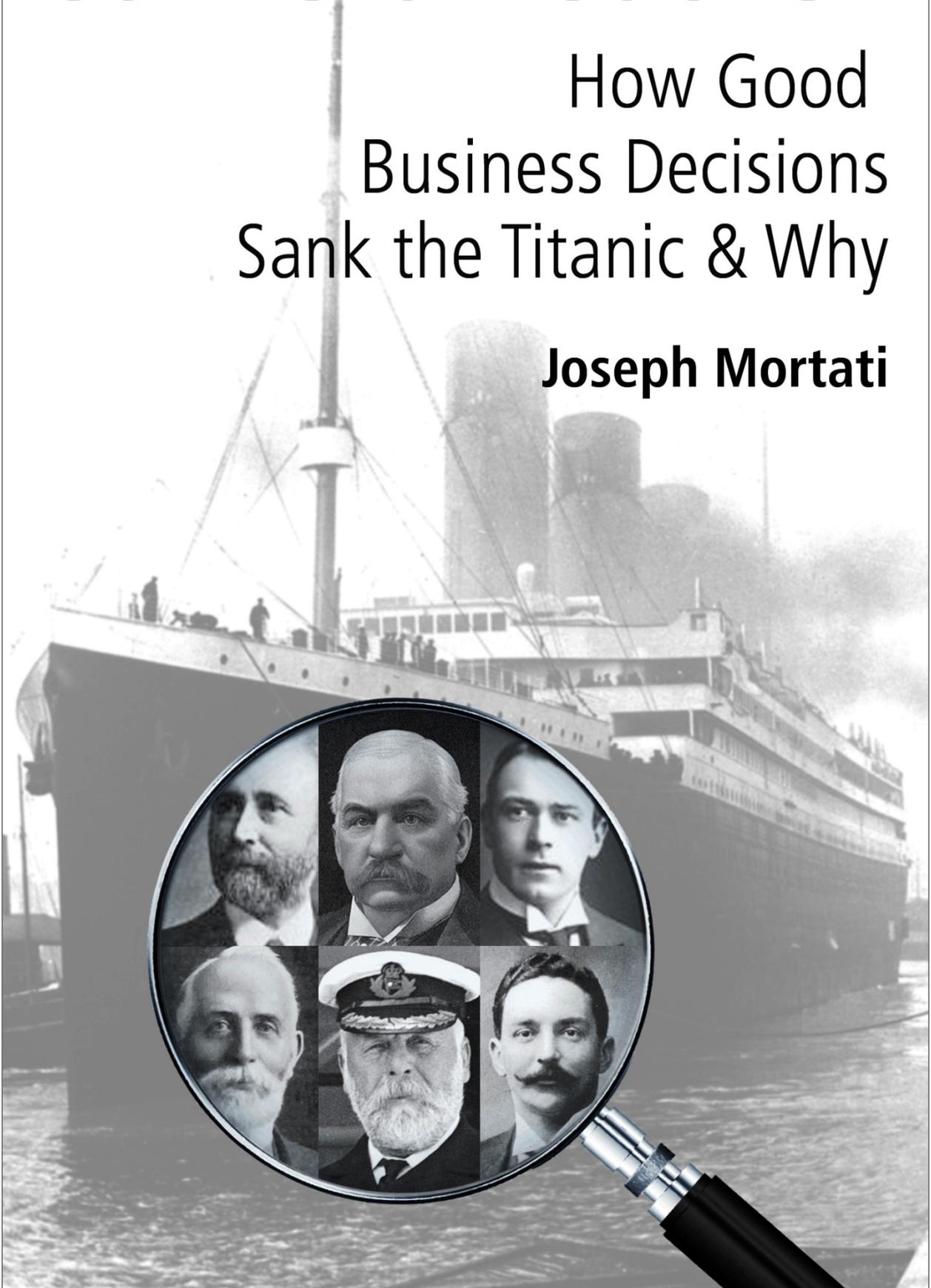


COLLISION COURSE

How Good
Business Decisions
Sank the Titanic & Why

Joseph Mortati



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Dedication

To my grandparents - Giuseppe and Maria (LaLumia) Mortati and Giovanni and Lucia (Bassi) Polli - who risked coming to the New World to give their future generations a chance at a better life . . . Grazie, tanti.

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Introduction - Truth is stranger than fiction

After more than one hundred years since the Titanic's sinking on April 15, 1912 while on her maiden voyage, the most famous ship in history continues to intrigue and fascinate us. But what if you found out most of what you've been told about why the ship is lost is not true? It turns she is not put on a collision course with an iceberg because of bad operational decisions but because of *good* strategic decisions starting ten years earlier. In fact, it's likely you are making the very same decisions they did. There are two reasons why I know this.

First, I began my career in the United States Air Force flying fighter jets where success requires taking an end-to-end view of decision-making (compartmentalized thinking leads to failure). Since the single biggest external factor that affects success in aviation is the weather - the one variable over which you have the least amount of control - aviators are taught from Day 1 to ask, "How does each individual decision impact the rest of my mission?" My subsequent experience in business, including running a consulting practice for ten years, demonstrated that most companies, particularly big ones, look at decisions in isolation. This means good, individual decisions can sometimes result in bad outcomes.

Second, the lens or perspective through which you view your subject affects how you see it. We all know that Titanic has a timeless fascination that strikes a chord across generations and cultures. A line from the preview of the 1958 movie based on Walter Lord's bestseller "A Night to Remember" still rings true, "*No work of fiction could contain such incredible twists of fate or leave such terrible questions unanswered.*" To date, attempts to answer the "terrible questions" have been made from three perspectives of human failing: Hubris (inappropriate pride leads to misplaced faith in technology), Greed (placing profits over safety), and Shortsightedness (engineering failures, including lack of testing).

However, these views largely miss the fact Titanic is fundamentally a *business* venture. By looking at the ship through this lens, it will become abundantly clear that far from being the classic case study of reckless decision-making, the people involved actually make smart business choices. After presenting this view to thousands of businesspeople and business students over the past few years in the Washington, DC area, every audience collectively says, "We would have made the same decisions they did." If so many people today would have done the same things, that tells us Titanic is actually a story of good decisions that result in bad outcomes.

Be aware that it is very convenient to dismiss failures in the distant past on the basis the people involved simply lacked our modern management techniques. "If only they had used better project/risk management or six sigma or had more government regulation" the critics lament, "then disaster could have been avoided!" But if modern techniques and tools are so good, then how come so many recent business failures were not identified beforehand? How could most "experts" have *completely missed*: the .com bust, the housing bust, failed mergers like AOL-Time Warner and Sprint-Nextel and the bankruptcies of Enron, WorldCom, Lehman Brothers, AIG, Fannie Mae, Freddie Mac, General Motors, and Northern Rock, Plc, (many of which were recommended as "Buy" up to the moment they went bust)? If modern management and information systems can miss these failures - most of which are the results of a series of *bad*

decisions - how can they possibly help you know when disaster follows a series of *good* decisions? They can't but this book can.

The other risks of reassessing past events in a modern context are to either misstate the actors' knowledge or forethought of events or misread the facts because of lack of context or the zeitgeist. Likewise, single-issue explanations such as substandard rivets, excessive speed, and insufficient lifeboats all fail to give the whole picture. Similarly, anthropomorphizing the ship with statements such as, "*Titanic* is not aware of the danger ahead", unfairly reduces the decision-makers to mere passengers on some ill-fated voyage of destiny. This book makes none of these mistakes. Instead, each chapter features clear, relevant Lessons Learned, an Assessment of Risk/Reward and accumulated risk, and direct "What this means to you" takeaways that will help you see risk you were never able to see before.

By leveraging *Titanic's* place in history, you will learn how *good* decision-making coupled with failure to assess accumulation of risk can yield powerful lessons in today's global marketplace. You will see how the following seven decisions - all arguably individually good ones and likely the same ones you are making - lead to the loss of the *Titanic* and what they mean to your organization:

1. Compete internationally by buying the best companies
2. Maintain a strong brand identity
3. Minimize expenses (capital and operational)
4. Reduce implementation risk
5. Maximize profit
6. Accept prevailing safety standards and benchmark against your own performance
7. Under-promise and over-deliver

You are about to go on a fascinating journey into the *real* story - the *business* story - behind the most famous ship in history and learn how to assess risk - even when it appears all your decisions are good ones. It is a story you simply will never forget.

Joseph Mortati

NB - Since this is primarily a business book rather than a *Titanic* history (for which there are already many excellent titles), chapters feature only enough historical information to give the business reader background and context. For *Titanic* enthusiasts, historians, professors, and readers interested in more information, the nearly fifty pages of appendices and annotated endnotes add a wealth of fascinating details to the main story.

Chapter 1 - The Last 12 Hours

Conceived at a time when technology is believed to be able to conquer nature, RMS (Royal Mail Steamer) Titanic is a massive British ocean liner that is the largest ship in the world. With its many watertight compartments, the ship is considered "unsinkable" so she carries only enough lifeboats to meet regulations. While steaming in the North Atlantic in April 1912, shortly before midnight she strikes an iceberg on the forward starboard side and sinks with serious loss of life. What you are about to read is the untold business story of why this happens.

A Night of a Million Stars

8:55 PM, North Atlantic, April 14, 1912

"Ahhhhh." Captain Edward J. Smith, master of Titanic, exhales deeply into the frigid night air on the deck of the world's greatest ship. At 62 years of age, he has been at sea for 43 of those years, working his way up from a 19-year old apprentice to first mate, then various commands including distinguished service during the Boer War, and now, Titanic. As senior captain of the White Star Line, one of Britain's premier shipping companies, he is at the pinnacle of a long and impressive career.

Strolling along the deck, his thoughts take him to his wife, Eleanor (to whom he refers affectionately as "my only dear one"), and 10-year old daughter, Helen (known as "Babs"). Titanic may be his last command and after so many years at sea, it will be good to spend more time with his family at their twin-gabled house in Portswood, Southampton (on the south coast of England). Gazing up into the clear, moonless sky, he is struck by the awesome volume of stars that fill the canvas of the night and in that moment he realizes how tiny he and his mighty ship are in comparison.

He walks methodically to the bridge, coming from the ship's à la carte restaurant where a dinner party is held in his honor by George Dunton Widener, a wealthy American whose father is a board member of the bank that controls White Star's parent company, the International Mercantile Marine.

The party is upbeat but subdued. Smith, known as the "Millionaire's Captain", is so popular among wealthy passengers that some will only travel on ships commanded by him. His hosts talk of current events and their admiration for him, asking what his future plans are. A young girl then inquires about the two medals on his uniform (one is for service during the Boer War and the other for Royal Naval Reserve service).¹

Smith bends down to the girl's height, points to his medals, and says in a fatherly tone, "This one is for penmanship and the other is for perfect attendance in school. Now run along."

The audience bursts into laughter, reflecting a genuine affection for a man known as a dignified and natural leader with a warm personality. However, concerned about reports of ice in Titanic's path, Smith excuses himself, whereupon the ladies retire to the ivy-covered trellises of the Palm Court to listen to the ship's band, while the men adjourn to the Smoking Room to enjoy fine cigars.

Arriving on the bridge, Smith is briefed by Second Officer Charles Lightoller on the ship's position, the weather, lookouts status, and in particular, the fact the sea temperature is close to freezing (a gauge of the probability of ice forming on the surface and in the ship's freshwater supplies). Satisfied his officers - half of whom have served under him before - are at the ready, Smith checks his watch - 9:20 PM - and before retiring to his stateroom, takes one last look around the bridge.

"Very well. Wake me if it becomes at all doubtful." he says.

At 10:00 PM, First Officer William Murdoch relieves Lightoller, who advises him that lookouts are posted and the forward part of the ship has been darkened to help better see contrast between the water and any icebergs.

Back in his stateroom, Smith has been flirting with sleep for the past two hours. Shortly before midnight, he feels the ship turn to port and the engines stop, then reverse, as it strikes something (later described by survivor Ella White as running over a "thousand marbles"). Rushing to the bridge he finds a distraught Mr. Murdoch who tells him, "We've struck an iceberg, sir."

Maiden Voyage

Before delving into the business story of Titanic, we are first going to look at the last 12 hours of the ship's life as a way of understanding what happens at an operational level. However, *operational* decisions made during this time are simply the culmination of *business* decisions leading back to 1902, a full 10 years before Titanic founders at 2:20 AM on April 15, 1912.

While it is clear that opportunities are missed to navigate the ship into safer waters, it may not be clear why they are missed. History has been critical of the failure of Capt. Smith to better use information from wireless messages from other ships warning of ice in his path. Likewise, the actions of Bruce Ismay, Managing Director of White Star Line, have been vigorously debated as to whether or not he unduly influences Capt. Smith to keep the ship's speed up in spite of the known iceberg hazards (this issue is resolved in Chapter 6). For now, though, we will look only at these final decisions leading up to the sinking. In doing so, the reader should attempt to withhold judgment on how the ship is operated until reading what insights the business story can give us.

Titanic leaves Queenstown (now Cobh) Ireland on Wednesday, April 10, 1912 on her maiden voyage with a scheduled arrival of 5:00 AM in New York on Wednesday, April 17. She is the epitome of a modern engineering marvel and the pride of her prestigious owners. Her voyage (Figure 1) will take her on a "Great Circle Route" (the shortest distance between two points on a sphere) up and over the North Atlantic to a point known as the "Corner" at North 42 degrees latitude and West 47 degrees longitude. At this point, the distance remaining to New York no longer provides benefits of a Great Circle Route, so she will switch to a course direct to New York.



Figure 1 Titanic's Projected Westbound Route

Missed Opportunities

While researchers have studied the wireless ice warning messages and the effects they might have had on avoiding the collision, the author did not find what the aggregated information would look like graphically, so the following was created as a way to show what the crew's situational awareness *could* have been. Here are the most important messages received in the twelve hours prior to collision along with ship and ice positions (note: all wireless message times in this book are in Titanic's ship's apparent time, a rolling time zone, unless otherwise mentioned). February to May are the peak months for icebergs in the North Atlantic and since they tend to flow southeasterly, reports of ice to the north of Titanic's course are potential threats after reaching the "Corner", the beginning of the iceberg zone. Although Titanic's crew receives their first ice warning at least as early as 7:10 AM on Sunday, April 14 (see Appendix 4 for details), we will pick up the message trail about 12 hours before she hits the iceberg. As a point of reference, Titanic's 5 kW transmitter embodies not only the latest wireless technology but it is also the most powerful fitted to any ship at the time. It is expected to have a minimum transmission range of 250 nautical miles (NM) (290 statute miles (mi)/460 kilometers (km)) during the day and up to 2,000 NM (2,300 mi/3,700 km) at night.² Thus, Titanic ventures out with the best possible communications system of her day.

FROM: BALTIC

TO: Titanic

TIME: 1:40 PM, APRIL 14

ICEBERGS AND LARGE QUANTITIES OF FIELD ICE TODAY IN LAT 41 51 N LONG 49 52 W.

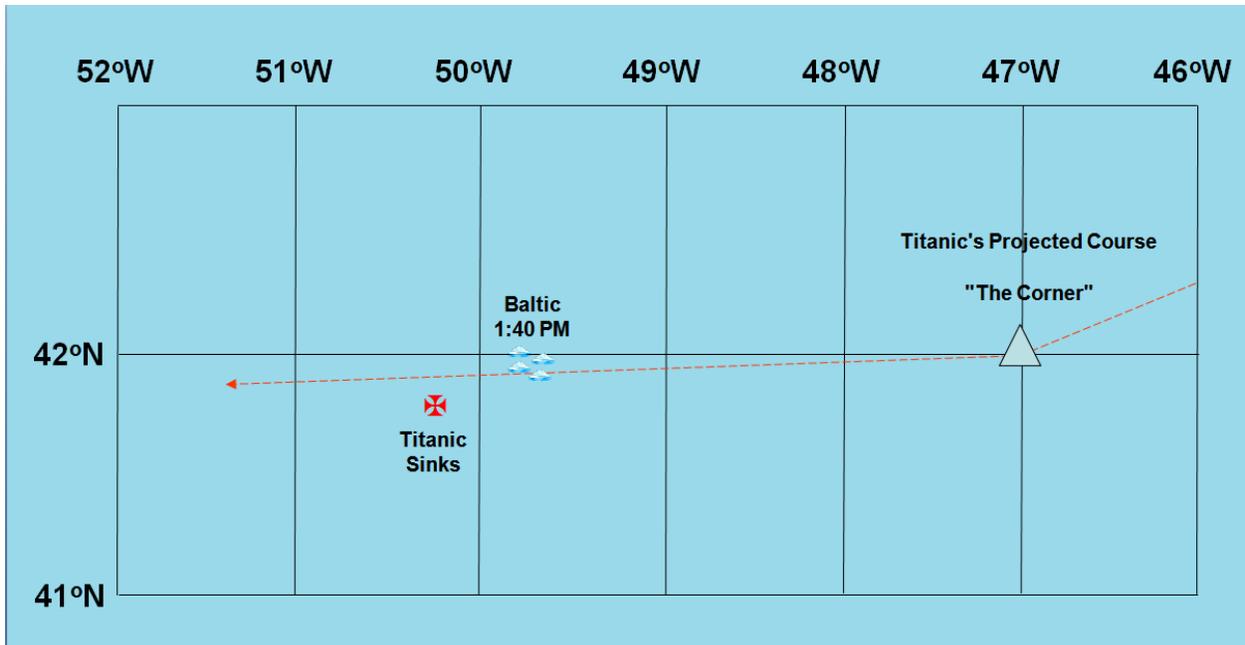


Figure 2 Ice Situation - 1:40 PM (10 hours before impact)

Looking at Figure 2, Titanic is still to the right (northeast) of this chart when this message is received, putting ice on her planned track about 5.5 hours after reaching the "Corner." Titanic eventually sinks (marked by the red cross) about 10 NM (12 mi/18 km) from this ice field. (Note: each parallel line (latitude) equals 60 NM (69 mi/111 km).)

At about 5:00 PM, Titanic reaches the "Corner" but Capt. Smith delays the turn direct to New York for 50 minutes. Some historians believe he does so to take Titanic further south of her planned course due to the ice warnings; others say he wants to be south of the main shipping lanes to have an unobstructed path to make a final dash to New York. Since neither he nor the ship's log survives the sinking we can never be sure why he does this. Regardless, each mile south of the direct route to New York takes the ship on a longer track, which is an issue not only because time = money but because Titanic is on her maiden voyage.

FROM: CALIFORNIAN

TO: ANTILLIAN

TIME: 7:30 PM, APRIL 14

THREE LARGE ICEBERGS FIVE MILES TO SOUTH OF US, 42.3N, 49.9 W.

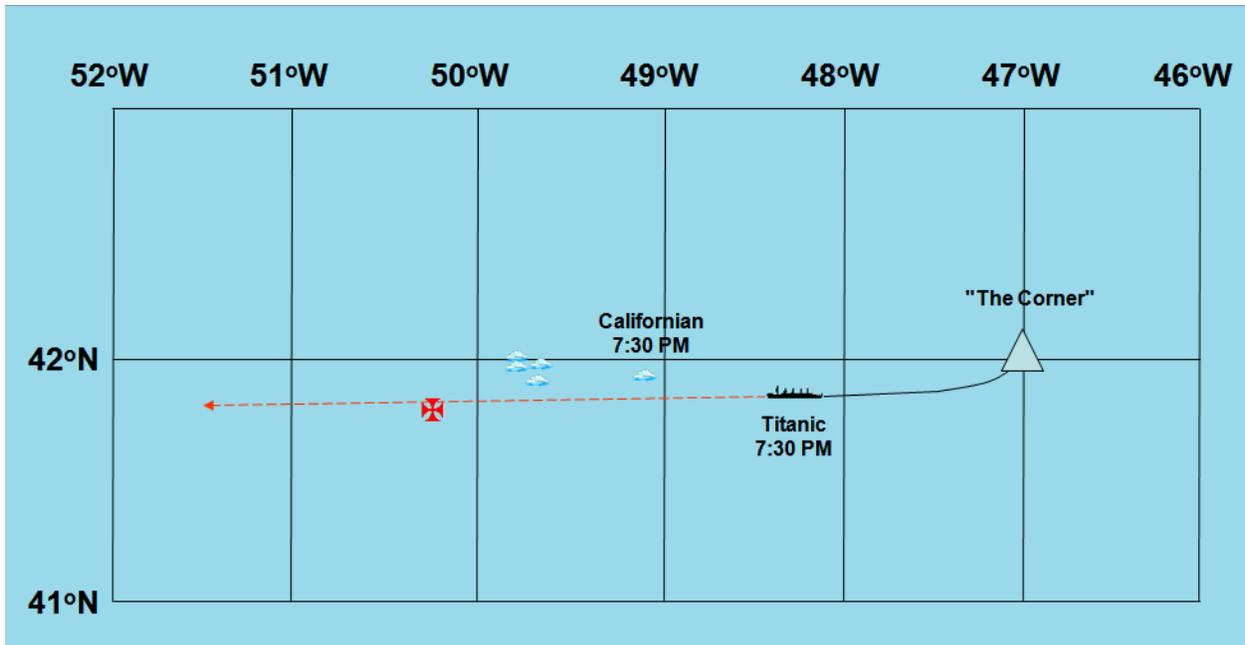


Figure 3 Ice Situation - 7:30 PM (approx. 4 hours before impact)

Although intended for another ship, Californian's message is overheard and passed to the bridge but Capt. Smith is not made aware of it. Figure 3 shows that in about 90 minutes, Titanic will pass within 5 NM (6 mi/9 km) of these large icebergs.

FROM: MESABA

TO: Titanic

TIME: 9:50 PM, APRIL 14

IN LATITUDE 42N TO 41.25N, LONGITUDE 49W TO 50.3W. SAW MUCH HEAVY PACK ICE AND GREAT NUMBER OF LARGE ICEBERGS, ALSO FIELD ICE. WEATHER GOOD, CLEAR.

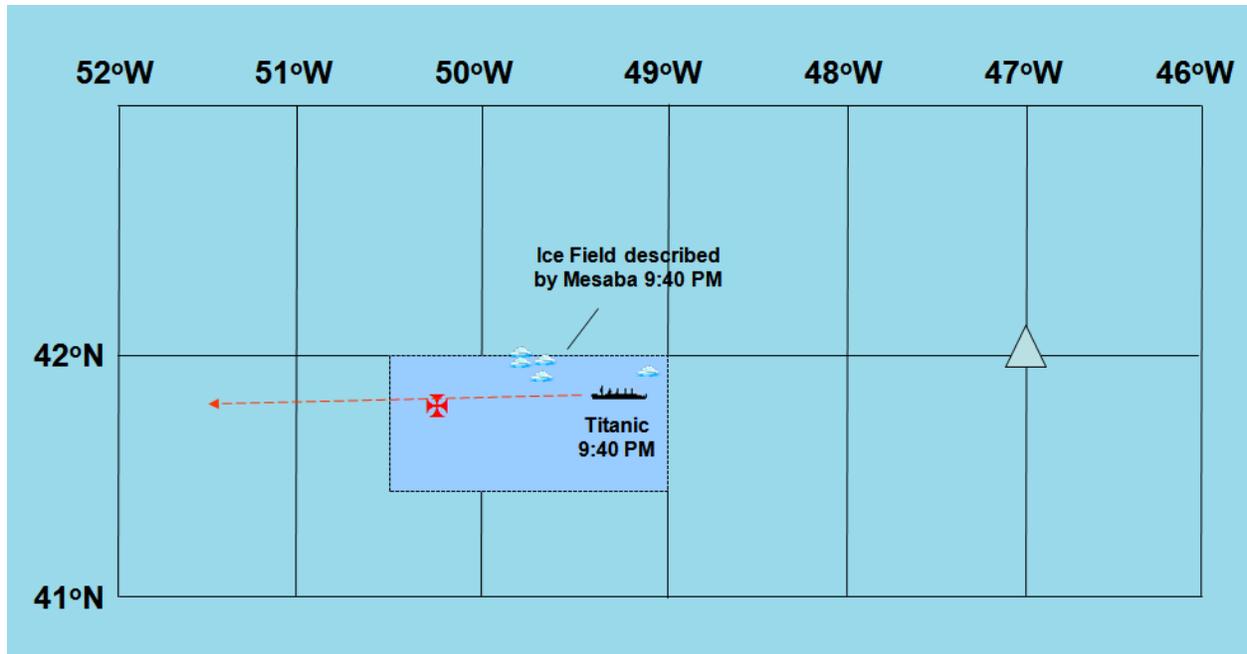


Figure 4 Ice Situation - 9:40 PM (2 hours minutes before impact)

Mesaba's message (Figure 4) provides two, key pieces of information: first, it warns of an enormous ice field approximately 35 NM (40 mi/64 km) wide and 70 NM (81 mi/129 km) deep and second, the fact the weather is "clear" means icebergs will be harder to see because there will be less contrast between them and the water.³ However, Mesaba's wireless operator fails to send this message with the prefix "MSG" (Masters' Service Gram), indicating a formal ship-to-ship communication, which would require Titanic's wireless operator on duty, Jack Phillips, to notify Capt. Smith.⁴ Instead the message is sent prefixed with "Ice Report" so this vital piece of information never makes it to the bridge; had it done so, it shows Titanic is already *inside* the massive ice field.

Last Chance

At 11:05 PM, Californian sends a final message to Titanic:

SAY, OLD MAN, WE ARE STOPPED AND SURROUNDED BY ICE.

The use of the term "OLD MAN" indicates a personal message between wireless operators, all of whom worked for the Marconi Company, not the shipping lines, and therefore not an official message. As with Mesaba's message previously, Phillips is not obligated to pass this to the bridge because it lacks an "MSG" prefix. Likewise, it must be understood that the Marconi Wireless (whose messages are branded as "Marconigrams") is viewed primarily as a revenue generator, to help passengers stay in touch with business colleagues or loved ones while at sea, and not as a safety device. (Additionally, the bulk of an operator's earnings come from tips, so there are strong incentives to keep passengers happy by transmitting and receiving messages in a timely manner.)⁵ In fact, at this point in history, the Morse Lamp (a signal lamp used to send Morse Code) is still the primary method of ship-to-ship communication.

Tragically, since Titanic's wireless set was out-of-service the previous day, Phillips, who is busy transmitting a backlog of passenger messages to Cape Race, a wireless relay station in Newfoundland, sends a terse rebuke:

SHUT UP! KEEP OUT! I AM BUSY; I AM WORKING CAPE RACE. YOU ARE JAMMING ME.

(Wireless volume is a function of signal strength and since Californian's message comes through so loudly, annoying Phillips greatly, he can assume she is nearby.) This is the crew's absolute last chance to build enough situational awareness to know they are headed into extreme danger. Sadly, upon hearing Titanic's reply, Cyril Evans, Californian's wireless operator shuts down his set and retires for the night.⁶ Californian is about 15 NM (17 mi/28 km) away.⁷ In reality, the ice field is actually about 80 NM (92 mi/147 km) wide and 10 NM (12 mi/18 km) deep and Titanic is steaming at full speed straight into it. As Figure 5 shows, Carpathia is nearby (58 NM/67 mi/107 km away) and there are other ships in the vicinity but they are on the west side of the ice field and unable to respond in time.

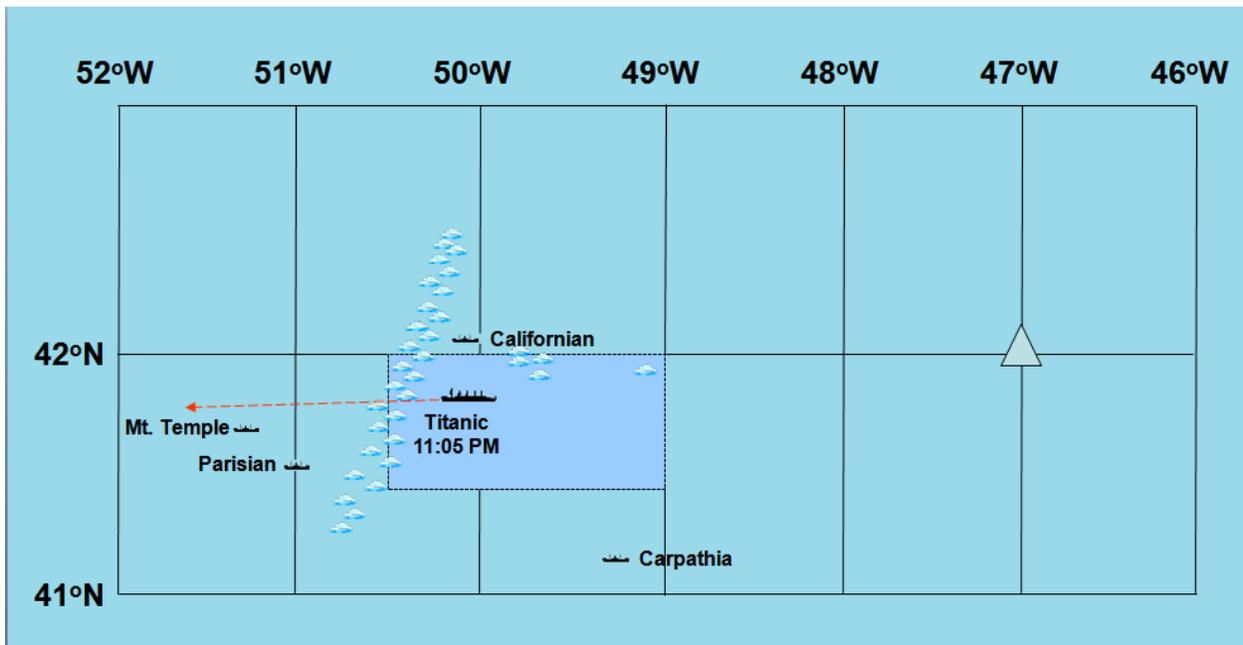


Figure 5 Ice Situation - 11:05 PM (35 minutes before impact)

At 11:40 PM, lookout Frederick Fleet calls out, "Iceberg, right ahead!" There is some dispute as to what happens after Titanic's First Officer, William McMaster Murdoch, orders a "port around" maneuver to avoid a collision, so that will be left for others to resolve. We know for certain that about 40 seconds later the ship strikes an iceberg on the forward starboard side. Capt. Smith comes to the bridge and is informed of the collision by Mr. Murdoch, whereupon he sends Thomas Andrews, head of the Design Group at Harland & Wolff, Titanic's builders, below to assess damage. Shortly after midnight, Andrews tells the Captain it is a mathematical certainty the ship will sink, "I give her an hour, maybe two" is his chilling assessment.⁸ Both Andrews and Smith are well aware there are approximately 1,000 more persons aboard than there is lifeboat space. Smith then heads to the radio room and instructs Phillips to send out a distress signal. At 12:15 AM, the shocking message is flashed to the world:

CQD MGY STRUCK ICEBERG. COME TO OUR ASSISTANCE AT ONCE. POSITION: LAT. 41.44N; LONG. 50.24W.

"CQD" - "All Stations attend: Distress" - is the forerunner of the SOS distress signal and "MGY" is Titanic's radio call sign. Although Titanic sends SOS messages later that night, despite persistent myths, she is not the first ship in history to do so, nor is there confusion on the part of receiving ships between the two, different emergency message prefixes that results in delayed rescue.⁹

Titanic's sinking is both well-documented and continuously scrutinized as more forensic evidence is gathered from the wreck so it needs no further elaboration here. Her final transmission ("**COME QUICK. ENGINE ROOM NEARLY FULL.**") is heard about 2:10 AM, shortly before she sinks, which is generally accepted as 2:20 AM. Since the wireless networks of the day are not secure, word of Titanic's plight gets out and at 1:20 AM, the New York Times is informed that Titanic has struck an iceberg and is calling for help. Word of a possible disaster involving the world's greatest ship on her maiden voyage sets off a media frenzy and at about 8:00 AM in New York, Philip Franklin, Vice President of the International Mercantile Marine (IMM; holding company that owns White Star Line) meets with reporters. He explains confidently and dismissively, "There is no danger that Titanic will sink. The boat is unsinkable, and nothing but inconvenience will be suffered by the passengers."¹⁰ (So certain is White Star Line in Titanic, they begin to make arrangements to dispatch a train to Halifax, Nova Scotia (the nearest port to the stricken ship) to take the passengers and their belongings the rest of the way to New York.)

But big headlines sell more newspapers and reporters waste no time in announcing stories ranging from "THE NEW TITANIC STRIKES ICE AND CALLS FOR AID. VESSELS RUSH TO HER SIDE." (New York Herald) to "ALL SAVED FROM TITANIC AFTER COLLISION." (New York Evening Sun). Since the picture is unclear, later that morning the White Star Office in New York City contacts Olympic, another of their ships, to say:

WE HAVE NOTHING FROM TITANIC BUT RUMOURED HERE THAT SHE PROCEEDING SLOWLY TO HALIFAX.¹¹

Could this be upper management putting a positive spin on an as-yet not understood situation? Later that day, Bruce Ismay, Managing Director of the White Star Line, who has been rescued by Carpathia¹² sends the sobering message:

DEEPLY REGRET ADVISE YOU TITANIC SANK THIS MORNING AFTER COLLISION WITH ICEBERG. FURTHER PARTICULARS LATER.

On the other side of the Atlantic, The Times announces Reuters is reporting "The Titanic sank at 2:20 this morning. No lives were lost."¹³ However, it's not until about 9:00 PM in New York that management comprehends the magnitude of what has happened. Mr. Franklin, who had previously been optimistic, now stands before the reporters and says, "Gentleman, I regret to say that the Titanic sank at 2: 20 this morning." Then sobbing, adds "There was *horrible* loss of life."¹⁴ He later gives a statement to the New York Times that reads, "I thought her unsinkable, and I based my opinion on the best expert advice. I do not understand it."¹⁵

These are the facts of the last 12 hours of Titanic's life. They are not in dispute and result in the deaths of some 1,500 people. Now it's up to you to read to the true story behind the most famous ship in history, as told through the end-to-end lens of the most important business decisions.

Key Lessons Learned

While accurate and timely information is available via wireless, early warning processes to exploit it are not in-place. Specifically, information in the messages does not realize its full potential because of the following reasons:

1. People - Wireless Operators are not sailors and do not work for the shipping lines. Instead, they are communications technicians who work for the Marconi Company, which has an exclusive contract to provide such services. Additionally, the bulk of an operator's earnings come from tips, so there is incentive to keep passengers happy by transmitting and receiving messages in a timely manner.¹⁶
2. Processes - Titanic's crew has multiple processes regarding hazards to navigation but they are not integrated. That is, while there are regular navigational position fixes and measurements of water and outside air temperatures along with wireless warning of icebergs, no process of integrating updates and plotting and cross-referencing them exists. This leads to very low situational awareness in spite of the large volume of information that is potentially available.
3. Systems - The new wireless technology is seen primarily as a revenue generator for transmitting and receiving passenger messages and secondarily as a safety device. Furthermore, there are no information workflow priority rules - other than for CQD or MSG messages - so incoming messages without prefixes requiring immediate action are slated for routine delivery up the chain-of-command.

Leadership Matters. While this book puts the actions of the decision makers, including Capt. Smith's, in their necessary context, this might lead the reader to believe they should largely be absolved of blame. This is not the case at all. Rather, the point for the reader is to recognize situations or scenarios of accumulating risk early enough to take corrective action. In the case of Smith, he retains overall responsibility for the safe operation of his ship. As such, the wireless messages in this chapter point out a glaring failure on his part - after 2:30 PM, he is not made aware of new messages nor does he request updates although at least three more relevant ones are received, including one passed to the bridge (see Appendix 4 for details). *This means he goes more than 9 hours without a current ice threat picture before the collision.* Even understanding that the wireless is not used primarily as a safety device, Smith's utter failure in this regard is inexcusable. Likewise, his officers should have insisted on informing him immediately of the 7:30 PM message from Californian and told the wireless operators to be alert for more warnings. Again, while this book goes to great lengths to set the story straight and bust several myths in the process, the combined failures of Smith (failure to monitor risks) and his chain-of-command (failure to communicate risks to management) reflect an operational blindness that cannot be overlooked.

What this means to you

How do you get information about opportunities and threats to your organization? Your answer should be threefold: people, processes, and systems . . . *in that order*. Who are the people to whom you listen (inside and outside your company), what are your communication processes (formal and otherwise), and what are the information systems you use?

What information are you potentially missing out on from your team or organization because it doesn't have the right "prefix"?

What new or emerging technologies that you could use but do not yet use to build your situational awareness? If you are not using them, why not?

Endnotes

¹ Boer Wars. Capt. Smith is master of the Majestic (see Appendix 1 for ship details) during the Boer Wars in South Africa from 1899-1902 and makes two trips to the war zone. The Boers, descendants of Dutch settlers, are opposed to British colonial rule they fear will threaten their self-government of an area called Transvaal, a former province in the northeastern part of South Africa. The Treaty of Vereeniging ends the Boer War in May 1902.

² Marconi Calling.

³ Iceberg Right Ahead. Samuel Halpern's excellent analysis on the probability Titanic's lookouts could have sighted icebergs of various sizes at various distances given the meteorological conditions, contains the following table. Compiled in 1925 by Lt. Cmdr. Fred Zeusler, U.S. Coast Guard, who is the International Ice Patrol Ice Observation Officer for that season, it shows that clear, moonless nights, like the one Titanic's crew encountered on April 14, 1912, present the greatest challenge to detecting icebergs. Mr. Halpern's research negates the criticism that Titanic's lookouts are not provided binoculars because the lack of moonlight and resulting short detection range makes them useless. (For additional reading, see Art Braunschweiger's "We have no look-out glasses in the crow's nest" for another explanation of why the lack of binoculars is not the significant issue the myth has made it out to be.)

Weather Conditions	Detection Range (NM)	Detection Range (mi)	Detection Range (km)
Excellent day visibility and clear sky	36	41	67
Generally good day conditions	12-20	14-23	22-37
Daytime with hazy conditions	9	11	17
Daytime with light fog and rain	1	1.2	2
Clear moonlit nights	2	2.3	4
Clear moonless nights	0.5	0.6	0.9

⁴ SS Titanic "MGY". Titanic's wireless operators use the prefix "ADVISELUM" to distinguish personal passenger messages sent from those dealing with ship's business.

⁵ Titanic Lecture Notes, p. 12.

⁶ SS Titanic "MGY". Only after the disaster are regulations changed to require 24-hour wireless manning as well as requiring all messages regarding navigation to be given immediate priority over other traffic. Additionally, in order to expedite the passing of critical wireless warnings, both Olympic and Britannic are retrofitted with a pneumatic conveyor message tube running directly from the Marconi Room to the Bridge.

⁷ Californian Reality Check. After Bruce Ismay's role in speed decisions, perhaps no issue is more hotly debated than the actions of Capt. Stanley Lord of the Californian. It is certain

Californian is somewhere between 8-19 NM (9-22 mi/15-35 km) from Titanic. Authors Tracy Smith, Michael Standart, and Capt. Erik Wood do an excellent job of putting the issue into context. Their main point supporting Lord's inability to effect any type of rescue is since Jack Phillips' rebuke of Californian's wireless operator leads to that ship's wireless going off the air around 11:05 PM (and thus not being able to hear Titanic's distress signals), the soonest he can be made aware of Titanic's plight is when he is told at 1:10 AM about the rockets, which are first sighted at 12:45 AM. (Keep in mind at this point in history, not all merchant ships are equipped with a wireless so some still rely on rockets for signaling - and not just for distress - but different companies have different standards for colors and intervals of launch.) This gives him only 70 minutes to get underway, clear the ice field, arrive at Titanic's position, and begin a rescue. Even at the highest speed she ever achieved - 13 knots (15 mph/24 km/hr) on her sea trials - Californian would not arrive before sometime between 2:45 to 3:00 AM, clearly too late to take anyone off the ship and likely too late to save anyone in the water.

The authors make a second, more compelling point that even if Californian arrives sooner, what can the crew do to rescue the 1,500 people still on the ship? It would be suicidal to come alongside the sinking Titanic (a procedure known as "rafting") given the latter is 5 times Californian's size. Likewise, Capt. Lord would be able to employ only 30 trained seamen manning 6 lifeboats in a rescue effort. Most damningly, though, the authors point out that when Republic is lost in 1909, it takes more than 4 hours to transfer approximately 1,500 passengers and crew to other ships. Likewise, it takes Carpathia's crew nearly *5 hours* to rescue the 700 survivors *who are already in lifeboats*. What's more, both of these rescues are done during the day.

After the British inquiry, Capt. Lord is forced to resign from the Leyland Line (part of the IMM) and history has been very critical of him. However, the facts show it would have taken many more hours than Titanic remains afloat just to rescue the people who have already abandoned ship, thereby preventing those lifeboats from being used to rescue those still on the ship. While it's possible a few more lives might have been saved and Capt. Lord should have been notified sooner about the rockets, he is simply not the uncaring commander who is too lazy to get out of bed to save lives. As the reader of this book, you will learn that the loss of 1,500 lives has nothing to do with him.

⁸ About 12 Square Feet, pp. 1-12. During the British Inquiry, Edward Wilding, chief naval architect for Harland & Wolff, testifies as an expert witness. When questioned about the effects of damage and flooding that result in the ship sinking, he estimates the damage at 12 square feet (1 m²), about the size of a standard door. Likewise, author Samuel Halpern further addresses the claim (for which there is considerable evidence) made by several survivors (passengers and crew) that Titanic moves forward after the collision. It is uncertain if this forward motion is to clear the iceberg or for Titanic to continue on her journey (allegedly due to pressure from Bruce Ismay). Halpern calculates any forward movement of the ship that took place after the initial stop after impact cannot significantly contribute to the overall flooding situation if the movement does not continue for any significant length of time at any appreciable speed, as seems consistent with claims of moving forward. (This motion is variously reported as "Slow Ahead" for a few minutes after the collision or "Half Ahead" at some point after the collision.)

⁹ Titanic FAQs. Despite enduring myths to the contrary, SOS is not acronym that stands for "Save Our Ship/Souls". It is selected by the second International Radio Telegraphic Convention of 1906 as an international standard due solely to its distinctive pattern of easily-recognizable sounds (dot-dot-dot, dash-dash-dash, dot-dot-dot). While this standard is ratified in 1908, in practice, British wireless operators do not replace CQD with SOS until after Titanic is lost.

¹⁰ Behe.

¹¹ Marconi Calling. It appears this message is not transmitted because either Olympic is thought to be out-of-range (she is returning to England and is east of Titanic's position) or because wireless operators in New York are only sending priority messages at this point. In fairness to White Star's upper management in New York, there are reports of a damaged vessel heading towards Halifax but this turns out to be another ship. Regardless, it shows how while trying to stay on top of a rapidly unfolding situation for which they had insufficient information, they may have been hearing what they wanted to hear.

¹² Daino. While Titanic's crew makes mistakes in the evacuation (namely, allowing lifeboats to leave before they are full), Carpathia's crew does everything correctly in their daring rescue of Titanic's survivors. An amazing story in its own right, Capt. Rostron and his men heroically race through a pitch black night filled with icebergs, making nearly 17 knots (20 mph/31 km/h) in a ship built for a maximum speed of 14 knots (16 mph/26 km/h), arriving at 4:10 AM and rescuing about 710 passengers shivering in lifeboats. Rostron later cites God's providence in the rescue stating, "When day broke, I saw the ice I had steamed through during the night. I shuddered, and could only think that some other hand than mine was on that helm during the night." Called to testify at the American inquiry, Rostron so impresses its chairman, Senator William Alden Smith, that he calls the Captain "not only an efficient seaman, but one of nature's noblemen." For his rescue efforts, he is awarded the U.S. Congressional Gold Medal, among other awards. Commands of Lusitania and Mauretania follow and he is knighted (CBE) in 1919. Carpathia meets her own fate when she is torpedoed and sunk off the southern coast of Ireland by submarine U-55 on July 17, 1918. Her wreck is discovered in 2000 by the National Underwater Maritime Agency (NUMA).

¹³ The Times, April 15, 1912.

¹⁴ Baltimore Sun.

¹⁵ Behe.

¹⁶ The reference to Wireless Operators having incentives to keep passengers happy so they will receive better tips is merely a statement of fact and does not cast aspersions on Jack Phillips (referred to as either "Senior Wireless Operator" or "Chief Radio Officer") nor Harold McBride, Titanic's other wireless operator. It also does not mean Phillips is primarily responsible for the ship's loss as Second Officer Charles Lightoller claims in his 1934 autobiography "Southampton. Titanic and Other Ships" (Southampton). According to Lightoller, "That delay [of not sending Mesaba's 9:40 PM message to the bridge] proved fatal and was the main contributory cause to the loss of that magnificent ship and hundreds of lives. Had I as Officer of the Watch, or the Captain, become aware of the peril lying so close ahead and not instantly slowed down or

stopped, we should have been guilty of culpable and criminal negligence." However, as the book you are now reading shows, Phillips' action comes at the end of many other decisions that have bigger impacts and any suggestion his is primarily causal is simply a misread of the facts. As it turns out, he valiantly stays at his position, providing a steady stream of information to potential rescuers. Even though he is relieved of his duties by Capt. Smith, Phillips does not abandon his post until water enters the Marconi Room but he does not survive (Harold McBride does). In sum, while he is clearly not responsible for the deaths of 1,500 people he is a major reason about 710 others are saved.