



## ►► Advances in Global Software Engineering 10 Years of ICGSE

## Vector Consulting Services

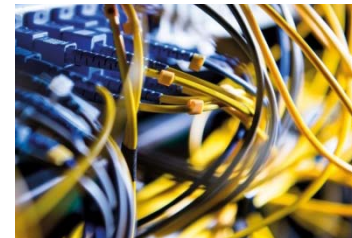
- ▶ ... supports clients worldwide in improving their product development and IT and with interim management
- ▶ ... with clients such as Accenture, Audi, BMW, Bosch, Daimler, Huawei, Hyundai, Lufthansa, Munich RE, Porsche, Siemens, Thales, ZF
- ▶ ... offers with the Vector Group a portfolio of tools, software components and services
- ▶ ... is as Vector Group globally present with 1400 employees and well over 250 Mio. € sales
- ▶ [www.vector.com/consulting](http://www.vector.com/consulting)



Automotive



Aerospace



IT & Finance

Industry 4.0



Medical

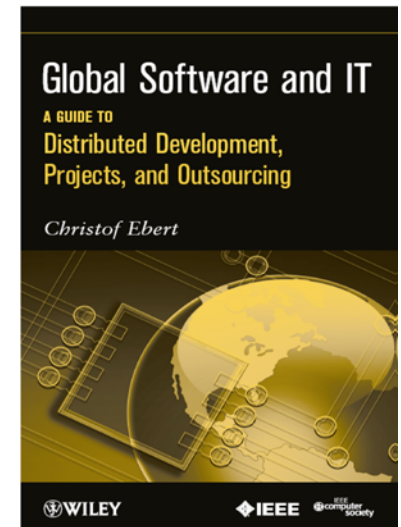
Railway



## Christof EBERT

Christof Ebert is managing director at Vector Consulting Services. He supports clients around the world to improve product strategy and product development and to manage organizational changes. Prior to that, he held global management positions for ten years at Alcatel-Lucent.

A trusted advisor for companies around the world, member of industry boards, and professor at the University of Stuttgart, Prof. Ebert authored several books including his most recent book "Global Software and IT" published by Wiley. He received the IEEE distinguished visitor award and is a member of the Alcatel Technical Academy.



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# Agenda

Welcome

## ► **Global Software and IT**

Advances

Trends

The Way Ahead



## Global Software Drives Global Value



▶▶ Across any walls...

**“Across the Great Wall  
we can reach every  
corner in the world.”**

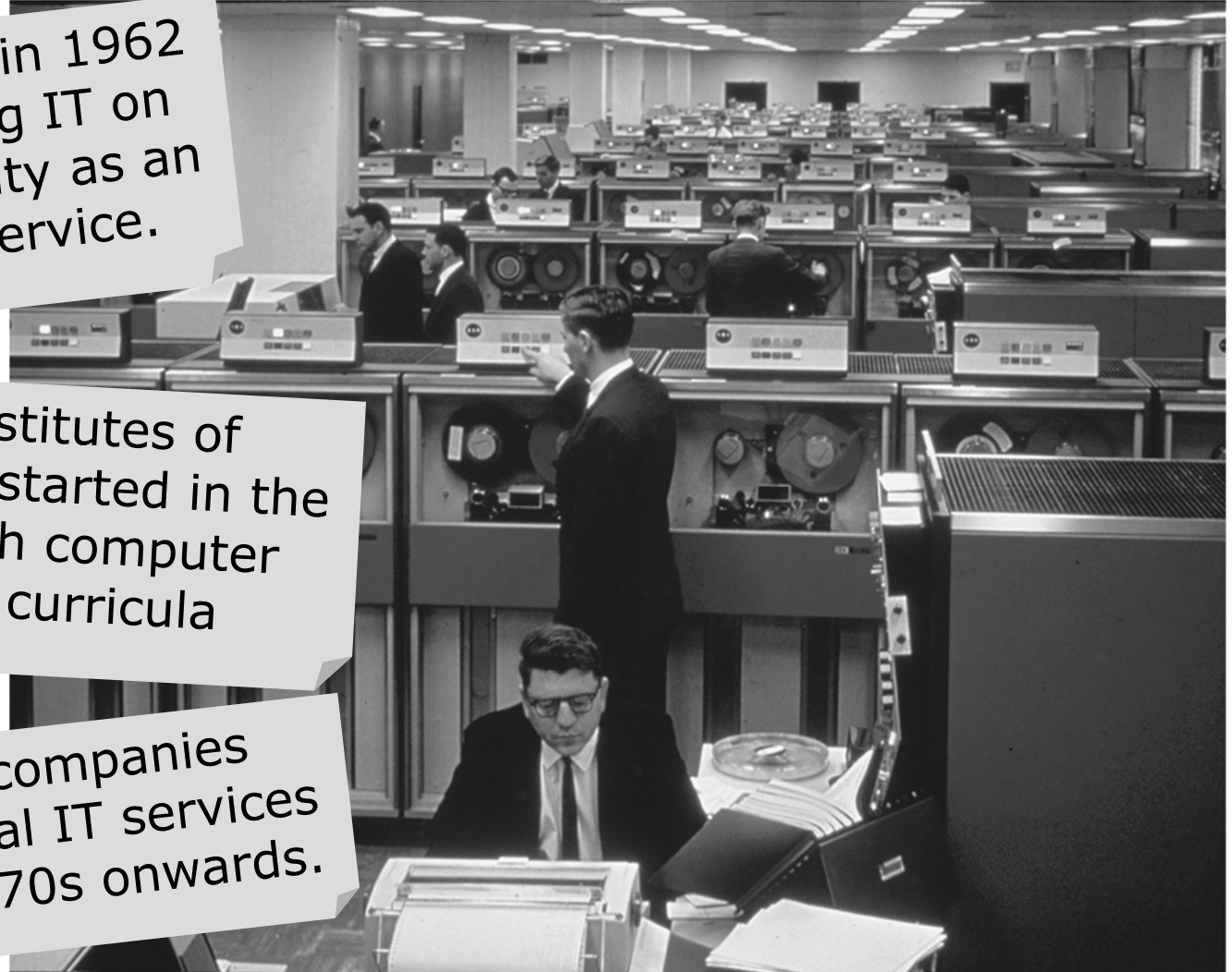
First E-Mail sent from China,  
20. Sep. 1987

## Global Software and IT – Past

EDS started in 1962 with offering IT on spare capacity as an external service.

India institutes of technology started in the 1960s with computer science curricula

Different companies offered global IT services from the 1970s onwards.



## Global Software and IT – Presence

"Cost reduction used to be the main trigger, however it is today **flexibility, innovation and efficiency**"

"20% of offshoring is cancelled first year, 50% downstream for not reaching objectives."

"A major reason for failing offshoring projects is lack of control – projects, intellectual property, engineers."

"43% of offshoring is moved back to the home country."



Sources: PWC: Global Software 100 Leaders. Report, 2013, [www.pwc.com/gx/en/technology/publications/global-software-100-leaders/index.jhtml](http://www.pwc.com/gx/en/technology/publications/global-software-100-leaders/index.jhtml) . Deloitte: Is Outsourcing Losing Its Appeal? 2013, [www.baselinemag.com/it-services/is-outsourcing-losing-its-appeal](http://www.baselinemag.com/it-services/is-outsourcing-losing-its-appeal) . Forrester's Forrsights Services Survey, Q2 2012, [www.forrester.com/Forrsights+Services+Survey+Q2+2012/-/E-SUS1391](http://www.forrester.com/Forrsights+Services+Survey+Q2+2012/-/E-SUS1391)

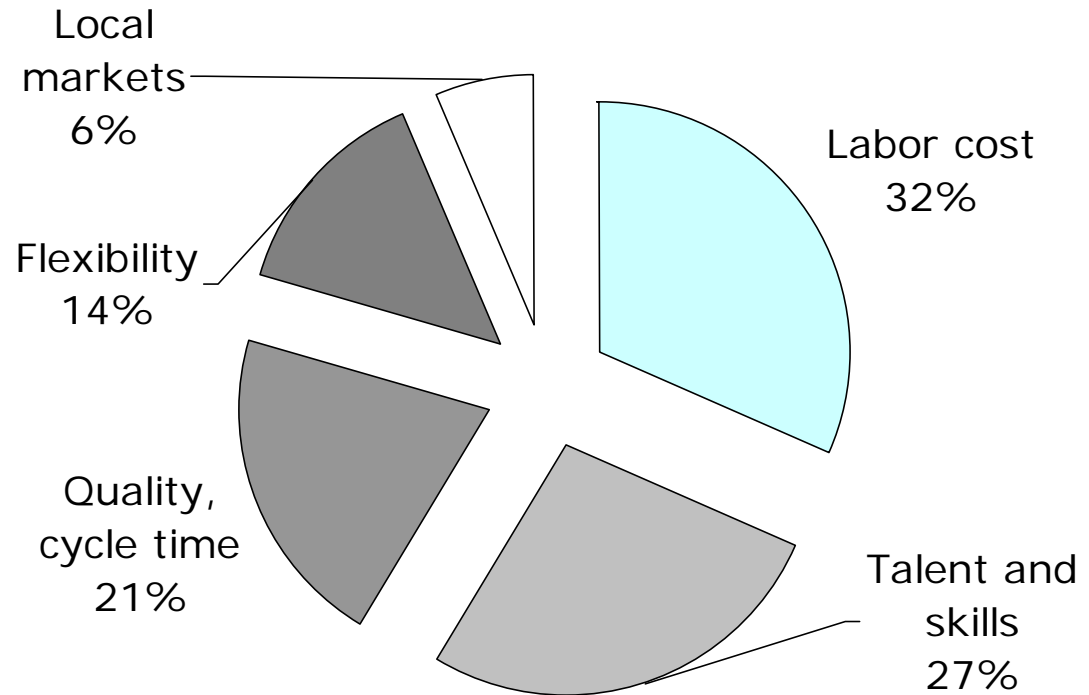


## Global Software Engineering: Rewards

Sustainable savings from mature processes with few interface frictions

- ▶ Helpdesk
- ▶ Maintenance, documentation, test
- ▶ Component development

Follow-the-sun and round-the-clock have lower savings



Projects report a 10-20% cost reduction after a 2 year learning curve

Sources: Christof Ebert: *Global Software and IT*, Wiley 2012; Vector Consulting Services' client survey 2012; Deloitte: *Is Outsourcing Losing Its Appeal?* 2013, [www.baselinemag.com/it-services/is-outsourcing-losing-its-appeal](http://www.baselinemag.com/it-services/is-outsourcing-losing-its-appeal) . Forrester's *Forrsights Services Survey*, Q2 2012, [www.forrester.com/Forrsights+Services+Survey+Q2+2012/-/E-SUS1391](http://www.forrester.com/Forrsights+Services+Survey+Q2+2012/-/E-SUS1391) .

## Global Software Engineering: Challenges

- ▶ **20-40% additional cost** at begin of learning curve for 1-2 years
- ▶ **Over 20% of sourcing contracts are cancelled** in first year
- ▶ **Over 50% do not deliver** according to objectives or strategy and are cancelled downstream
- ▶ **Over 80% of companies are not satisfied** with their global software activities
- ▶ **Increasing unexpected loss of IPR** and technology know-how
- ▶ **Decreasing proficiency level** due to inexperienced hiring

Distance multiplies risks in an otherwise high-risk business

Sources: Christof Ebert: *Global Software and IT*, Wiley 2012; Vector Consulting Services' client survey 2012; Deloitte: *Is Outsourcing Losing Its Appeal?* 2013, [www.baselinemag.com/it-services/is-outsourcing-losing-its-appeal](http://www.baselinemag.com/it-services/is-outsourcing-losing-its-appeal) . Forrester's *Forrsights Services Survey*, Q2 2012, [www.forrester.com/Forrsights+Services+Survey+Q2+2012/-/E-SUS1391](http://www.forrester.com/Forrsights+Services+Survey+Q2+2012/-/E-SUS1391) .

## Top-Ten Risks and Mitigation – 10 Years of ICGSE

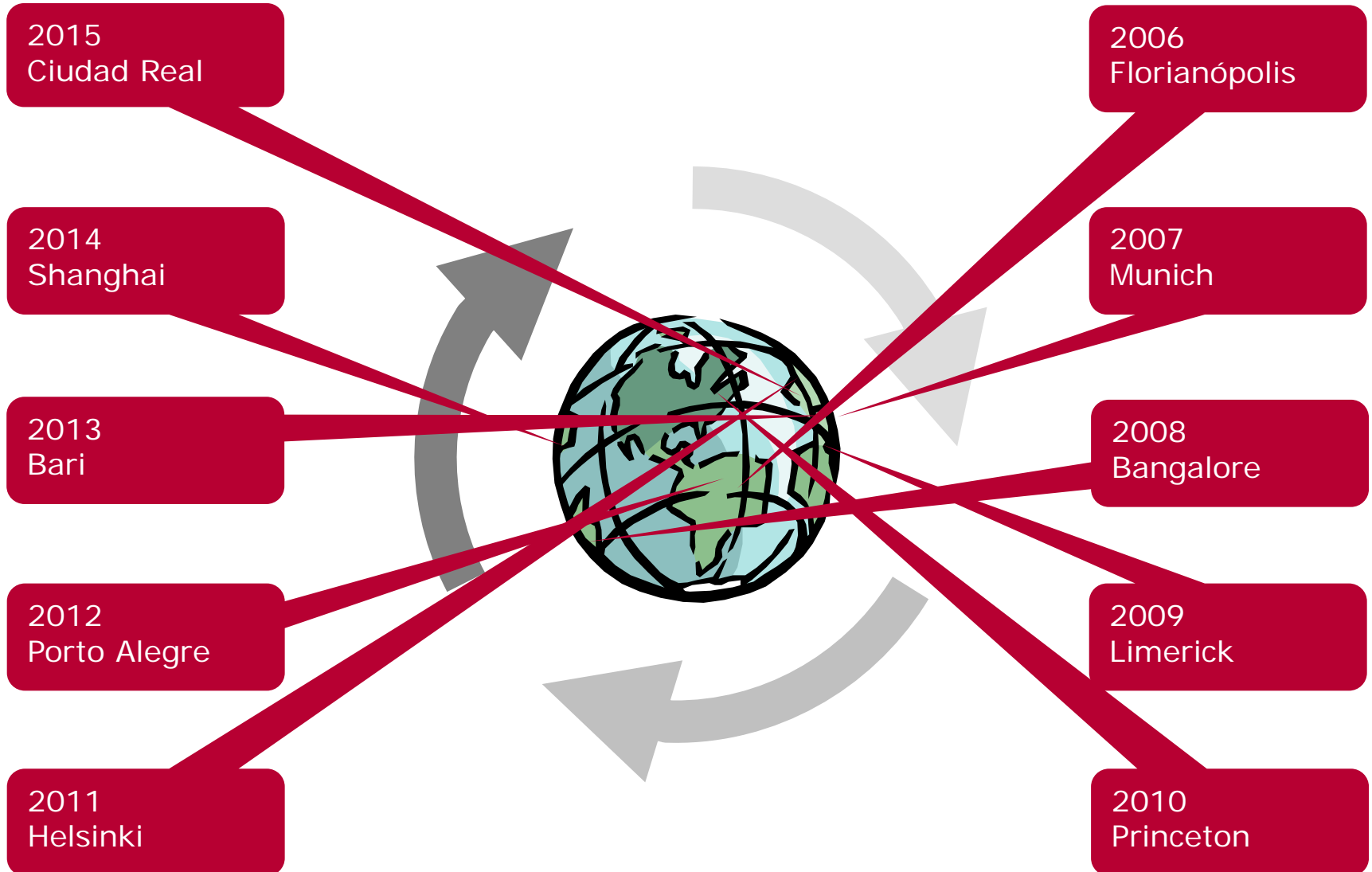
1. Project delivery failures
2. Insufficient quality
3. Distance and culture clashes
4. Staff turnover
5. Poor supplier services
6. Instability with overly high change rate
7. Insufficient competences
8. Wage and cost inflation
9. Lock-in
10. Inadequate IPR management



Success Factors Benefits	Competences	Communication	Collaboration
Flexibility	Strong Team	Results-driven Leadership	Suitable Soft Skills
Innovation	Continuous Knowledge Management	Value and Customer Orientation	Reliable Partners
Efficiency	Good Process Capabilities	Transparent Organization	Optimized IT Infrastructure

Source: Christof Ebert: *Global Software and IT*, Wiley 2012.

## 10 Years of ICGSE – 10 Years of GSE Fertilization





# Agenda

Welcome

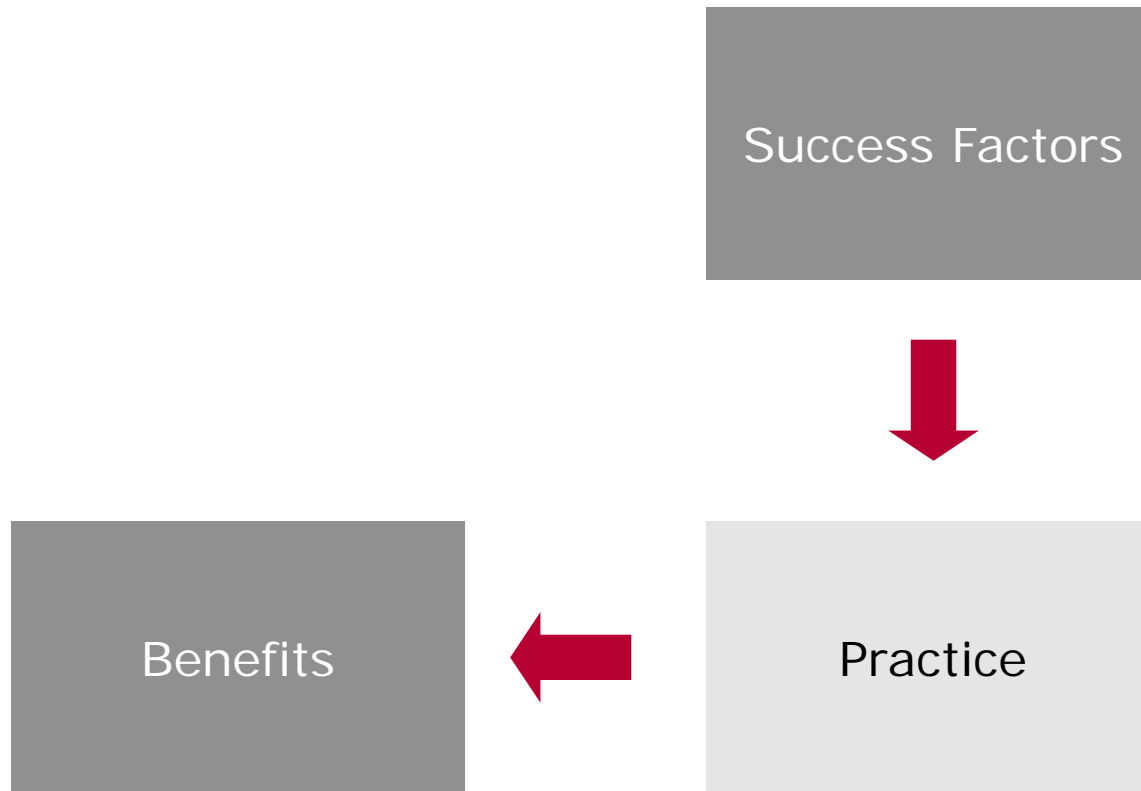
Global Software and IT

► **Advances**

Trends

The Way Ahead

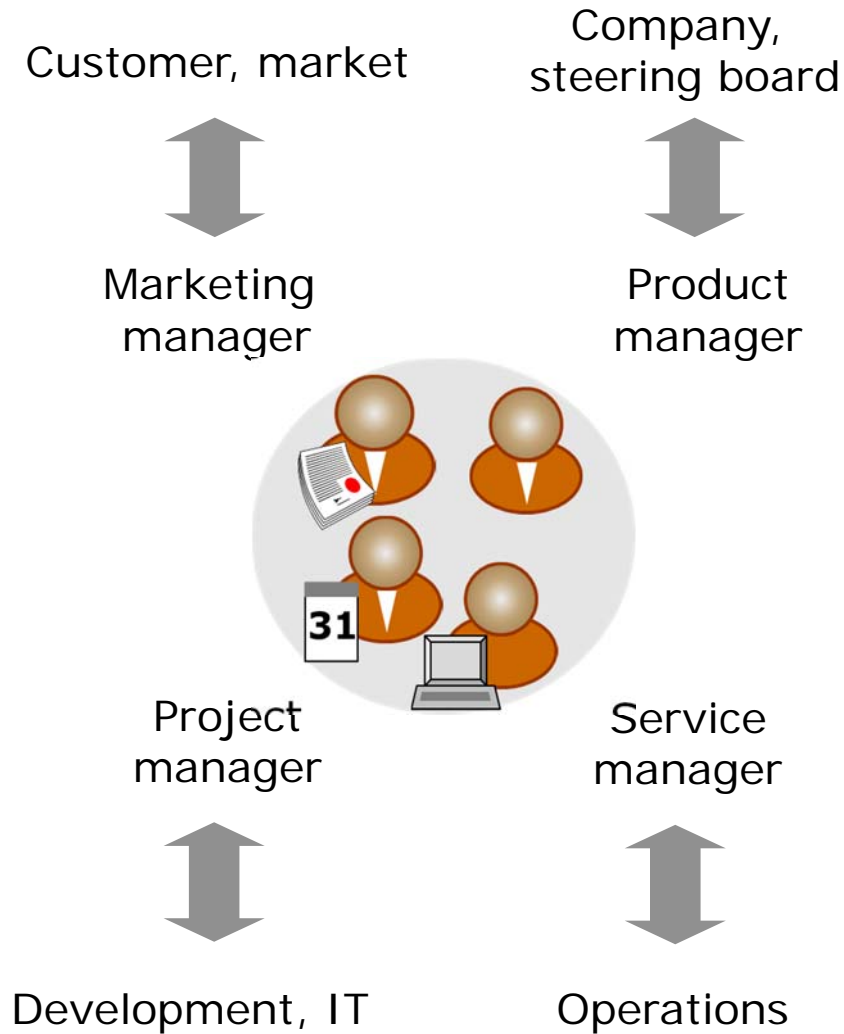
## 9 Success Factors to Achieve Sustainable Benefits



## GSE Success Factors

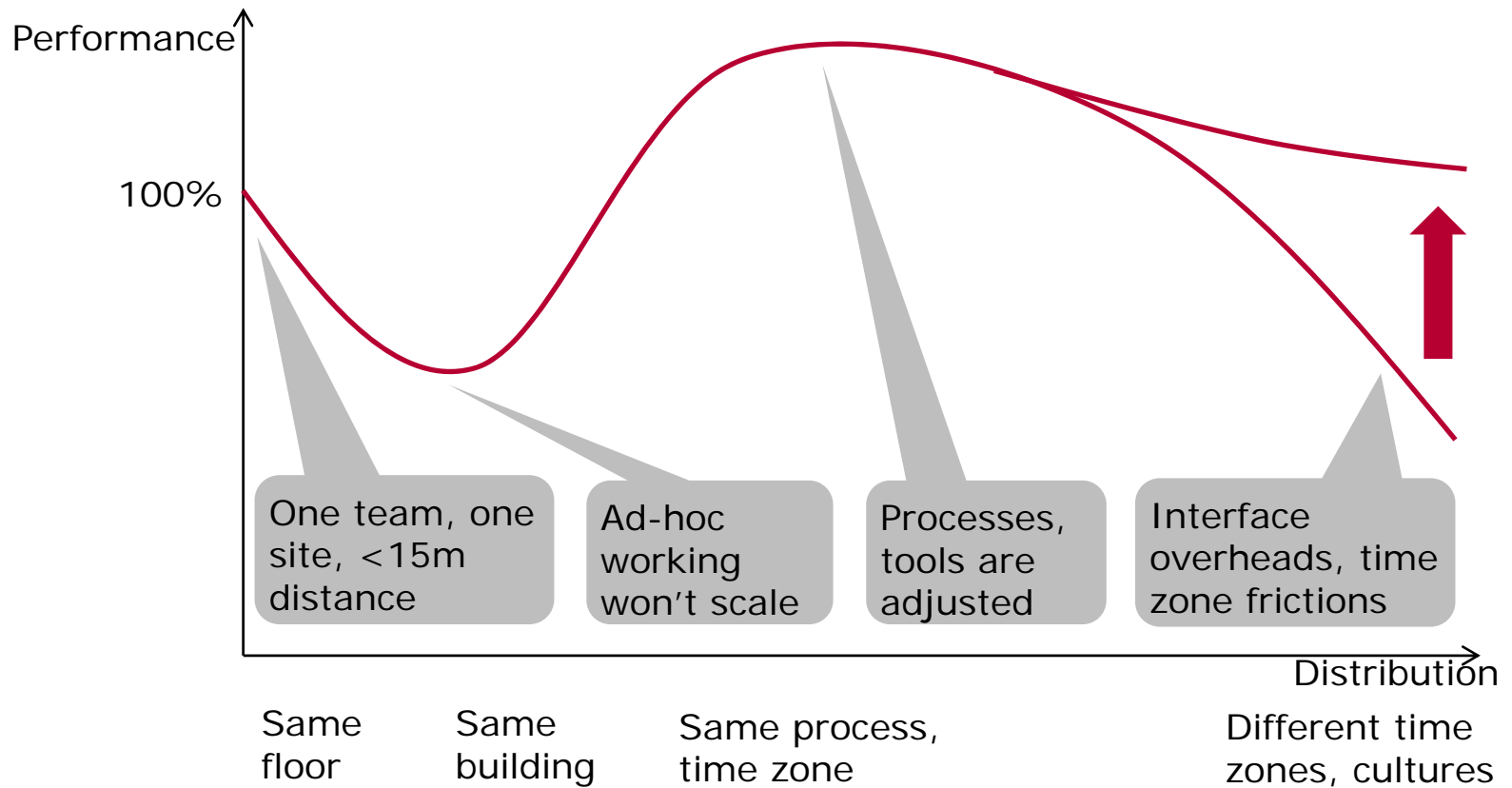
<div>Success Factors</div> <div>Benefits</div>	Competences	Communication	Collaboration
Flexibility	Strong Team	Results-driven Leadership	Suitable Soft Skills
Innovation	Continuous Knowledge Management	Value and Customer Orientation	Reliable Partners
Efficiency	Good Process Capabilities	Transparent Organization	Optimized IT Infrastructure

# 1. Strong Team



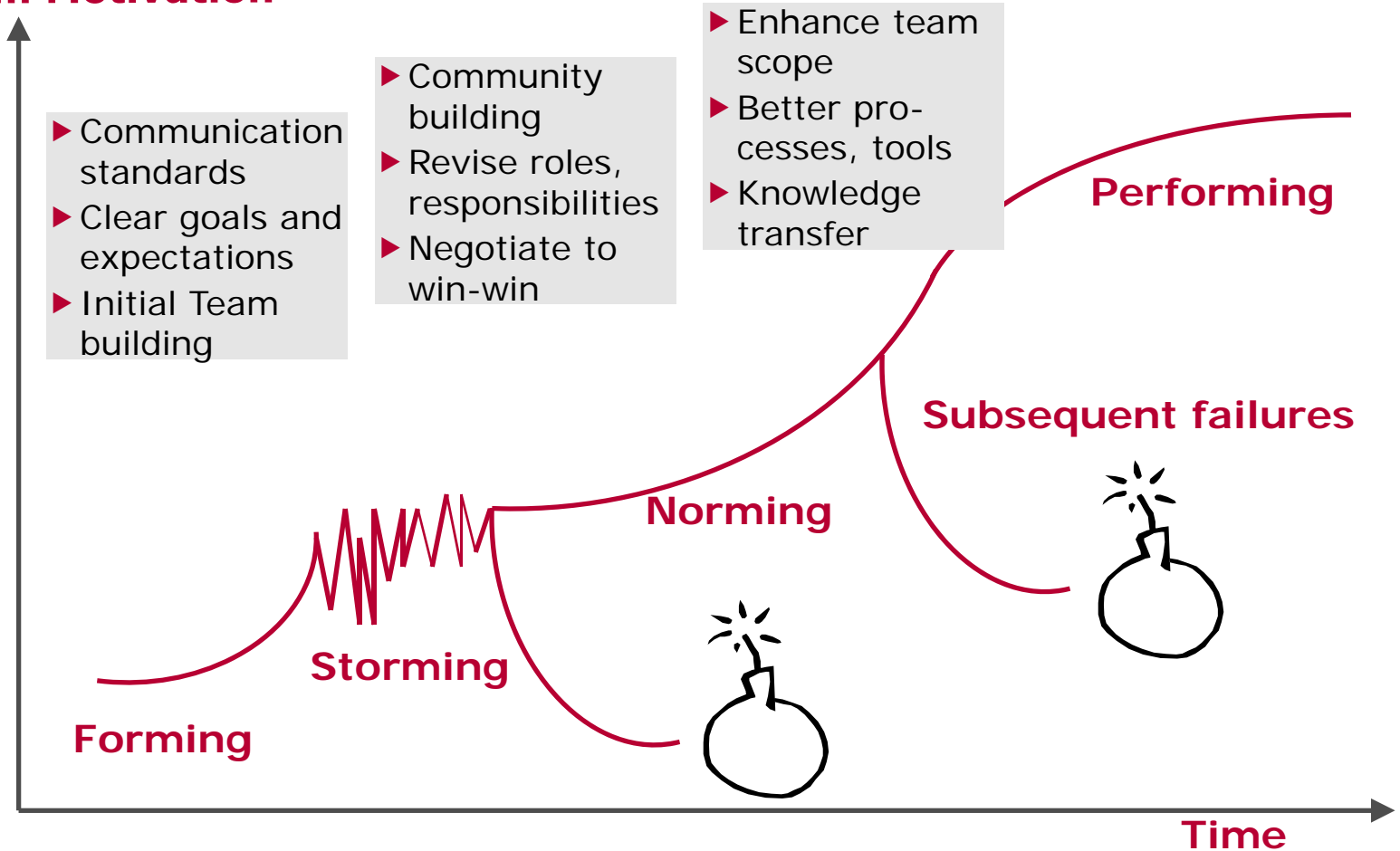


## 2. Results-driven Leadership



### 3. Suitable Soft Skills

#### Team Performance Team Motivation



## 4. Continuous Knowledge Management

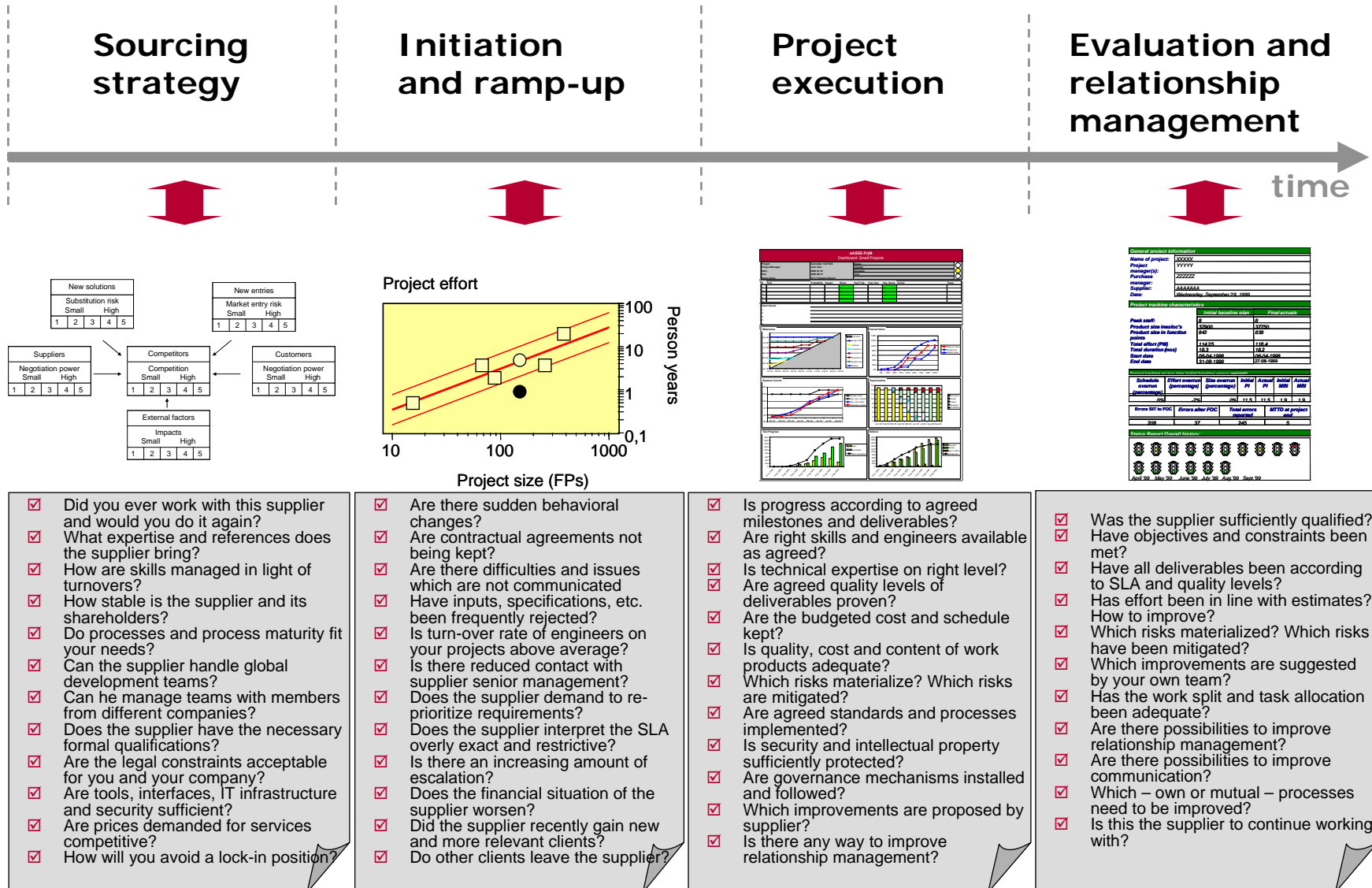
Culture	Different	<ul style="list-style-type: none"> <li>▶ Collaborative workshops, interviews</li> <li>▶ Prototypes</li> <li>▶ Scenarios, use cases, case studies</li> <li>▶ Check lists</li> </ul>	<ul style="list-style-type: none"> <li>▶ Formalized specifications</li> <li>▶ Prototypes</li> <li>▶ Scenarios, use cases, case studies</li> <li>▶ Virtual workshops with distributed moderation</li> </ul>
	Same	<ul style="list-style-type: none"> <li>▶ Brainstorming</li> <li>▶ Workshops</li> <li>▶ Scenarios, Use Cases, case studies</li> <li>▶ Roles, Persona</li> <li>▶ Interviews</li> </ul>	<ul style="list-style-type: none"> <li>▶ Virtual workshops, interviews</li> <li>▶ Scenarios, use cases, case studies</li> <li>▶ Roles, Persona</li> <li>▶ Prototypes</li> <li>▶ Structured analysis techniques</li> </ul>
		Same	Different
		Location, time zone	

## 5. Value and Customer Orientation

Task	Business model	Supplier model	Learning curve	Breakeven period	Number of sites
New business models and processes	Preferably onshore; should be co-located	External consulting with own management team	Long	Long	Few
Performance improvement	Onshore, close collaboration	External consulting with own management team	Middle	Middle	Few
Development of internal applications	Rightshore (distance won't matter)	Typically outsourcing	Short	Middle	Few-many
Product development (generic)	Rightshore (time-zone matters)	Outsourcing or captive	Middle	Middle -long	Few
Product development (embedded; complex)	Nearshore; preferably co-located	Captive with dedicated support	Middle	Middle -long	Few
Validation of software	Rightshore (distance won't matter); test and development should be co-located	Outsourcing or own test center	Middle	Middle	Few
Maintenance of internal applications	Rightshore (distance won't matter)	Outsourcing or captive	Middle	Middle -long	Many
Maintenance of products	Rightshore (time-zone matters)	Outsourcing or captive	Middle	Long	Few
Selection of software and infrastructure	Nearshore, close collaboration	Consulting; with own organization	Short	Short-middle	Few
Operation of infrastructure, SaaS	Rightshore (time-zone matters)	Outsourcing or own IT center	Short	Short-middle	Few



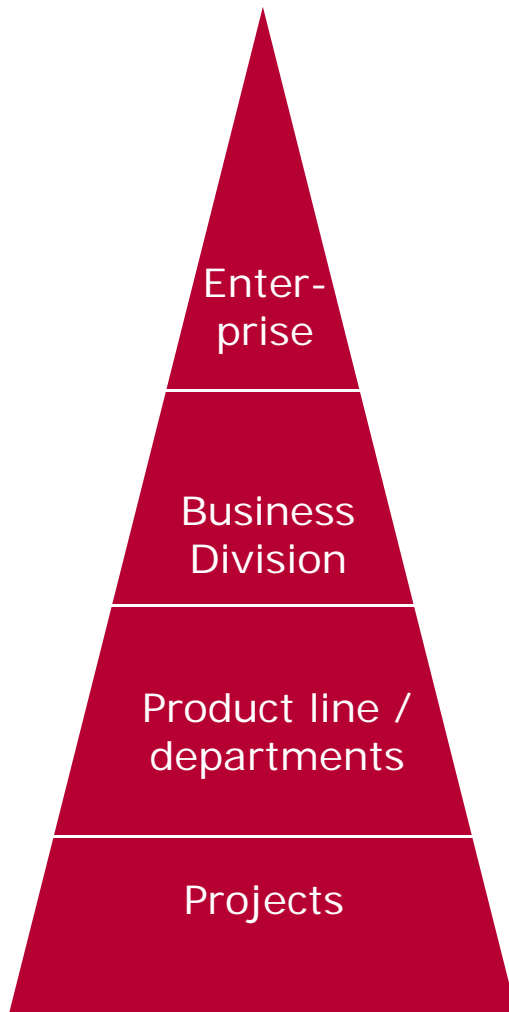
## 6. Reliable Partners



## 7. Good Process Capabilities

Process maturity sourcing supplier	High	Overheads (lack of downstream integration, rework cycles)	Win-Win (process integration, shared objectives, mutual optimization)
	Low	Failure (dysfunctional interfaces, frictions, overruns)	Replacement (insufficient supplier performance, selection of better supplier)
		Low	High
		Process maturity sourcing client	

## 8. Transparent Organization



- ▶ Establish coherent vision for globalization
- ▶ Safe-guard core competences and products
- ▶ Align global product and supplier portfolio
- ▶ Establish frame contracts with key suppliers
- ▶ Set up and maintain governance and IT structure

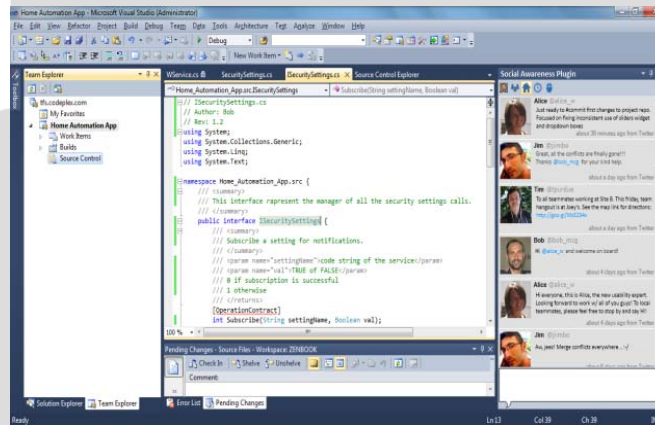
- ▶ Assess own needs
- ▶ Align own planning (skills, resources, sites, work split)
- ▶ Establish and monitor key performance indicators
- ▶ Institutionalize governance, process, tools, IT

- ▶ Allocate work according to coherent responsibilities
- ▶ Set up individual globalization projects
- ▶ Manage suppliers, sites and distributed teams

- ▶ Set up strong teams with clear responsibilities
- ▶ Manage project-specific risks
- ▶ Set up, measure and reach agreed objectives

## 9. Optimized IT Infrastructure

PLM / ALM,  
data  
management



Collaboration

Groupware



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Global Software and IT

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## ► Trends

The Way Ahead

## Global Software Trends



Collaboration

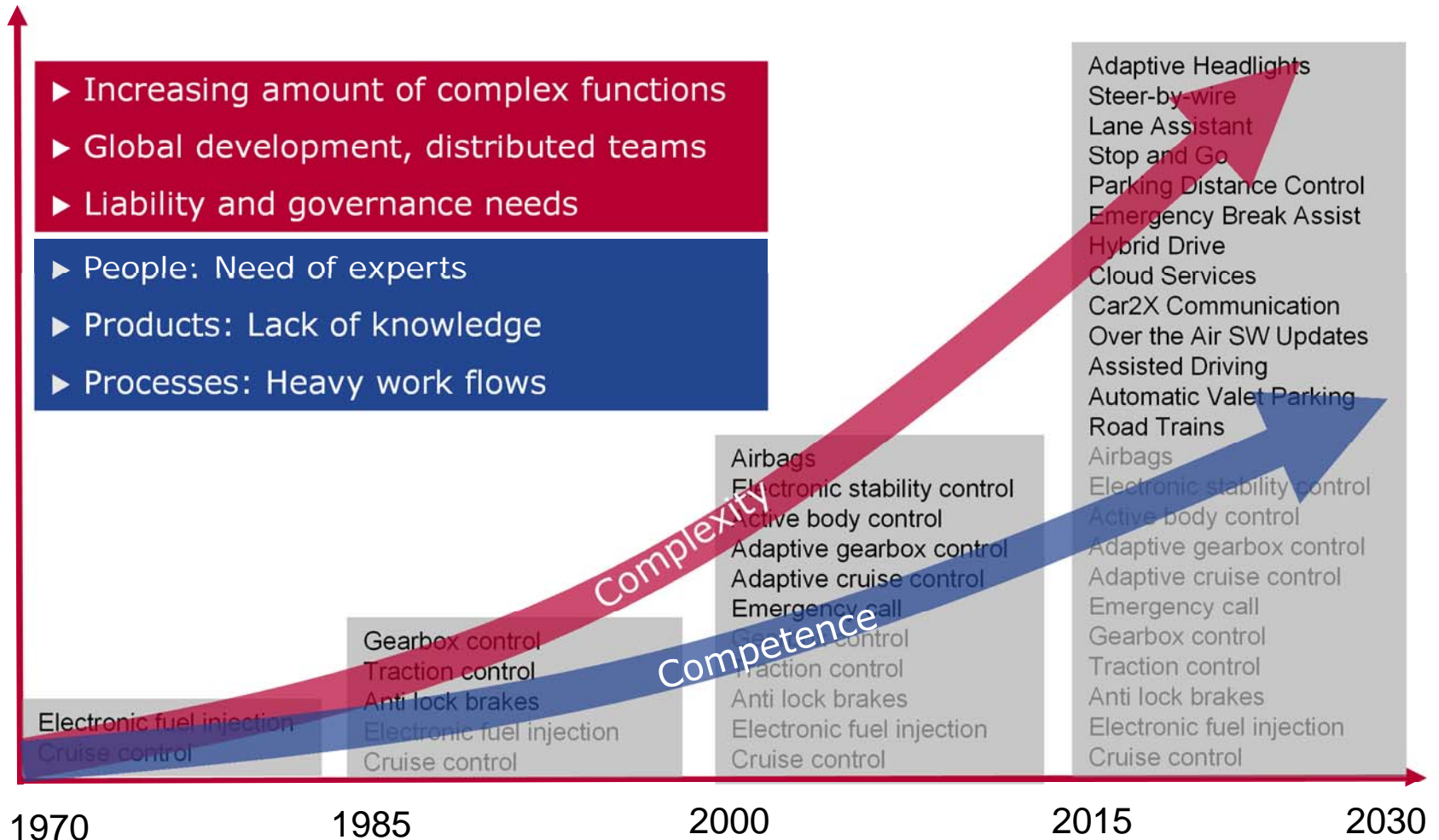
Connectivity

Convergence

Cloud

Comprehension

## Technology Trends: Comprehension



**Demand: Manage complexity and evolve competences**

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## ► **The Way Ahead**

## Five Global Software Trends

### Global Software Trends

- ▶ Collaboration
- ▶ Connectivity
- ▶ Convergence
- ▶ Cloud
- ▶ Comprehension



### ... What it means for YOU

#### Innovate competences

- ▶ Implement value-driven technology decisions
- ▶ Innovate solutions with products and services

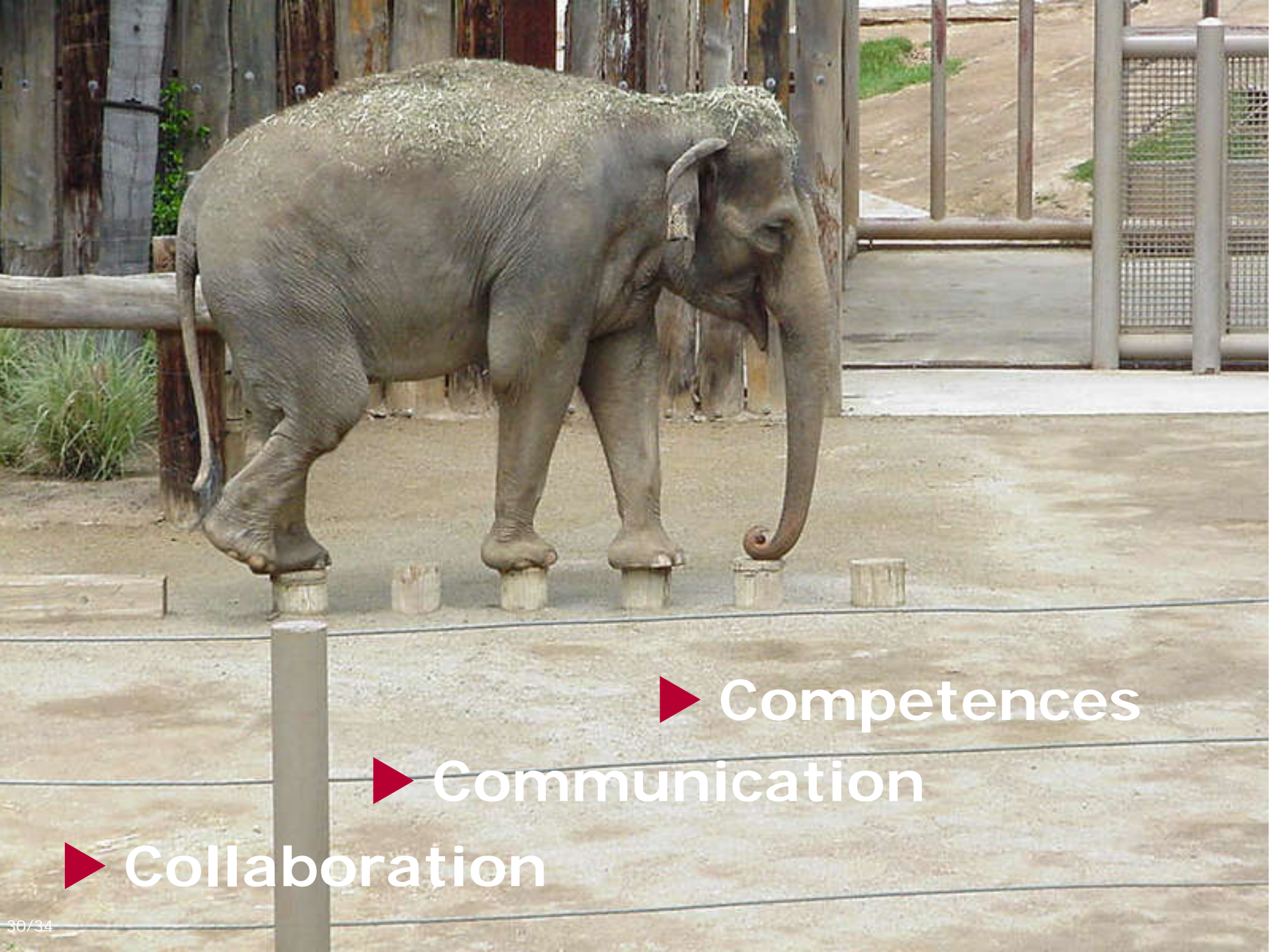
#### Improve communication

- ▶ Make partners part of value creation
- ▶ Drive Lean principles to manage complexity and uncertainty

#### Grow collaboration

- ▶ Foster collaborative virtual teams
- ▶ Stimulate people to work together





► Competences

► Communication

► Collaboration

## Stay Tuned

### ICGSE

Annual IEEE flagship conference

ICGSE is listed by: DBLP, IEEE, INSPEC, Microsoft Academic Search, Compendex, Library of Congress, AllConferences.com, WikiCFP

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



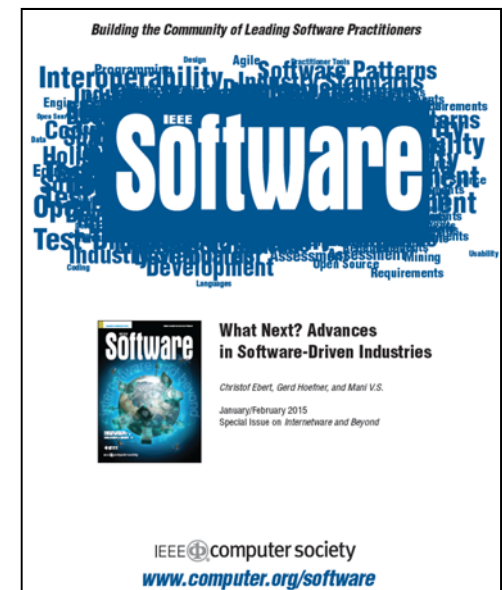
### GSE White paper of Siemens and Vector

IEEE Software, Jan/Feb 2015

[www.computer.org/software](http://www.computer.org/software)

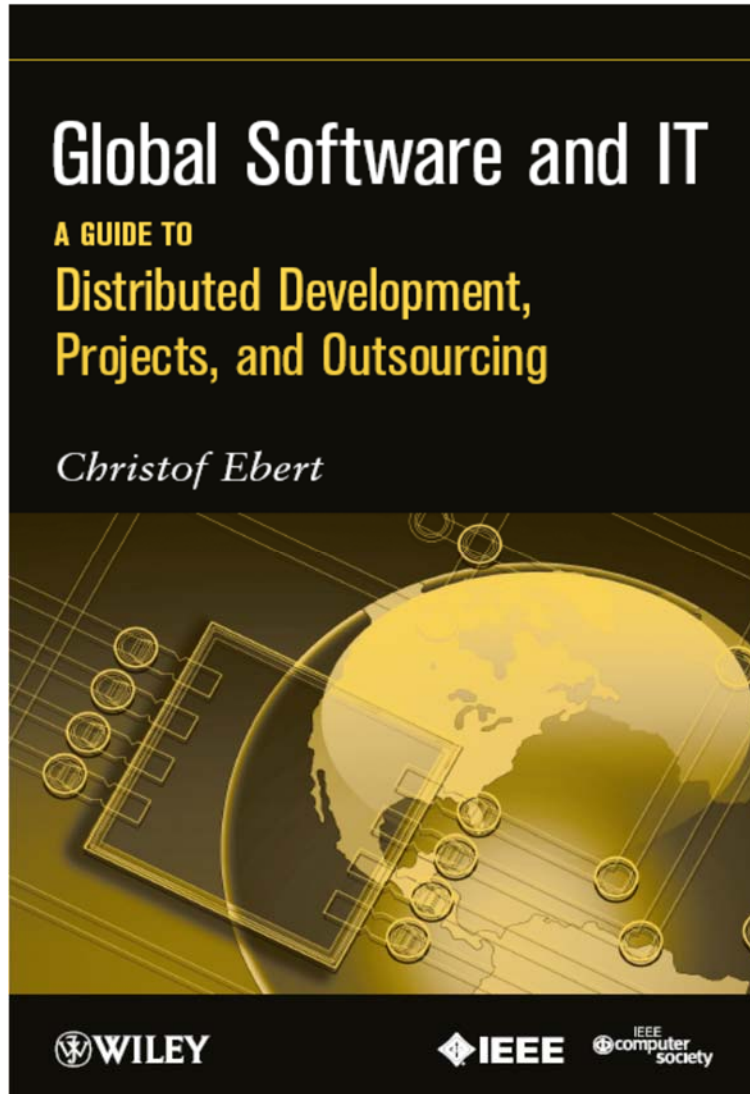
Or directly from Vector Media Center:

[www.vector.com/gse](http://www.vector.com/gse)





## Further Reading



### Global Software and IT

Christof Ebert

2. Edition, Wiley, 2012

[www.vector.com/books](http://www.vector.com/books)

"This book stands out as the best source of information on distributed software development. Seldom do we see a book with the concepts completely backed by industry experiences and views. Software developers and managers benefit from the broad case studies."

*S.M. Balasubramaniyan, Vice President, Wipro Technologies*

Thank you for your attention  
Contact me with your further questions

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