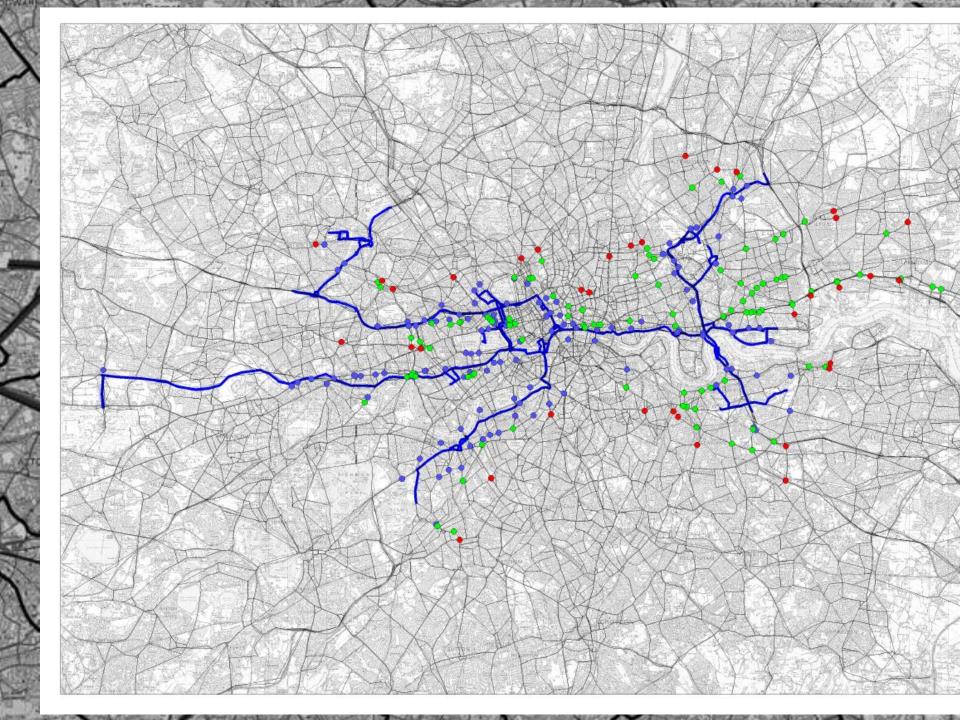
#### **Modes of transport**

- Roads
- Rail
- Buses
- Tube
- Air travel
- Coaches
- Taxis
- Bicycles
- Pedestrians
- Park & Ride

#### **Destinations**

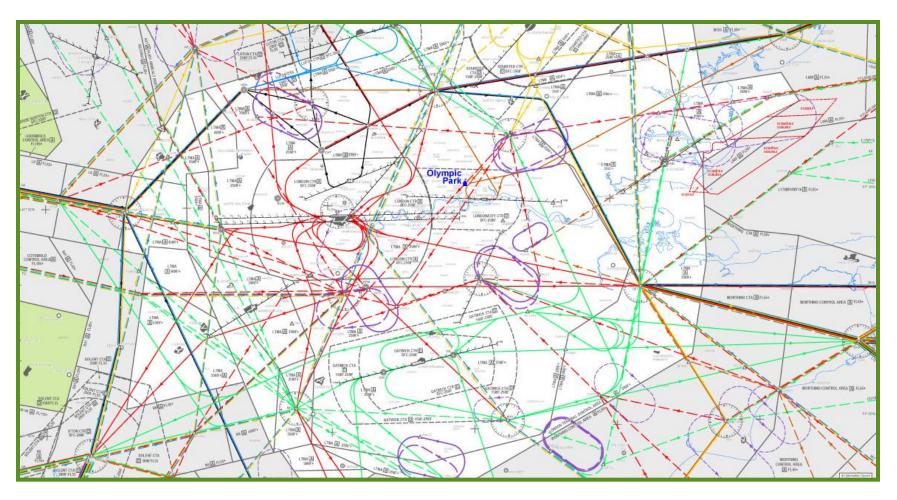
- Olympic Park
- Other London venues
- Venues outside of London
- Live events sites







## **Aviation Strategy**



150 international heads of state will be invited to celebrate the Queen's Diamond Jubilee six weeks before the Games. Thanks to our aviation strategy they will fly into 70 airports and

helipads with all the necessary management and security arrangements in place.



# Learning and Culture







# **ATKINS** 'Capturing and transferring 'Learning from outside' 'Learning within' learning' experiences and innovation generated within a events and experiences learning, capturing and transferring knowledge gained (such as other projects, consultants and industries) mega-project to subsequent mega-projects Figure 3: Learning and transferring knowledge **ATKINS**



http://learninglegacy.independent.gov.uk/themes/programme-organisation-and-project-management/micro-reports.php

http://learninglegacy.independent.gov.uk/publications/lessons-learned-from-the-london-2012-olympic-and-paralym.php

DESIGN AND ENGINEERING EXCELLENCE SINCE 1938





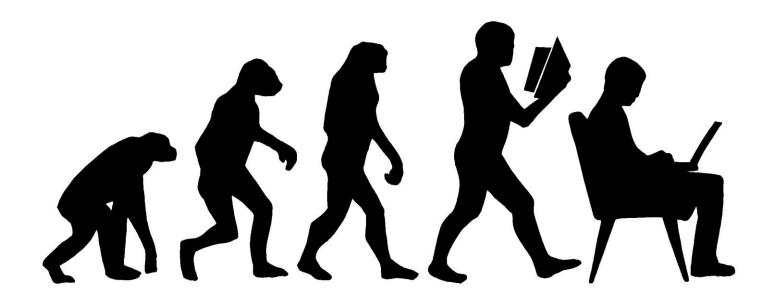






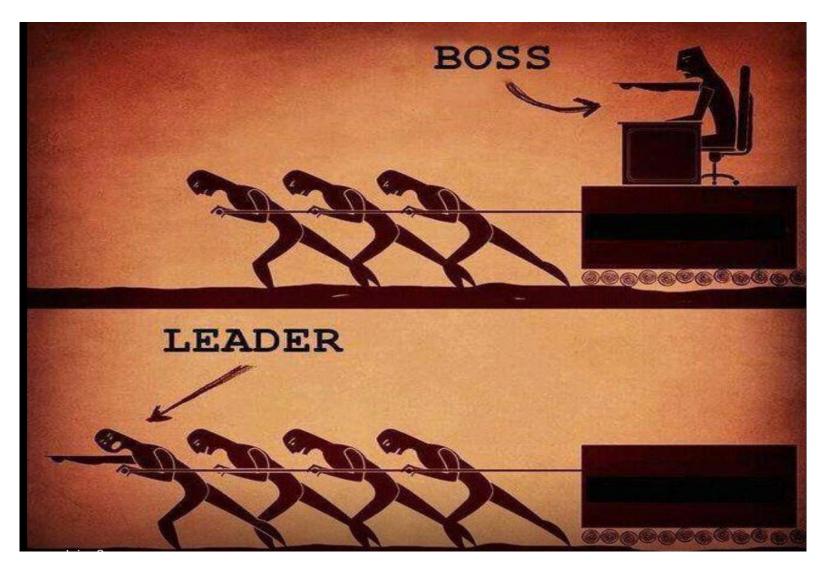
## The evolution of project management





## Management v leadership





#### Simon Lander



- BSc(Hons) Civil Engineering
- Post Graduate Diploma in Business Management
- Chartered Civil Engineer
- Member of the Institution of Civil Engineers
- 18 years in contracting Alfred McAlpine & John Laing Construction
- 15 years in consultancy ChandlerKBS
  - Welsh Water AMP3 Capital Alliance Project Manager
  - Magnox Interim Commercial Manager
  - Welsh Gov. Aberystwyth Office Project Management
  - Rhondda Cynon Taf Schools Project Management
  - The Works: Ebbw Vale Programme Director
  - Welsh Gov. Rail Investment Programme Delivery Director

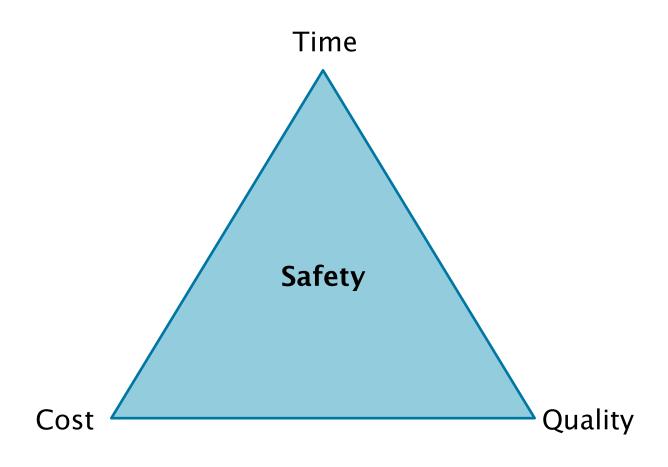
## Millennium Stadium





## Historic approach







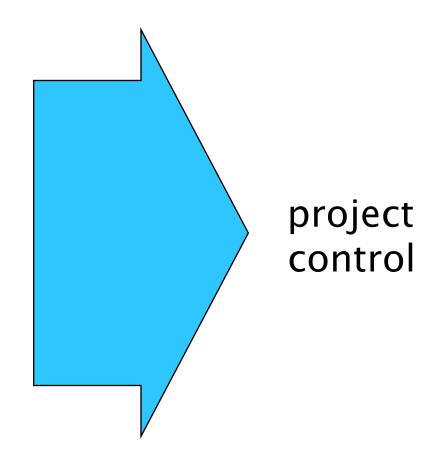
"If you don't know where you are going, any road will get you there...... if you don't know where you are starting from, a map won't help you."



Alice In Wonderland

#### A map and directions!

- client and project drivers
- clear brief
- communication
- team
  - establish
  - develop
  - sustain
- value management
- design management
- risk management
- cost management
- contract management

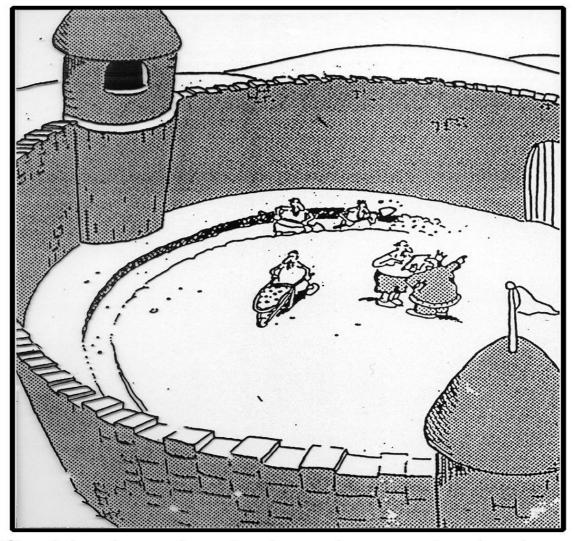


## Project control objective

set and hit targets







Suddenly, a heated exchange took place between the king and the moat contractor

## Project management principles



- clearly defined management structure and responsibilities
- team spirit
- involvement and ownership by all
- realistic target setting
- monitoring and review
- communication
- decisive action

#### Ingredients for success



Engaged stakeholders **Pride** 

A good vision Rules Recognition & reward

Motivated people Wha Clear accountabilitys for Empowerment eam?

Clear goals & targets **Customer focus** 

MEffective supply chain; A great place to be Tor a successful projectearning culture

Having fun Teamwork Recognise & celebrate success

What A mix of skillsents for Respectessful (Socially responsible

Well trained people Good followers Trust & honesty

Compassion in Safe & secure a stappropriate behaviours

Clear roles & responsibilities Suitable and sufficient resources

**Excellent communications** The right processes Innovation

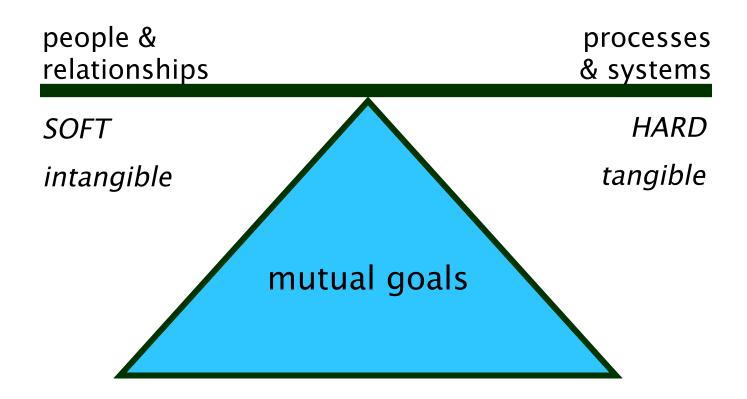
Passionate leaders The right work/life balance

A plan or strategy Performance measures

#### A simple model



### balance achieved through strong leadership working to an agreed strategy

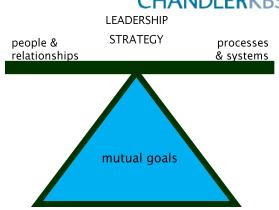


#### The fulcrum



Mutual goals = an agreed vision!

- clear critical success factors
- shared risk management
- common rules (terms and conditions)
- dispute resolution escalation
- incentivisation an equitable balance



#### The intangible

### CHANDLERKBS

## People & STRATEGY Processes Relationships & Systems

**Mutual Goals** 

#### People and relationships

- safe environment
- innovation and challenge
- openness, honesty and trust
- respect for people
- team working
- celebration of success
- learning (not blame) culture
- effective communications
- empowerment
- ownership and accountability

#### The tangible

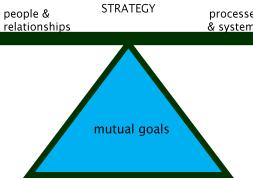


STRATEGY

processes & systems

#### Processes and systems

- measurement KPIs
- realistic targets
- continuous improvement
- common processes & systems
- less man marking
- business improvement teams
- supply chain management
- shared best practice
- investment in people development



#### Maintaining balance



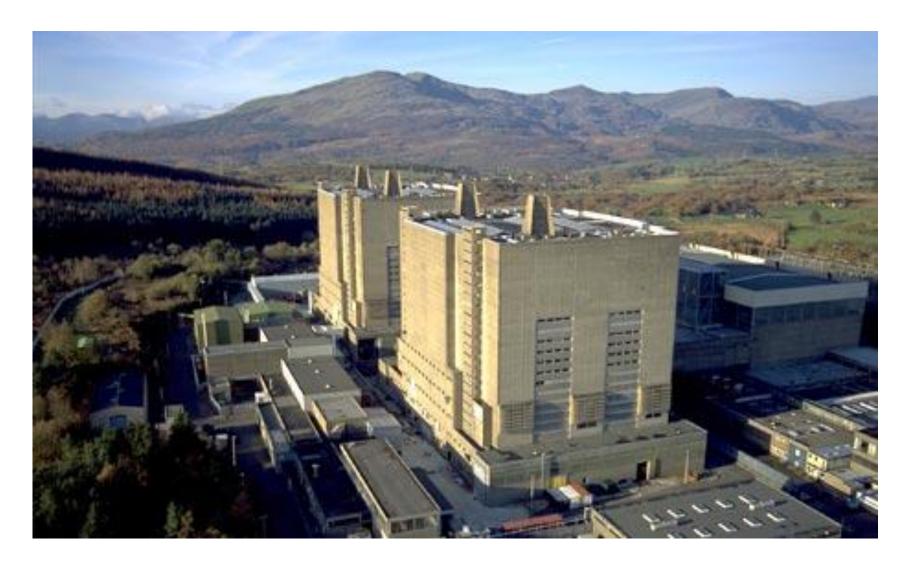
#### Leadership

- visible buy-in from the top, for all parties
- leadership and management teams established at appropriate levels
  - steering group: leadership / strategy
  - core team: management / tactics
- relationships built during good times have strength to deal with difficulties
- agreed strategy
- delivery measurement
- behavioural development investment



#### Magnox





#### Modern day project management tools



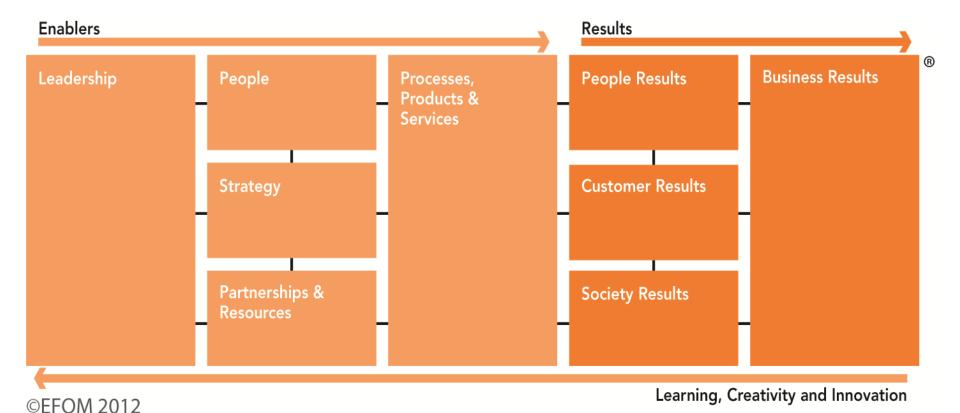
#### The Business Excellence Model (EFQM)

- Used to:
  - identify key strengths and weaknesses
  - plan and prioritise improvements
  - measure progress towards the objective
  - capture and utilise best practice
- Identifies linkages between the things we do (enablers) and what we get (results)
- Results section focuses on what to achieve to be successful
- Enablers section deals with the key approaches to achieve desired results

#### EFQM enablers and results

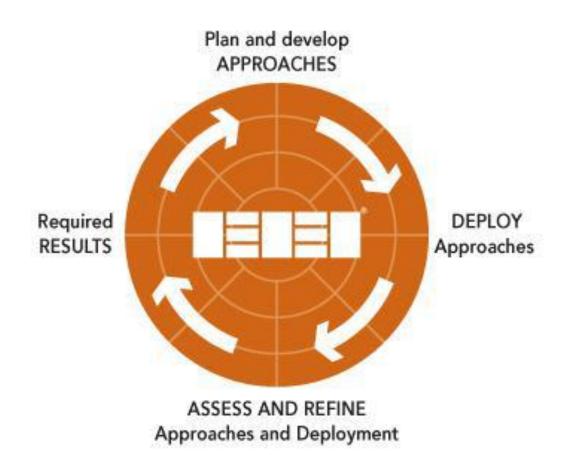


The EFQM Excellence Model allows people to understand the cause and effect relationships between what their organisation does, the Enablers, and the Results it achieves.



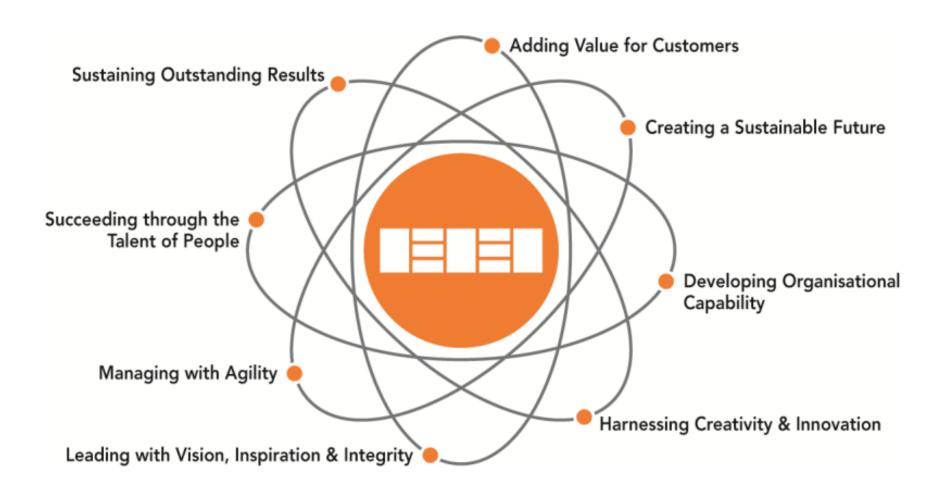
#### EFQM continuous development





#### **EFQM** benefits





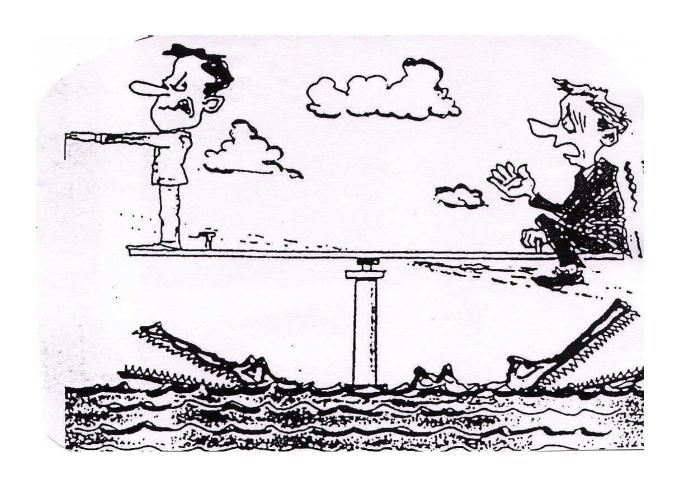


### Creating the right behaviours

Inspired Innovative Individual





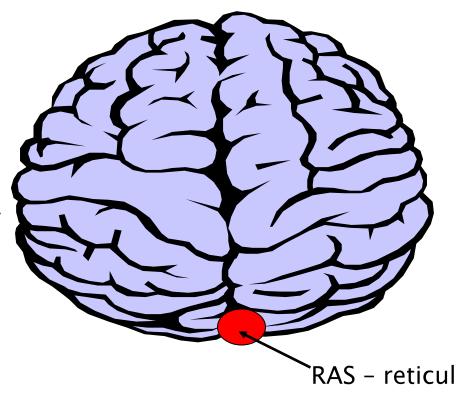


#### **Decision making**



#### **Analytical**

- •speech
- processing
- analysis
- right side of body
- •facts



#### Creative

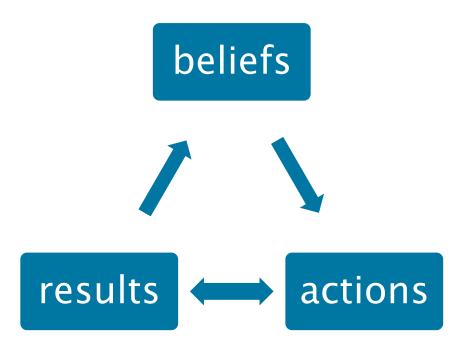
- patterns
- spatial awareness
- •left side of body
- •beliefs

RAS - reticular activating system

facts + beliefs = decisions

#### Relationship between beliefs, actions and results





Beliefs influence what we do and how we behave (our actions)

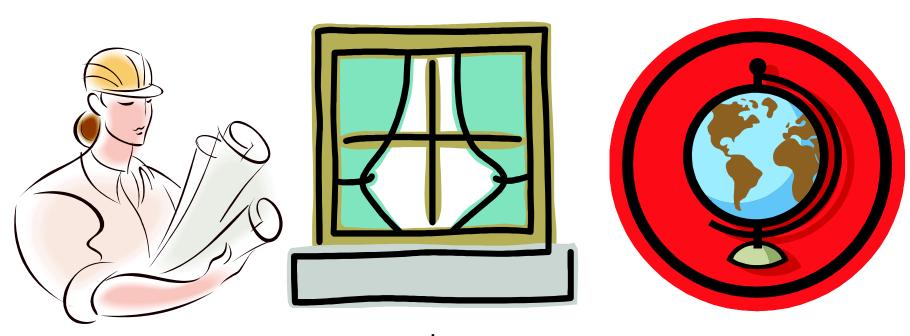
Actions produce results Results reinforce beliefs

When results don't accord with beliefs..... we change our actions until we get the results we want/expect!

To change behaviours we need to change beliefs.

#### **Belief window**





experiences knowledge emotion

try to see things from the other person's perspective!

#### Simple collaboration rules



- 1. Start nice: co-operate, never be the first to defect.
- 2. Challenge and expect to be challenged: focus on the issues and avoid getting personal.
- 3. **Be forgiving:** be fair with your *partners*
- 4. Be consistent: Don't be too clever and don't try to be tricky.

Based on theory by Robert Axlerod

#### The Works: Ebbw Vale









slander@chandlerkbs.com

Inspired Innovative Individual

#### **Facilitated Discussion**

# Ed Evans Constructing Excellence in Wales

