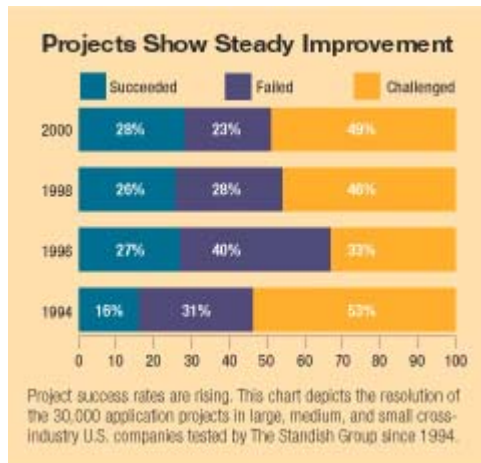


## Titanic Lessons for IT Projects

By Mark Kozak-Holland

This presentation analyzes the project that designed, built, and launched the ship, showing how compromises made during early project stages led to serious flaws in this supposedly "perfect ship." In addition, the presentation explains how major mistakes during the outset of the ship's operation led to disaster. All of these disastrous compromises and mistakes were avoidable.

### Project Failure Rates



"A quarter of the benefits of IT projects are being lost by organizations across the globe because of management failures during a project's lifecycle..."

Source: [KPMG International survey](#), Nov 2005

For 2004, 29% of all projects succeeded (delivered on time, on budget, with required features/functions); 53% are challenged (late, over budget with less required features/functions); and 18% failed (cancelled prior to completion or delivered and never used). A staggering 66% of IT projects prove unsuccessful in some measure, whether they fail completely, exceed allotted budget, aren't completed according to schedule or are rolled out with fewer features and functions.

Sources: [http://www.standishgroup.com/sample\\_research/PDFpages/q3-spotlight.pdf](http://www.standishgroup.com/sample_research/PDFpages/q3-spotlight.pdf) Chaos, 2004

KPMG International's survey of 600 organizations across 22 countries revealed that 86% of respondents reported the loss of up to a quarter of their targeted benefits across their project portfolios. Nearly half of respondents reported at least one project failure in the past year, an improvement from KPMG's 2003 survey where 57% experienced one or more project failures in the previous 12 months. 86% of projects have a business case but over 60% ignore it.

Sources: KPMG in Information Age April/May 2006.

### Sainsbury's \$526m Project Failure

In October 2005 giant British food retailer J Sainsbury wrote off \$526m invested in an automated supply-chain management system. Merchandise was stuck in the company's depots and warehouses and not getting through to many of its stores. Sainsbury was forced to hire about 3000 additional clerks to stock shelves manually. "If an ERP project costs more than \$10m, your chances of coming in on time and on budget are statistically zero," Jim Johnson, chairman of Standish Group International, surveyed more than 8,000 software-application projects over the past few years. "You also have a 50/50 chance of its being canceled before it's completed after you've spent 200% of your budget."



### UK Air Traffic Control Upgrade Project

In September 2004, flights across the UK were grounded after an air traffic control computer failure at West Drayton control centre. Nats' Flight Data Processing System failed at around 0600 BST for an hour, after overnight testing of an upgrade. Thousands of passengers have been experiencing delays as airlines work to clear the backlog of flights. Planes had to be grounded at airports including Gatwick, Heathrow,

Manchester and Inverness. By mid-afternoon, delays at Heathrow and Gatwick were still 90 minutes, while at Stansted and Scottish airports the delay was about 30 minutes.

2006 - Department of Homeland Security scuttles \$229m Emerge2 (new ITfinancial system).

2005 - US Justice Department stated \$170m FBI Virtual Case File project a failure, after 5 yrs & \$104m. In a 18-month period, FBI gave contractor 400 requirements changes.

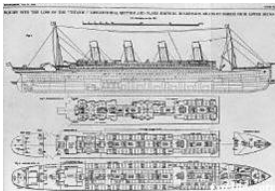
## White Star Construction Project

Every year we experience IT projects from "hell" that we know will turn into an operational disaster. But do any come close to a Titanic's track-record of 4 years in development (1909-1912) and 4 days in operation?

Imagine yourself on one of Titanic's lifeboats being picked up by Carpathia having survived the most infamous disaster of the 20th century. You question how this could happen. Why was the ship traveling so quickly? Where were the lookouts? Wasn't Titanic the safest ship ever built?

To date, most of the research on Titanic has been on the four-day maiden voyage and the disaster. To extract lessons for today's business world we have to go back to 1909, the outset of Titanic's project, and examine each stage of the project.

### Requirements Stage



In 1909 White Star was facing stiff businesses pressures no different to organizations today. For several years, White Star had been losing ground to competition. The Executives responded with a strategy based on replacing the ageing fleet with three super liners using the latest in emerging technology. Larger ships meant larger accommodation and public space, and therefore, more luxury. The Atlantic crossing would be slower by a day but the quality of the trip and the customer experience

were paramount. No expenses were spared. Director Bruce Ismay initiated the construction project. In the requirements stage Europe's best craftsmen were contracted at Harland and Wolff. The business case was solid with a two-year payback, admirable by today's standards. *Titanic Trivia Questions: What was the price of a 3rd class ticket?*

### Design Stage



The architects transferred the business requirements into functional and non-functional requirements. The former defined transportation and hospitality. The latter defined the operational characteristics, and included safety, performance, stability, security, maintainability, and the environment to deliver the ship's functions. The architects went with the highest level of safety and incorporated the latest safety technologies - a double hull, bulkheads with electric doors and triple-stacked lifeboats. However, these were undermined by executive pressure from Bruce Ismay, who pushed for the ultimate passenger experience. For example, the need for a spacious 200-foot ballroom cut straight across bulkheads in the centre of the ship. Similarly, a desire to give a clear ocean vista to the first-class suites on the promenade/lifeboat deck was at odds with triple-stacked lifeboats. Titanic's overconfident architects conceded and 4 bulkheads barely reached 10 feet above the water line, while the 48 triple-stacked lifeboats were reduced to a single-stack of 16, too few for the ship's passenger capacity. *Titanic Trivia Question: How many lifeboats did Titanic carry?*

### Build Stage



Although the ship's non-functional requirements had been severely compromised, there was little acknowledgement that anything was seriously wrong. Titanic's architects still believed Titanic was practically unsinkable and could survive any

situation because of the aggregated effect of safety features, the broad hull design, sheer size and the use of latest technologies. This was used actively in the marketing. The lifeboats were viewed as an added safety feature, should Titanic have to rescue another ship in distress. *Titanic Trivia Question: Who was the Project Manager?*

### Plan for Test Stage



This stage was compromised by Titanic's sister ship Olympic. In service on June, 1911, she had a track-record deemed adequate for launching an identical ship into service without extensive sea trials. But the track-record was spotty, with several incidents, the most serious being a collision with a British cruiser. The cruiser pierced Olympic's outer skin and caused considerable damage that required four weeks of repair; plating was replaced at one sixth of the original total cost. Work stopped on Titanic, delaying the maiden voyage by a month. The business pressures for Titanic to sail were enormous considering the large investments in the four-year construction. *Titanic Trivia Question: What was the name of the British cruiser? How many incidents did Olympic have before Titanic's disaster?*

### Test Stage



The perception existed with both White Star and the public that Titanic was invincible. The ship underwent one day of sea trials in April, 1912. With the staged delivery of three ships, Ismay saw a marketing opportunity to promote each ship as an improvement over the last. By beating Olympic's best crossing time of six days, he could market Titanic as superior. To promote this, he published a shipping announcement in the New York Times that Titanic would arrive a day earlier than the published schedule. This was a publicity stunt, but in reality, Ismay was writing out a new service level objective without verifying it with his captain and officers. This was fateful in pushing the ship to her operational limits. *Titanic Trivia Question: How many millionaires were on board?*

### Production Stage

On leaving Southampton, Titanic had a near collision, similar to the incident between Olympic and Hawke. The steamer New York broke her own moorings and came within 4 feet of Titanic, indicating the challenges in handling the large ship. At Queenstown, the last port before the Atlantic crossing, Board of Trade inspectors checked Titanic for safety. A lifeboat drill was performed to determine crew readiness, with two lifeboats lowered. The poorly executed test failed to highlight that the crew was not prepared for a disaster that would require the launch of all 16 lifeboats, as would be necessary in a calamity. *Titanic Trivia Question: What was the size of the crew? How many actual mariners were there?*



At sea, the maiden voyage, or operations stage, was riddled with problems. First Titanic received eight warnings reporting icebergs and icefloes. However, the radio operators sporadically relayed these to the bridge because they were preoccupied with the flood of outgoing commercial radio messages. The radio operators were employed and paid by Marconi to transmit messages for first-class passengers. Second, the lookouts were missing binoculars and had repeatedly reported this since leaving Southampton but were ignored. Third, Ismay was patrolling the ship and ignoring operational procedures by pushing the crew to reach maximum speed. *Titanic Trivia Question: What was the speed (knots) of the ship at the time of the collision?*

The collision was probably inevitable with the compromised safety features, the failure of feedback systems, and the belief that Titanic was invincible. But what is scandalous is that bad management turned what could have been a mere embarrassment into an outright disaster. Passenger evidence at the inquiries was consistent: Hundreds described Titanic innocuously coming to a halt with a quiver, or grinding noise that lasted a few seconds, rolling over a thousand marbles. There was no "crash stop," and no fatalities -- or even minor injuries. There was no

violent jolt sideways and repeated strikes along the ship's length, as are common with a side swipe against an ice spur when a ship is turning very hard away from it. The breakfast cutlery in the dining salons barely trembled and drinks remained unspilled in first-class smoking rooms. All the evidence indicates a grounding onto an underwater ice-shelf at the base of the iceberg. *Titanic Trivia Question: How much reaction time (seconds) did Murdoch have prior to collision?*

Ismay was hell-bent on saving face and what greater feat than Titanic saving herself? His anxiety over White Star's reputation created an atmosphere where mistakes were easily made. Coupled with inaccurate information, bad decisions were made as Ismay telegraphed the engine room "dead slow ahead" in the hope of recovering the situation. He only succeeded in turning it into a horror. Engineers later testified the ship sailed forward at three knots with a grinding noise. *Titanic Trivia Question: For how many years was Olympic in service for?*

*For a Trivia Prize: Add up the answers to the numerical questions + 840 to give a significant year*

## Post Mortem



At the inquiries Ismay and the remaining officers concocted the ice spur story to hide the truth. The British government assisted the cover up and saved White Star from bankruptcy. After all, with the Great War looming, Britain needed large ships for transportation. Many of us attribute the disaster to bad luck and incompetence at sea, but an examination of the evidence presented at the two subsequent inquiries shows that, because prestige overtook safety as the primary principle in Titanic's design, the ship many thought invincible had a fate that was inevitable. Worse still, the bad guys got away with it.



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Lessons-from-History is written for organizations applying today's emerging technologies to common business problems. The series uses relevant historical case studies to examine how great historical projects and emerging technologies of the past solved complex problems. It then draws comparisons to challenges encountered in today's projects, and project failures. *"Lessons from the past that assist the projects of today to shape the world of tomorrow"*

As the author behind the series, Mark Kozak-Holland brings years of experience as a senior consultant who helps Fortune-500 companies formulate projects that leverage emerging technologies. Since 1985 he has been straddling the business and IT worlds making these projects happen. He is a certified business consultant, the author of several books, and a noted speaker. As a historian, Kozak-Holland seeks out the wisdom of the past to help others avoid repeating mistakes and to capture time-proven techniques. His lectures on the Titanic project have been very popular at gatherings of project managers and CIOs.

Each of the two Titanic books carry over 100 best practices. Also available at <http://www.mmpubs.com/books-LFH.html> or call 1-866-721-1540

*"I just read over all [of this book] and found it excellent. Many of us have often referred to the Titanic in working on projects, we now see how close we were. The lessons learned from this tragedy can be applied to projects today." (September 18, 2004)*

*"My congratulations go to the the author on a riveting [ebook]. I was glued to the screen, reading each part to discover 'what happened at the end'. If [he is] in PM, maybe [he is] in the wrong trade. An excellent read." (May 24, 2005)*

