



INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

## Facts & Figures for Improving Performance

ITEA 2 Symposium 2006  
Kees van Mourik - Office Director ITEA 2



European leadership in Software-intensive Systems and Services. The Future of Embedded and Distributed Software.

## Facts & Figures for Improving Performance



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"first the good news  
the title is fantastic"

Peter van Straaten

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## Europe's Gaps

	EU <sub>25</sub>	US	Japan
<b>World population 2002 [Million]</b>	453	288	127
<b>Gross Domestic Expenditure on R&amp;D (GERD) [2003: Billion €]</b>	190	252	120
<b>GERD per person [Euro/person]</b>	418	874	942
<b>Average annual real growth 2000-2003 in GERD [%]</b>	2.4%	0.4%	2.2%
<b>GDP per Capita [USA = 100]</b>	70%	100%	75%
<b>R&amp;D intensity [2003: GERD as % of GDP]</b>	1.9%	2.6%	3.2%
<b>Growth/year R&amp;D intensity [2001-2004]</b>	2.7%	-1.5%	1.8%
<b>Business sector R&amp;D intensity [2003: % of GDP]</b>	1.2%	1.8%	2.4%
<b>% Contribution of the Business sector to GERD</b>	55.6%	63.1%	73.9%
<b>FTE in researchers per 1000 labour force in 2003</b>	5.4	9.0	10.1

Sources: key Figures 2005 (EC) – Eurostat Yearbook – OECD Factbook

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## China A challenge for Europe

	EU <sub>25</sub>	US	Japan	China
<b>World population 2002 [Million]</b>	453	288	127	1279
<b>Gross Domestic Expenditure on R&amp;D (GERD) in 2003 [Billion Euro]</b>	190	252	120	16
<b>GERD per person [Euro/person]</b>	418	874	942	13
<b>Average annual real growth 2000-2003 in GERD [%]</b>	2.4%	0.4%	2.2%	18.6%

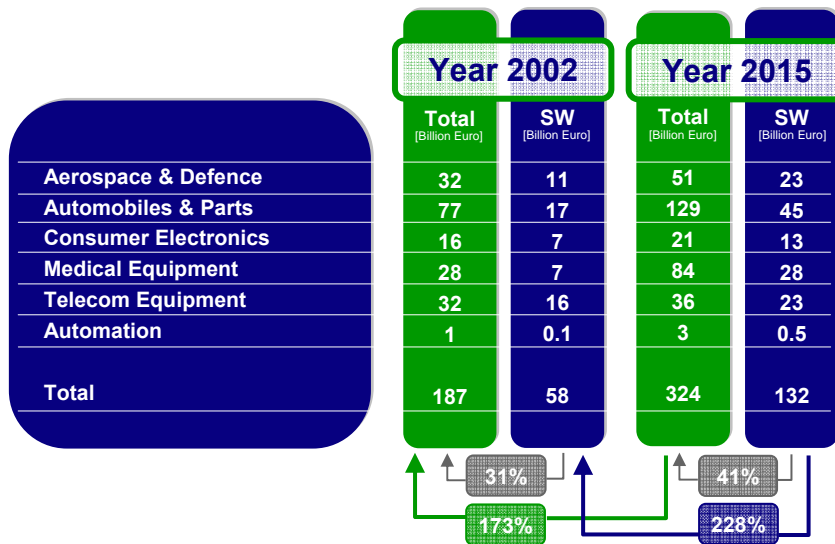
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## Worldwide R&D expenses IDATE-TNO study: Importance of SW R&D



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## The competitive battlefield Change to software-intensive systems



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Software-intensive systems are the vital driver of innovation in sectors such as:

- Aerospace & Defence
- Automobiles & Parts
- Consumer Electronics
- Medical Equipment
- Telecom Equipment
- Automation

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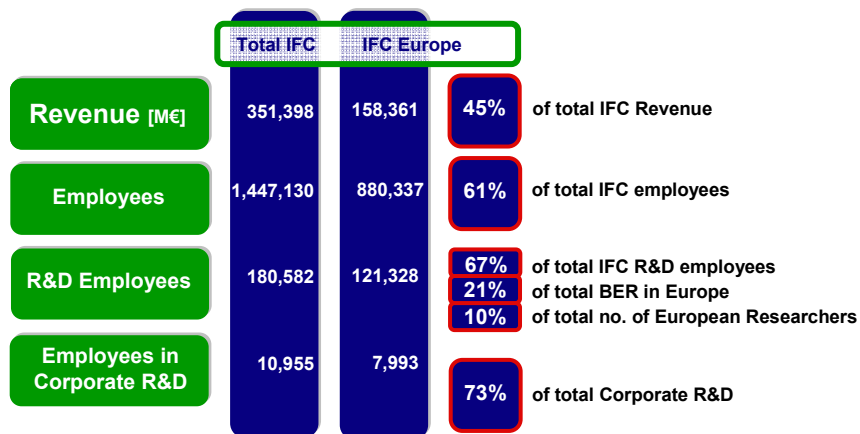
## Top R&D Companies with HQ in Europe

Rank	ITEA	IFC Company	FTSE Sector	Net Sales*	R&D inv. *	ITEA Relevant R&D inv.*	R&D Sales Ratio*
2	1	Siemens	Electronic & Electrical	74,233	5,511	3,307	7%
4	2	Nokia	IT Hardware	29,455	3,978	1,989	14%
6	3		IT Hardware	12,973	3,229	1,615	25%
10	4	Philips	Electronic & Electrical	29,037	2,617	1,570	9%
1	5	DaimlerChrysler	Automobiles & Parts	136,437	5,571	1,114	4%
13	6	EADS	Aerospace & Defence	30,133	2,193	877	7%
3	7		Automobiles & Parts	88,414	4,140	828	5%
17	8	Alcatel	IT Hardware	12,513	1,593	797	13%
25	9		Software & Computer services	7,025	996	747	14%
28	10	Deutsche Telecom	Telecommunication services	55,838	900	675	2%

\* M€ 2003

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## ITEA 2 Founding Companies in Europe 2004



Total number of European Research Employees	▶ 1,178,237
Total number of European Research Employees in Business Enterprises	▶ 577,336
Total number of European Research Employees in Government and Education	▶ 600,901

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## Status Calls ITEA Forecast September 2006 (1)



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Including forecast of Change Requests (50% optimistic + 50% worst case)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
F	44	320	408	322	358	352	356	392	301	124	22	3000
NL	88	251	275	210	214	221	237	246	164	81	5	1992
E	4	17	46	70	133	175	260	315	234	146	10	1409
FIN	12	56	88	76	102	149	166	205	167	94	12	1127
D	22	85	108	121	145	97	55	43	43	7	0	725
B	25	76	119	100	58	84	98	124	99	43	15	841
I	9	75	174	127	43	31	29	8	0	0	0	493
Other	9	34	44	37	44	56	71	99	93	60	5	551
<b>Total</b>	<b>212</b>	<b>913</b>	<b>1261</b>	<b>1062</b>	<b>1096</b>	<b>1164</b>	<b>1272</b>	<b>1431</b>	<b>1101</b>	<b>555</b>	<b>69</b>	<b>10139</b>

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## Status Calls ITEA Forecast September 2006 (2)



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Including forecast of Change Requests (50% optimistic + 50% worst case)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Call 1	212	841	709	93	2							1856
Call 2		72	221	165	17							474
Call 3			332	626	344	56						1358
Call 4				178	307	114	12					611
Call 5					427	766	387					1581
Call 6						227	426	229	32			914
Call 7							447	920	538	128		1976
Call 8								322	620	482	77	1367
<b>Total</b>	<b>212</b>	<b>913</b>	<b>1261</b>	<b>1062</b>	<b>1096</b>	<b>1164</b>	<b>1272</b>	<b>1431</b>	<b>1101</b>	<b>555</b>	<b>69</b>	<b>10139</b>

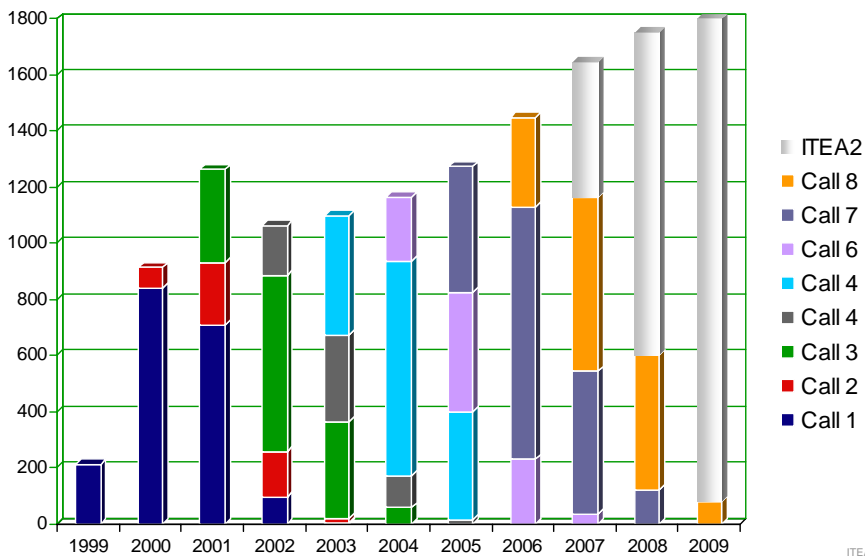
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## Effort in person-years Calls 1-8 Forecast September 2006



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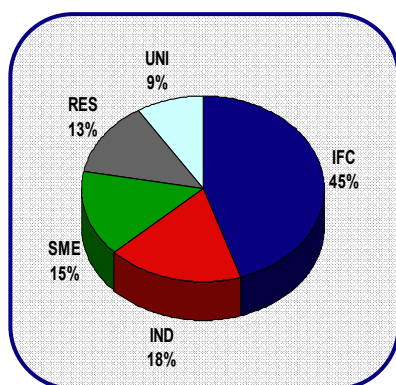
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## Effort in person-years for ITEA Calls 1-8 Status Dbase September 2006

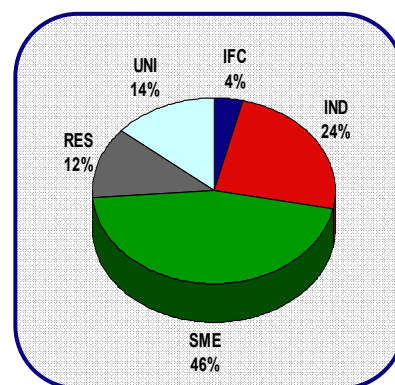


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**11.000 person-years**



**540 partners**

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## Priority improvement areas Programme level



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- **Added GERD**
  - Person-years (All Calls)
  - Billion € (All Calls)
  - Effect on employment
- **Interest in ITEA**
  - Person-years during PO versus FPP
- **Cooperation**
  - Number of partners total
  - Number of SMEs
- **Exploitation**
- **Standardisation actions**
- **Innovation**
  - IPR , number of patents
- **Dissemination**
- **Cost**
  - ITEA office cost
  - In kind effort

	ITEA Status Dbase Sept 2006	ITEA 2 Ambition
- Person-years (All Calls)	11,000	20,000
- Billion € (All Calls)	1,4	3+
- Effect on employment		
- Person-years during PO versus FPP		
- Number of partners total	540	800
- Number of SMEs	247	400
Exploitation	450	1,000
Standardisation actions	150	250
IPR , number of patents		
ITEA office cost		
In kind effort		

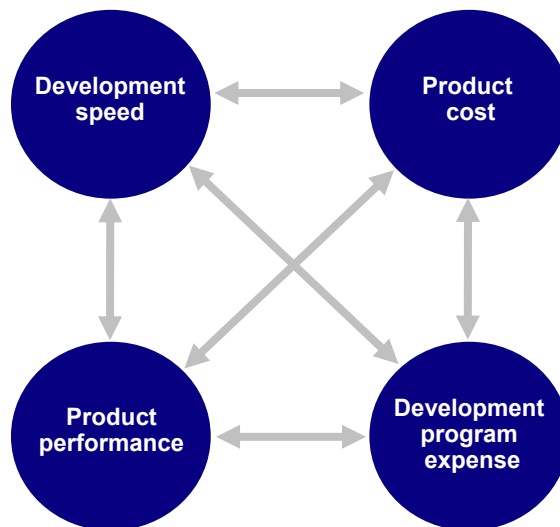
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## Developing products in half the time Four key product development improvement areas



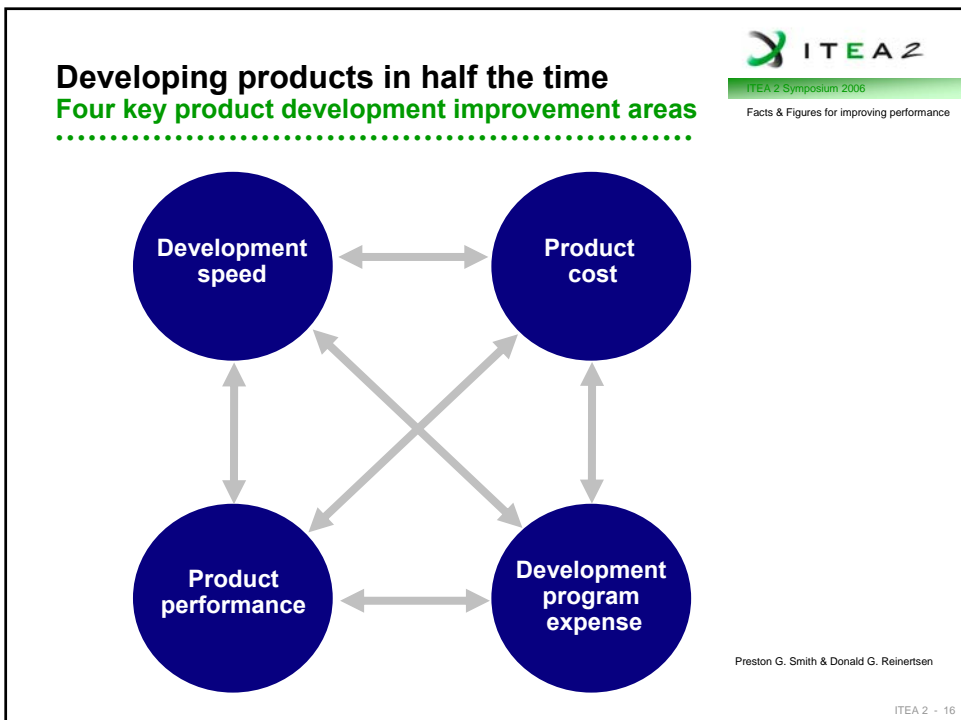
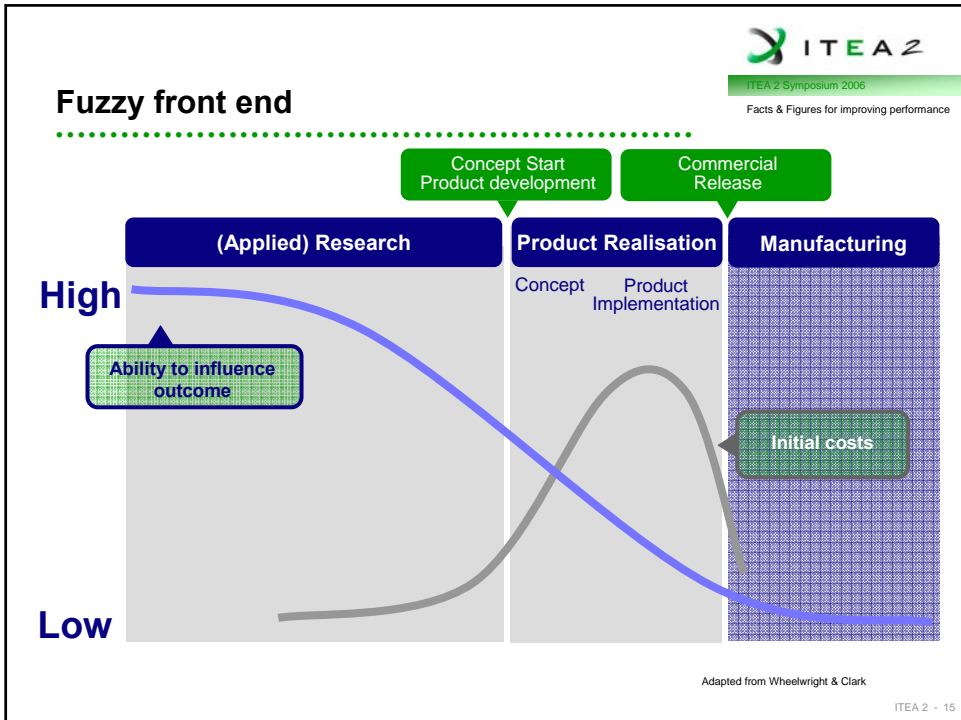
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Preston G. Smith & Donald G. Reinertsen

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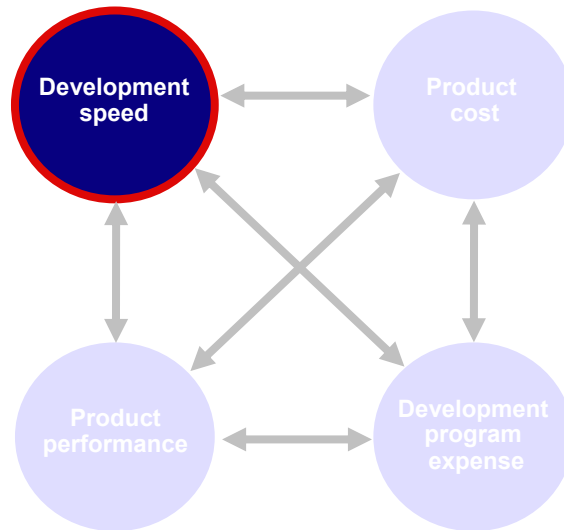


## Developing products in half the time Four key product development improvement areas



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Preston G. Smith & Donald G. Reinertsen

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## Shorter throughput time & earlier market introduction and/or later project start



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- Easier market forecast (Higher hit rate)
- Longer time to produce the same product (Volume)
- Higher market share (Volume)
- Better market price
- Better project focus
- Less R&D expenditures

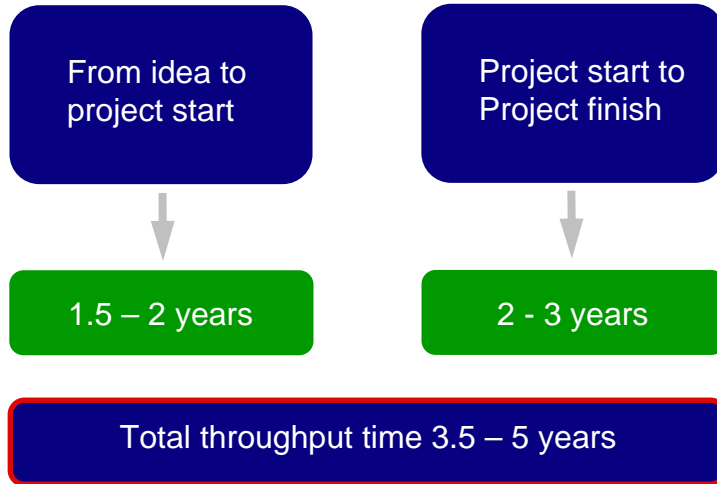


- (Earlier) <sup>x</sup> Break-even
- (Higher) <sup>x</sup> Present value
- (Higher) <sup>x</sup> Return on Investment



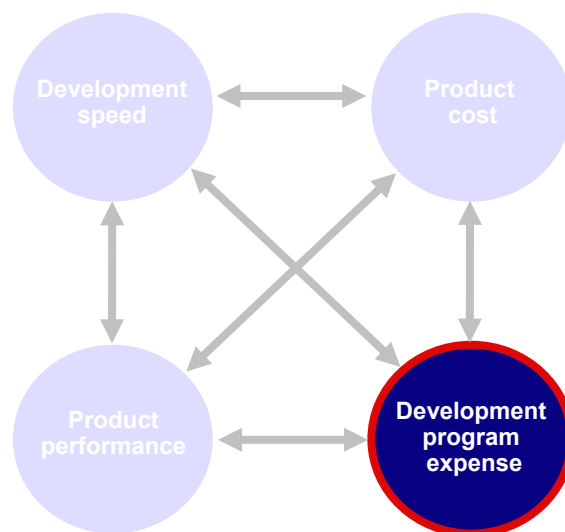
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## Throughput time of ITEA projects



## Developing products in half the time

### Four key product development improvement areas

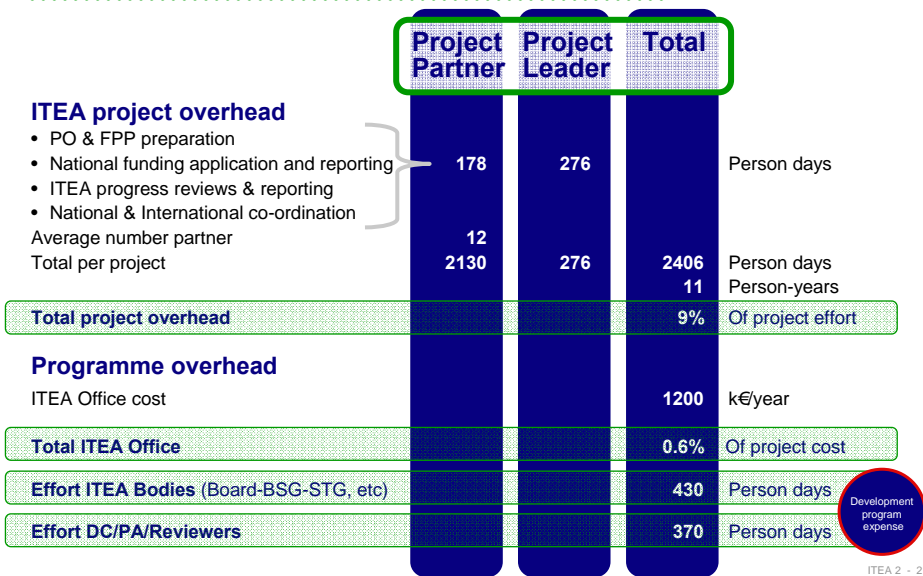


## Development Program Expense Overhead



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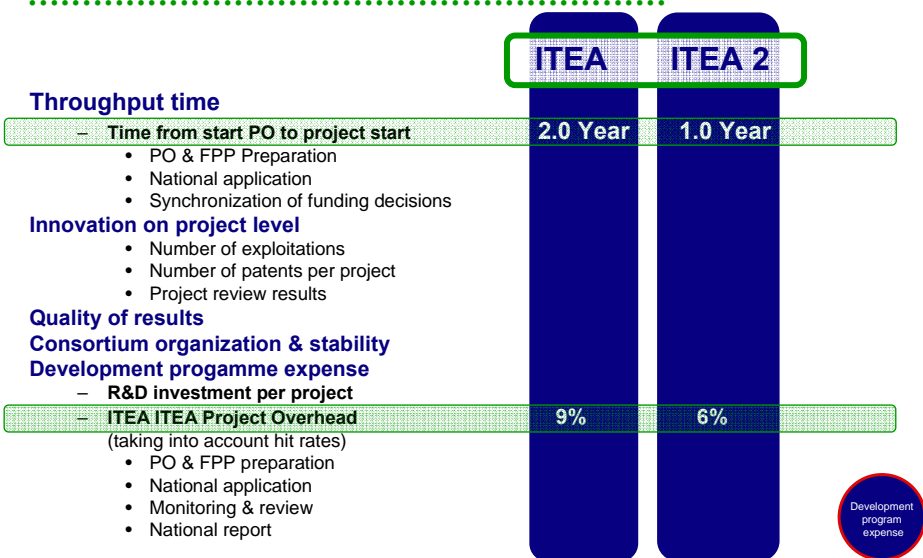
## Priority improvement areas

### Project level



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## The need for an update of the Call Monitoring & Review Processes



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### Funding Synchronisation

- Y/N/? Decisions (common review teams)
- Timing of funding decisions

### Improved throughput time

- Time to submitting national applications
- Time to funding decisions
- Time to project start-up

### Reduced overhead

- Common template for PO, FPP
- Common template for National Applications with if necessary national modules
- Common monitoring and review



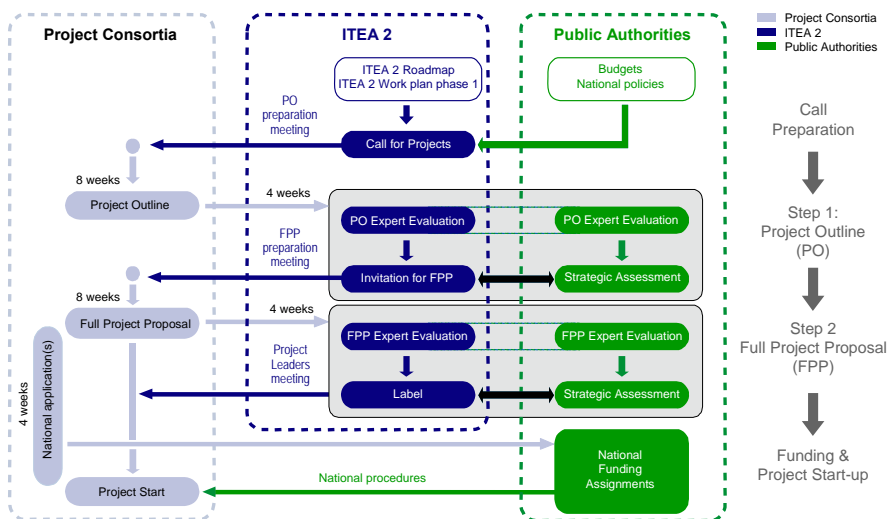
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## Project Selection & review process "prepared for ARTEMIS"



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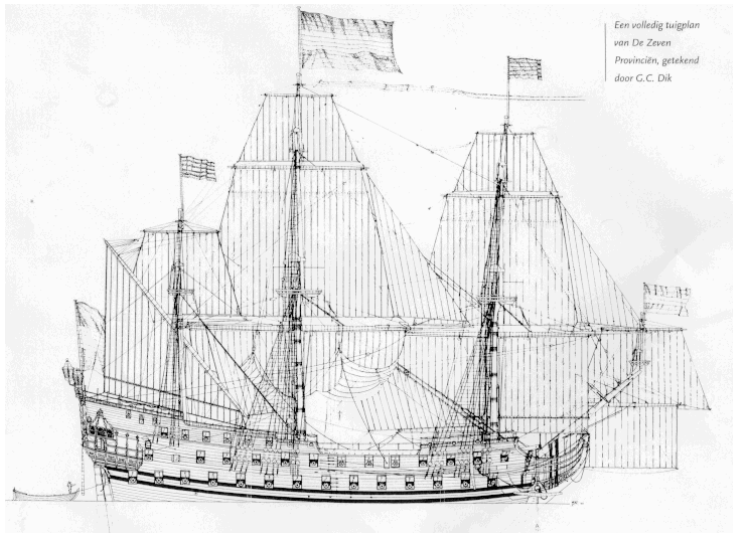
## “De Zeven Provinciën” Teamwork in 1665, what can we learn?

.....



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## “De Zeven Provinciën” Teamwork in 1665, what can we learn?

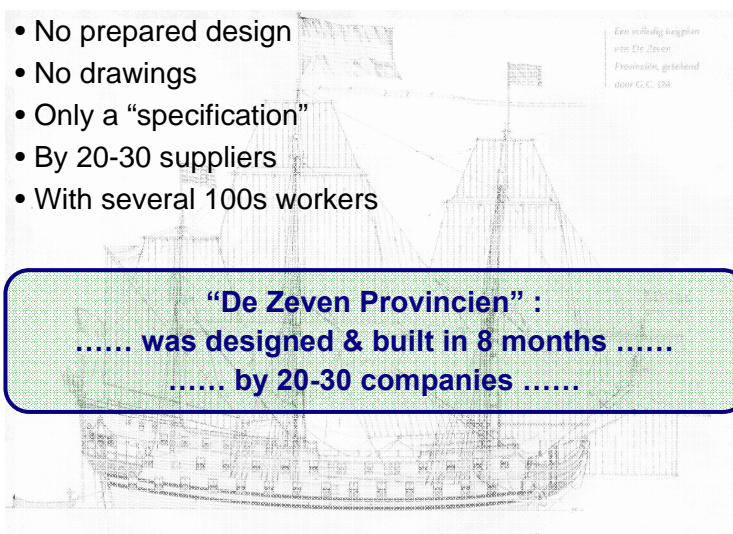
.....



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- No prepared design
- No drawings
- Only a “specification”
- By 20-30 suppliers
- With several 100s workers



**“De Zeven Provinciën” :**  
**..... was designed & built in 8 months .....**  
**..... by 20-30 companies .....**

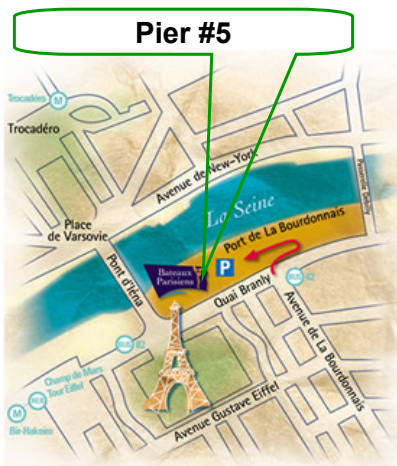
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## Symposium programme

Symposium		Exhibition	
Thursday 5 October	17:30	• Press conference	Tour PAs / BSG
	18:30	• Closing day-programme	
	19:30	• Aperitif	
	20:30	• Dinner • Presentation ITEA Achievement Award 2006	
Friday 6 October	08:30	• Registration	
	09:45-11:00	• Opening address • Pole de Compétitivité: New model of innovative ecosystems in the field of Information Technology • The role of ITEA 2 in the new German ICT strategy	Dominique Vernay Manfred Dietrich
	11:00-12:30	• Break	Tour KNS / Board
	12:30-14:00	• Software challenges in the aerospace industry • AUTOSAR: standardisation of software architecture in the automotive industry, current results and upcoming developments • Ambient Intelligence: What next?	Richard Smyth Alain Gilberg Emile Aarts
	14:00	• Presentation Exhibition Award 2006 + closing • Lunch	

## Directions to dinner location

### Cruise boat CRISTAL



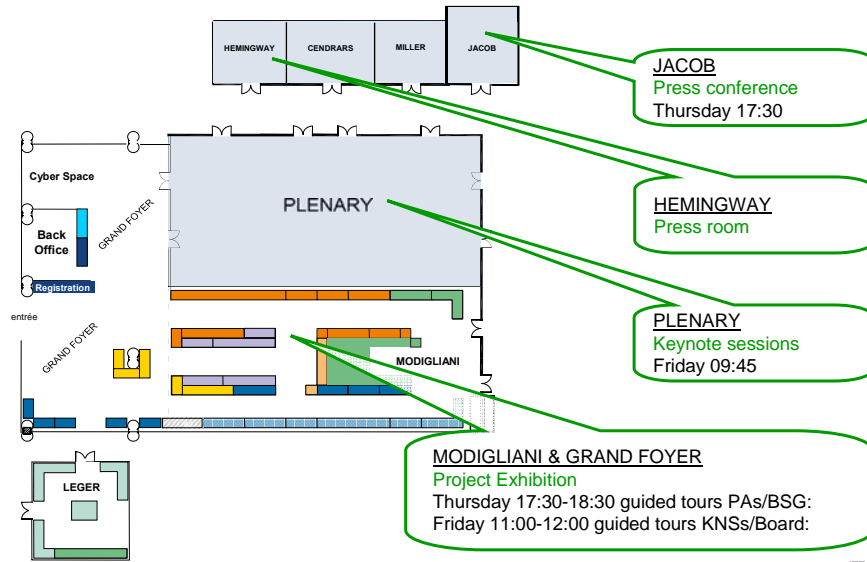
### Acces Map

- At the foot of the Eiffel Tower, Port de la Bourdonnais
- Subway: Bir-Hakeim, Trocadéro
- RER C: Champ de Mars
- Bus: 42-82
- Free parking during the cruise (subject to availability)



With thanks to System@tic Paris-Region

## Floor plan



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Thank you for your attention

