



Innovation Throughout

Bharti Consulting

Lessons Learnt from VASA

by

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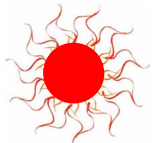
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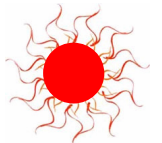
Purpose of Session

- **Understanding the making of VASA**
- **Key Observations**
- **Lessons to be Learnt for Stakeholders**
 - ✓ **Effective Change Management**
 - ✓ **Assertive Project Management**
 - ✓ **Managing Stakeholder Pressure & Fear**
 - ✓ **Importance of Project Documentation**
 - ✓ **Need for honesty, integrity and high values in project team**
 - ✓ **Empowering Project Managers and Providing a healthy and fear-free work environment**
- **Conclusion**

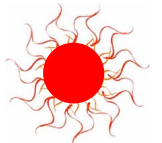


Some Questions

- **Have you ever experienced a project situation where:**
 - ✓ **Changes kept coming into your project very late in the project life cycle**
 - ✓ **You were forced to take up major changes late in project life cycle, which ultimately became disastrous for the project**
 - ✓ **Your team was under excessive schedule pressure to deliver**
 - ✓ **Apprehensive to share the bad news or to tell the right thing to the stakeholders**
 - ✓ **The project environment including customers and senior management were unsupportive & sometimes hostile**
 - ✓ **You were taking over a troubled project and there were inadequate documentation**

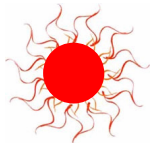


VASA – The Spectacular War Ship



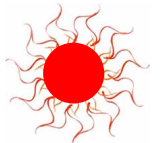
Building of VASA

- **Project Name – VASA**
- **Project Background – Sweden is at war with Poland. Having war ships which can carry heavy arms and guns would be critical to win the war.**
- **Objective – Building the Best War Ship for Swedish Navy**
- **Project Sponsor – King Gustav II Adolph of Sweden**
- **Project Start Date – January 16th 1625**
- **Baseline End Date – July 25th 1628**
- **Ship Set on Sail – August 10th 1628**
- **Project Status – The ship sank after sailing for just 1300 meters into the sea with a light gust of wind blowing at 9 miles per hour**



Project Requirements

- **Background** – With King's order, Construction of VASA started in early 1625, **as a Small War Ship**, and was completed 2 ½ years later, in August 1628, **as a Large War Ship**
- **Requirements** – Initial requirements in early 1626 was to build a ship which is 108 feet long. Six months later, the King ordered to make it a 120 feet long ship. While the ship building started, King learned that Denmark is making a Double Deck War Ship and the King wanted VASA also to have 2 Decks with a revised length of 135 feet.
- **Initially** with 120 feet the ship was supposed to be carrying 32 numbers of 24 pound Guns on its War Deck.
- **With the last change**, the ship was supposed to be carrying 64 numbers of 24 pound Guns, 32 each on each Deck



Project Team

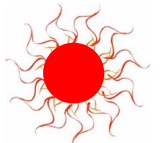
- **Project Team**

- ✓ **Chief Architect and Craftsman – Henrik Hybertsson.** He had rich experience of ship designing and building in the past

- ✓ **Assistant Architect and Craftsman – Ivan Jacobsson**

- ✓ **Ship Builder – Johan Isbrandsson and his company** to build the ship under directions from Hybertsson

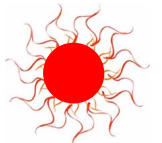
- ✓ **Chief Manager from King's Side – Admiral Fleming, Chief of Navy**



Project Constraints

•Project Constraints:

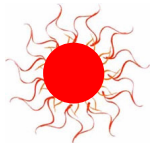
- ✓To build the War Ship, which had to be the best in its time
- ✓No Cost limitation imposed, as it had to be the best
- ✓To be completed and put on sail latest by 25th July 1628
- ✓King's directive “ VASA must be put on sail by 25th July 1628, if not, those responsible will be subjected to His Majesty's Disgrace”.



Planning & Execution

•Project Planning & Execution:

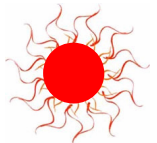
- ✓Mr Hybertsson had procured all the timber and other materials that was required for the original 108 feet ship.
- ✓Requirements of Armaments to be carried on the Ship changed frequently, leading to the need to make the ship 135 feet long from original 108 ft long
- ✓The major changes in requirements, led to accommodate major design changes on the already work-in-progress Ship
- ✓Ship Building was still a Craft and Art. Mr Hybertsson had not documented and prepared any plan or design sketches of the original 108 feet long ship.



Project Challenges

•Project Planning & Execution:

- ✓The change in requirements and specifications and their impacts on design were never recorded anywhere
- ✓The frequent unrealistic changes started taking its toll on the health of Mr Hybertsson, as he knew that the project is heading in the wrong direction and no one had the courage to say “NO” to the king
- ✓Mr Hybertson became ill in late 1626 and died in 1627, one year before the launch of VASA
- ✓His assistant Mr Jacobsson took over active supervision jointly with Mr Hybertson till the death of the later



Team Coordination

- **Project Planning & Execution:**

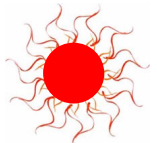
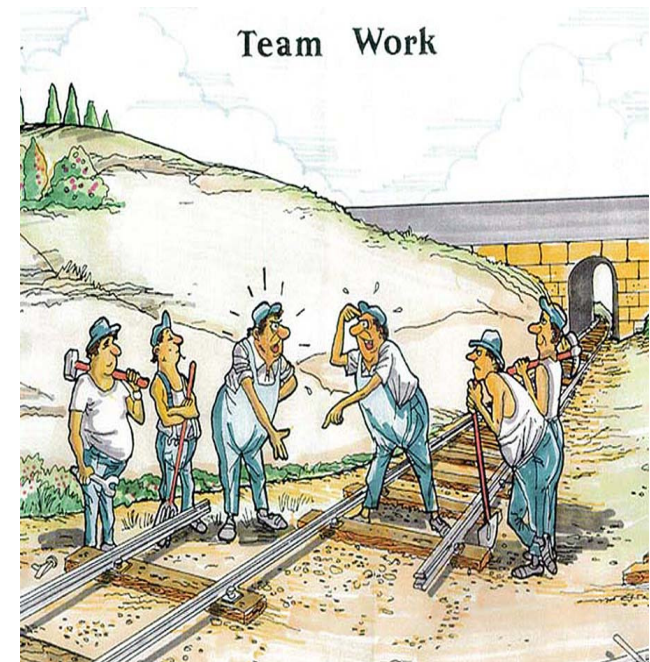
- ✓ Jacobsson had immense difficulty in implementing the undocumented plans of Mr Hybertson

- ✓ The responsibilities were never clearly defined and shared. The project was being managed as per direction of Mr Hybertson

- ✓ The communication between Mr Hybertson, Mr Jacobsson and Mr Isbrandson (Ship Building Vendor) was not very good

- ✓ In the last year of the ship building, about 400 artisans were working 5 different groups

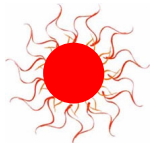
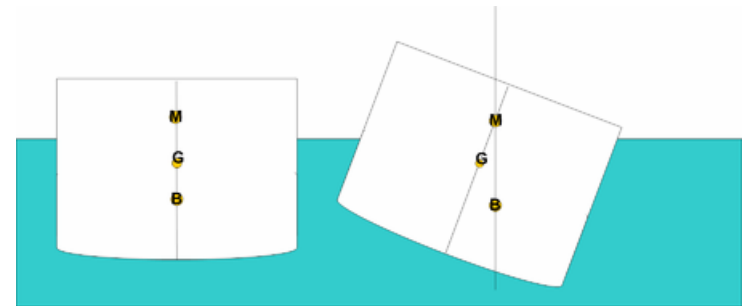
- ✓ Coordination among these groups was also not very well managed



Technical Challenges

- **Lack of precise Scientific and Engineering Methods for Ship Building:**

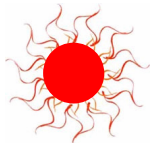
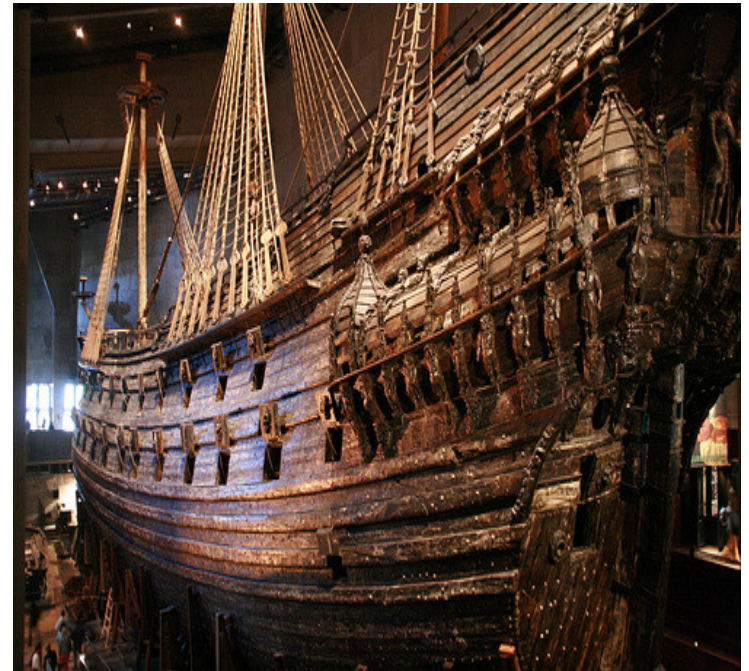
- ✓ **Methods to calculate Center of Gravity, Heeling Characteristics and Stability Factors for sailing of ship were not known**
- ✓ **These were done more as a Craft and Art with high dependence on individual's skills**
- ✓ **120 tons of Ballast was used at the bottom of the ship to keep it afloat**
- ✓ **With the changing requirements, VASA ended up being too heavy at the top and much lighter at the bottom, making it susceptible to sink even with lightest of wind**



Stability Test

- **Stability Test before the launch**

- ✓ **Admiral Fleming and Captain Hanson (Captain of VASA) conducted a stability test of the ship**
- ✓ **With 30 people traversing the ship for 3 rounds, it started rocking violently**
- ✓ **It needed more Ballast to be added at the bottom to stabilize the ship**
- ✓ **Adding more Ballast, would make the lower deck of the ship to go below the sea water level and hence was ruled out**
- ✓ **Admiral and Captain kept quite about the test. Mr Jacobsson and Mr Isbrandson were not present and were not informed about the test**



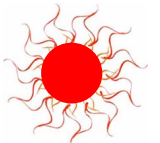
Grand Launch of VASA

•Final Launch and Sailing of Ship on 10th August 1628

✓The VASA looked spectacular in its design and looks. It looked like the grandest of all war ships at that time of history.

✓The ship was set on sail. Hardly 1300 meters into the sea, a mild of 8 knots (9 mph) started making the ship to rock and heeled it over.

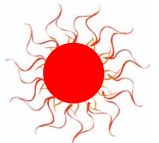
✓The ship sank with 53 lives lost



Key Observations

•Key Observations from VASA

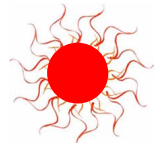
- ✓ **Excessive Schedule Pressure** – As VASA was being built under tremendous schedule pressure to meet some pressing needs, it contributed to the project's failure
- ✓ **Changing Needs** – Change should be accommodated. But too many changes in operational characteristics, made too often can be detrimental to the final product of the project, as was the case for VASA
- ✓ **Lack of Technical Specifications** – The non-existent written technical specifications, were not revised formally with changing requirements
- ✓ **Lack of documented project plan** - Difficulty in transition of responsibility. Poor supervision of work



Key Observations

•Key Observations from VASA

- ✓ **Excessive Innovation** – No one had build a Double Gun Deck War Ship so far. Taking up this within this constrained environment was a blunder
- ✓ **Secondary Innovation** – To accommodate and plug the design holes because of late requirement changes, leading to a poor and unstable design
- ✓ **Requirements Creep** – No one could ever estimate and realize to what degree the requirements of VASA changed over 2 ½ years of construction
- ✓ **Ignoring the obvious** – VASA was launched and set on sail in spite of a failed Stability Test. Leading to the loss of 53 lives

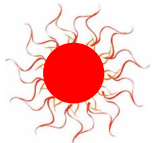


Key Observations

- **Key Observation from VASA**

- ✓ **Possible Mendacity – Results of the stability test were known to some, but were not communicated to others.**

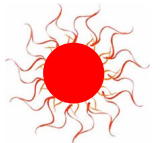
- ✓ **Performing under Fear and Unrealistic pressure – Every one in the project was under tremendous pressure and was looking at somehow launching VASA on the promised date to save themselves from the Possible Wrath of the King**



Lessons Learnt

• Pearls of Wisdom for Project Managers & Project Team:

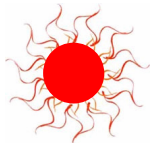
- ✓ Need to work with clearly documented project plan. The baselines (Scope, Time and Cost) in the project plan needs to be updated with actual changes
- ✓ The changes to project requirements need to be managed and controlled diligently by conducting proper impact analysis
- ✓ If a change has to be done, then do the real change rather than a cosmetic one
- ✓ Say a positive NO to something which can not be done
- ✓ Establish clear lines of responsibility, authority and communication in the team



Lessons Learnt

• Pearls of Wisdom for Project Managers & Project Team:

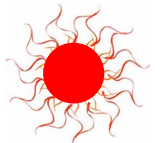
- ✓ Learn to work without Fear, with logical and justifiable decisions. Imaginary fear can lead to disasters
- ✓ Do not be afraid to give the bad news.
- ✓ Do not become too ambitious and experiment too much with your project
- ✓ Promote transparency, honesty and integrity in project team members.
- ✓ True reports must be shared
- ✓ Do not punish errors. Rather punish concealment of errors



Lessons Learnt

• Pearls of Wisdom for Project Sponsors, Clients & Senior Management:

- ✓ Promote an environment which is free of fear, an environment which thrives on competency, efficiency, honesty, integrity
- ✓ Encourage sharing of true reports and honest recommendations from the project team members which may be in the best interests of the project in the longer run
- ✓ Have a mechanism to hear the dissents and the critical views of the team members, which may ultimately be for the good of the project





Thank You !!

**We conduct Project Management Training
and Impart Project Management Consulting**

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