



Addressing the human element:  
investment or overhead?

Support for the cost/benefit case

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Marine Product Development

MCA HEAG 10, 11 June 2009

## Cost / benefit support

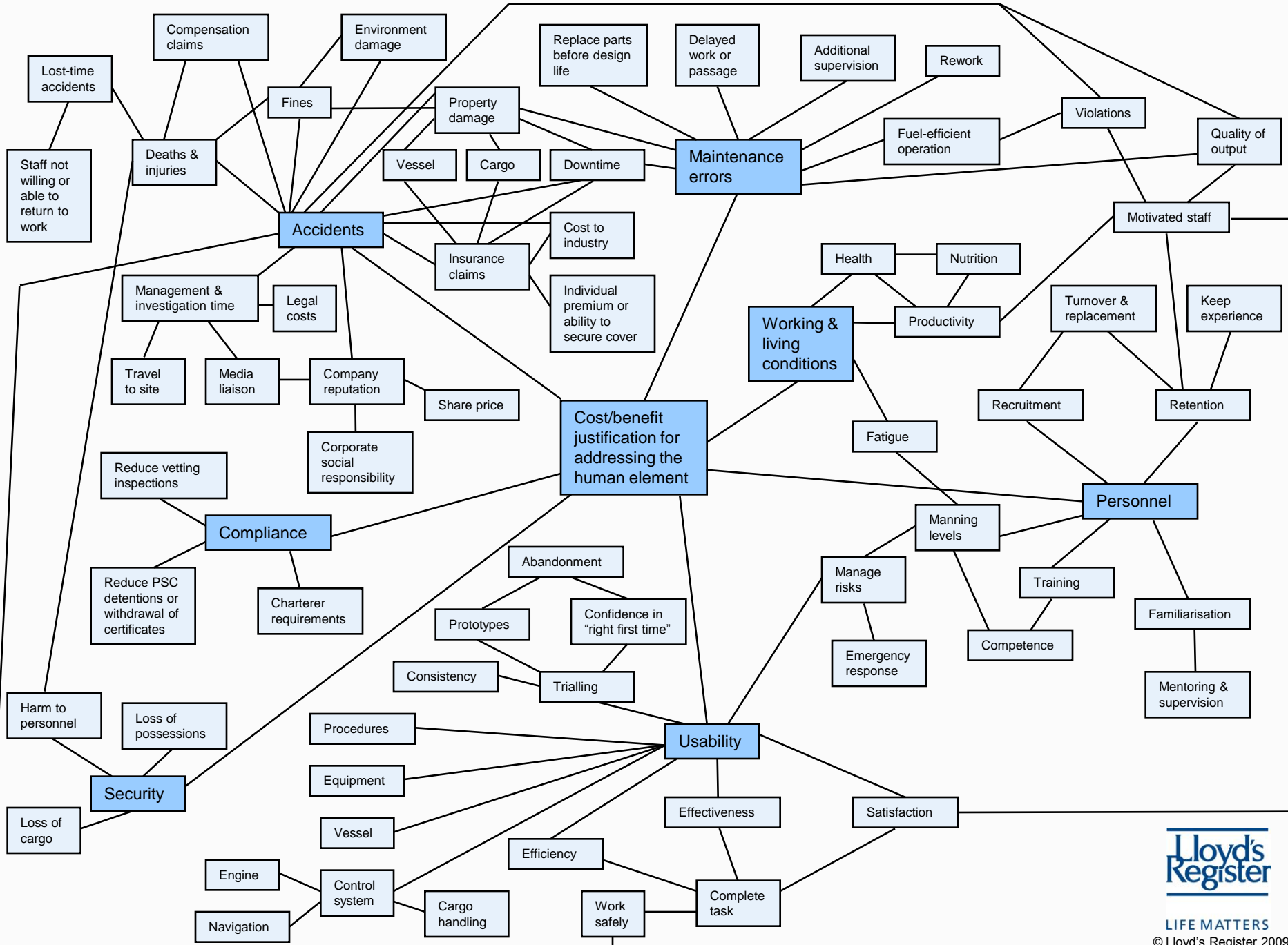
- Support commitment to manage the biggest source of risk
- “Investment not overhead”
- “It’s bigger than you think”

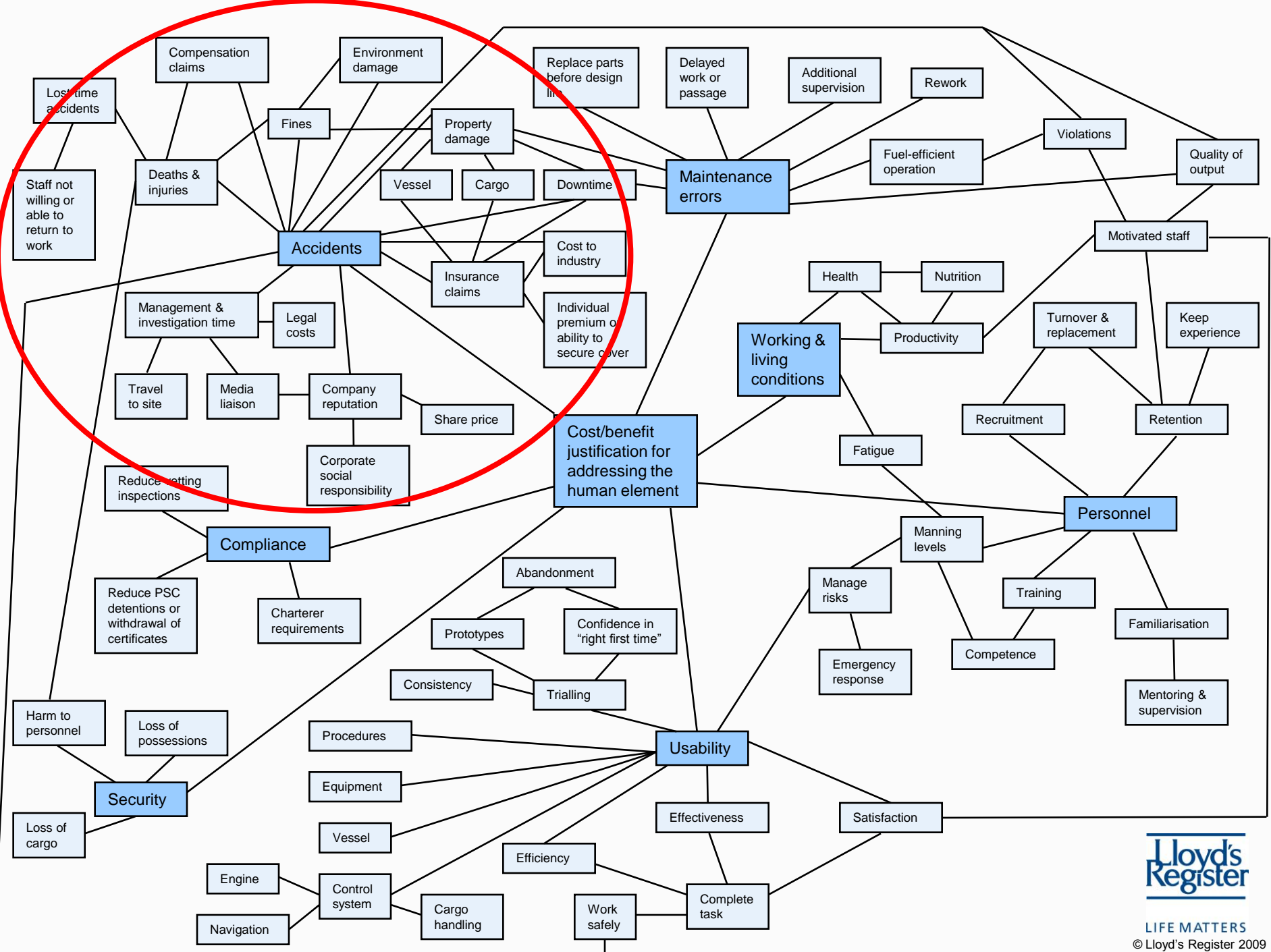
Why addressing the marine human element meets cost/benefit criteria

April 2009 v1.1



Lloyd's  
Register  
LIFE MATTERS





# Accidents

Herald of Free Enterprise, 1987

193 died

Sailed with bow doors open

Previous requests for bow door status indicators on the bridge

£400 option refused

Container ship operator, 2006

\$3.25m for damage to marine sanctuary

Lost 15 badly loaded containers

Personal injury claims

\$200m pa International Group P&I

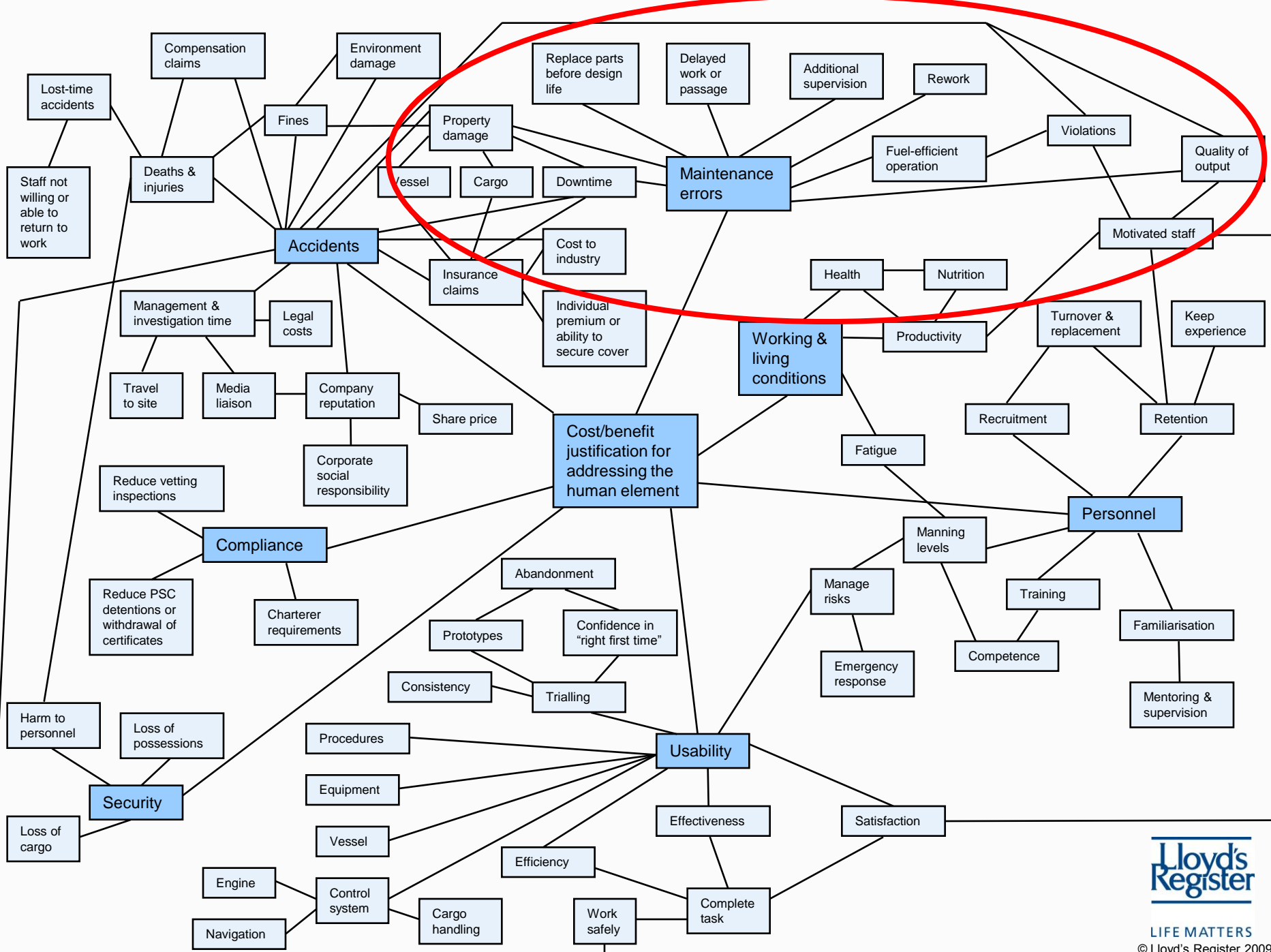
\$400m pa including unclaimable losses and management costs

USA shipyards 1998-2001

2,707 fall injuries from 45,000 workers

Direct costs \$25.2m

Indirect costs \$100.8m



# Maintenance errors

Swedish Club

1998-2006

31% H&M claims from  
mechanical failure

Total \$263.4m

Average claim \$304,000

Brent Crude, 5 years

Price per barrel

Low: \$32.80 March 2004

High: \$144.95 July 2008

Bunker fuel 50-60%  
operating costs?

Steel pipe handling

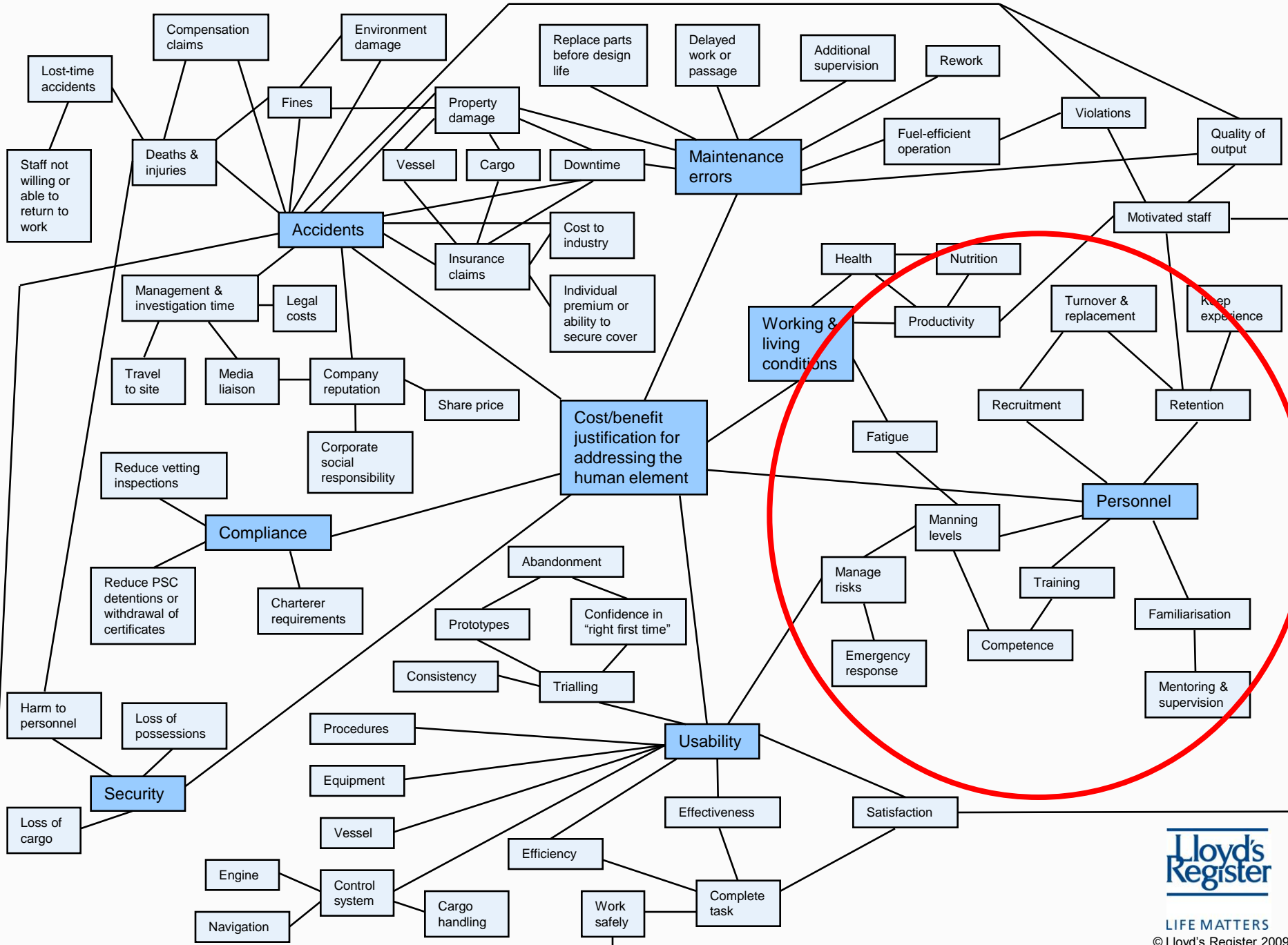
Ergonomic redesign

Noise level decreased from 96db to 78db

Production increased 10%

Rejection reduced from 2.5% to 1%

Costs earned back in 18 months



# Personnel

## Shiptalk surveys

3 most important factors in joining a ship:

45% condition and age

39% onboard conditions

35% ship type

3 most important onboard crew facilities:

71% internet access

46% telephone access

31% receive e-mails

Average cost of labour turnover

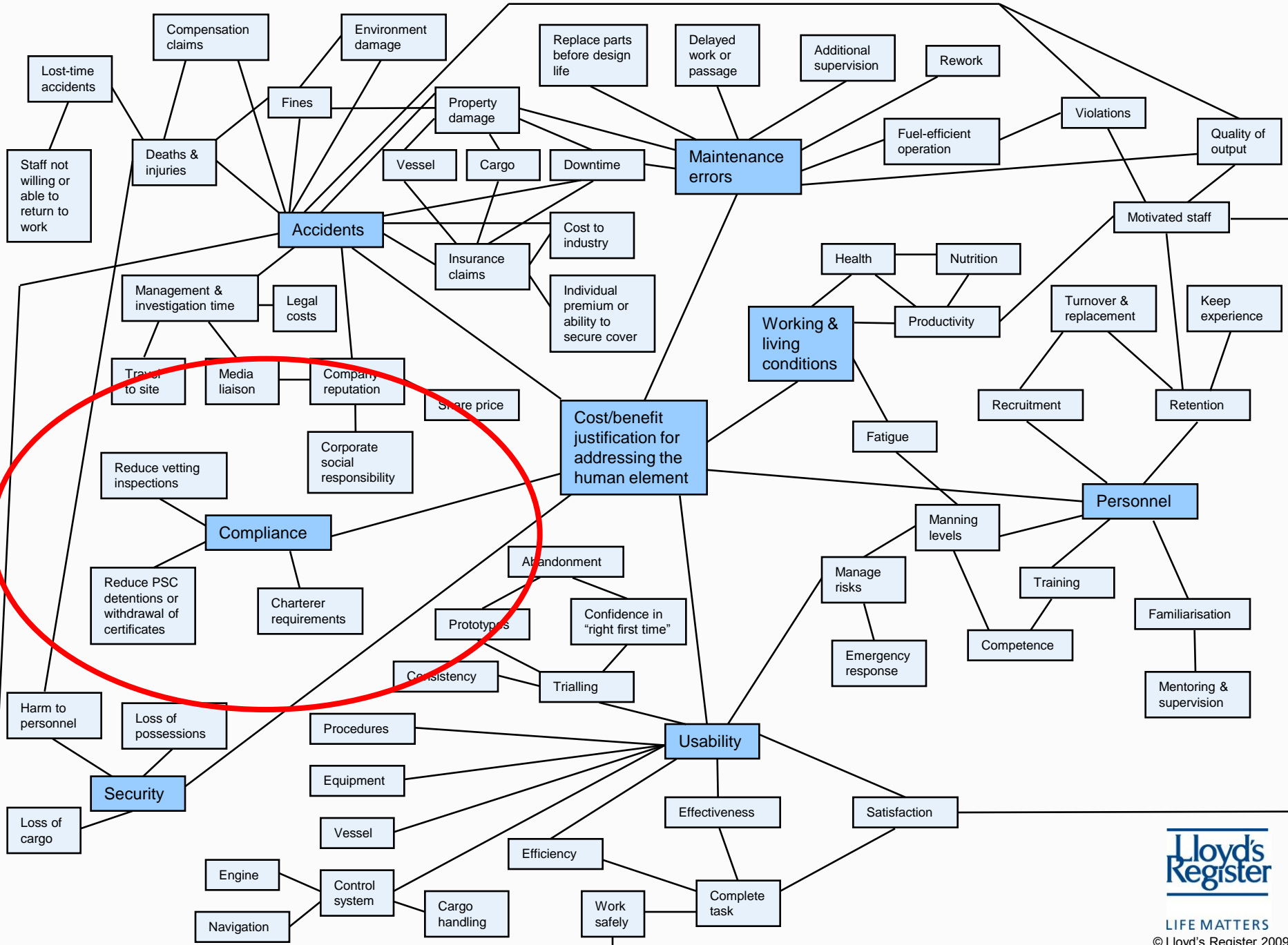
UK 2007

£5,800 per employee

Chemical and mining company

Optimised shift schedule

Personnel turnover reduced by 34%



# Compliance

ISM DOC withdrawn

UK 2005

Engine room fires not reported

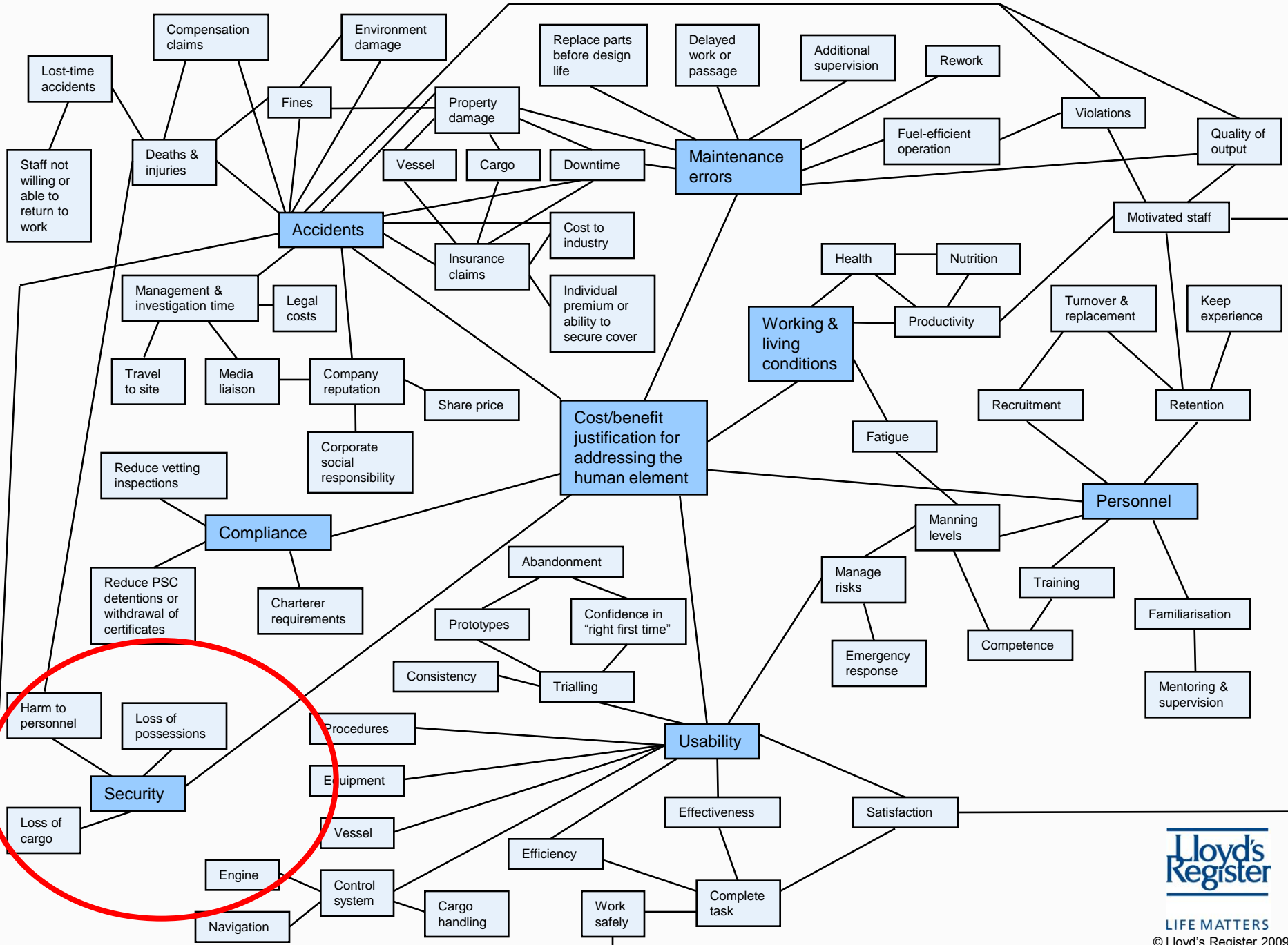
Tokyo MOU PSC

2007 CIC safety management systems:  
108 detained

2008 CIC navigation safety: 42 detained

OCIMF TMSA 2

12 aspects of safety and quality management



# Security

246 cruise passengers  
plus most of crew flown  
over Gulf of Aden  
3 nights Dubai hotel

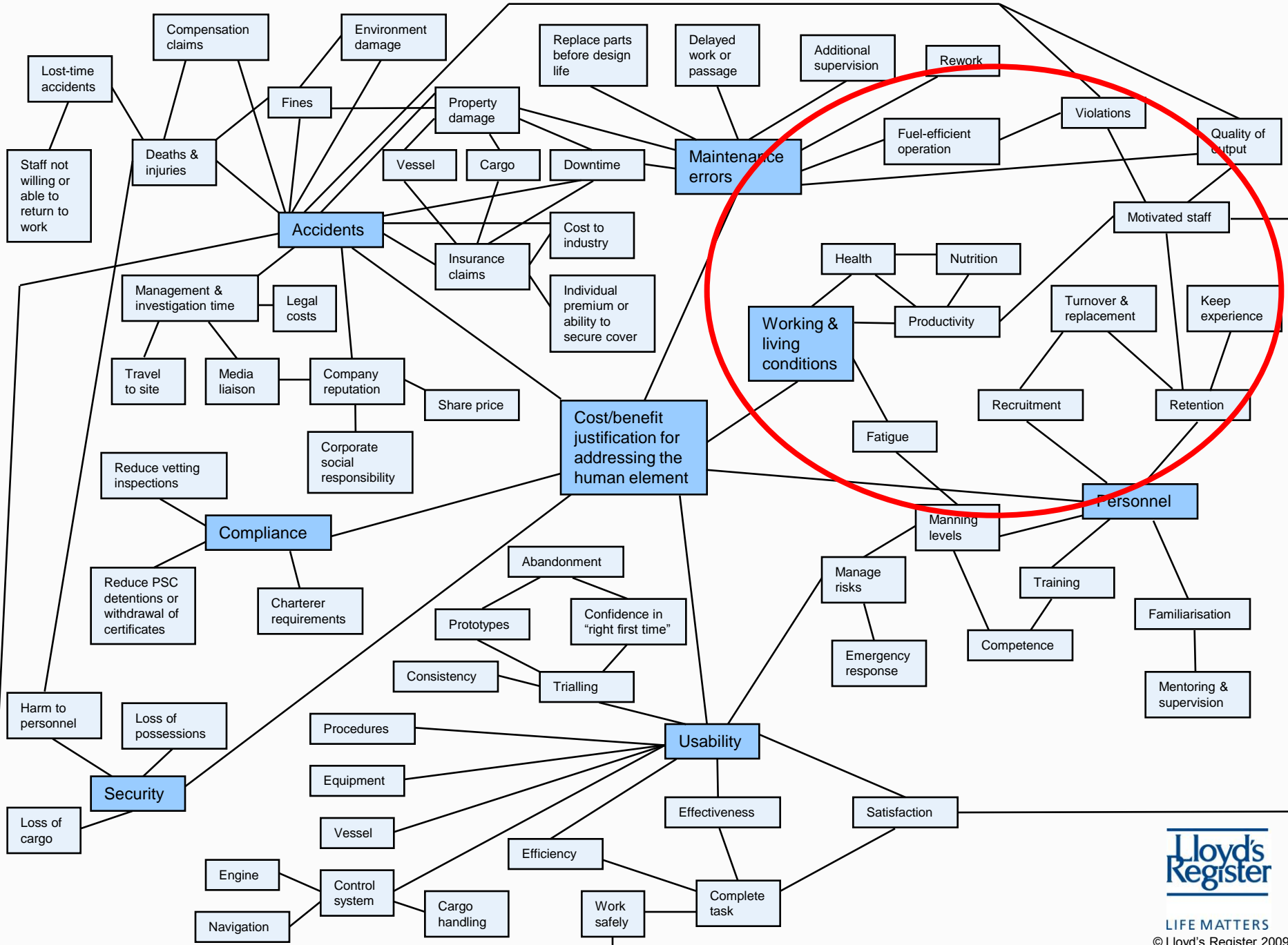
1987-1997 UK Club P&I  
Cargo claims over \$100,000  
2% due to theft

Bus drivers experiencing  
assault and robbery

Training including anger  
diffusion, and adaptations  
to buses

£295,000

Assaults dropped 30%,  
absenteeism dropped,  
staff morale increased



# Working and living conditions

ILO: inadequate  
nourishment can cut  
productivity by 20%

Swedish Maritime Authority

Collisions and groundings  
1997-2002

53% 04:00-08:00

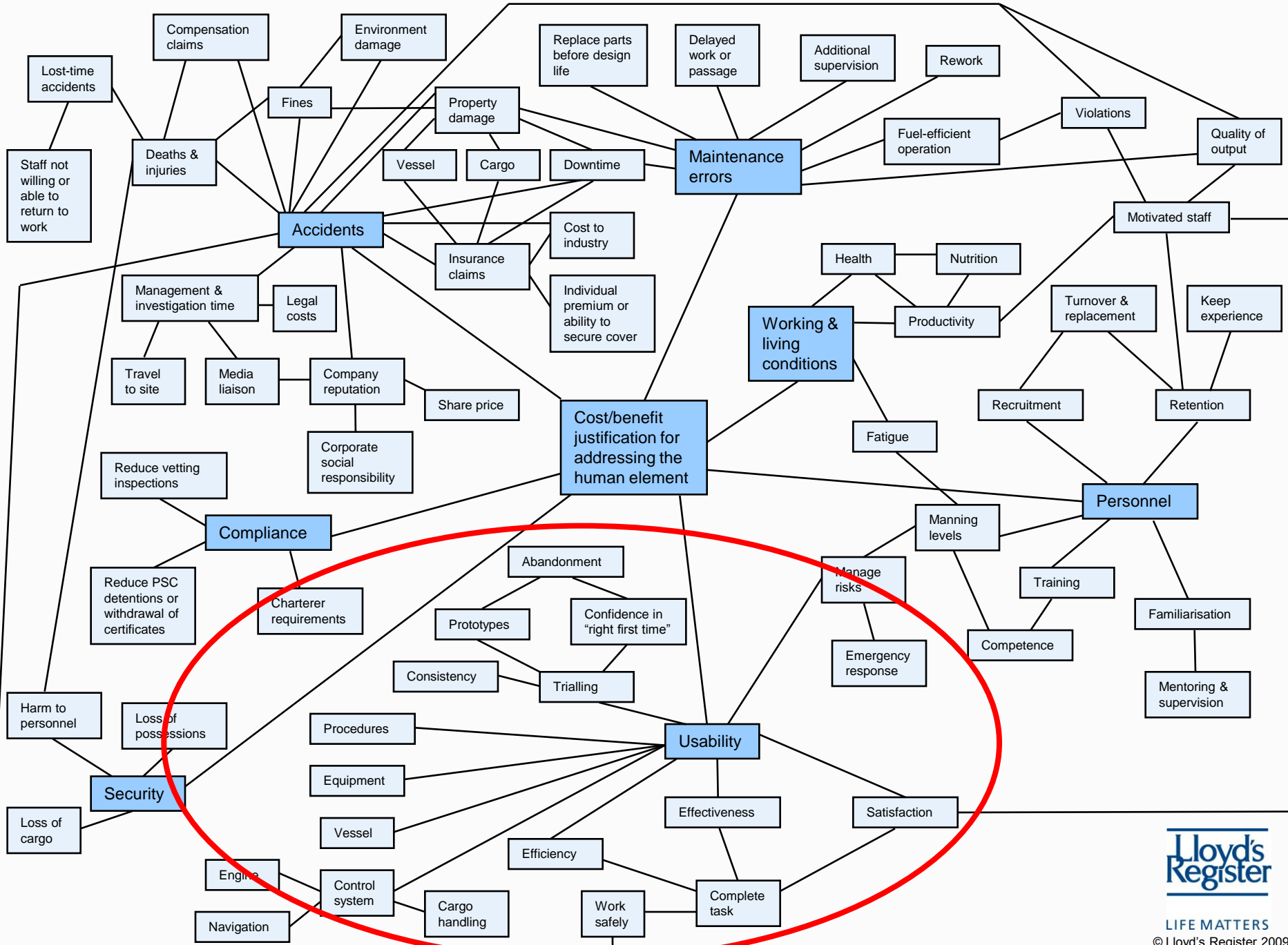
84% 23:00-08:00

Motion-induced fatigue in  
high speed craft

Running task before and  
after 3-hour transit

Fixed seat: 26%  
reduction

Suspension seat: 1%  
improvement



# Usability

Crown Princess 2006 cruise

24 heeling incident

One month old

298 injured

Training and use of integrated navigation system

Randgrid 2000 shuttle tanker

12 tonnes oil spilt during discharge

Operators confused by multifunctional display for valve control

Great Ormond Street

F1 organisational techniques (pit stops) for patient handovers

Mean technical errors reduced from 5.42 to 3.15

Mean information handover omissions reduced from 2.09 to 1.07

Mean handover duration reduced from 10.8 min to 9.4 min

Thank you  
Any questions?

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