



MØREFORSKING Molde AS

Globalization and innovation in the petro-maritime industry

**Findings from the 2009 survey on
the status in the maritime cluster**

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Main content

- The Norwegian economy is to a great extent an energy based economy
 - Green energy (hydro power and solar energy)
 - The petroleum cluster
- An overview of the emerging Norwegian petroleum cluster
- An in-depth presentation of the regional petro-maritime industrial cluster
- The importance of engineering and design
- The logistical perspective
- Summary



High oil price

**Petroleum Companies
Offshore Exploration and Exploitation**

Offshore
Service
Shipping

Seismic
Companies

Drilling and
Production
Rigs/ships

Subsea
Companies

**Engineering &
Ship Design**

Shipyards

**Equipment
Suppliers**



- Driving force: High oil price
- It took 30 years to develop the comparative advantage towards globalization
- In the last boom (2003-08) strong growth internationally in high value manufacturing
- The complete Norwegian value chain in global markets give a competitive advantage to individual companies
- Partnerships between leading international petroleum companies in licenses on the Norwegian Continental Shelf since the 70s are important to explain the recent development – a melting pot to develop complex fields offshore
- This petroleum cluster is more than half the value of the Norwegian stock market and has been growing rapidly internationally since 2003
- Heavy investments in innovative new technology creates new growth
 - Offshore service vessels 70 billions NOK
 - Drilling rigs 150 billions NOK
 - Subsea, example Ormen Lange 70 billions NOK



- Engineering and ship design plays a critical role to develop high value manufacturing
- Ship design is a measure for innovation and selling high value manufacturing capacity
 - It is part of our project to monitor input, output and outcome of ship design
 - Rolls Royce Marine the leading ship design company
- High value manufacturing logistics is characterized by outsourcing of time-consuming production to low-cost countries, increased capacity for logistical management to be more cost efficient; core high value manufacturing in Norway and increased service production
- Still we have shipyards in Norway and they play a strategic role for innovation, but have low profit rates
- We have seen a strong growth in global markets for the equipment suppliers in this cluster and they switch from simple production to high value manufacturing
- My colleague Oddmund Oterhals will take over and go more in depth in a sub cluster that we have studied extensively since 1988
- A characteristic the last ten years is growing foreign ownership in this sub cluster like RRM, Bourbon, Trico, STX



Globalization and logistics

- Outsourcing of time-consuming production
 - Hulls from Romania since 1996
 - Less technical components from China
 - Work force from the Baltic and Poland
- Demanding logistics because of distributed production localization
- Innovative and high value manufacturing of tailor-made vessels
- Demanding project control



The Ulstein globalization case



- Design and prototyping at home
- Production and market services close to geographical markets
- Project management and contracting; core competencies at home
- Complex logistical management for cost efficiency

Clusters – theoretical approach

Value chains (Porter et al.)

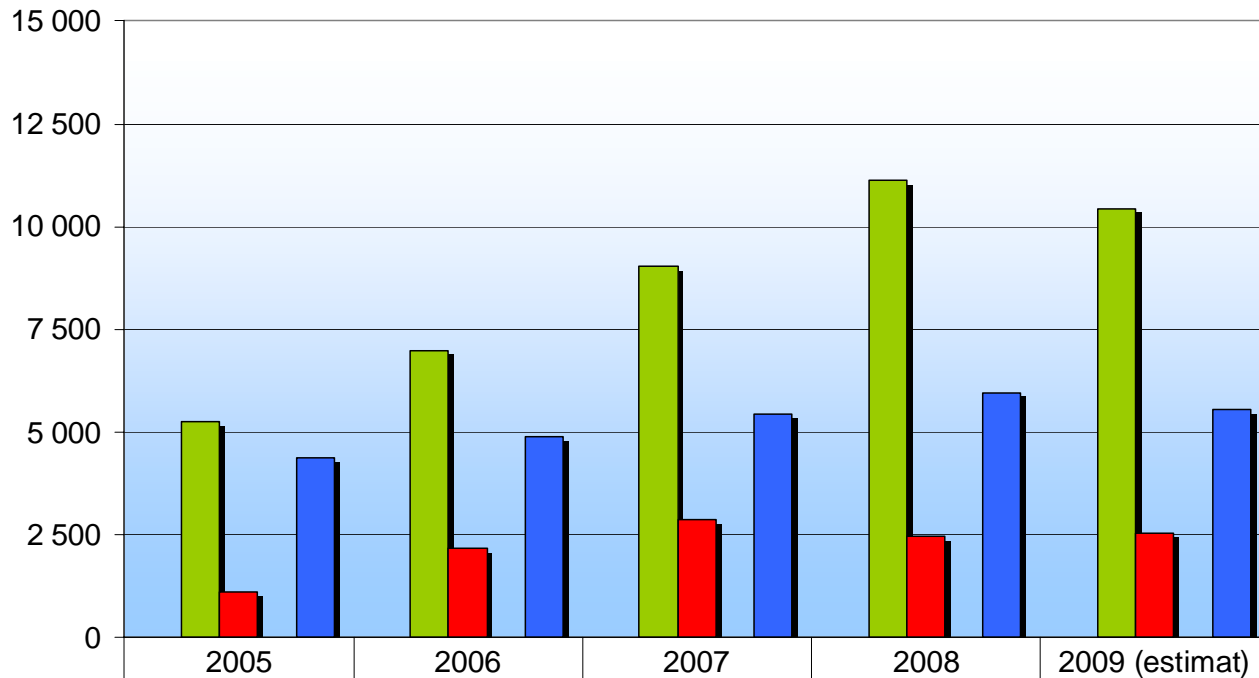


Cluster theory (Krugman, Marshall)

How strong are clustering linkages?

- Common labor market – skills development – knowledge transfer
- Development of supplier linkages and economies of scale
- Patterns of interaction – clustering linkages
- Innovative force and pressure
- Attractiveness (qualified labor and capital)
- Diversification and globalization
- Critical mass – self-reinforcing growth

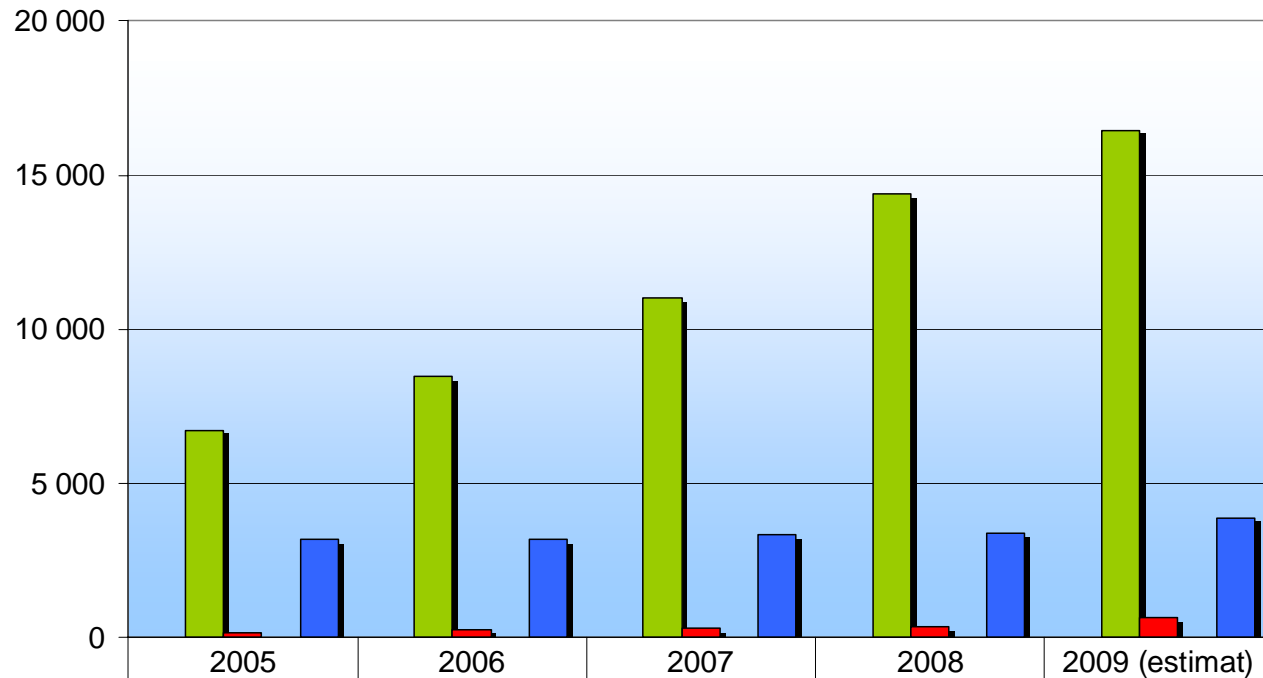
Shipping companies



	2005	2006	2007	2008	2009 (estimat)
No of companies	17	17	18	18	17
Annual turnover MNOK	5 243	6 997	9 035	11 110	10 447
Profit before tax MNOK	1 117	2 181	2 873	2 480	2 525
Profit margin	21 %	31 %	32 %	22 %	24 %
Man-year	4 364	4 890	5 429	5 966	5 550

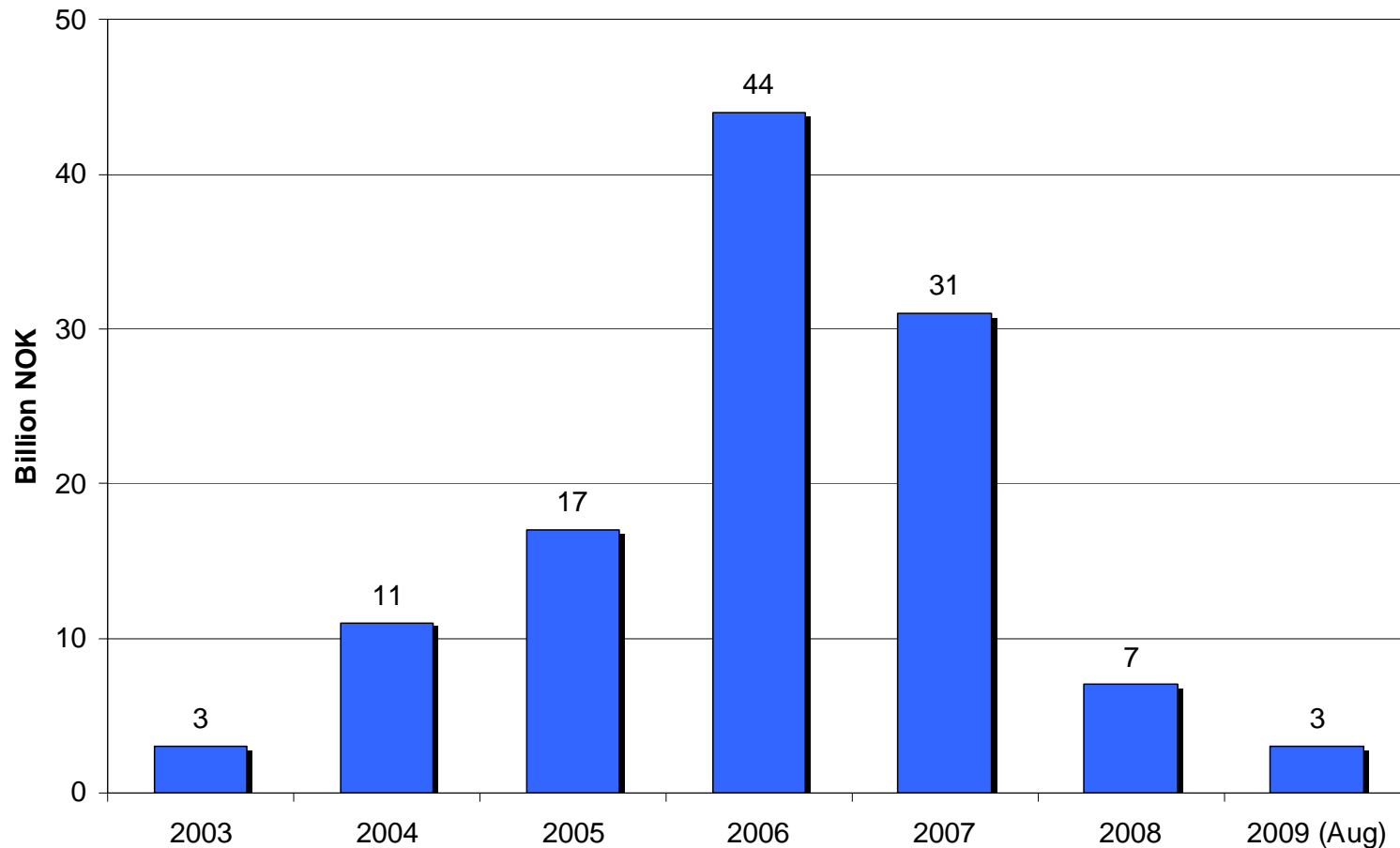


Shipyards

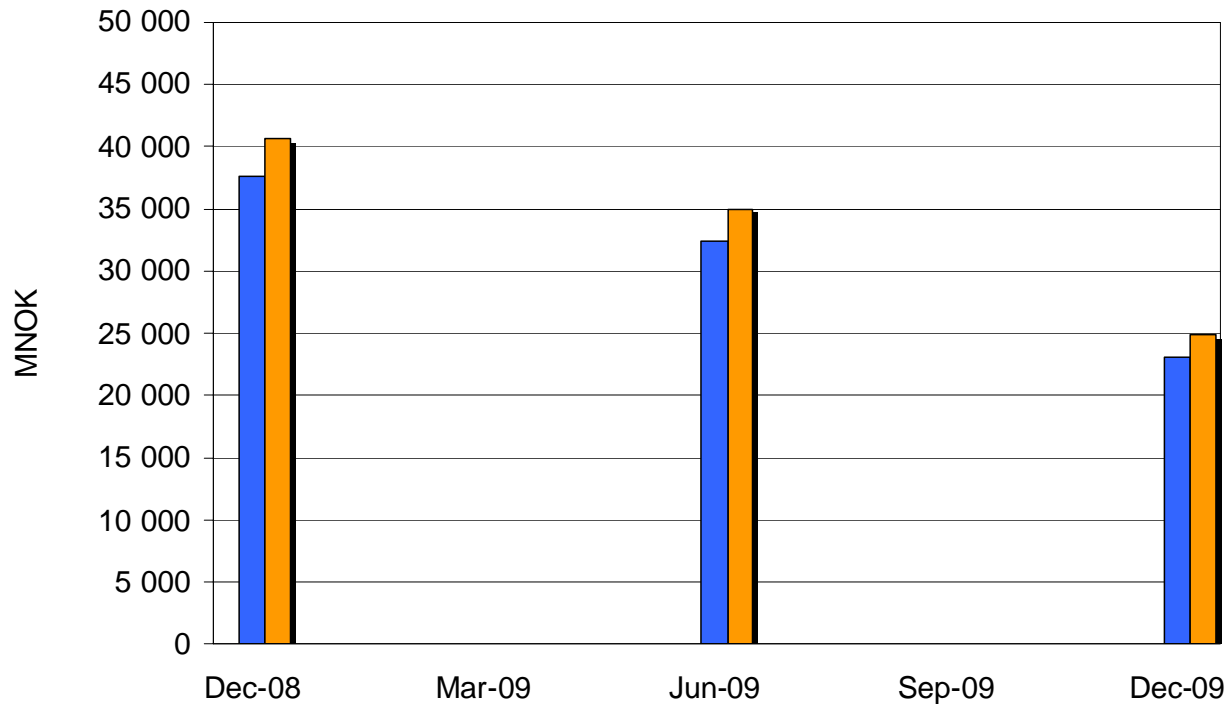


No of companies	14	14	14	14	14
Annual turnover MNOK	6 736	8 480	11 009	14 372	16 454
Profit before tax MNOK	159	282	308	369	658
Profit margin	2,4 %	3,3 %	2,8 %	2,6 %	4,0 %
Man-year	3 206	3 177	3 352	3 373	3 900

Order intake Norwegian yards

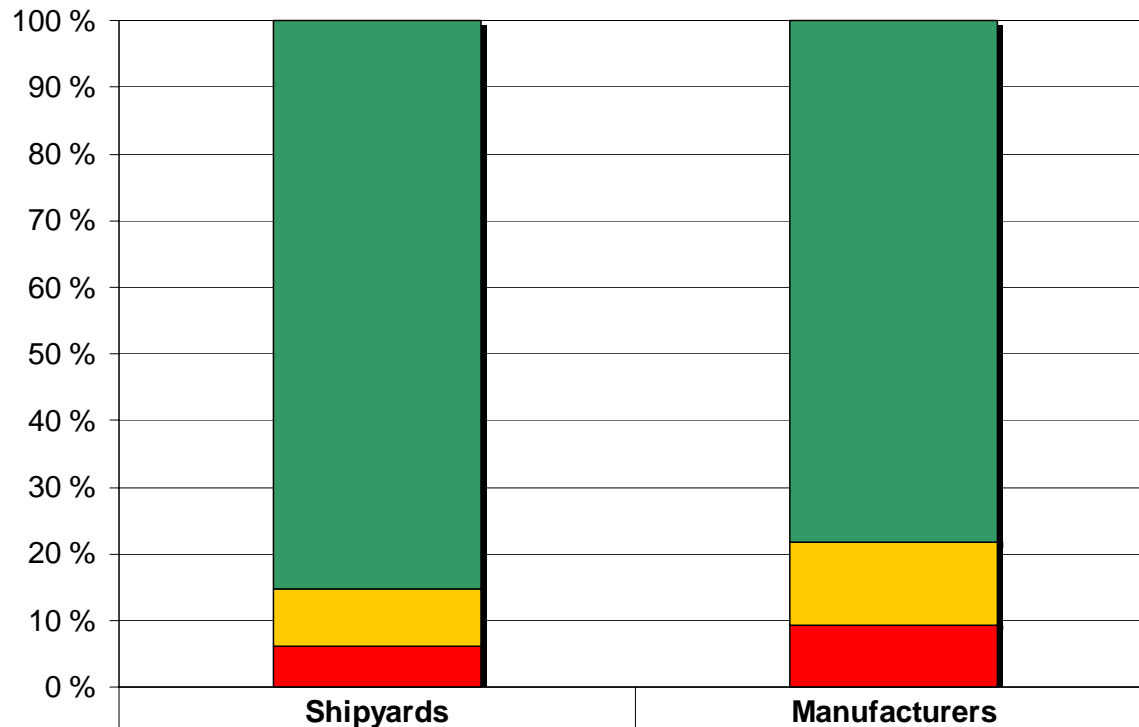


Backlog of orders



	31-Dec-08	30-Jun-09	31-Dec-09
Ships	84	70	42
■ Shipyards	37 600	32 400	23 000
■ Manufacturers	40 600	35 000	24 900

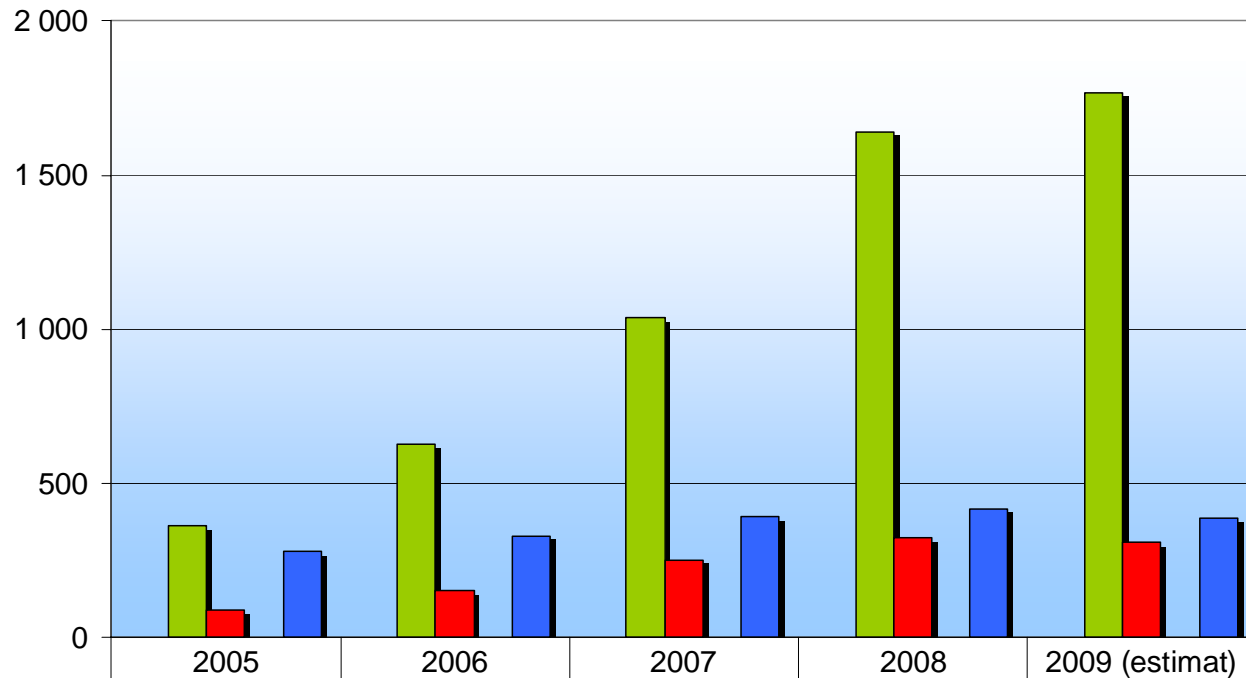
Backlog 2Q 2009 - vulnerability



	Shipyards	Manufacturers
Financially secured contracts	27 600	27 400
Contracts expected to be realized	2 800	4 300
Uncertain contracts	2 000	3 300

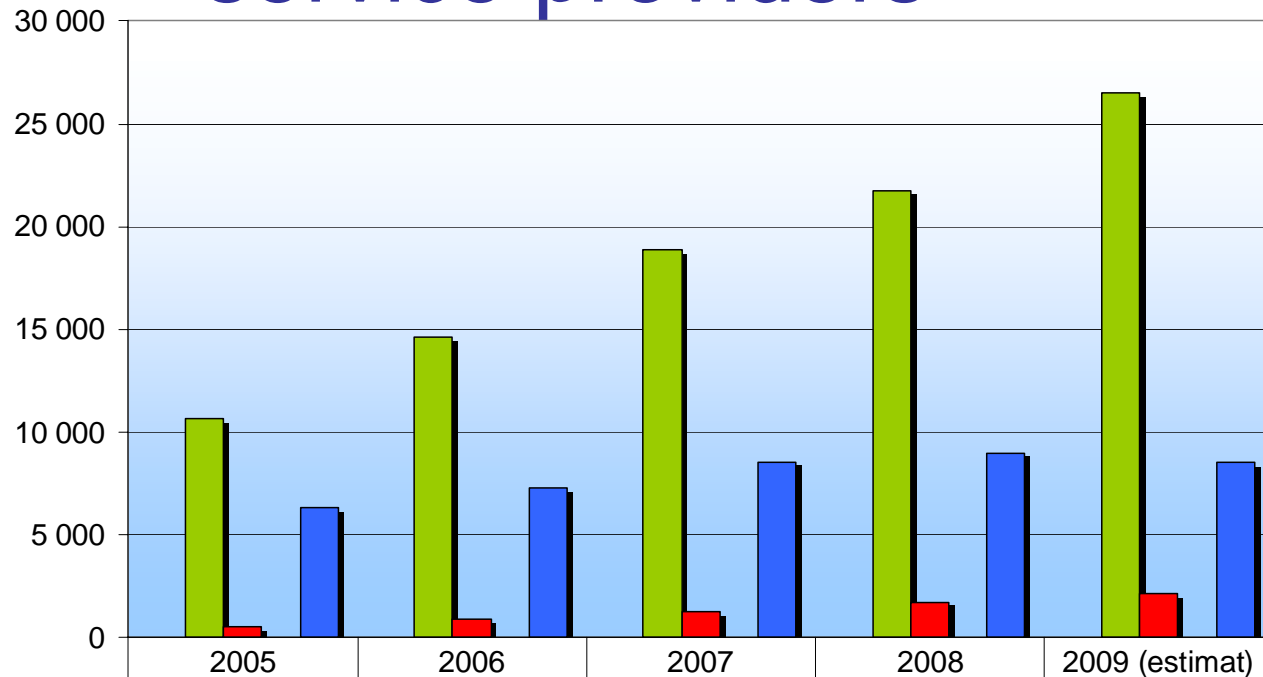
Cancelled contracts for 73 manufacturers in the survey amount to 3.4 billion NOK (8.5 % of order reserves)

Ship designers



	2005	2006	2007	2008	2009 (estimat)
No of companies	15	15	15	15	15
Annual turnover MNOK	364	626	1 038	1 641	1 769
Profit before tax MNOK	89	152	253	325	310
Profit margin	24,5 %	24,2 %	24,4 %	19,8 %	17,5 %
Man-year	281	331	393	419	388

Equipment suppliers and service providers



	2005	2006	2007	2008	2009 (estimat)
No of companies	150	158	162	159	156
Annual turnover MNOK	10 651	14 626	18 883	21 757	26 464
Profit before tax MNOK	527	870	1 279	1 731	2 154
Profit margin	4,7 %	5,3 %	6,2 %	6,8 %	7,5 %
Man-year	6 300	7 300	8 560	9 000	8 500



Key figures 2008

	Annual turnover MNOK	Profit before tax MNOK	Profit margin	Man-year	Hired
Shipping companies	11 110	2 480	22,3 %	5 966	
Shipyards	14 372	369	2,6 %	3 373	1 653
Ship designers	1 641	325	19,8 %	419	74
Equipment suppliers and service providers	21 757	1 731	6,8 %	9 000	1 750
SUM	48 880	4 905	9,3 %	18 758	3 477

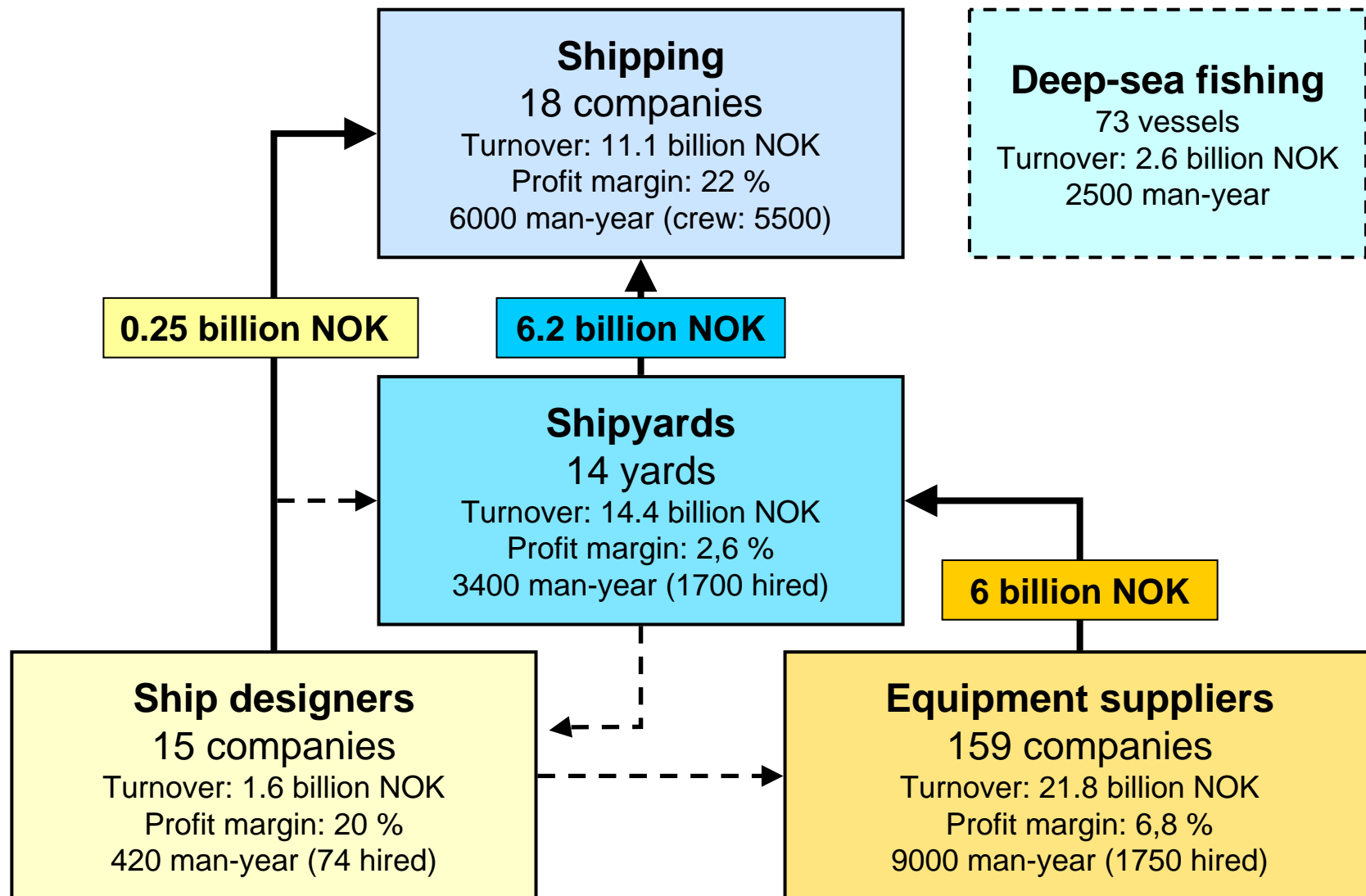


Key figures 2009

	Annual turnover MNOK	Profit before tax MNOK	Profit margin	Man-year	Hired
Shipping companies	10 447	2 525	24,2 %	5 550	
Shipyards	16 454	658	4,0 %	3 900	1 900
Ship designers	1 769	310	17,5 %	388	32
Equipment suppliers and service providers	26 464	2 154	7,5 %	8 500	1 300
SUM	55 134	5 647	9,8 %	18 338	3 232



The maritime cluster 2008



Description of the problem during the financial crises

- The main problem - lack of new orders and waiting too long for new contracts
- The problem driver is low spot prices in different segments in the offshore shipping market and lack of equity capital
- Present oil prices and expected future prices decides the petroleum companies investment level and price level today, \$70 per barrel, is expected to last till 2011 and grow towards \$100 in 2015
- The world wide adjustment downwards in 2009 only 10 % and Norwegian continental shelf all time high
- 40 % increase in capacity in a market with falling demand
- Moderate new orders before 2011 and uncertainty when contracting new orders 2011-2013
- The backlog orders last till 2011 and strategy for survival puts pressure on the financial system



Contract structure shipping companies

- Most shipping companies tradition for high share in long time contracts
- 65 % of existing fleet have contracts lasting 1-3 years , 20 % 3 years or more and only 15 % in spot
- 60 % of new contracts in spot



Strategy for survival Equipment suppliers

- 35 % of the equipment suppliers have already excess capacity, increase in stock of goods and reduced employment
- 45 % increase in outsourcing as survival strategy
- 56 % renegotiate prices downwards
- The main survival strategy is to adjust capacity downwards, improve logistics and renegotiate contracts with suppliers



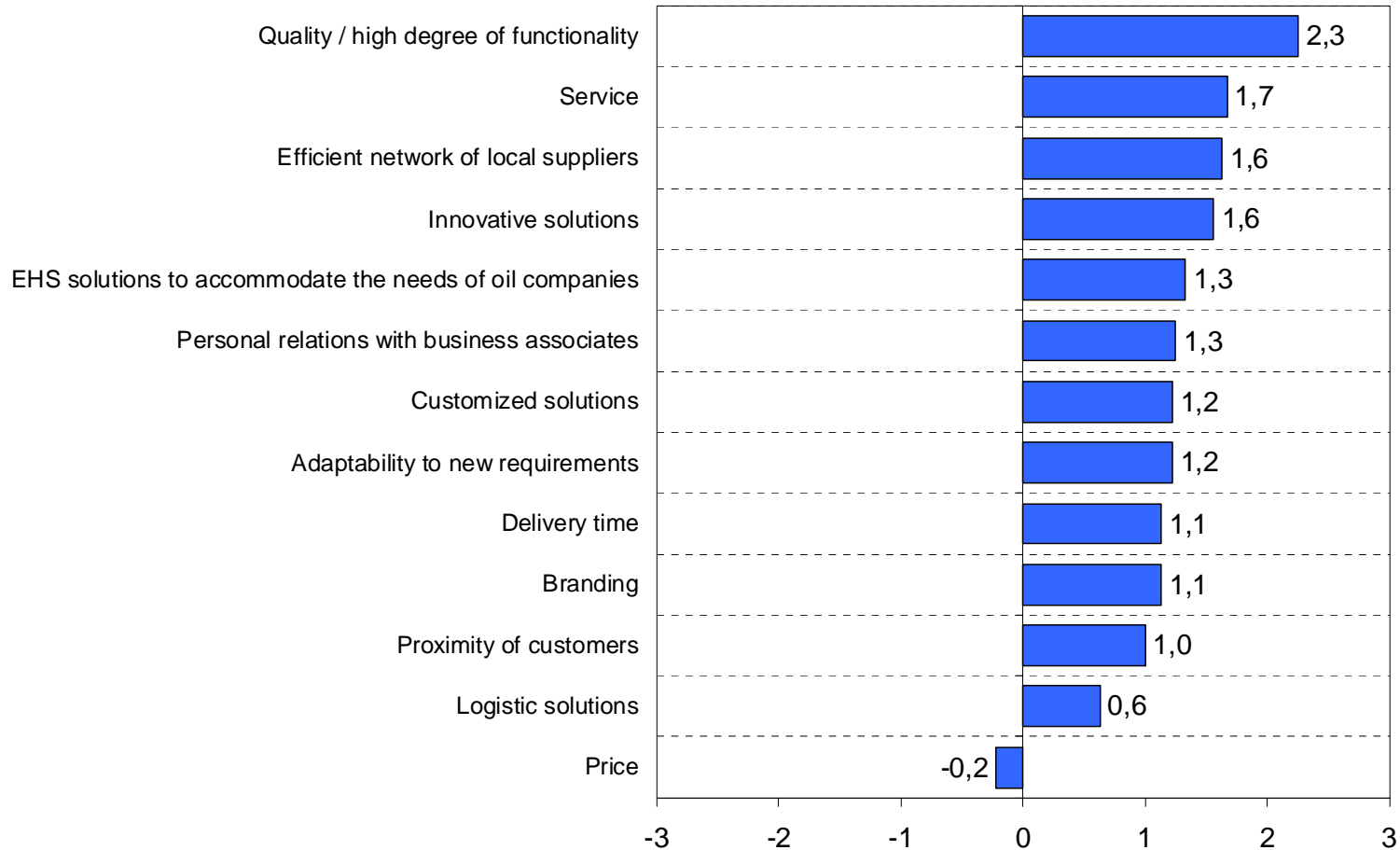
Strategy for survival

Shipping companies and shipyards

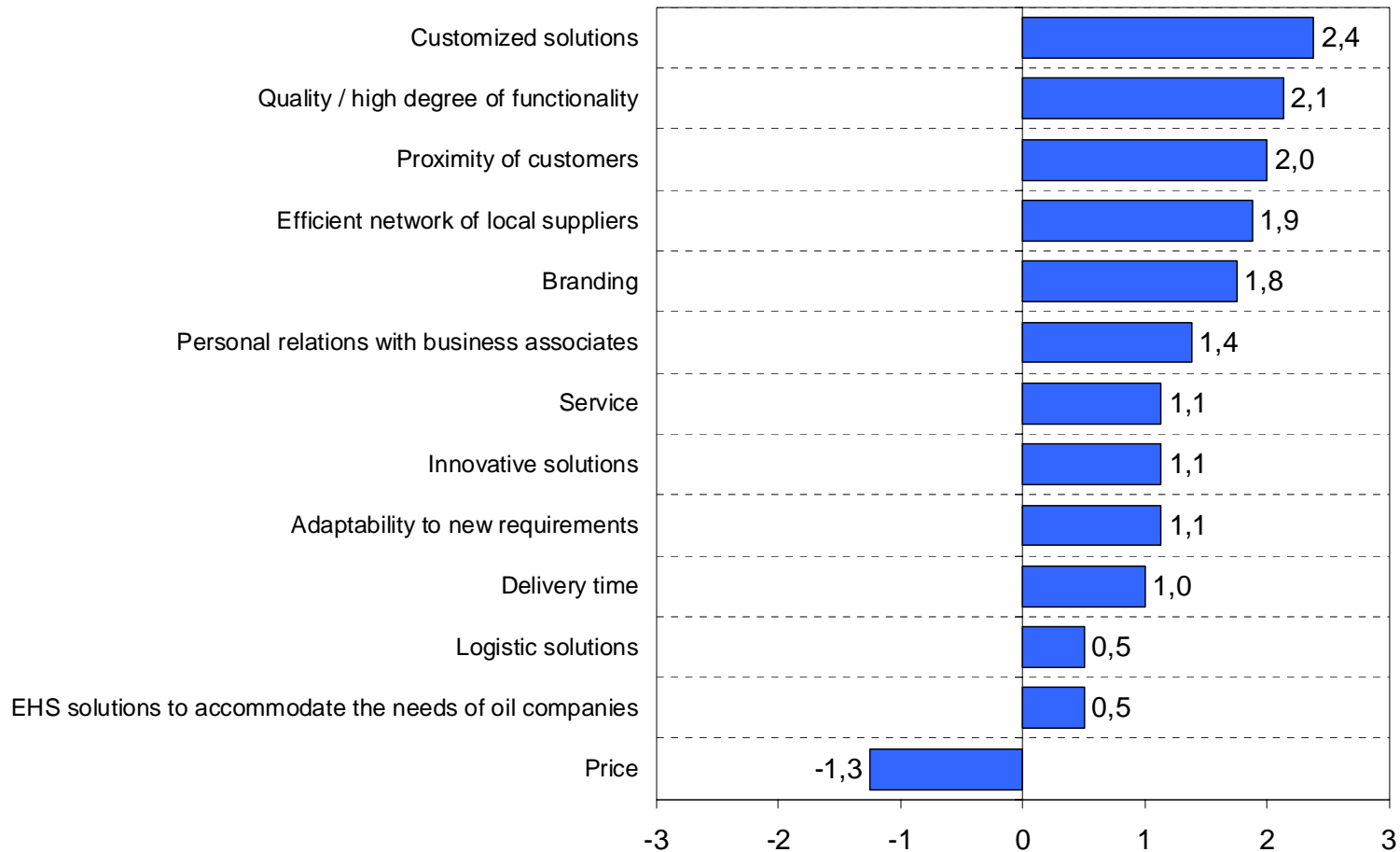
- Renegotiate contracts
- For shipping companies most important to focus on long-term contracts and renegotiations
- For shipyards most important to improve logistical solutions, renegotiate contracts with suppliers and adjust capacity
- The short-term problem is lack of equity capital within shipping companies and lack of support from private banks for shipyards



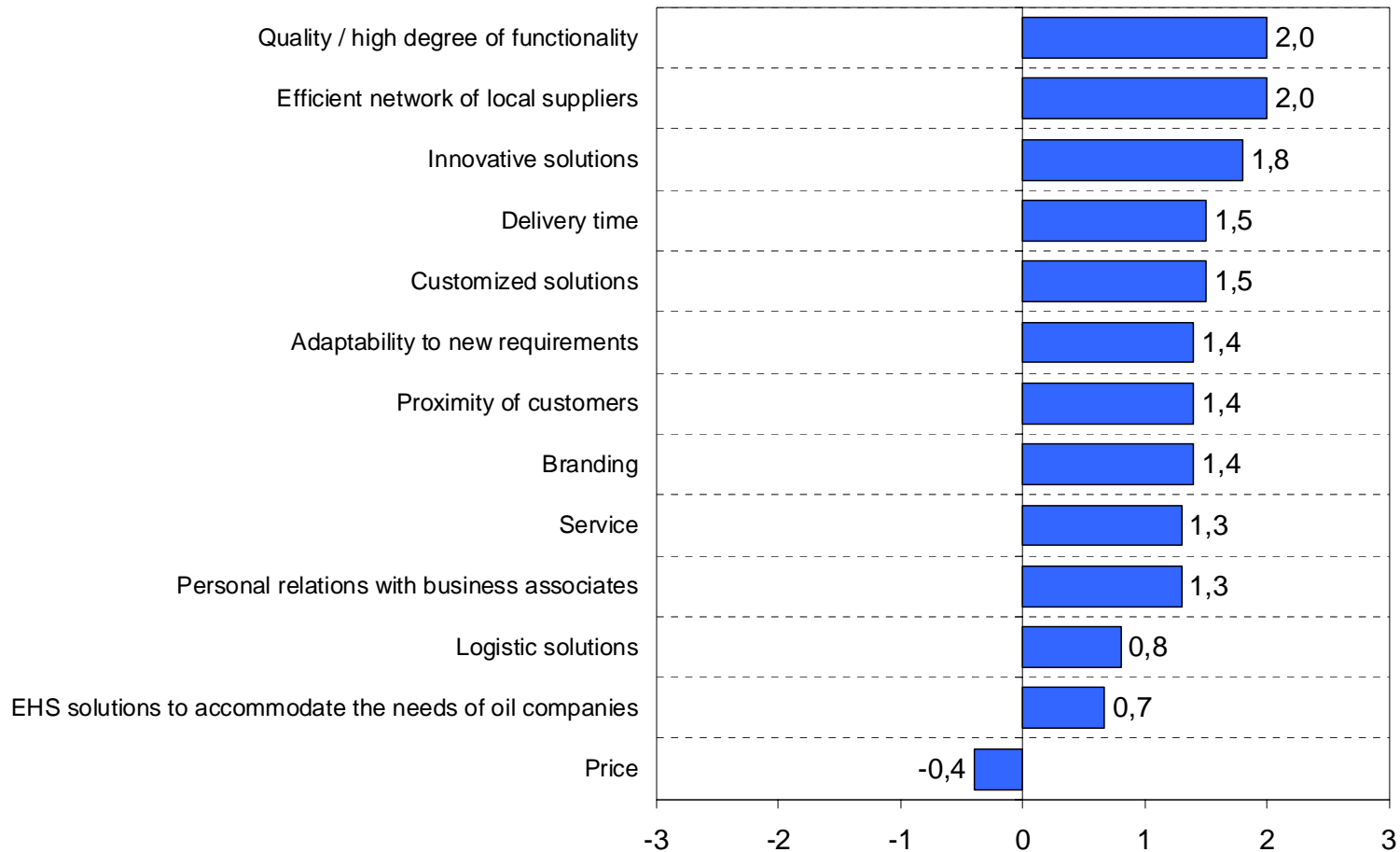
Comparative advantages Shipping companies



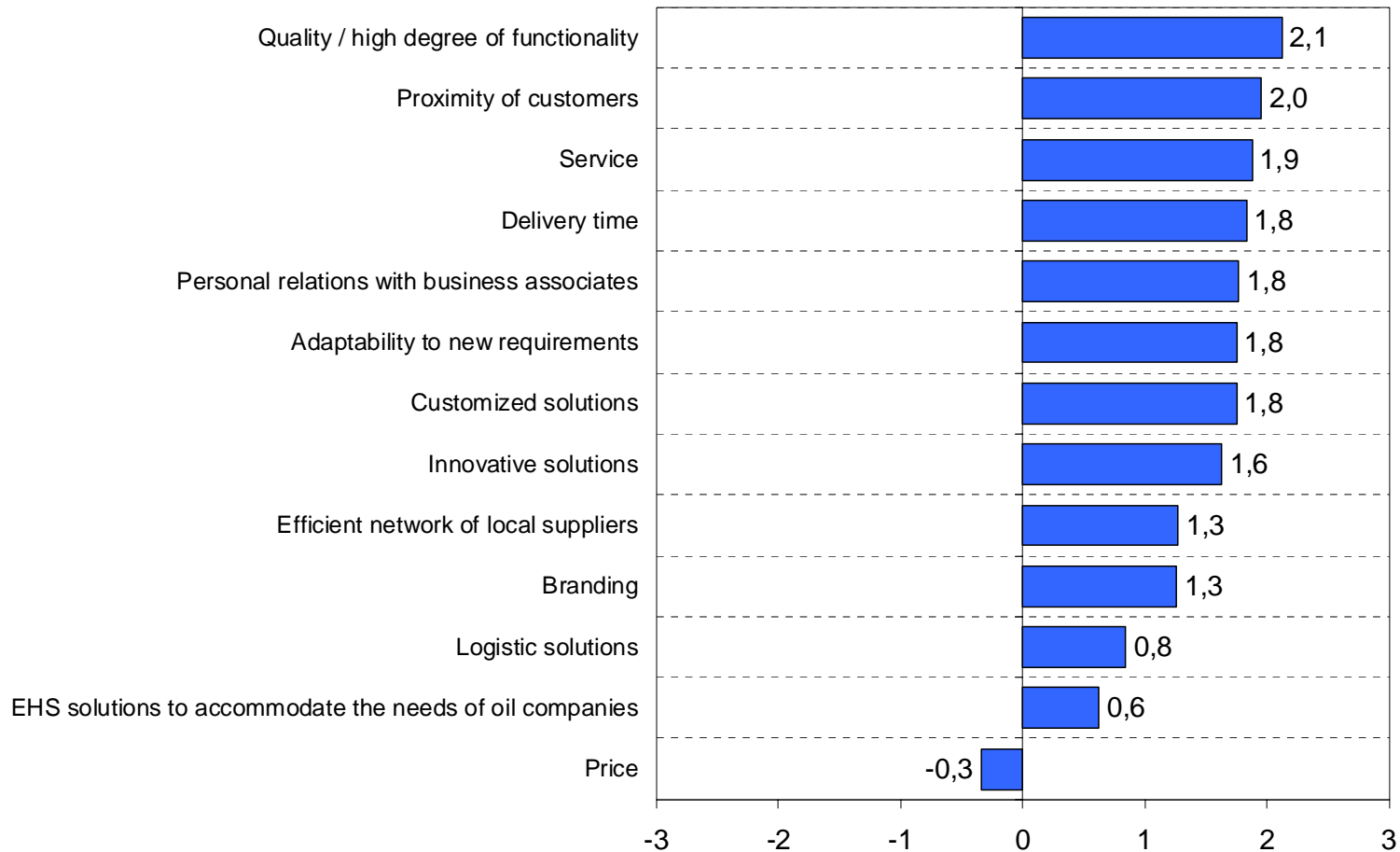
Comparative advantages Shipyards



Comparative advantages Ship designers



Comparative advantages Equipment suppliers



Main conclusions

- 2009 during the financial crisis seems to be a good year financially (turnover all-time high)
- Comparative advantages and strategies for survival seems to work quite efficient during the crisis
- The backlog of orders diminishes without so many cancellations as feared
- New orders can not be expected to any great extent the next two years because of overcapacity
- The most likely scenario could be that new orders will turn up around 2011-12 because of expected high investment activity in offshore exploration and exploitation (more likely to come even later than earlier)
- The financial system and especially the collaboration between private and public institutions will be the great challenge for the years to come