

# Benefits of IT in Construction ?



Esko Enkovaara, ToCoMan Oy  
Aarni Heikkonen, Rissa&Järvinen Oy  
Timo Taiponen, ToCoMan Oy  
Mika Lautanala, Tekes

email: [Mika.Lautanala@Tekes.fi](mailto:Mika.Lautanala@Tekes.fi)



## Introduction

- Motivation
  - ▣ to quantify the benefits of IT
    - ▣ motivate companies to implement new technology
  - ▣ to focus r&d in Vera programme
    - ▣ [www.tekes.fi/english/programm/prod/vera/index.html](http://www.tekes.fi/english/programm/prod/vera/index.html)
- Results
  - ▣ A methodology to analyse the use of IT in a company
  - ▣ Potential benefits of IT in Construction in Finland

## IT Maturity analysis framework

	Aspect	Max points	%	points	Best companies
Enablers	Management commitment	200			100
	Processes	150			62
	IT skills	150			63
Technologies	Inform. structures	250			123
	Infrastructure	100			40
	Software	150			62
<b>Total</b>		<b>1000</b>			<b>448</b>

**Vera**

Mika Lautanala 3.6.98 - 3

Benefits of IT ...  
CIB W78  
3-5.6.1998 Stockholm

## Tools

Information structures

Weight  
**150**

Levels	Description	%
Level 1	Paper documents	0-10
Level 2	Digital data, no formal classification, paper based data exchange	10-30
Level 3	Formal classification, internal integration with main applications	30-60
Level 4	Formal classification, electronic data exchange	60-80
Level 5	Object based data exchange, interoperability	80-100

**Vera**

Mika Lautanala 3.6.98 - 4

Benefits of IT ...  
CIB W78  
3-5.6.1998 Stockholm



# Analysis by processes

Process: design work Weight: 100

Process: project mgmt Weight: 100

Process: project sales Weight: 50

	Max points	%	points
Management commitment	200		
Processes	150		
IT skills	150		
Inf. structures	250		
Infrastructure	100		
Software	150		
Total	1000		



Vera

TEKES

Mika Lautanala 3.6.98 - 5

Benefits of IT ...  
CIB W78  
3-5.6.1998 Stockholm



# Finnish building construction



	points	IT maturity level	weight	IT maturity
Project management	193	2	5.8%	11
Design & engineering	201	2	10.9%	22
Main contracting	154	2	16.6%	26
Subcontracting	96	1	6.1%	6
Building materials industry	437	3	1.6%	7
Building products industry	448	3	2.9%	13
HVAC contracting	196	2	5.0%	10
Electrical contracting	205	2	3.1%	6
Facility management	160	2	48.0%	77
Building Construction TOTAL				178

Of 1000

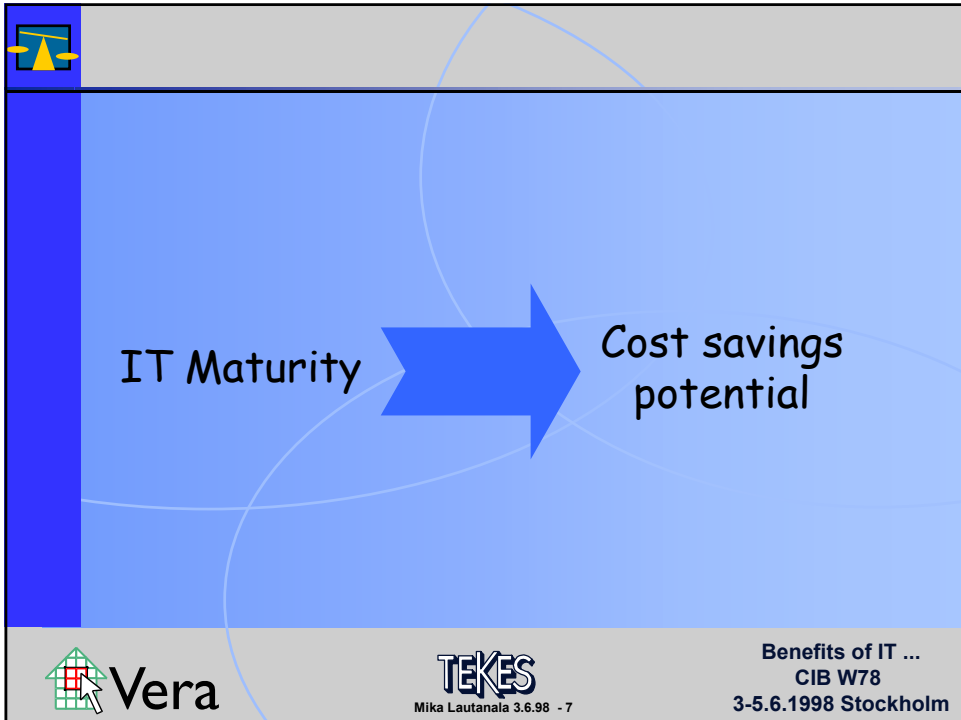


Vera

TEKES

Mika Lautanala 3.6.98 - 6

Benefits of IT ...  
CIB W78  
3-5.6.1998 Stockholm



## Cost savings potential

	Total value, MFIM	IT value, MFIM	IT cost saving pot MFIM	Unused potential MFIM	Unused potential %
Project management	1,100	320	252	176	16
Design & engineering	1,200	601	772	541	45
Main contracting	4,500	914	783	548	12
Subcontracting	4,100	335	167	151	3.7
Building materials industry	2,800	90	101	40	1.4
Building products industry	3,400	157	196	79	2.3
HVAC contracting	5,000	275	153	107	2.1
Electrical contracting	2,600	168	113	79	3.0
Building Construction TOT.	24,700	2,860	2,537	1,721	7.0%
Facility management	26,400	2,672	2,290	1,603	6.1
<b>Industry TOTAL</b>	<b>51,100</b>	<b>5,532</b>	<b>4,827</b>	<b>3,324</b>	<b>6.5%</b>

MFIM/ year

**Vera**  
TEKES  
Mika Lautanala 3.6.98 - 8

Benefits of IT ...  
CIB W78  
3-5.6.1998 Stockholm



## Cost saving potential, by levels

	IT cost saving pot MFIM	Level 1 100 p. MFIM	Level 2 300 p. MFIM	Level 3 600 p. MFIM	Level 4 800 p. MFIM	Level 5 1000 p MFIM
Project management	252	25	76	151	201	252
Design & engineering	772	77	232	463	618	772
Main contracting	783	78	235	470	626	783
Subcontracting	167	17	50	100	134	167
Building materials industry	101	10	30	60	81	101
Building products industry	196	20	59	118	157	196
HVAC contracting	153	15	46	92	123	153
Electrical contracting	113	11	34	68	90	113
Building Construction TOT.	2,537	254	761	1,523	2,030	2,537
Facility management	2,290	229	687	1,374	1,832	2,290
Building Industry TOTAL	4,827	483	1,448	2,897	3,862	4,827

MFIM/ year



Vera

TEKES

Mika Lautanala 3.6.98 - 9

Benefits of IT ...  
CIB W78  
3-5.6.1998 Stockholm



## Total net savings potential

	Total cost savings MFIM	Investment MFIM	Net savings MFIM	Net savings %
Project management	176	42	134	12.2
Design & engineering	541	78	463	38.6
Main contracting	548	119	429	9.5
Subcontracting	151	43	108	2.6
Building materials industry	40	12	28	1.0
Building products industry	79	20	59	1.7
HVAC contracting	107	36	71	1.4
Electrical contracting	79	22	57	2.2
Building Construction TOT.	1,721	372	1,349	5.5
Facility management	1,603	347	1,256	4.8
Industry TOTAL	3,324	719	2,605	5.1

MFIM/ year

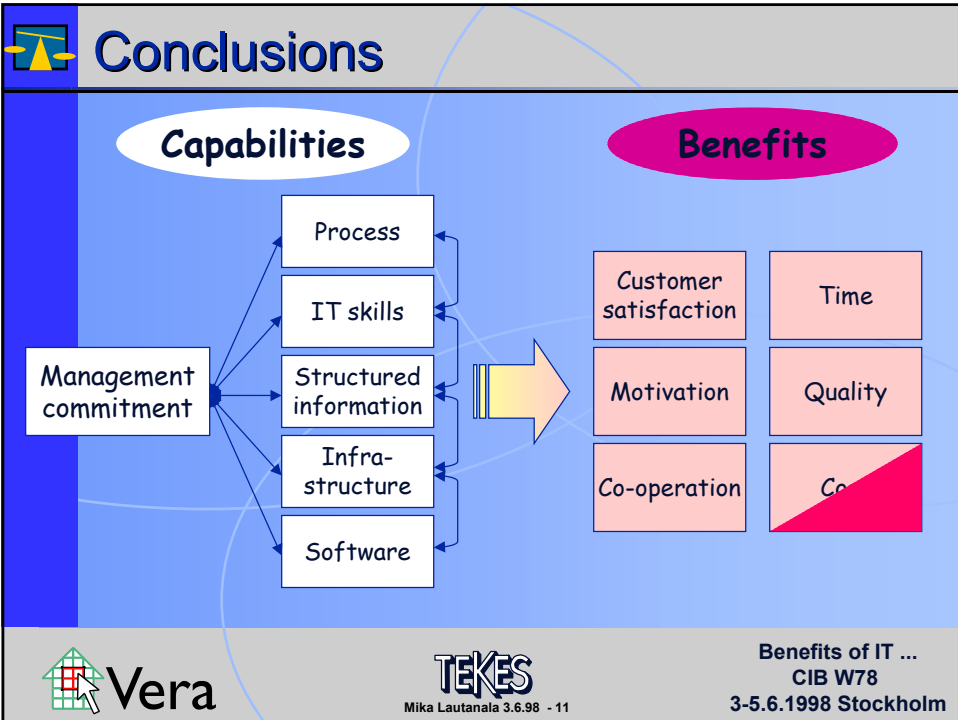


Vera

TEKES

Mika Lautanala 3.6.98 - 10

Benefits of IT ...  
CIB W78  
3-5.6.1998 Stockholm



- # Conclusions
- IT maturity analysis method helps a company to
    - ▣ evaluate their present process and IT maturity
    - ▣ benchmark with other, leading companies
    - ▣ set goals for IT and process development
    - ▣ plan and budget the IT, HR and operational development tasks and investments
    - ▣ continuously evaluate the success of actions taken
- Vera**
- TEKES**  
Mika Lautanala 3.6.98 - 12
- Benefits of IT ...  
CIB W78  
3-5.6.1998 Stockholm



## Conclusions

- Cost saving potential
  - ▣ unused cost saving potential 7% (of 10%) of building construction
  - ▣ only direct cost savings analysed (efficiency)
    - ▣ effectiveness: quality, time, customer satisfaction, improved motivation, improved co-operation, indirect cost savings ignored
  - ▣ helps in focusing future r&d
  - ▣ builds understanding how IT should be exploited
  - ▣ needs scientific validation



Benefits of IT ...  
CIB W78  
3-5.6.1998 Stockholm



Thank You for Your  
attention!



Questions ?



Benefits of IT ...  
CIB W78  
3-5.6.1998 Stockholm