

# Integrated Benchmarking for SMEs

A method for collecting and using  
Best-Practice-Process-Information

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**Global Benchmarking Network**  
**2nd International BENCHMARKING Conference**  
**06<sup>th</sup> December 2007**  
**Dubai**



**Dr.-Ing. Holger Kohl**  
**Dipl.-Kfm. Ronald Orth**  
Fraunhofer IPK  
Division Corporate Management

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**Fraunhofer**



Institut  
Produktionsanlagen und  
Konstruktionstechnik



# Partnerships for Innovation



ZV-A2/ Nov 04

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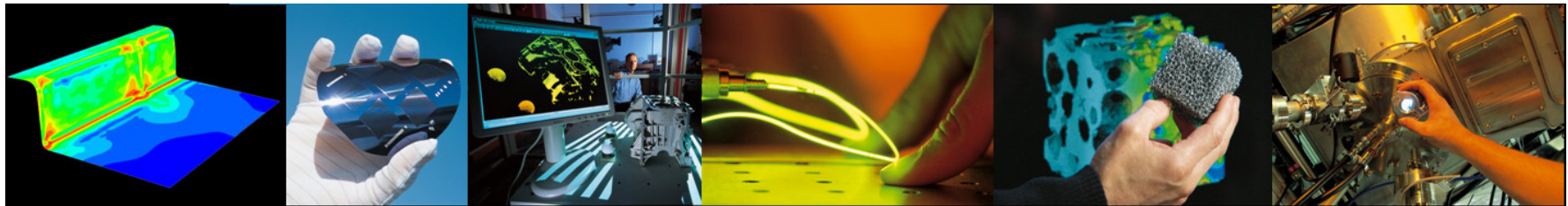
**58 Institutes**

**13 500 employees**

**€1.2 billion research  
budget**

## **7 Alliances**

- **Microelectronics**
- **Production**
- **Information and Communication Technology**
- **Materials and Components**
- **Life Sciences**
- **Surface Technology and Photonics**
- **Defence and Security Research**



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# Fraunhofer Research Units Worldwide

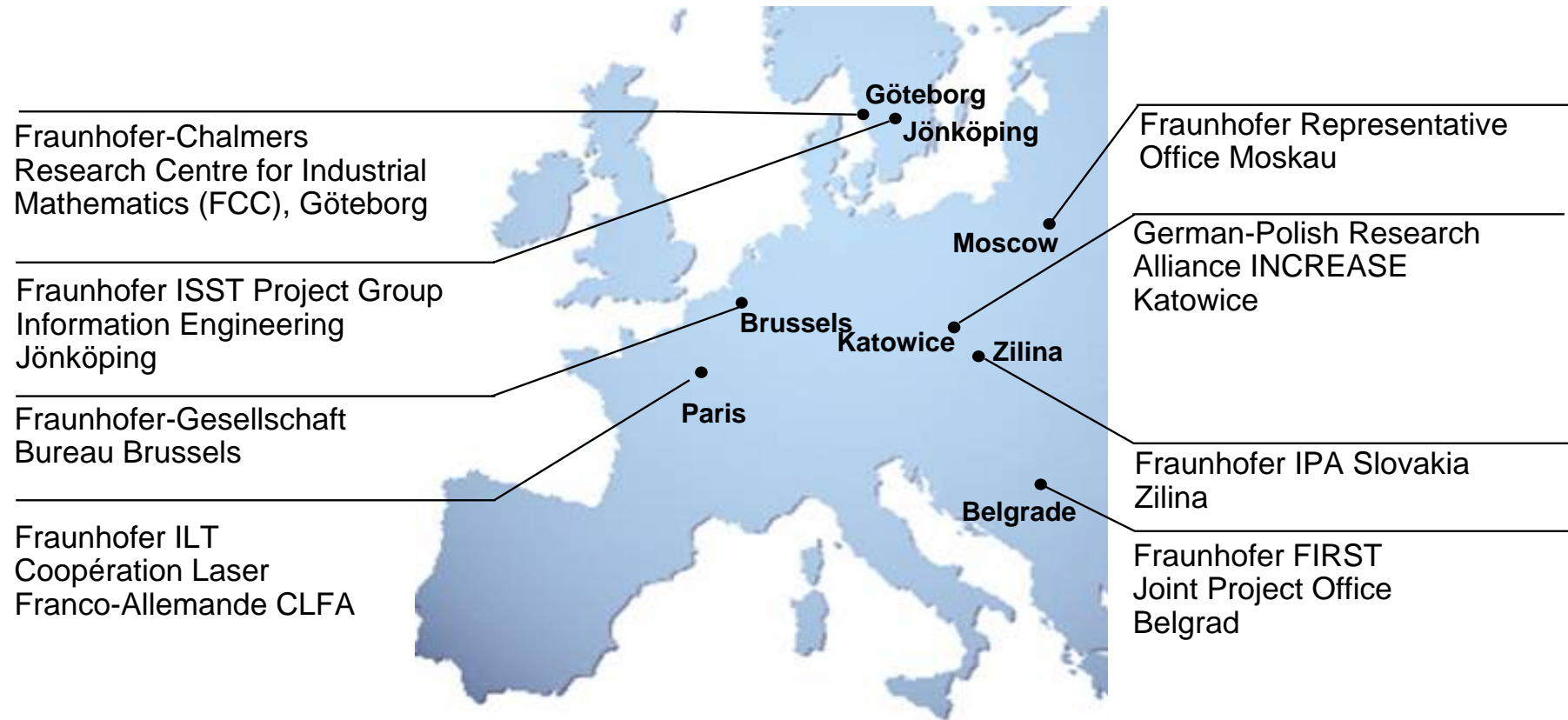
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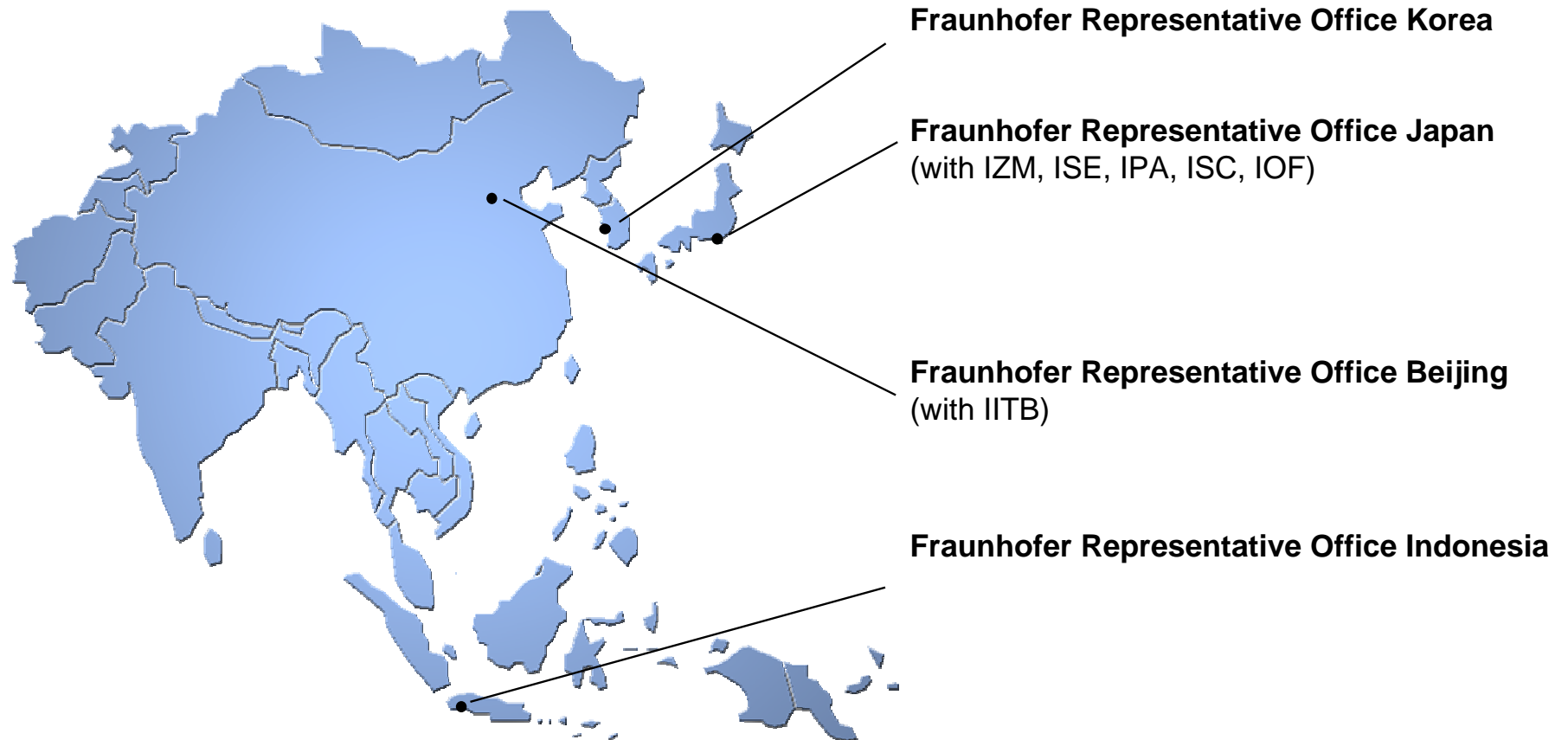


# Examples for Fraunhofer Activities in Europe



# Fraunhofer Representative Offices in Asia

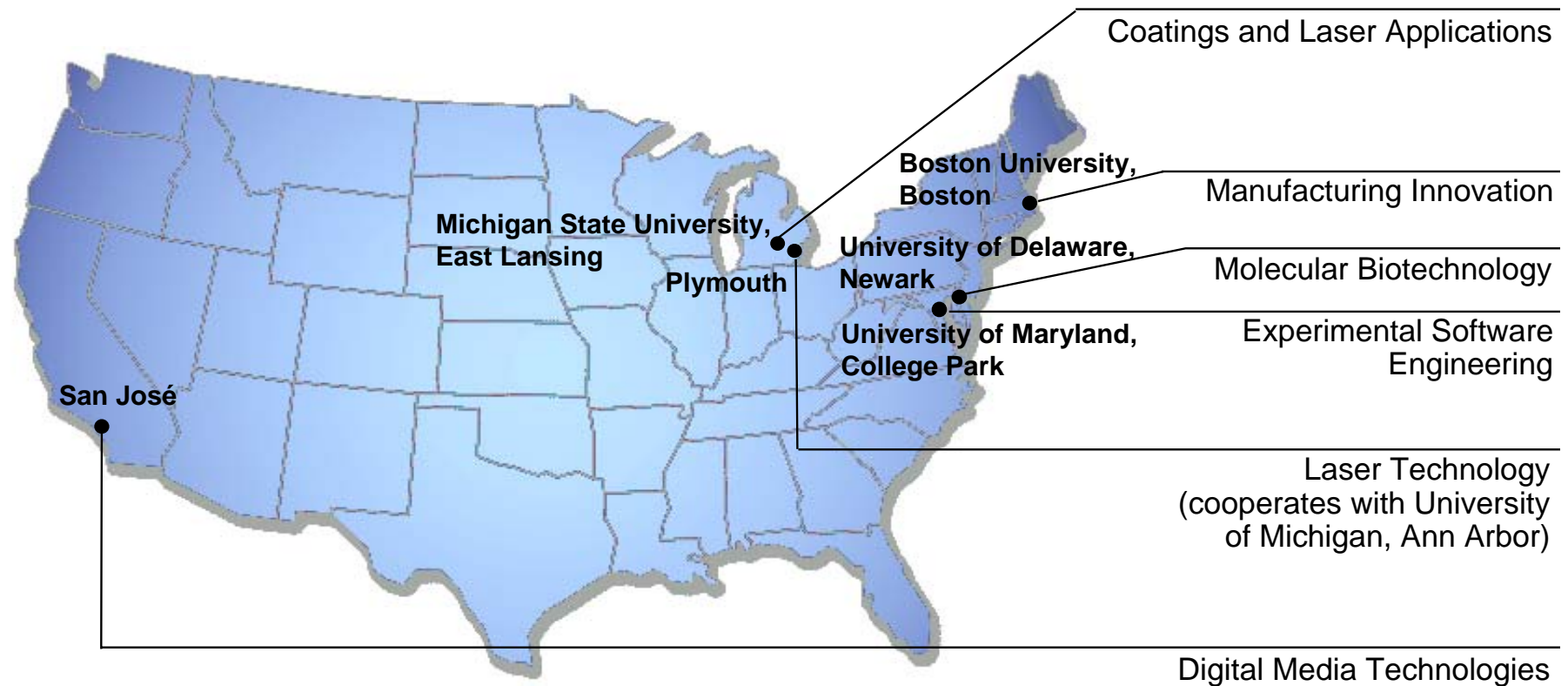
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# Fraunhofer USA Centers and Partner Institutions

## Headquarters: Plymouth, Michigan

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## »Representative Office Middle East«

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Since April 2007, the "Fraunhofer Representative Office Middle East" has been supporting Fraunhofer Institutes and their partners in building up business relations and cooperations in the Middle East.

The current activities are focused on the following fields of technology: energy, construction and logistics.

At present, strategic priority regions are the United Arab Emirates and Egypt.



# Examples of Fraunhofer Activities in the Middle East

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- Feasibility studies in the areas of energy and robotics by order of S.S. Lootah
- Joint marketing activities with Siemens LCC Middle East
- Development and setup of a Digital Media Campus at the German University Cairo
- Participation in the Science Fair GETS and in the German Science Day in Cairo
- Strategic cooperation with the Arab Science & Technology Foundation (ASTF)



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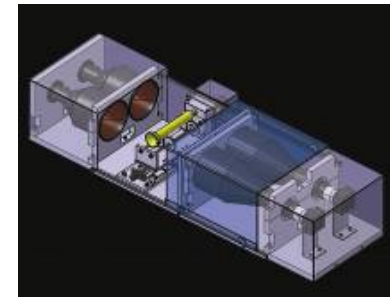


## Fraunhofer IPK

- **262 employees**
- **More than 70 test areas and 7 special laboratories on ca. 7 100 m<sup>2</sup>**
- **Founded in 1976**
- **Budget of 14,3 Mio. Euro in 2003**
- **Spin-offs and start-ups by 12 % of former staff members**

Customer-oriented  
research

- Corporate Management
- Virtual Product Creation
- Production Systems
- Automation Technology
- Medical Technology



## Spectrum of Services

- Feasibility studies and calculation of profitability
- Project planning and engineering
- Management of bi- and multilateral projects
- Industrial projects to prototypical implementation
- Development of technologies, tools and software systems
- Testing with state-of-the-art equipment
- Training, seminars, coaching

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# Production Technology Centre Berlin

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## Division Corporate Management

- ▶ Benchmarking
- ▶ Knowledge Management
- ▶ Management Systems
- ▶ Environment and Quality Management
- ▶ Business Process Management
- ▶ Supply Chain Management



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## Information Centre Benchmarking (ICB) Some Facts

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Established in 1994 as first Benchmarking Centre in Germany

Partnership with numerous companies

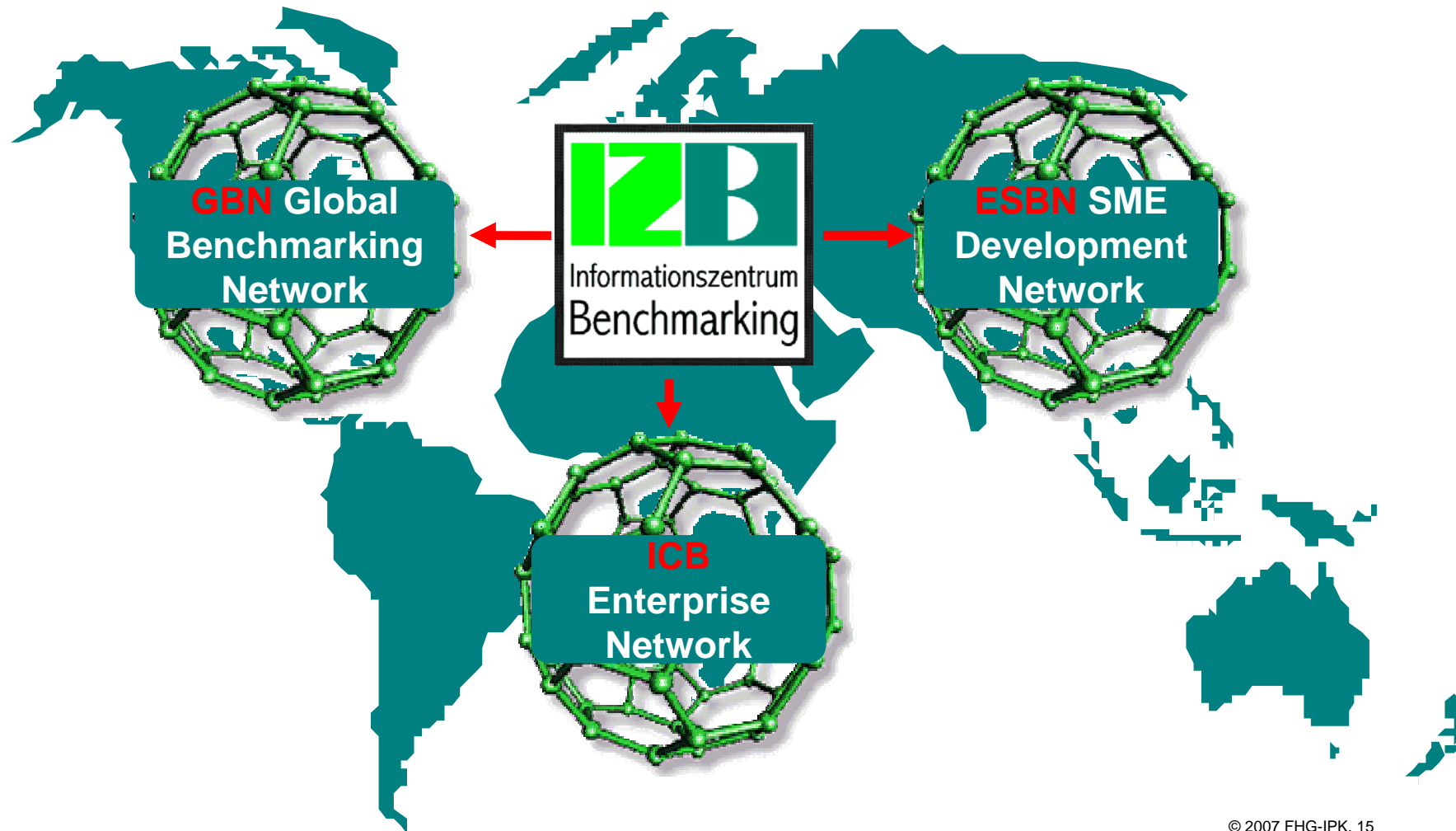
Founding member of the Global Benchmarking Network (GBN)

Founding member of the European SME Benchmarking Network (ESBN)

Experience trough initiating and conducting BM-Projects in industry, the service sector and the public sector

*Please visit [www.benchmarking.fhg.de](http://www.benchmarking.fhg.de)  
for further information*

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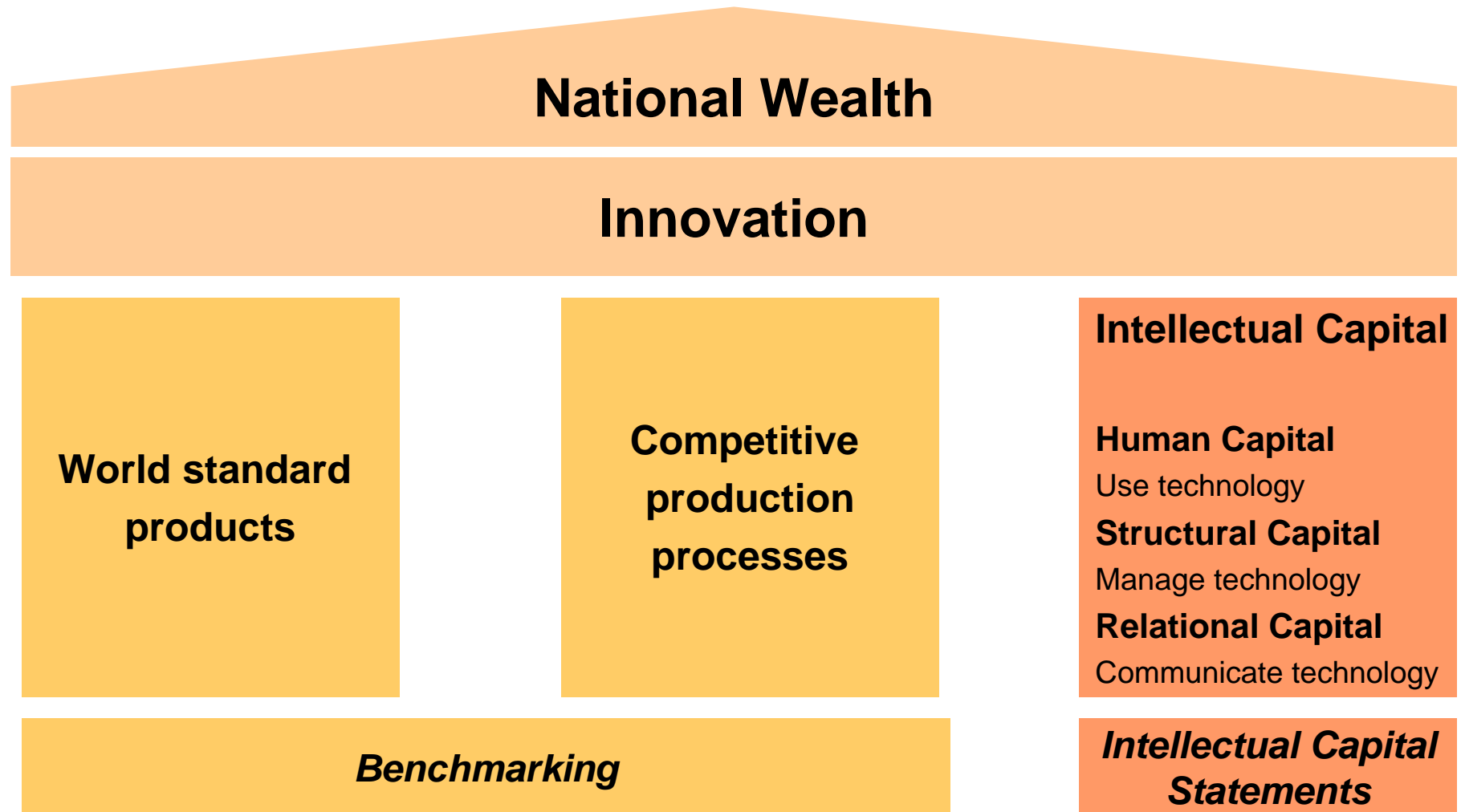


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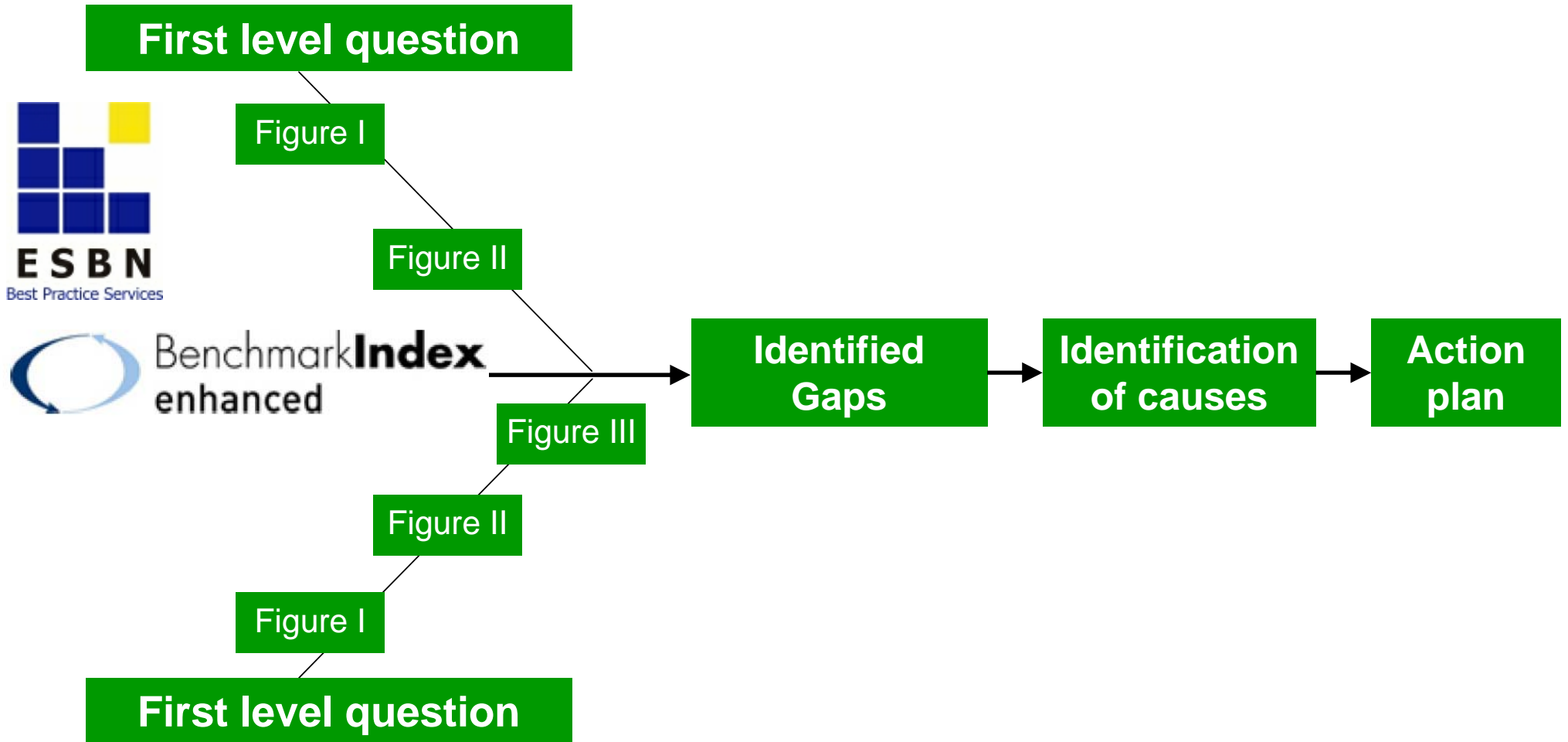
# Development of Economy

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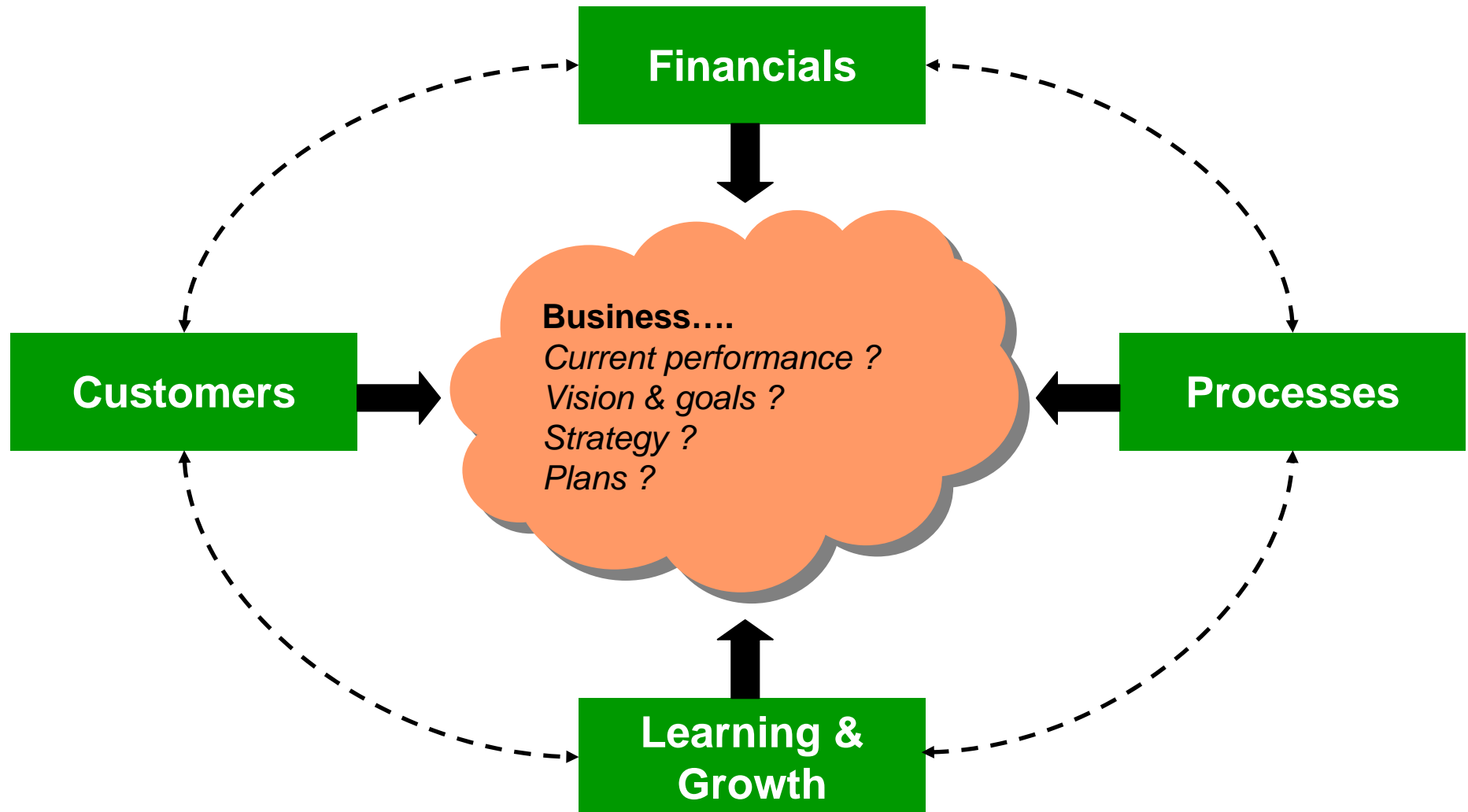
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# stepwise approach towards Best Practice



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# the balanced scorecard used in the BenchmarkIndex

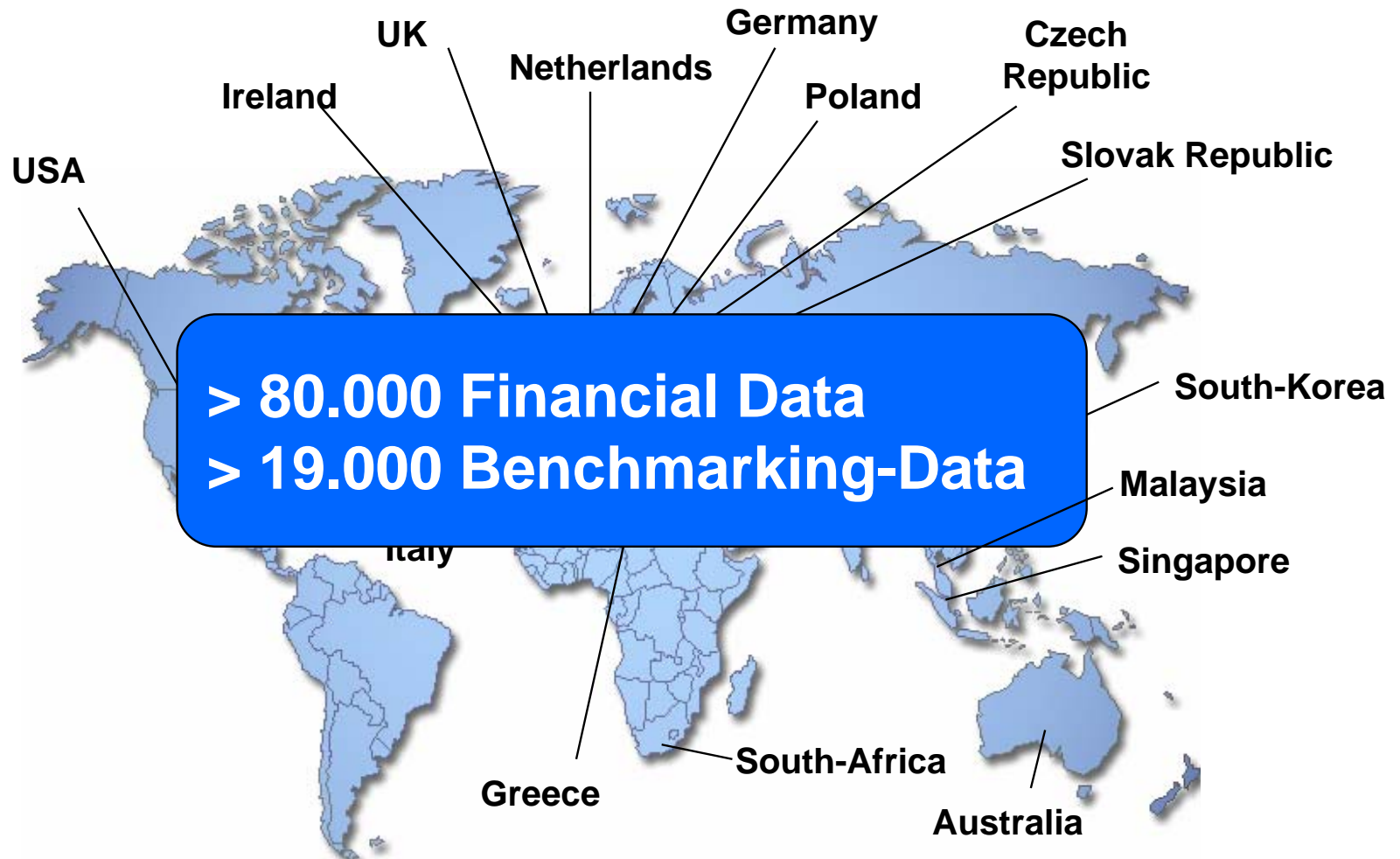


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# BenchmarkIndex

## Worldwide

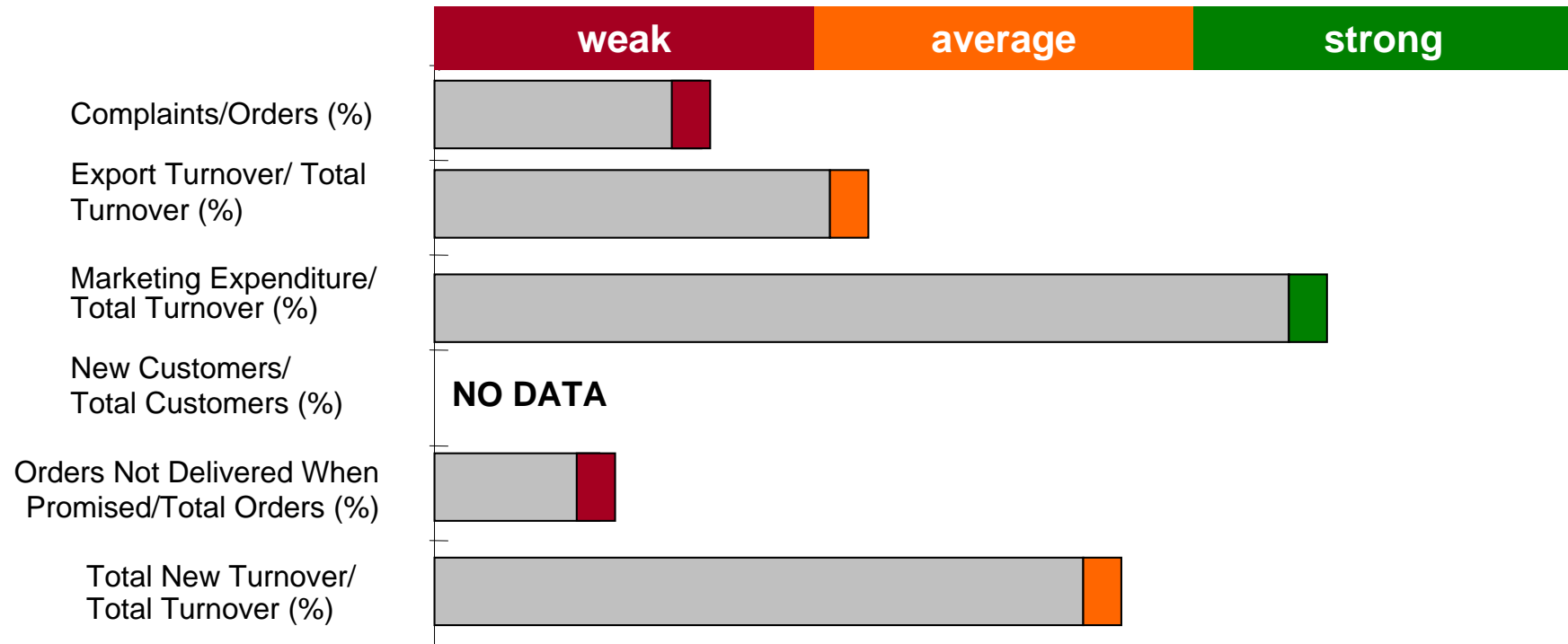


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# the comparison stage – chart layout (example)

## Customers Perspective



Always: weak..... strong

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# the comparison stage – table structure (example)

## Customers Scorecard

Always: weak..... strong

	actual	v. weak	weak	average	strong	v. strong
Complaints/Orders (%)	1.14	1.96	0.80	0.17	0.03	0.00
Export Turnover/ Total Turnover (%)	4.95	3.75	4.64	5.09	7.88	16.25
Marketing Expenditure/ Total Turnover (%)	2.93	0.03	0.16	0.45	1.18	3.37
New Customers/ Total Customers (%)		0.00	11.47	20.00	35.67	88.14
Orders Not Delivered When Promised/ Total Orders (%)	2.78	3.36	2.55	0.63	0.42	0.00
Total New Turnover/ Total Turnover (%)	4.03	0.00	0.56	2.11	6.09	25.34

Performance measure ( )

# = number [ratio]  
 € = money [€]  
 %

Actual  
score

Average  
(median)

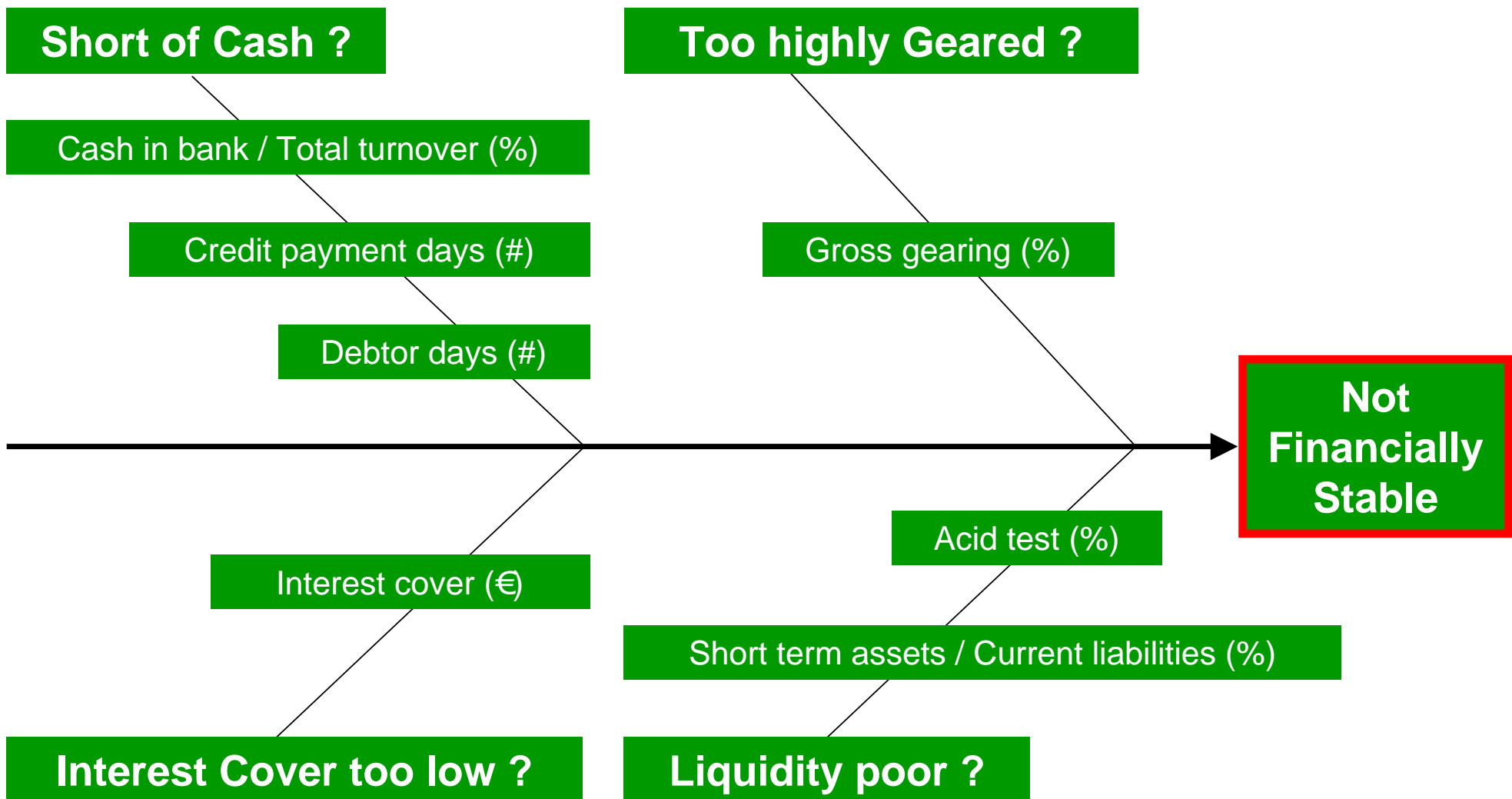
Lowest & Highest  
Actual  
less top & bottom 5%

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# financial perspective



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# Not getting the Best out of its Processes ?



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# process perspective

## Production Planning / - Process Problems ?

Orders not delivered when promised / Orders (%)

Orders rejected during warranty period / Orders (%)

Scrap or yield loss rate (%)

Time spent on rework / reprocessing /  
No. of FTE employees (hrs.)

Orders failed before delivery / Orders (%)

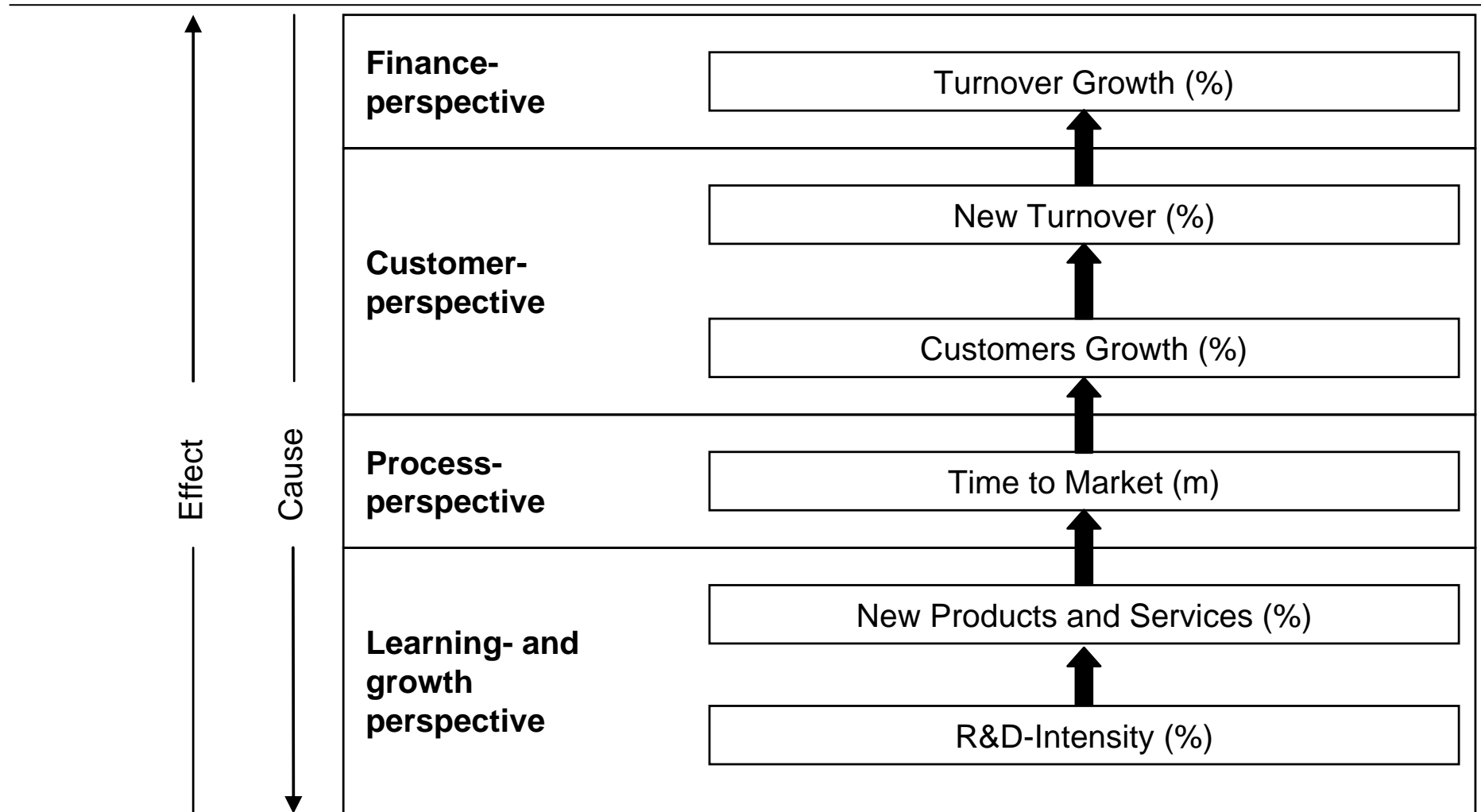
## Quality and Delivery Time Problems ?

**Not getting  
the Best out  
of its  
Processes**

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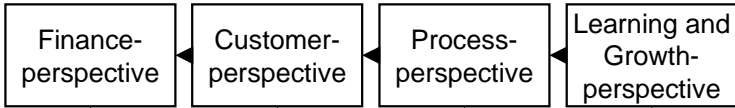


# Cause and Effect Analysis for identifying relevant Business Processes



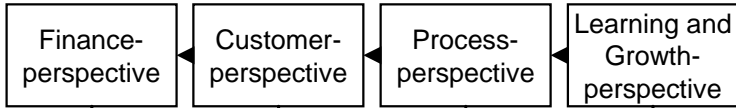
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**Benchmarking-Database**  
(Indicator Benchmarking)



**Benchmarking**

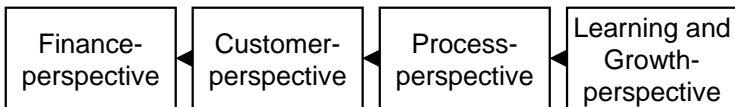
**Enterprise**



*Indicator-Benchmarking helps identifying the gaps*

**Database of the integrated Benchmarking-Approach**  
(Best Practice-Processes)

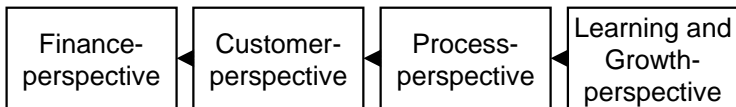
**Cause**



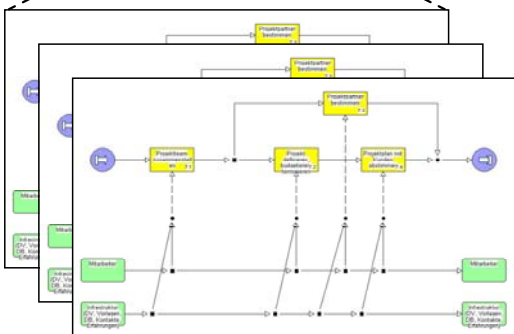
**Best Practice-Transfer**

**Enterprise**

**Cause**



**Reference-models**

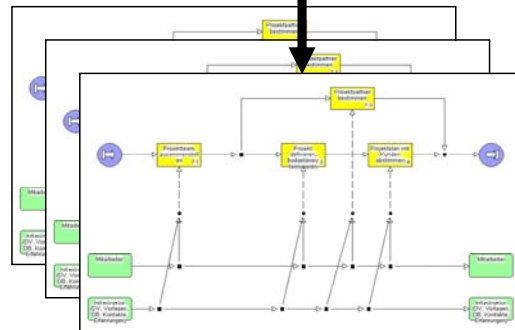


**In deficit  
as-is-Process**

**Effect**

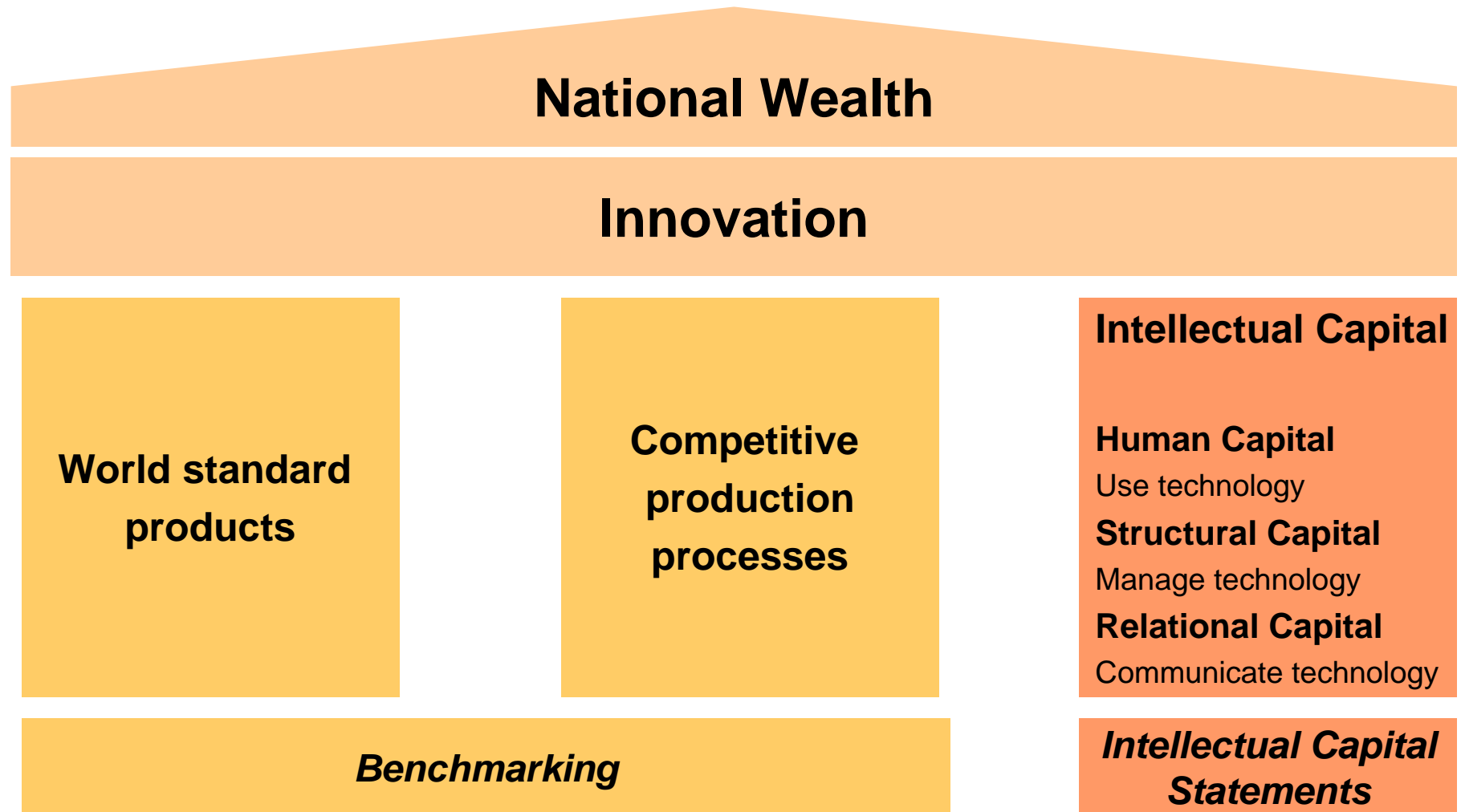
**Integrated Benchmarking for SMEs  
for collecting and using  
Best-Practice-Process-Information**

**Improved  
Business  
Process**



# Development of Economy

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# Globalization and Low Labour Cost Countries

## Production Relocation is affecting European Companies

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Competition on Productivity and Cost Efficiency is rather short-term oriented than Innovation by Research

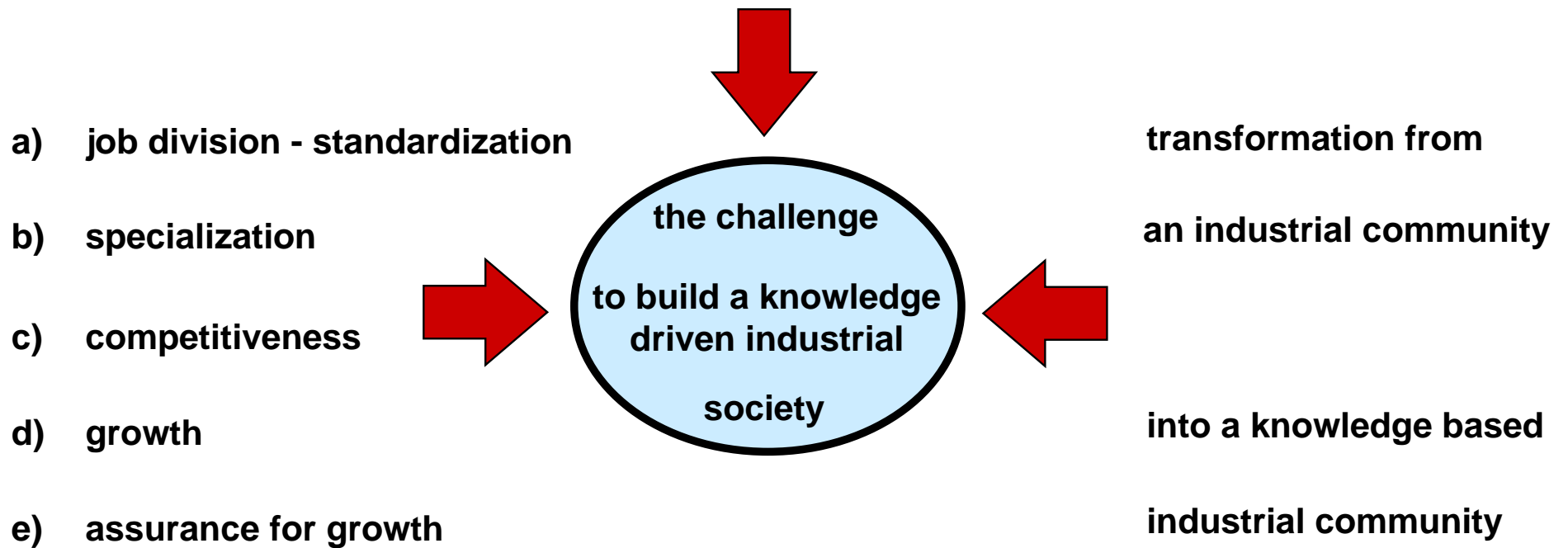


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# The Way to the Third Millennium

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1. Production of „high“ added value products and services
2. The involvement and systematic development of more participants in the process of added value.



# What are the needs for the Industry?

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**Product and Production Process Optimization, including equipment !**

**Stronger Focus on Research and Development !**

**Establishment of Supplier Networks for joint development !**

**Creation of Knowledge in terms of Market and Customer Needs !**

**Systematic Development of Intellectual Capital !**

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# Why Measuring Intellectual Capital (IC) in SMEs?

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Would you have invested?

- The **organizational value** consists of tangible and intangible assets, which are mostly undocumented in traditional accounting systems
- **Investors** (Rating according to Basel II) demand plausible evidence of corporate values. Companies in knowledge-intensive fields have difficulties in proving their value to investors.
- **Legal regulations** commit organisations to legitimate their intangible assets. (Austrian UOG, IAS 38, DRS 12 and 5)

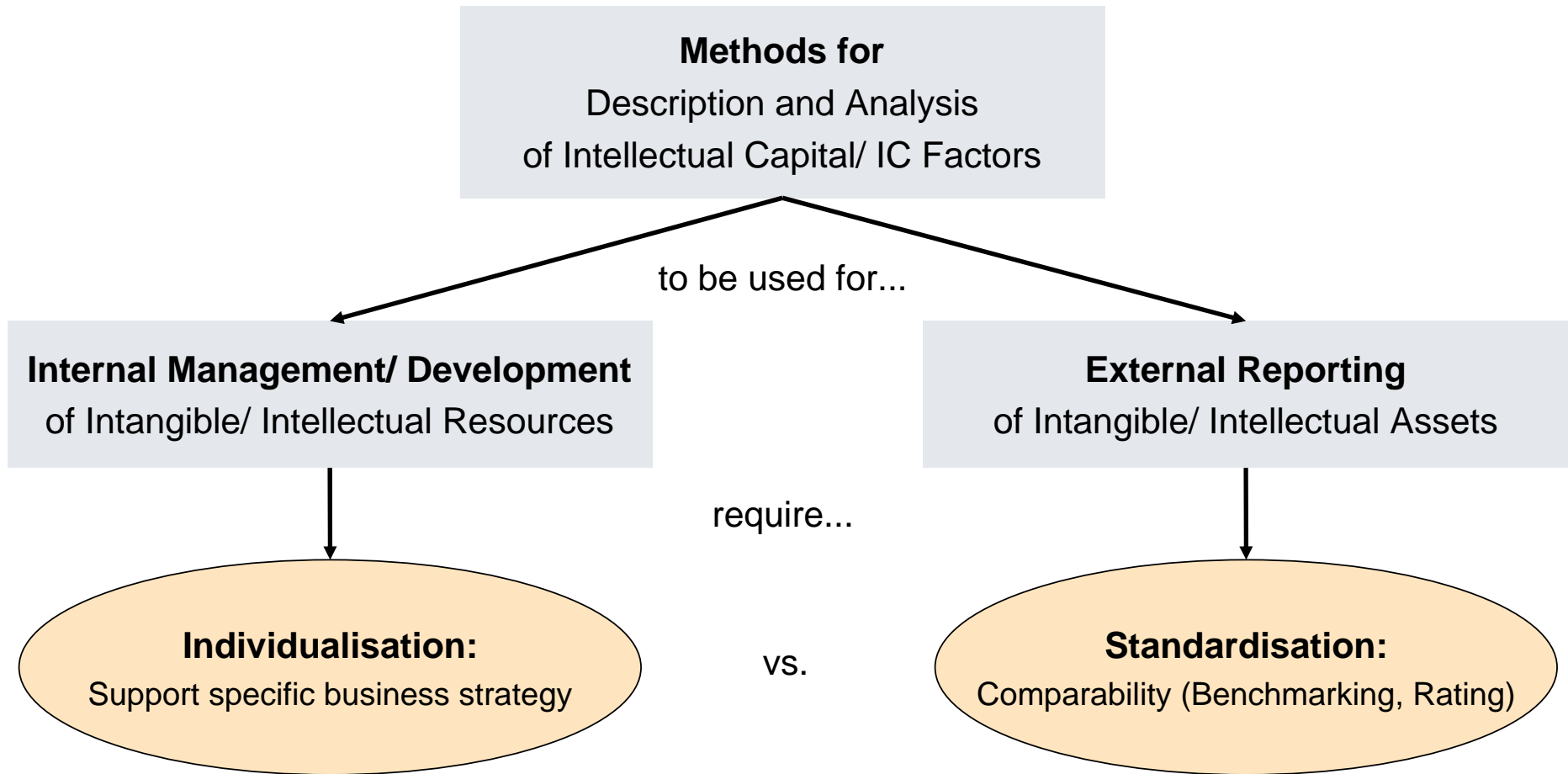


Microsoft Corporation 1978

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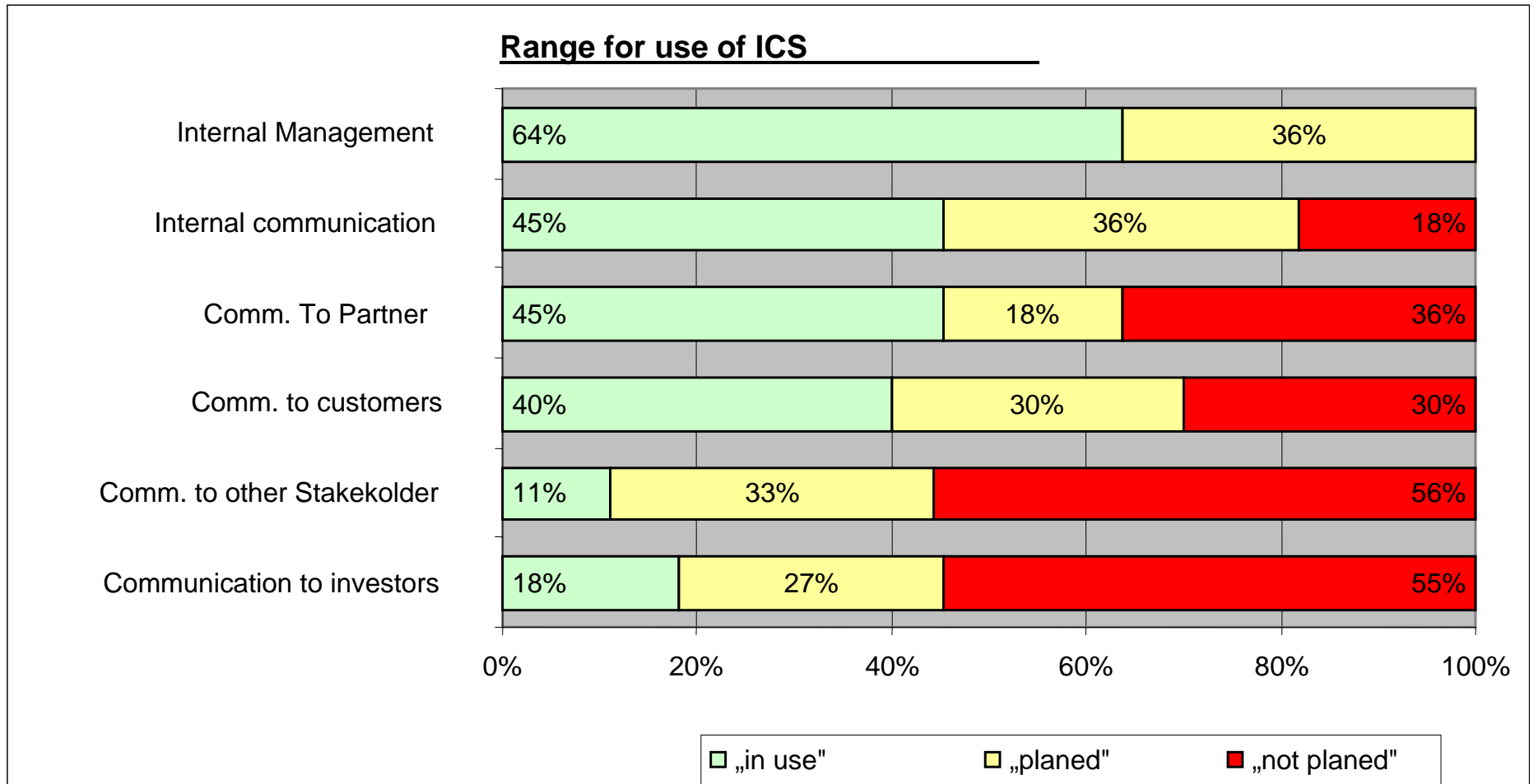
# Two Basic Fields of Use for Intellectual Capital Statements (ICS) in SMEs



*General SME requirement: economic procedure (costs-benefit)!*

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# Range for use: internal before external



source: Befragung der deutschen Wissensbilanz-Pilotanwender (2005), Fraunhofer IPK (n=11)

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# Overview: Existing Non Financial ICS Frameworks and Guidelines

Institution / Country	Initiative	Scope	Application	Year	Reference
European Union	Public	All companies	Mandatory	2003	Modernisation Directive
		Listed Companies	Mandatory	2004	Transparency Directive
Australia	Public	Listed Companies	Mandatory	2003	ASX Listing Rule 4.10.17, Australien Stock Exchange
Canada	Public	Listed Companies	Mandatory	2003	Management Discussion and Analysis under NI 51-102, Continuous Disclosure Obligations, Securities Administrator
Germany	Public	All companies	Mandatory	2004	GAS 15 Management Reporting, DRSC
United Kingdom	Public	Quoted companies	Under Discussion	2005	Operating and Financial Review, Department of Trade and Industry
United States	Public	Listed Companies	Mandatory	2003	Management Discussion and Analysis, Securities and Exchange Commission
International Accounting Standards Board (IASB)	Private	Accounting Standard Setters IFRS		2005	Management Commentary Discussion Paper, IASB
European Union	Public	All companies	Voluntary	2002	Guidelines for Managing and Reporting on Intangibles, MERITUM Project
Australia	Public	All companies	Voluntary	2002	Australian guiding principles on Extended Performance Management, Society and Culture
Austria	Public	Public Universities	Mandatory	2002	Austrian Universities Act, Federal Ministry of Education, Science and Culture
Denmark	Public	All companies	Voluntary	2003	Intellectual Capital Statements - The new guideline, Ministry of Science, Technology and Innovation

**Source:**  
OECD  
Preliminary Report, March 2006

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**Division Corporate Management**  
Prof. Dr.-Ing. Kai Mertins

# Motivation and Benefits on the macro-economic and political level in Germany



- **Development of the Intellectual Capital** in Germany to secure and enhance the **capability to compete on international level**.
- **Motivate German SME** by time to use knowledge as a strategic resource.
- **Preparation for coming legal chances** in accounting rules (see more Qualitative Factors in International Accounting Standard Board (IASB)).
- Visualize the Intellectual Capital of German SME and their innovation and future potential for **government decision making to support selected industry**
- **Enhance productivity and competitiveness** of SME by activation unused potentials.

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## History and result of the German pilot project

Supported by the BMWA within the initiative *"Fit for the knowledge competition !"*

[AK-WB]

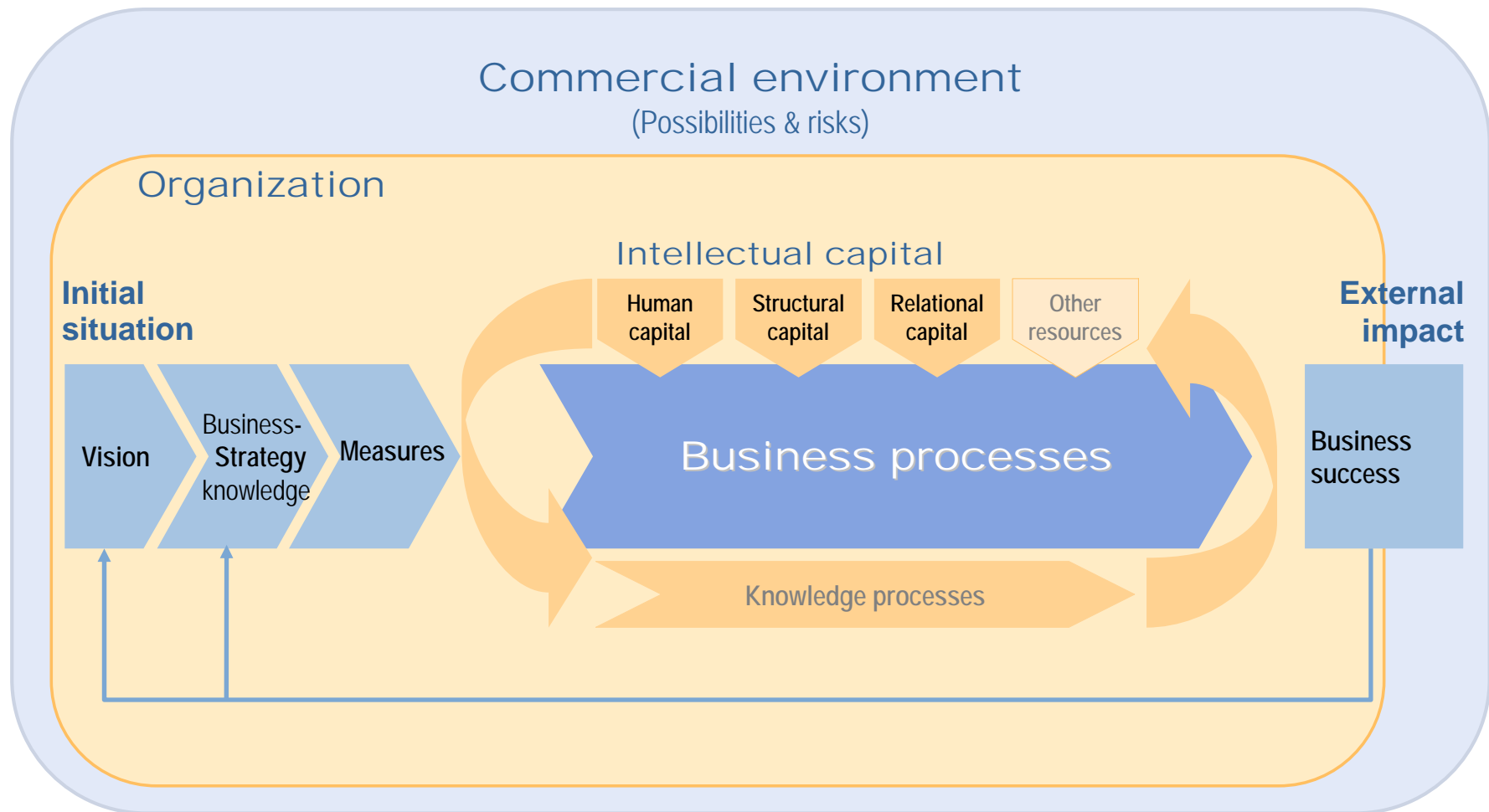


Discussion Group ICS

- Summer 2003 Foundation of the **Intellectual Capital Statement Project Group** as international consortium.
- **Review of international experiences** and adaptation to the requirements of German SMEs.
- In January 60 companies could be inspired for this idea. Finally **14** were chosen to be involved as **pilot companies**.
- **Maximum efficiency at the realisation of the project:**  
Within 3 months the project was set up and a model for Intellectual Capital Statements was developed. The project consortium could successfully implement **Intellectual Capital Statements in 14 SMEs within only 6 months** (from February till July 2004).

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# The Framework: ICS Structural Model



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# What is an Intellectual Capital Statement in the German Definition?

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**Definition Intellectual Capital Statement:**  
An Intellectual Capital Statement is an instrument for the focused **description and development of the Intellectual Capital** in an organisation.

It shows the interdependencies between the organisational aims, the business processes, the Intellectual Capital (IC) and the business success and describes these elements by means of **indicators**.

**Source:**

Guideline Intellectual capital statement –  
Made in Germany.  
Federal Ministry of Economics and Labour  
in cooperation with the Intellectual Capital  
Statement Project Group  
[www.akwissensbilanz.org](http://www.akwissensbilanz.org)

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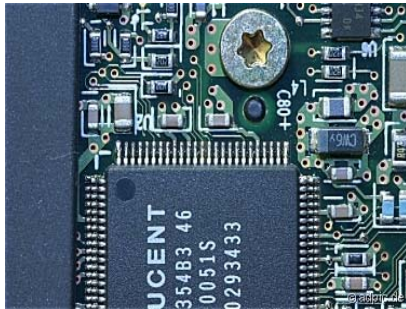
# Main Elements of Intellectual Capital (IC Factors)

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## Human Capital

- Employee qualification and experience
- Leadership and social skills
- Employee motivation



## Structural Capital

- Corporate culture
- Internal co-operation and organisation
- Product innovation
- Process innovation and optimisation
- Knowledge transfer and storage



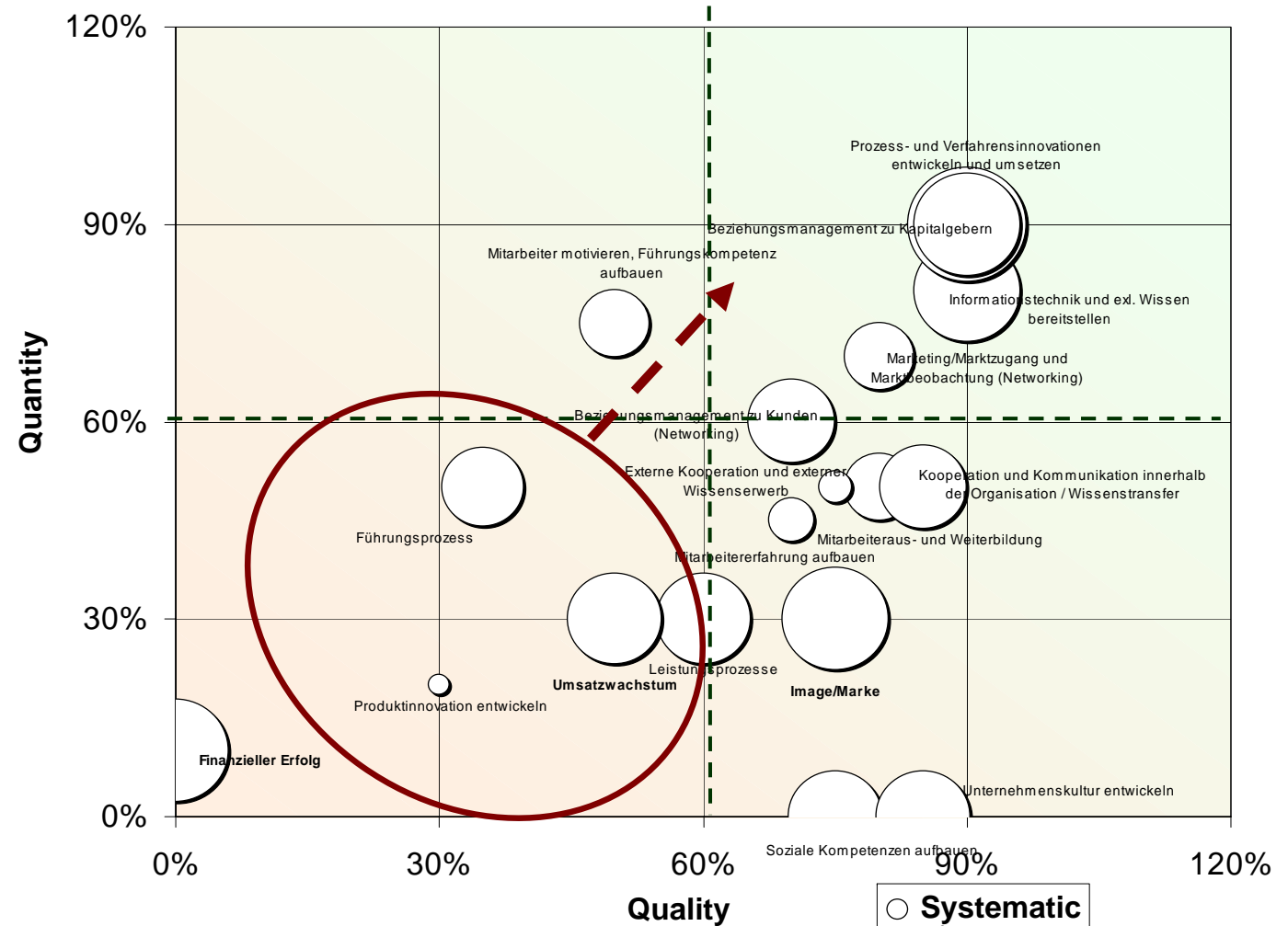
## Relational Capital

- Relations to customers, suppliers and investors
- External co-operation and knowledge acquisitions
- Social commitment and public relations

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# Assessment portfolio

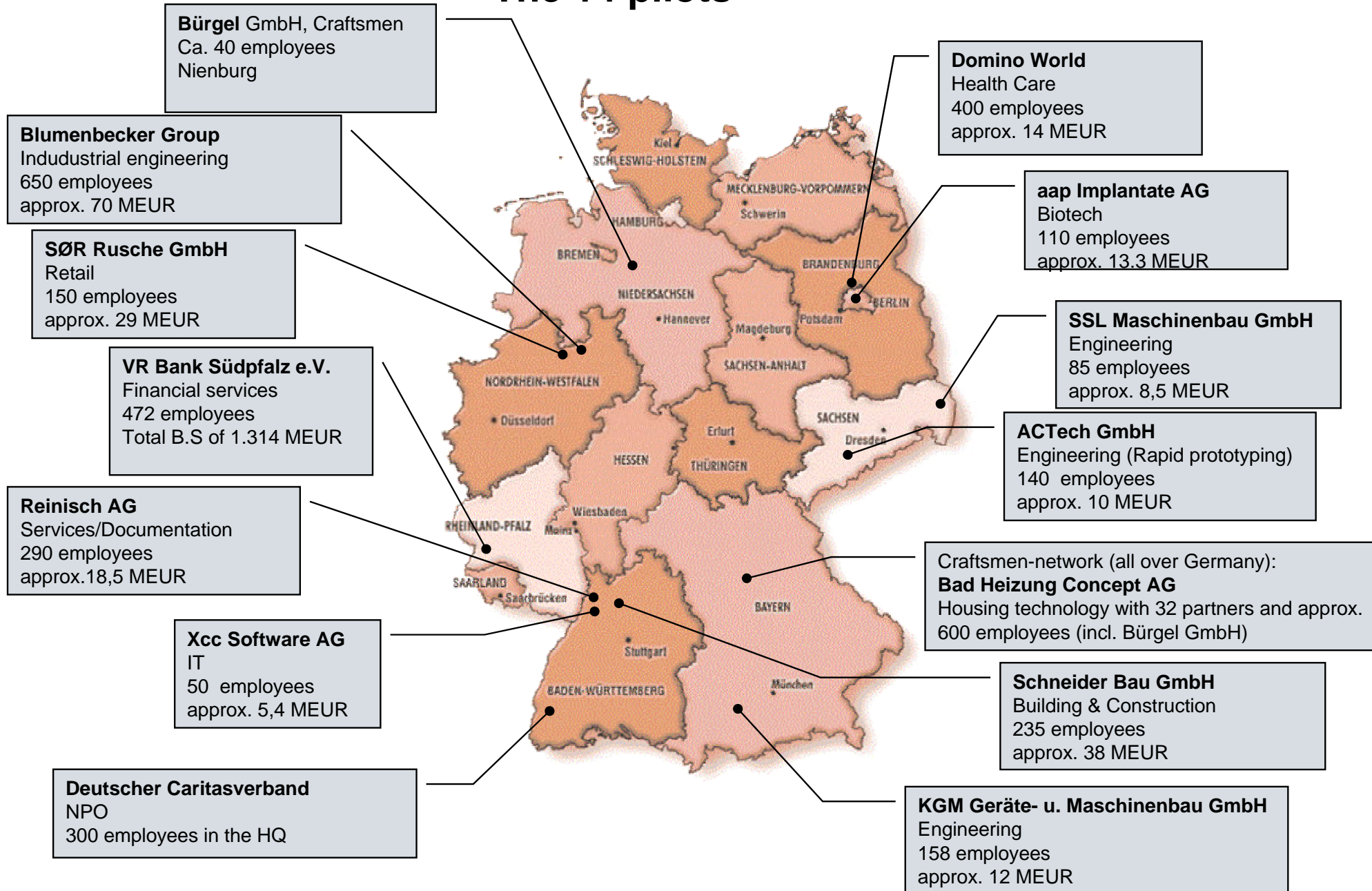


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# The 14 pilots



# Main Results of the German ICS Pilot Project

[www.akwissensbilanz.org](http://www.akwissensbilanz.org)



- **Efficient method** to start IC Management in SMEs.
  - **Intellectual Capital Statements** were implemented in 50 SMEs from different regions and sectors.
  - **Guideline for the implementation** of an ICS in German and English language published (more than 50.000 copies distributed)
  - **Software “Wissensbilanz-Toolbox”** available since July 2006, more than 15.000 copies distributed.
- Financial Times and Commerzbank Award 2005** for one of the first 14 Pilot-Partners
- 25 Roadshows** for entrepreneurs with more than 500 participants.
- More than **200 users and trainers** trained

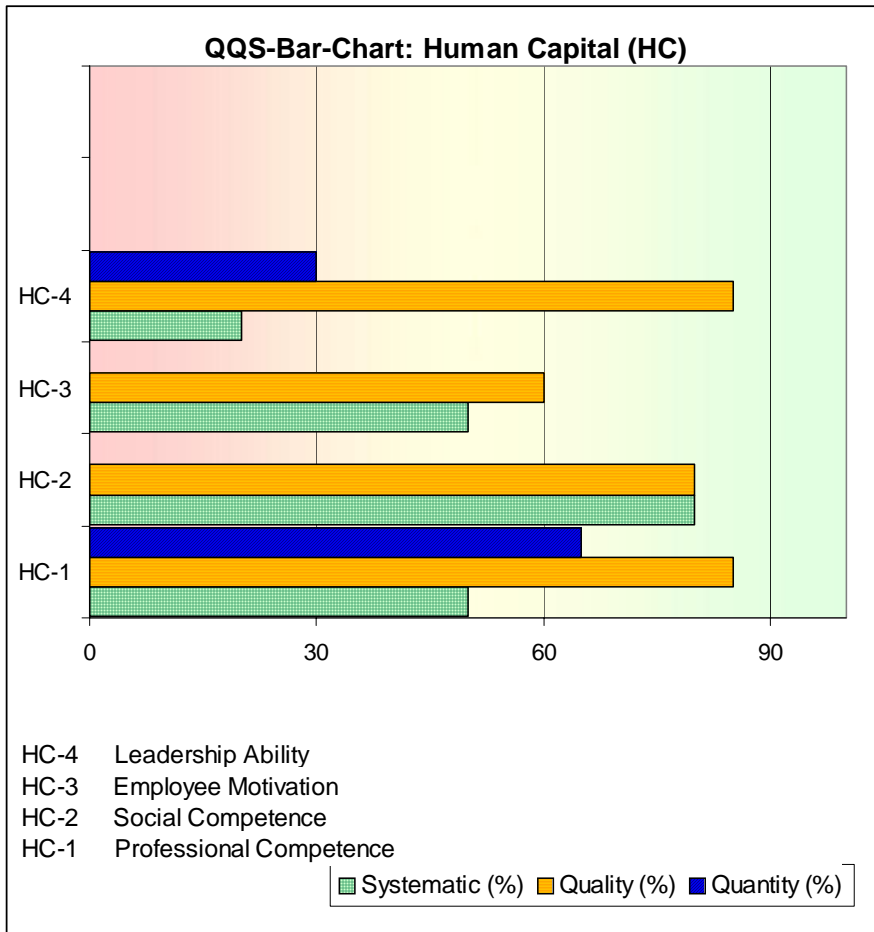
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# Results: Identify Strengths & Weaknesses



Example:

Human Capital Factors evaluated regarding their potential to support achievement of strategic objectives.

Dimensions:

- Quantity:

*Do we have enough of the factor to achieve our strategic objectives?*

- Quality:

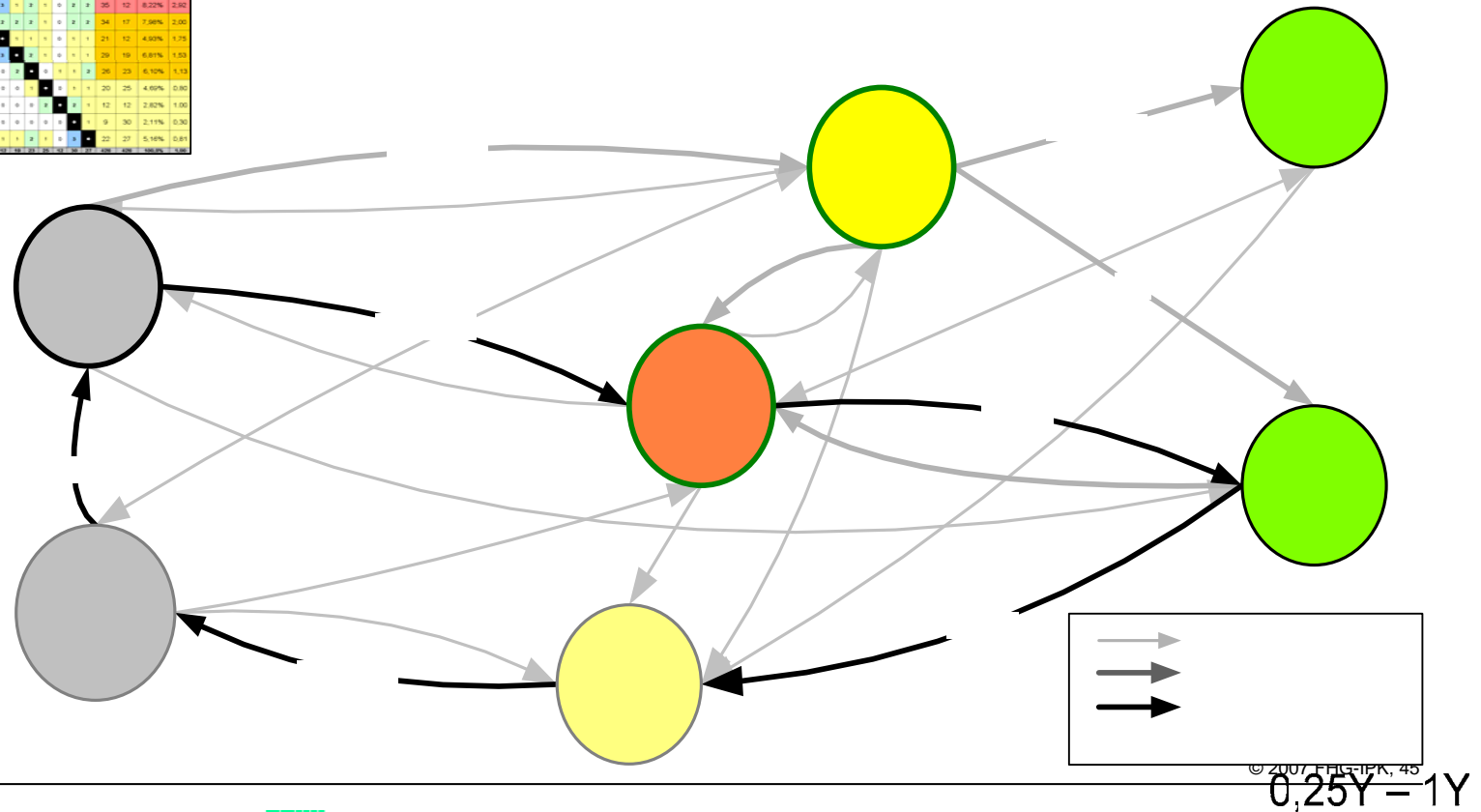
*Is the factor good enough to achieve our strategic objectives?*

- Systematic:

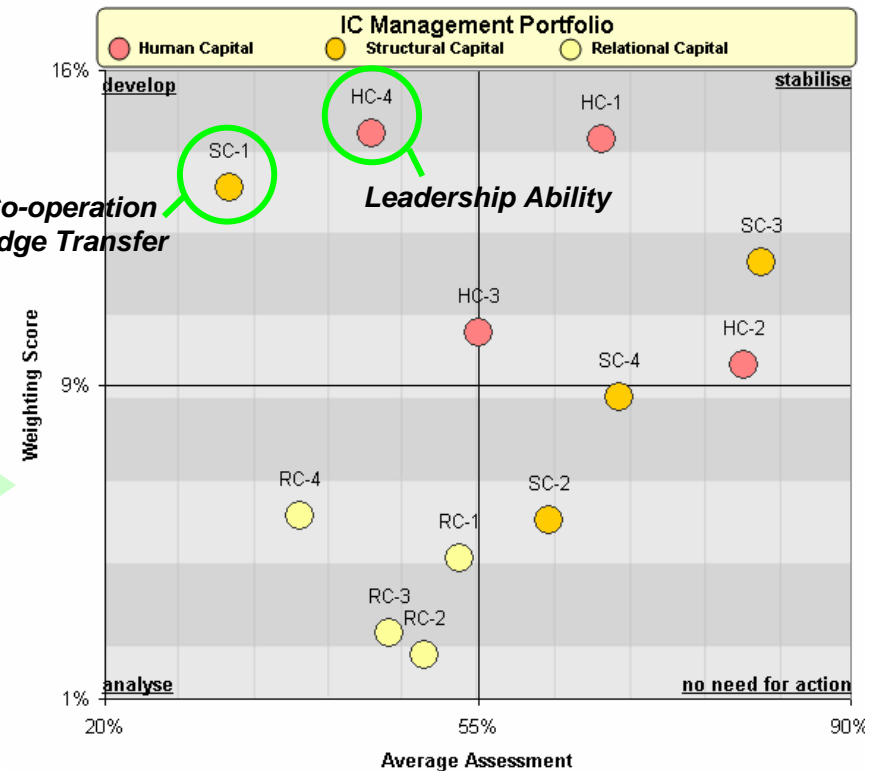
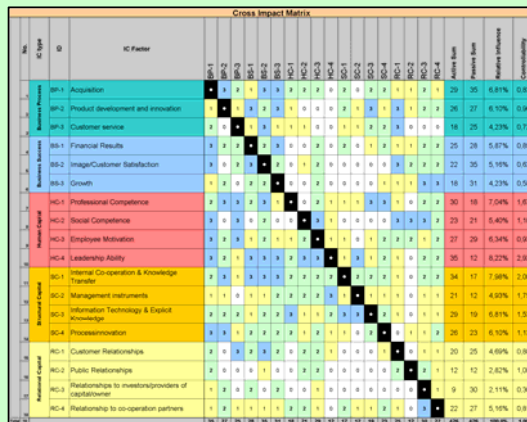
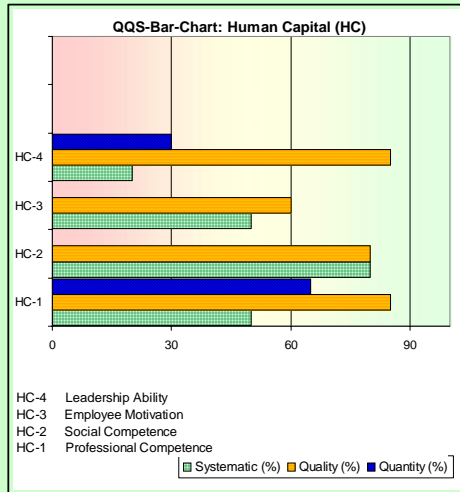
*Do we manage this factor systematically to ensure its future quality and quantity?*

# Monitoring Success of KM Measures in Cause-and-Effect-Chains by the means of ICS

Cross Impact Matrix																																		
No.	IC Type	IC Factor	IC Factor																								Score Sum	Relative Rank	Relative Influence					
			IC1	IC2	IC3	IC4	IC5	IC6	IC7	IC8	IC9	IC10	IC11	IC12	IC13	IC14	IC15	IC16	IC17	IC18	IC19	IC20	IC21	IC22	IC23	IC24	IC25	IC26	IC27	IC28	IC29	IC30		
Support Factors	SF1	Acquisition	1																													29	3	6.67%
	SF2	Product development and innovation	1																													27	5	6.10%
	SF3	Customer service	1																													18	25	4.22%
	SF4	Financial Results	1																													28	4	5.87%
	SF5	Image/Customer Satisfaction	1																													21	15	5.15%
Business Drivers	BD1	Growth	1																													16	31	4.23%
	BD2	Professional Competence	1																													30	18	7.04%
	BD3	Social Capital	1																													23	21	5.40%
	BD4	Employee Motivation	1																													27	20	6.34%
	BD5	Leadership Ability	1																													12	42	8.22%
Internal Capital	IC1	Internal Cooperation & Knowledge Transfer	1																													35	17	7.58%
	IC2	Management Instruments	1																													21	12	4.53%
	IC3	Information Technology & External Knowledge	1																													29	10	6.81%
	IC4	Process Innovation	1																													28	23	6.16%
	IC5	Customer Relationships	1																													30	25	4.65%
Related Capital	RC1	Public Relationships	1																													12	12	2.82%
	RC2	Relationships to investors/providers of capital/equity	1																													9	30	2.11%
	RC3	Relationships to co-operation partners	1																													32	27	5.16%



# Result: Defining Major Areas for Intervention



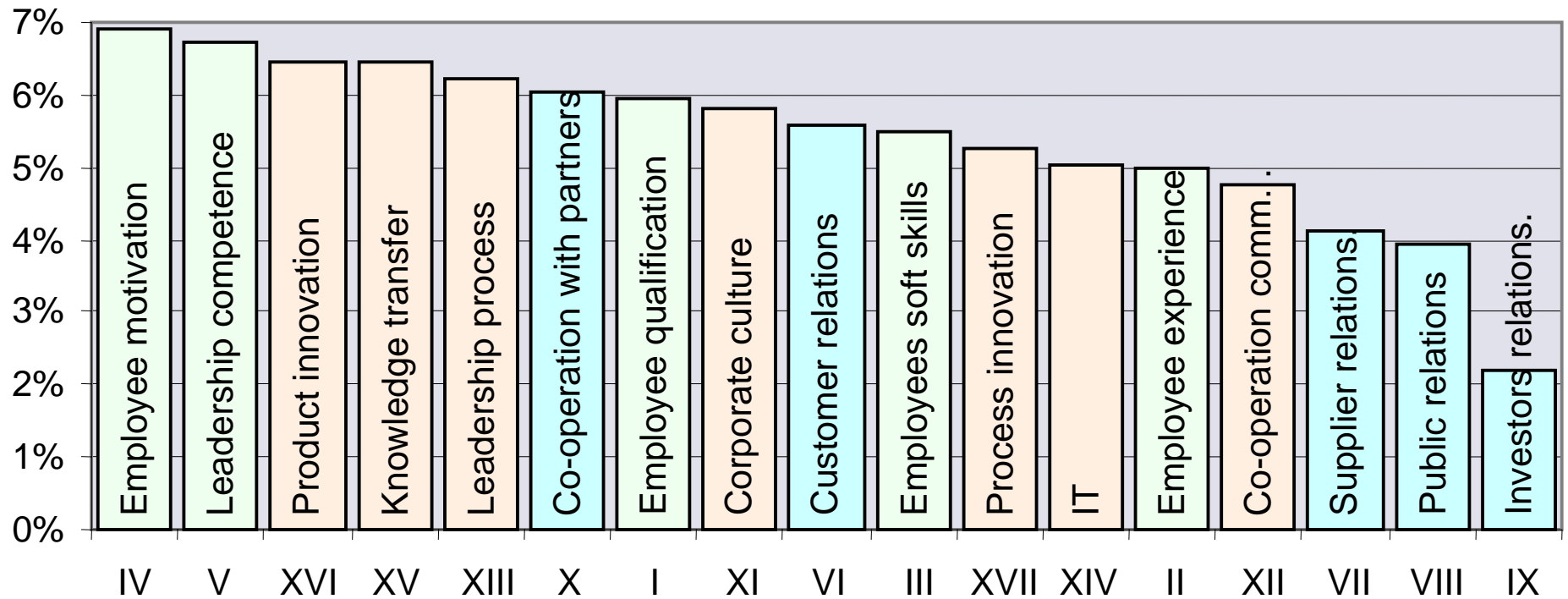
HC-1 Professional Competence	SC-1 Internal Co-operation & Knowledge Transfer	RC-1 Customer Relationships
HC-2 Social Competence	SC-2 Management instruments	RC-2 Public Relationships
HC-3 Employee Motivation	SC-3 Information Technology & Explicit Knowledge	RC-3 Relationships to investors/providers of capital/owner
HC-4 Leadership Ability	SC-4 Processinnovation	RC-4 Relationship to co-operation partners

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# The most important intellectual capital drivers within German SME

Ranking of the most important intellectual capital factors according their influence  
(aggregated for all 14 Pilot-SME)



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# Summary and Experiences

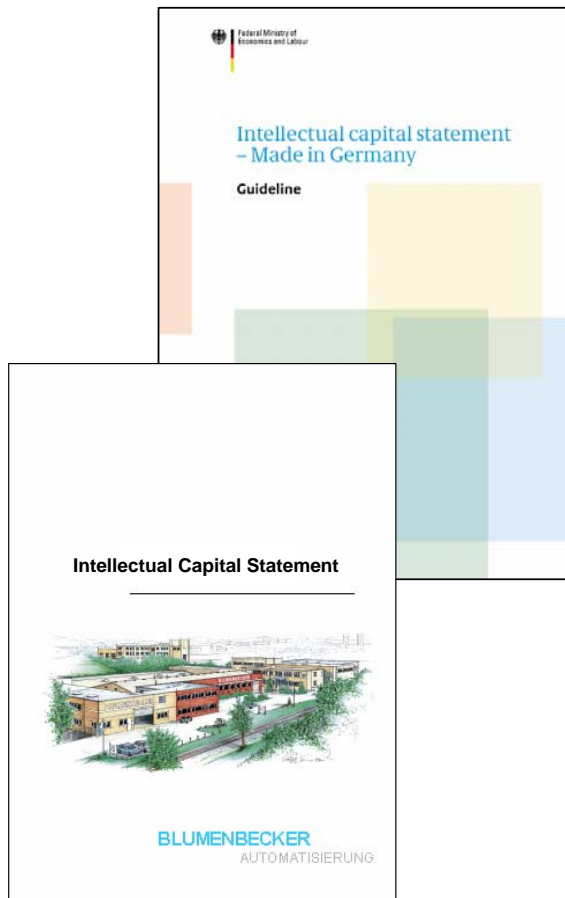


- Step-by-step process with distinct quick-wins is important
- A bottom-up approach is best to achieve a sustained impact in the organization
- Second step is usually external communication to banks and customers
- External reporting to stakeholders without links to internal management is not considered credible in most of the firms
- Pull (from SME) instead of Push (from investors) is recommended

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# Benefits of Intellectual Capital Statement– Summary of companies` experiences



## Improved management

- Increases transparency according to knowledge and competences
- Well-founded basis for decision making and organisational development
- Discovers improvement opportunities and innovation potentials.
- Supports the well-aimed development of high potential components of intellectual capital

## Improved external communication

- Improved relationship to stakeholders by higher transparency about the sources of organisation's performance
- Improved negotiating basis with investors and customers

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# Questions and Answers

## Thanks for Attention



***Dr.-Ing. Holger Kohl***  
***Dipl.-Kfm. Ronald Orth***

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Pascalstraße 8-9  
10587 Berlin, Germany



### **Benchmarking**

Guideline for Best Practice  
Comparisons

Hrsg.: Mertins, Kai  
Mit Beiträgen namhafter Experten!



### **Knowledge Management**

Concepts and Best Practices

Eds.: Mertins, Heisig, Vorbeck  
Gestaltungsansätze und Projektergebnisse,  
Siemens, Aventis, HP usw.

✉ [holger.kohl@ipk.fraunhofer.de](mailto:holger.kohl@ipk.fraunhofer.de)

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