

concept

DECISION MAKERS, DOERS AND ADVISORS
– JOINING FORCES TO ENHANCE UTILITY OF INVESTMENTS

Concept Symposium 2010
Oscarsborg, Norway
16 – 17 September 2010

Symposium web-site: <http://www.conceptsymposium.no/>
Concept Research Programme: <http://www.concept.ntnu.no/english/>



Complexity in Defence Projects

How Did We Get Here?

Concept Symposium 2010

Oscarsborg Norway

Mary McKinlay



Agenda

- A Little History
- Themes Of Complexity
- What Are The Problems That We Face Now?
- Moving Forward

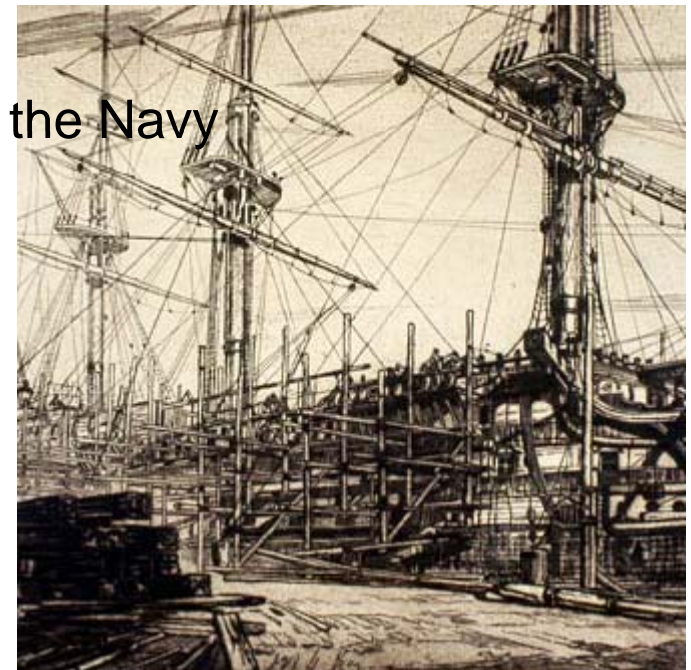


HMS Victory

- July 1759, Mr Edward Allen, Master Shipwright of Chatham Dockyard received a letter from the Principal Officers and Commissioners of the Admiralty directing him:

"To make preparation and to prepare costing for a First-Rate Ship of 100 guns, to be built and fitted for sea at Chatham".

- Design: Thomas Slade, Senior Surveyor of the Navy
- Keel Laid July 1759
- May 1763 Floated out of Dock





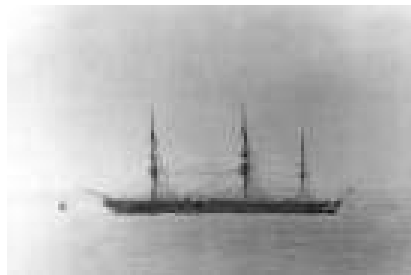
Project Features

- Internal to the Navy
- Long Lead Time Items – timber from Royal forest
- Stakeholders – internal , although Public and Sailors were considered in choice of name
- WHAT HAPPENED NEXT...
- Shortage of Manpower
- Need for ship had decreased and she was laid up after ballasting for 13 years.
- March 1771, urgent repairs sinking in dry dock
- Completion ordered 1776
- Finally entered service June 1778



HMS Warrior

- **Builder:** Thames Ironworks & Shipbuilding Co. Ltd.
- **Laid Down:** May 25, 1859
- **Launched:** December 29, 1860
- **Commissioned:** August 1, 1861
- **Decommissioned:** May 31, 1883





Distinguishing Features

- *Warrior* was a composite sail/steam armoured frigate. Built with an iron hull and steam engines turning a large propeller
- Conceived by Admiral Sir Baldwin Wake-Walker and designed by Isaac Watts
- Admiralty was client to external companies
- Urgency in build – to retain naval supremacy (Threatened by the French construction of “La Gloire”)



Supermarine Spitfire

- 1934 RAF announced search for new fighter.
- Vickers Aviation offered Spitfire as a solution
- Had been developed from Reginald Mitchell's design for Racing Seaplane (Schneider Trophy) adding new Rolls Royce engine
- 1936 first order for 310 aircraft. By 1939 4000 ordered
- Other manufacturers involved, other versions developed for range of purposes



Project Features

- Initial Risks taken by Industry
- Several Companies involved
- Mass production
- “Commoditisation”
- Public Awareness



Changes over the Years

- Increasing Costs
- New Partnerships
- Increasing number of Stakeholders
 - More Public and Press Involvement
- Changes in Technology
 - More specialisation
 - Immaturity
- **GREATER UNCERTAINTY**



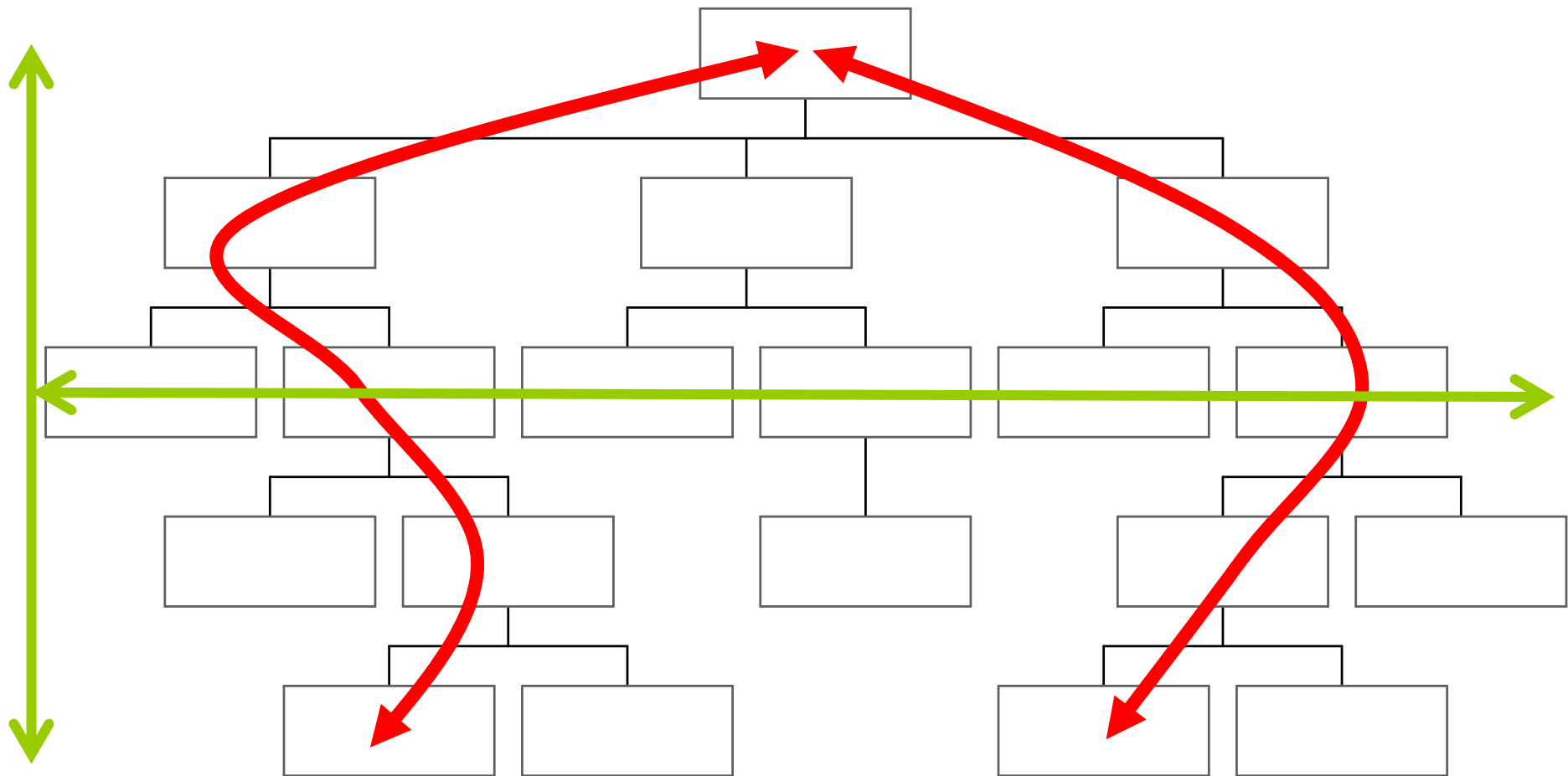
Elements of Complexity

- Uncertainty
 - Technology Changes
 - Duration of Projects
 - Length of Supply Chains
 - Stakeholders
 - Politics
- “Wicked” Problems
 - Interconnectivity



Risk Chains

Across Product Breakdown Structure



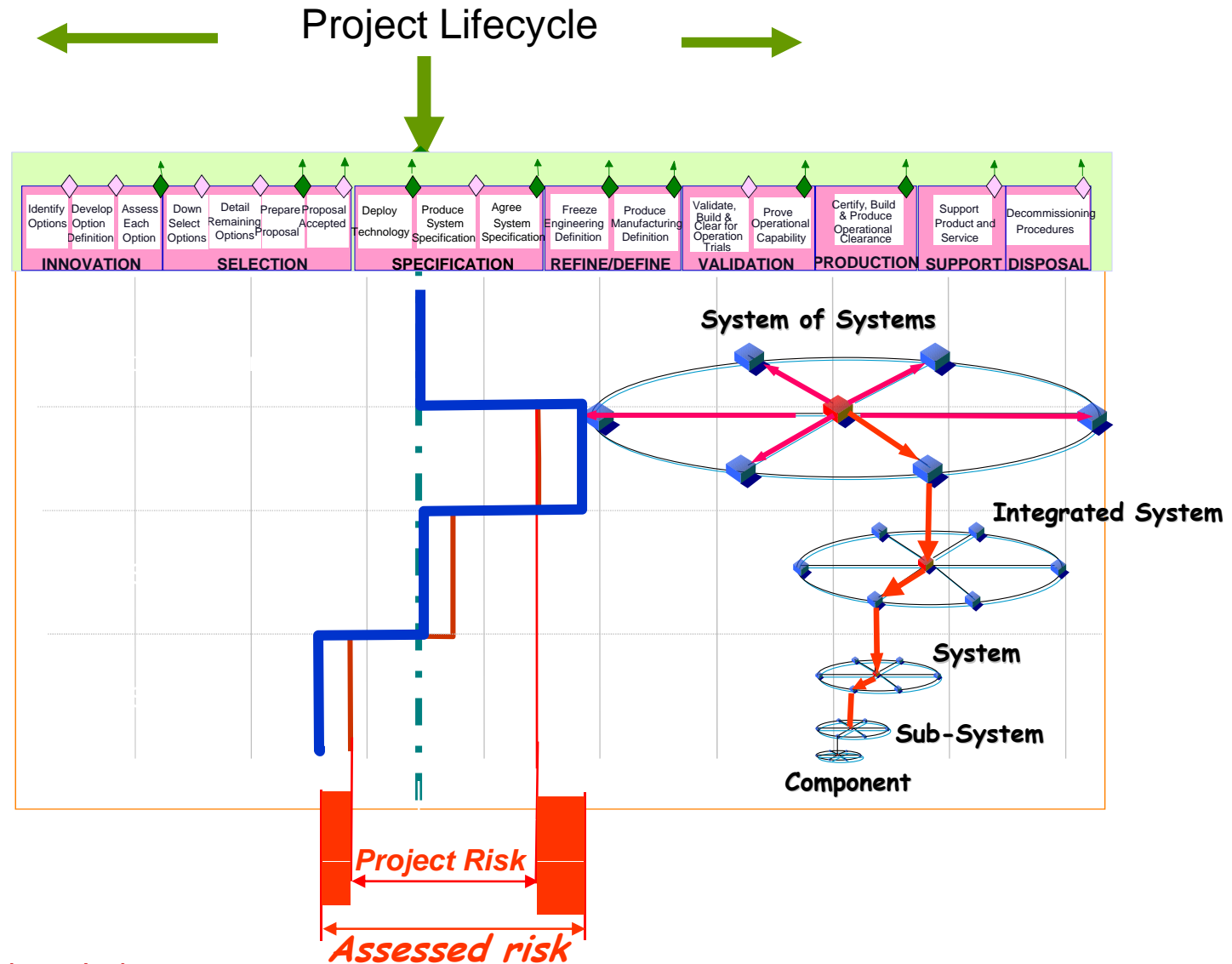


Stakeholders

- Suppliers large and small
- Customers
- End-Users
- Government - Political Pressures
- Project Manager and Teams
- Regulatory Bodies



Maturity and Risk





Complex Projects

- ..are characterised by **uncertainty**, **non-linearity** and **recursiveness**, best viewed as **dynamic** and **evolving** systems.
- So why do we pretend they are **predictable**, **definable** and **fixed** – and why do we use **linear** lifecycle models to manage them???



Systems Thinking – Pathway to Needed Paradigm Shifts?

- What assumptions have we made? How might they be incorrect? Are they even reasonable ... really?
- What are some plausible alternative causes for the outcomes we are observing?
- What are we doing to contribute to behaviour we don't want?
- Do our objectives actually serve our purposes or goals?
- What factors do we believe are important to our success? Are they really?
- Are we assuming that we should know things we cannot possibly know at this time?



Changes Needed?

- Appropriate Contracting Models
- Outcome Management
- Adhocratic Leadership
- Systems Thinking
- Experiential Learning
- Better Understanding Of Behaviour
- Need For Flexibility
- Decision Making With Minimal Evidence
- Need To Be Able To Track Effectively
- New Approach to Risk and Opportunity Management