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A Nation of SMEs: The
German Experience
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Competitiveness and SMEs

- What are the factors that make Germany competitive?
- How do Germany's SMEs contribute to competitiveness?
- Why has German competitiveness helped SMEs?

Competitiveness translates into trade

- Germany recovered after WW II by becoming an exporter
- Germany has maintained its status as a top export nation
- Much of this is based on a strong manufacturing sector that is larger than that of most industrialized countries

Development of German foreign trade

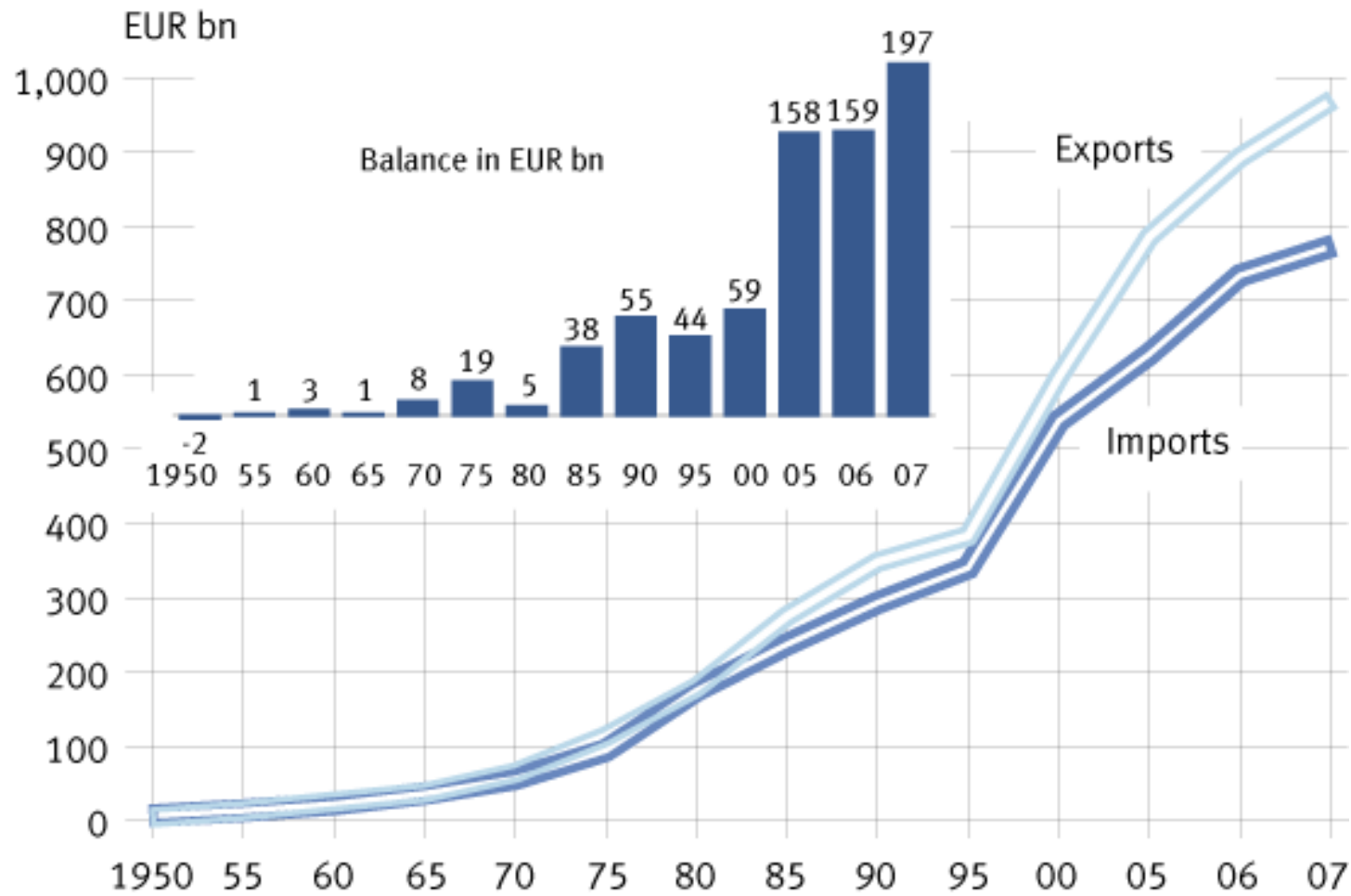


Table I.8

Leading exporters and importers in world merchandise trade, 2007

| Rank | Exporters | Value | Share | Annual percentage change | Rank | Importers | Value | Share | Annual percentage change |
|------|--|-------------------------|-------------------|--------------------------|------|--------------------------------------|---------------|------------|--------------------------|
| 1 | Germany | 1326.4 | 9.5 | 20 | 1 | United States | 2020.4 | 14.2 | 5 |
| 2 | China | 1217.8 | 8.7 | 26 | 2 | Germany | 1058.6 | 7.4 | 17 |
| 3 | United States | 1162.5 | 8.3 | 12 | 3 | China | 956.0 | 6.7 | 21 |
| 4 | Japan | 712.8 | 5.1 | 10 | 4 | Japan | 621.1 | 4.4 | 7 |
| 5 | France | 553.4 | 4.0 | 12 | 5 | United Kingdom | 619.6 | 4.4 | 3 |
| 6 | Netherlands | 551.3 | 4.0 | 19 | 6 | France | 615.2 | 4.3 | 14 |
| 7 | Italy | 491.5 | 3.5 | 18 | 7 | Italy | 504.5 | 3.5 | 14 |
| 8 | United Kingdom | 437.8 | 3.1 | -2 | 8 | Netherlands | 491.6 | 3.5 | 18 |
| 9 | Belgium | 430.8 | 3.1 | 17 | 9 | Belgium | 413.2 | 2.9 | 17 |
| 10 | Canada | 419.0 | 3.0 | 8 | 10 | Canada | 389.6 | 2.7 | 9 |
| 11 | Korea, Republic of | 371.5 | 2.7 | 14 | 11 | Spain | 372.6 | 2.6 | 13 |
| 12 | Russian Federation | 355.2 | 2.5 | 17 | 12 | Hong Kong, China retained imports | 370.1 93.3 | 2.6 0.7 | 10 8 |
| 13 | Hong Kong, China domestic exports re-exports | 349.4 18.1 331.3 | 2.5 0.1 2.4 | 8 -20 10 | 13 | Korea, Republic of | 356.8 | 2.5 | 15 |
| 14 | Singapore domestic exports re-exports | 299.3 156.0 143.3 | 2.1 1.1 1.0 | 10 9 11 | 14 | Mexico a | 296.3 | 2.1 | 11 |
| 15 | Mexico | 272.0 | 2.0 | 9 | 15 | Singapore | 263.2 | 1.8 | 10 |

Source: World Trade Developments (http://www.wto.org/english/res_e/statis_e/its2008_e/its08_world_trade_dev_e.pdf)

The role of SMEs

- There is a strong presence of SMEs in foreign trade; they produce more than 20% of German exports
- Germany has around 1,100 „Hidden Champions“
- The share of SMEs in the economy has not changed much in 100 years

Definition of SMEs

Classification Scheme for Small and Medium-Sized Enterprises used by IfM Bonn

| Size of Enterprise | Number of Employees | Turnover (€/Year) |
|--------------------|---------------------|---------------------|
| small | up to 9 | up to 1 Million |
| medium-sized | 10 to 499 | 1 to 50 Million |
| large | 500 and more | 50 Million and more |

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4. The Economic Weight of the German "Mittelstand"

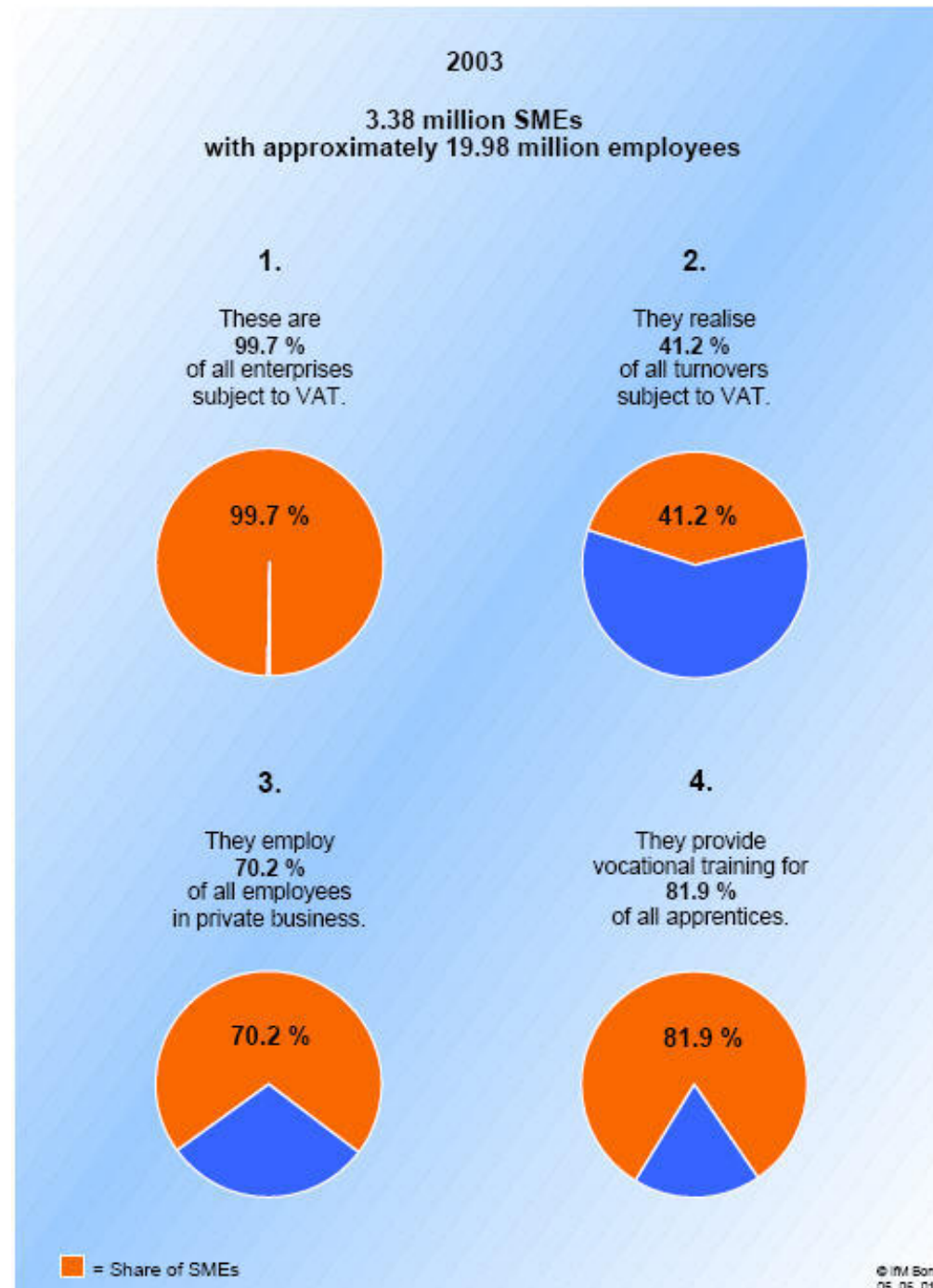


Table 10: Exporting enterprises and their export based turnover, Germany, 2002 - absolute figures and export-ratios

| Enterprises with turnover from € ... to below ... | Exporting enterprises ¹⁾ | | Export based turnover ²⁾ | | Exporting enterprises rel. to the total number of all enterprises | Export based turnover rel. to the total turnover of all enterprises |
|---|-------------------------------------|-------|-------------------------------------|-------|---|---|
| | abs. | in % | in Mill. € | in % | in % | in % |
| 16 620 - 50 000 | 19 417 | 6.0 | 165.9 | 0.0 | 2.4 | 0.7 |
| 50 000 - 100 000 | 25 235 | 7.8 | 387.0 | 0.1 | 4.4 | 0.9 |
| 100 000 - 250 000 | 51 832 | 16.0 | 1 439.7 | 0.2 | 7.8 | 1.4 |
| 250 000 - 500 000 | 48 862 | 15.1 | 2 477.4 | 0.3 | 14.0 | 2.0 |
| 500 000 - 1 Mill. | 50 246 | 15.5 | 4 849.6 | 0.7 | 21.9 | 3.0 |
| 1 Mill. - 2. Mill. | 43 761 | 13.5 | 8 749.7 | 1.2 | 31.3 | 4.5 |
| 2 Mill. - 5 Mill. | 40 166 | 12.4 | 20 506.3 | 2.8 | 44.2 | 7.3 |
| 5 Mill. - 10 Mill. | 18 910 | 5.8 | 25 063.4 | 3.4 | 57.4 | 10.9 |
| 10 Mill. - 25 Mill. | 13 849 | 4.3 | 44 605.4 | 6.1 | 66.0 | 13.8 |
| 25 Mill. - 50 Mill. | 5 556 | 1.7 | 45 431.7 | 6.2 | 72.7 | 17.1 |
| 50 Mill. a.m. | 6 255 | 1.9 | 582 338.4 | 79.1 | 78.9 | 23.3 |
| Total | 324 089 | 100.0 | 736 014.4 | 100.0 | 11.1 | 17.3 |
| SMEs | 317 834 | 98.1 | 153 676.0 | 20.9 | 10.9 | 8.8 |

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1) Only enterprises liable to VAT with annual deliveries and other performances (turnover) exceeding Euro 16 620.

2) Excl. VAT.

Source: Federal Statistical Office Germany, VAT-Statistics 2002, Wiesbaden, 2004; own calculations by IfM Bonn

Table 12: R&D-expenditures of the business sector in relation to turnover by employment size-classes, Germany, 1991 - 2001

| Enterprises with ... employees | R&D-Expenditures ¹⁾ | | | | | |
|-----------------------------------|--------------------------------|--------------|--------------|--------------|--------------|--------------|
| | 1991 in % | 1993 in % | 1995 in % | 1997 in % | 1999 in % | 2001 in % |
| less than 20 | | | | | | 13.9 |
| 20 - 49 | } 4.8 | } 5.6 | } 6.1 | } 6.2 | } 5.7 | 6.6 |
| 50 - 99 | | | | | | 4.9 |
| 100 - 249 | } 2.6 | } 2.9 | } 2.7 | 3.5 | 3.5 | 3.6 |
| 250 - 499 | | | | 2.7 | 2.7 | 2.9 |
| 500 - 999 | 2.1 | 3.4 | 3.0 | 3.5 | 3.1 | 3.5 |
| 1 000 - 1 999 | 2.9 | 2.9 | 2.5 | 3.5 | 3.6 | 4.5 |
| 2 000 - 4 999 | 2.4 | 2.6 | 2.5 | 2.9 | 2.6 | 2.2 |
| 5 000 - 9 999 | 4.3 | 3.3 | 3.5 | 3.4 | 4.3 | 3.4 |
| 10 000 and more | 5.0 | 5.3 | 4.8 | 4.7 | 5.5 | 5.9 |
| Total | 3.8 | 4.0 | 3.7 | 3.9 | 4.2 | 4.2 |

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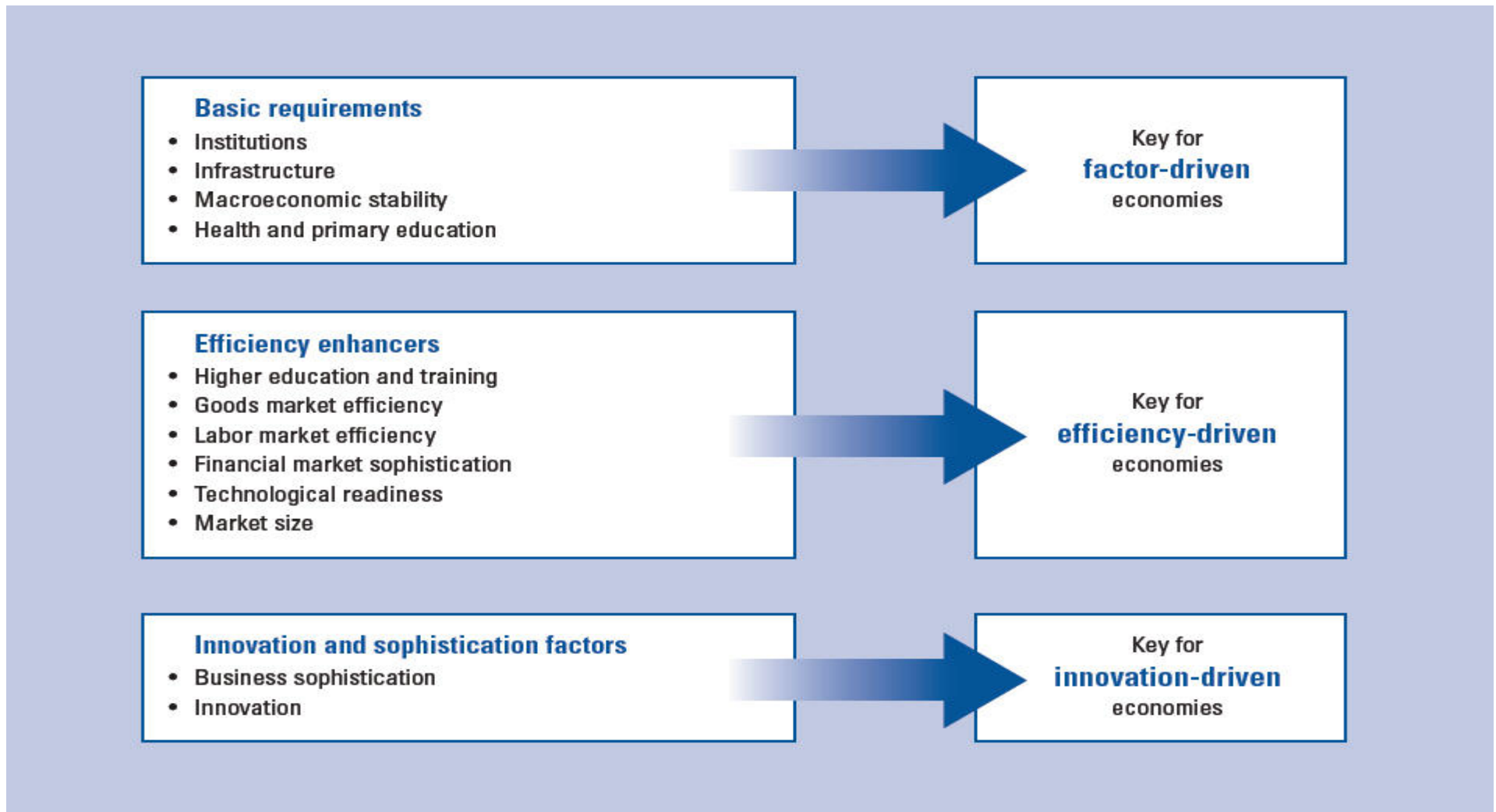
1) Internal and external R&D-expenditures.

Source: Science-Statistics (Wissenschaftsstatistik GmbH), Essen, various volumes

Competitiveness by definition

- The set of institutions, policies and factors that determine the level of productivity of a country (World Economic Forum)
- There is no single overriding element but a complex interplay

The twelve pillars of competitiveness



Global Competitiveness Index rankings and 2007–2008 comparisons

| Country/Economy | GCI 2008–2009 | | GCI 2008–2009 rank (among 2007 countries)* | GCI 2007–2008 rank |
|-----------------|---------------|-------|---|-----------------------|
| | Rank | Score | | |
| United States | 1 | 5.74 | 1 | 1 |
| Switzerland | 2 | 5.61 | 2 | 2 |
| Denmark | 3 | 5.58 | 3 | 3 |
| Sweden | 4 | 5.53 | 4 | 4 |
| Singapore | 5 | 5.53 | 5 | 7 |
| Finland | 6 | 5.50 | 6 | 6 |
| Germany | 7 | 5.46 | 7 | 5 |
| Netherlands | 8 | 5.41 | 8 | 10 |
| Japan | 9 | 5.38 | 9 | 8 |
| Canada | 10 | 5.37 | 10 | 13 |
| Hong Kong SAR | 11 | 5.33 | 11 | 12 |
| United Kingdom | 12 | 5.30 | 12 | 9 |
| Korea, Rep. | 13 | 5.28 | 13 | 11 |
| Austria | 14 | 5.23 | 14 | 15 |
| Norway | 15 | 5.22 | 15 | 16 |
| France | 16 | 5.22 | 16 | 18 |
| Taiwan, China | 17 | 5.22 | 17 | 14 |
| Australia | 18 | 5.20 | 18 | 19 |
| Belgium | 19 | 5.14 | 19 | 20 |
| Iceland | 20 | 5.05 | 20 | 23 |
| Malaysia | 21 | 5.04 | 21 | 21 |
| Ireland | 22 | 4.99 | 22 | 22 |
| Israel | 23 | 4.97 | 23 | 17 |
| New Zealand | 24 | 4.93 | 24 | 24 |
| Luxembourg | 25 | 4.85 | 25 | 25 |
| Qatar | 26 | 4.83 | 26 | 31 |
| Saudi Arabia | 27 | 4.72 | 27 | 35 |
| Chile | 28 | 4.72 | 28 | 26 |
| Spain | 29 | 4.72 | 29 | 29 |
| China | 30 | 4.70 | 30 | 34 |

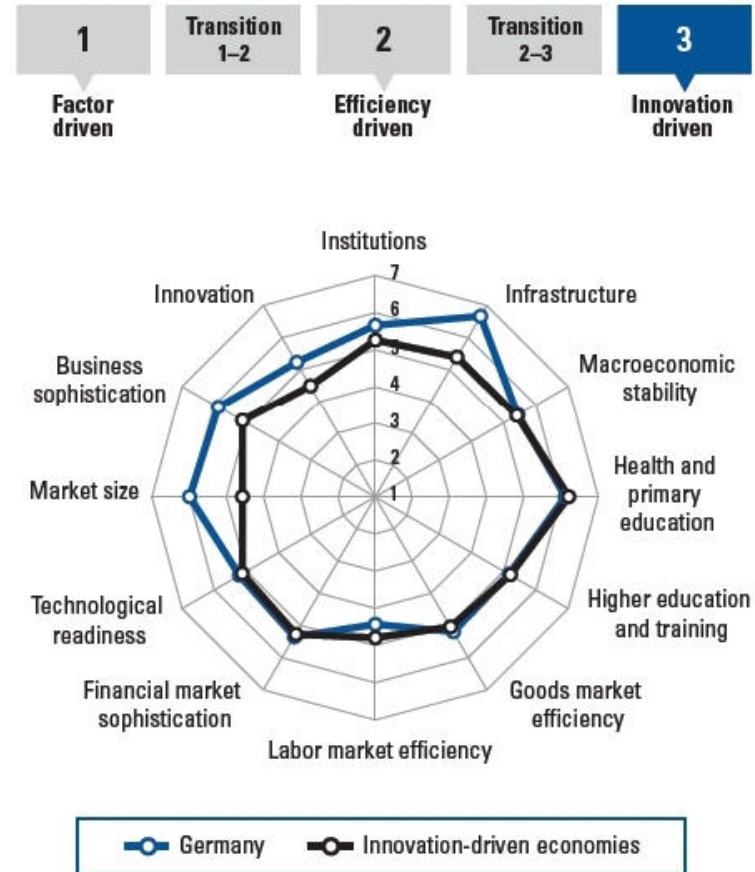
* One country that was included last year is not shown because of the lack of Survey data (Uzbekistan). This explains why the lowest rank in this column

Source: World Economic Forum: Global Competitiveness Report 2008-2009

Global Competitiveness Index

| | Rank (out of 134) | Score (1-7) |
|--|----------------------|----------------|
| GCI 2008–2009 | 7 | 5.5 |
| GCI 2007–2008 (out of 131)..... | 5 | 5.5 |
| GCI 2006–2007 (out of 122)..... | 7 | 5.5 |
| Basic requirements | 7 | 6.0 |
| 1st pillar: Institutions | 14 | 5.7 |
| 2nd pillar: Infrastructure..... | 1 | 6.6 |
| 3rd pillar: Macroeconomic stability..... | 40 | 5.4 |
| 4th pillar: Health and primary education | 24 | 6.1 |
| Efficiency enhancers | 11 | 5.2 |
| 5th pillar: Higher education and training..... | 21 | 5.2 |
| 6th pillar: Goods market efficiency..... | 15 | 5.2 |
| 7th pillar: Labor market efficiency..... | 58 | 4.4 |
| 8th pillar: Financial market sophistication..... | 19 | 5.3 |
| 9th pillar: Technological readiness..... | 18 | 5.2 |
| 10th pillar: Market size..... | 4 | 6.0 |
| Innovation and sophistication factors | 4 | 5.5 |
| 11th pillar: Business sophistication | 1 | 5.9 |
| 12th pillar: Innovation..... | 8 | 5.2 |

Stage of development



Institutions: some insights

- Efficient property rights:
Medieval times
- Independent judiciary and
professional bureaucracy:
19th century
- Traditionally very
decentralized administration



Institutions: some insights

- Key institutions were in place before the industrial revolution started
- Strong public support for independent institutions

Institutions and SMEs

- Strong institutions limit political patronage
- Strong local government works to the advantage of SMEs

Infrastructure: some insights

- Internalized as key government task at all levels, esp. Municipalities
- Strong public demand
- Aided by clean bureaucracy and a strong tradition of spatial planning
- Early use of public-private partnership

Infrastructure and SMEs

- Good infrastructure allows SMEs to grow all over the country
- Developed commercial land cheap and plentiful
- Good infrastructure lowers transaction costs, again favouring SMEs



Goods market efficiency: some insights

- Competition breeds Competitiveness
- The intensity of competition reflects market openness and a strong competition policy
- Germany has strong anti-monopoly institutions
- This helps SMEs

Labor market efficiency: some insights

- The biggest drag on competitiveness
- Bright spot: cooperative tradition between labour and management

Business Sophistication: some insights

- Family firms with long-term commitment play a big role
- Combination of entrepreneurship and technical knowledge
- Cluster development important
- Chambers of Commerce provide competent support

Higher Education and Training: some insights

- Science and engineering were a key factor in Germany's development
- Still a key ingredient in innovative character of German exporters



What's missing: vocational training

- Default option for most except university students
- Enterprise-based
- One day a week is reserved for public vocational school
- Chambers of Commerce are responsible for curricula and certificates

Effects of Vocational Training

- Source of cheap labor, esp. for SMEs
- Companies' need dictate content of training
- Non-academic workforce is highly trained to uniform standards



Flaig Carpenters – an illustration



- Family firm
- Managers are all master carpenters, boss studied interior architecture
- Located in small village, finance from local bank
- Customers: from local to global



Conclusions

- Back to basics
- Good basics will allow industry to emerge all over the place
- Good basics more important for SMEs than government subsidies
- SMEs need technical as well as entrepreneurial skills
- Vocational training has potentially huge benefits

Appendix: Details on Germany's competitiveness

The Global Competitiveness Index in detail

| INDICATOR | RANK/134 | |
|--|----------|---|
| 1st pillar: Institutions | | |
| 1.01 Property rights | 6 | ■ |
| 1.02 Intellectual property protection..... | 6 | ■ |
| 1.03 Diversion of public funds | 13 | ■ |
| 1.04 Public trust of politicians..... | 21 | ■ |
| 1.05 Judicial independence | 4 | ■ |
| 1.06 Favoritism in decisions of government officials | 11 | ■ |
| 1.07 Wastefulness of government spending..... | 27 | ■ |
| 1.08 Burden of government regulation..... | 77 | ■ |
| 1.09 Efficiency of legal framework | 4 | ■ |
| 1.10 Transparency of government policymaking | 22 | ■ |
| 1.11 Business costs of terrorism..... | 62 | ■ |
| 1.12 Business costs of crime and violence | 19 | ■ |
| 1.13 Organized crime..... | 31 | ■ |
| 1.14 Reliability of police services..... | 4 | ■ |
| 1.15 Ethical behavior of firms | 15 | ■ |
| 1.16 Strength of auditing and reporting standards | 14 | ■ |
| 1.17 Efficacy of corporate boards..... | 13 | ■ |
| 1.18 Protection of minority shareholders' interests | 5 | ■ |

* Hard data

Note: For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" at the beginning of this chapter.

■ Competitive Advantage ■ Competitive Disadvantage

| INDICATOR | RANK/134 | |
|---|----------|---|
| 2nd pillar: Infrastructure | | |
| 2.01 Quality of overall infrastructure..... | 3 | ■ |
| 2.02 Quality of roads..... | 4 | ■ |
| 2.03 Quality of railroad infrastructure | 4 | ■ |
| 2.04 Quality of port infrastructure..... | 4 | ■ |
| 2.05 Quality of air transport infrastructure..... | 3 | ■ |
| 2.06 Available seat kilometers* | 5 | ■ |
| 2.07 Quality of electricity supply | 8 | ■ |
| 2.08 Telephone lines* | 2 | ■ |
| 3rd pillar: Macroeconomic stability | | |
| 3.01 Government surplus/deficit* | 58 | ■ |
| 3.02 National savings rate* | 60 | ■ |
| 3.03 Inflation* | 32 | ■ |
| 3.04 Interest rate spread* | 10 | ■ |
| 3.05 Government debt* | 105 | ■ |

The Global Competitiveness Index in detail

■ Competitive Advantage ■ Competitive Disadvantage

| INDICATOR | RANK/134 | |
|---|----------|---|
| 4th pillar: Health and primary education | | |
| 4.01 Business impact of malaria..... | 16 | ■ |
| 4.02 Malaria incidence* | 1 | ■ |
| 4.03 Business impact of tuberculosis..... | 23 | ■ |
| 4.04 Tuberculosis incidence* | 8 | ■ |
| 4.05 Business impact of HIV/AIDS | 16 | ■ |
| 4.06 HIV prevalence* | 23 | ■ |
| 4.07 Infant mortality* | 10 | ■ |
| 4.08 Life expectancy* | 12 | ■ |
| 4.09 Quality of primary education..... | 36 | ■ |
| 4.10 Primary enrollment* | 17 | ■ |
| 4.11 Education expenditure* | 52 | ■ |
| 5th pillar: Higher education and training | | |
| 5.01 Secondary enrollment* | 25 | ■ |
| 5.02 Tertiary enrollment* | 43 | ■ |
| 5.03 Quality of the educational system | 23 | ■ |
| 5.04 Quality of math and science education | 44 | ■ |
| 5.05 Quality of management schools | 21 | ■ |
| 5.06 Internet access in schools | 30 | ■ |
| 5.07 Local availability of research and training services | 5 | ■ |
| 5.08 Extent of staff training | 12 | ■ |

| INDICATOR | RANK/134 | |
|--|----------|---|
| 6th pillar: Goods market efficiency | | |
| 6.01 Intensity of local competition | 1 | ■ |
| 6.02 Extent of market dominance | 1 | ■ |
| 6.03 Effectiveness of anti-monopoly policy | 2 | ■ |
| 6.04 Extent and effect of taxation | 105 | ■ |
| 6.05 Total tax rate* | 89 | ■ |
| 6.06 No. of procedures required to start a business* | 58 | ■ |
| 6.07 Time required to start a business* | 38 | ■ |
| 6.08 Agricultural policy costs | 84 | ■ |
| 6.09 Prevalence of trade barriers..... | 31 | ■ |
| 6.10 Trade-weighted tariff rate* | 5 | ■ |
| 6.11 Prevalence of foreign ownership..... | 31 | ■ |
| 6.12 Business impact of rules on FDI | 46 | ■ |
| 6.13 Burden of customs procedures | 21 | ■ |
| 6.14 Degree of customer orientation | 14 | ■ |
| 6.15 Buyer sophistication | 16 | ■ |

* Hard data

Note: For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" at the beginning of this chapter.

Source: World Economic Forum: Global Competitiveness Report 2008-2009

The Global Competitiveness Index in detail

■ Competitive Advantage ■ Competitive Disadvantage

| INDICATOR | RANK/134 |
|--|------------|
| 7th pillar: Labor market efficiency | |
| 7.01 Cooperation in labor-employer relations | 27■ |
| 7.02 Flexibility of wage determination..... | 131■ |
| 7.03 Non-wage labor costs* | 80■ |
| 7.04 Rigidity of employment*..... | 87■ |
| 7.05 Hiring and firing practices | 130■ |
| 7.06 Firing costs* | 93■ |
| 7.07 Pay and productivity..... | 51■ |
| 7.08 Reliance on professional management | 9■ |
| 7.09 Brain drain..... | 26■ |
| 7.10 Female participation in labor force* | 34■ |

| INDICATOR | RANK/134 |
|--|-----------|
| 8th pillar: Financial market sophistication | |
| 8.01 Financial market sophistication..... | 14■ |
| 8.02 Financing through local equity market..... | 50■ |
| 8.03 Ease of access to loans | 46■ |
| 8.04 Venture capital availability | 33■ |
| 8.05 Restriction on capital flows | 8■ |
| 8.06 Strength of investor protection* | 67■ |
| 8.07 Soundness of banks | 39■ |
| 8.08 Regulation of securities exchanges | 15■ |
| 8.09 Legal rights index* | 8■ |

* Hard data

Note: For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" at the beginning of this chapter.

The Global Competitiveness Index in detail

■ Competitive Advantage ■ Competitive Disadvantage

| INDICATOR | RANK/134 |
|---|------------|
| 9th pillar: Technological readiness | |
| 9.01 Availability of latest technologies..... | 8 ■ |
| 9.02 Firm-level technology absorption..... | 12 ■ |
| 9.03 Laws relating to ICT..... | 13 ■ |
| 9.04 FDI and technology transfer | 61 ■ |
| 9.05 Mobile telephone subscribers* | 26 ■ |
| 9.06 Internet users* | 30 ■ |
| 9.07 Personal computers* | 12 ■ |
| 9.08 Broadband Internet subscribers* | 23 ■ |
| 10th pillar: Market size | |
| 10.01 Domestic market size* | 5 ■ |
| 10.02 Foreign market size* | 3 ■ |

| INDICATOR | RANK/134 |
|--|------------|
| 11th pillar: Business sophistication | |
| 11.01 Local supplier quantity | 2 ■ |
| 11.02 Local supplier quality | 2 ■ |
| 11.03 State of cluster development | 10 ■ |
| 11.04 Nature of competitive advantage | 1 ■ |
| 11.05 Value chain breadth..... | 4 ■ |
| 11.06 Control of international distribution | 2 ■ |
| 11.07 Production process sophistication | 3 ■ |
| 11.08 Extent of marketing | 4 ■ |
| 11.09 Willingness to delegate authority | 10 ■ |
| 12th pillar: Innovation | |
| 12.01 Capacity for innovation | 1 ■ |
| 12.02 Quality of scientific research institutions..... | 6 ■ |
| 12.03 Company spending on R&D | 5 ■ |
| 12.04 University-industry research collaboration | 6 ■ |
| 12.05 Gov't procurement of advanced tech products..... | 34 ■ |
| 12.06 Availability of scientists and engineers..... | 26 ■ |
| 12.07 Utility patents* | 9 ■ |

* Hard data

Note: For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" at the beginning of this chapter.