PROJECT European Support

Slovenian Tool and Die Development Centre

REPORT

STUDY

TOOLS & METHODS OF PRODUCT DEVELOPMENT(I)

(IDEA GENERATION)

Innovation Management

by

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1 Short summary of the questions

This study was made on 15 Slovenian Companies during December 2004, which you can find in list above.

Company	SME
AREX	
BIRO VIDERGAR	yes
FORM TEHNIK	yes
IMAS D.O.O.	yes
KEŠE TOMAŽ S.P.	yes
L.M.P. D.O.O.	yes
MAKOP	yes
PLASTIKA FIDLER D.O.O.	yes
POLYCOM	yes
FORI	yes
SGA	
ORO	yes
LIV Orodjarna	
SIMŠIČ	yes
IRIO	yes

Question 1
The companies which participated in the study comes mainly from Mould making industry and Production of plastics parts

Question 2
53 % of the companies have between 51 and 250 employees and 66% of the companies has existed between 11-50 years.

Question 3
Companies are relative young. Just 13 % of companies have existed between 11-50 years.

Question 4
The strategies they use for success in the market is mostly customer orientated and quality leadership.

Question 5
All of the basic conditions for innovation friendly companies in the study are important (mark 1 in the study).

Question 6
Quality and price are the specifications that can be improved by product development.

Question 7
R&D, production and sales are highly integrated in the product development.

Question 8
All companies know about ISO 9000 but not all uses it (66%).

Question 9
Use of environmentally friendly materials and recycling are most important aspects in design of new products.

Question 10
The essential restraints which is not repressive for innovation, is promotion by management (colleagues acceptance) and team work

Question 11
The companies detect ideas internally from individuals and from market and with team work. Externally they get motivated by R&D institutions

Question 12
The criteria's of an innovation method to be used by a company are mostly early recognition of error risks and fostering team work creativity inside teams

Question 13
The companies use brainstorming and SWOT analysis. Other useful methods are FMEA, QFD and Pareto.

Question 14
The companies involve customers (40%), and 23% technical consultant.

Question 15
General knowledge is the most common training possibilities (30%).

Question 16
The most common criteria's for selection of training participants are analysis of education requirements (25%).

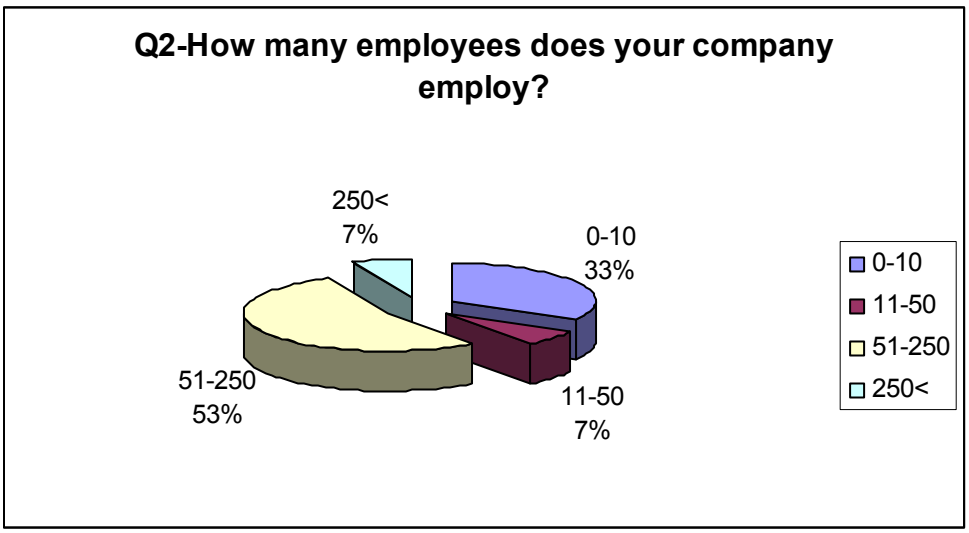
Question 17
Most of answered people belong to R&D (49%).

Question 18
The most important environmental problems defined is Noise, water pollution and air pollution.

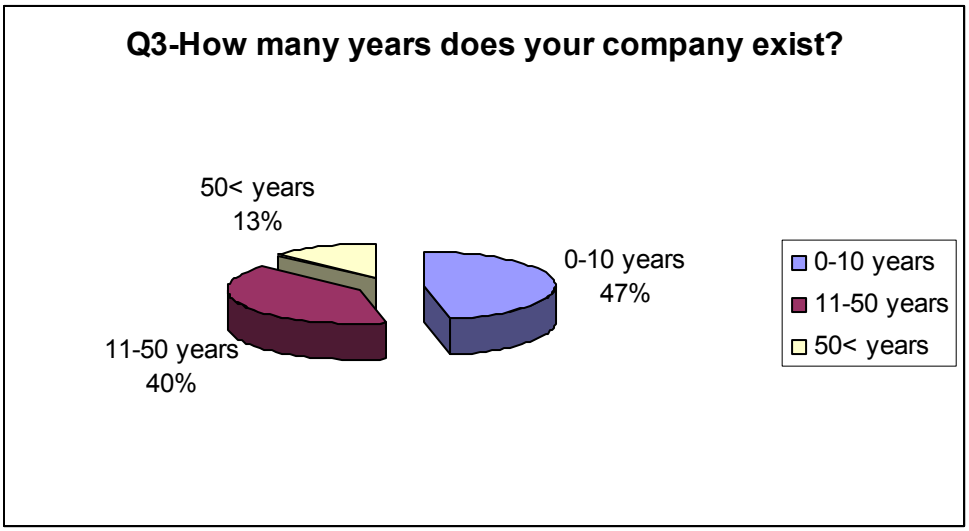
2. Detailed result of the questions with Charts

Question 1	In which industry does your company operate ?
	R&D institute for Tool and Die Industry
	automotive
	Avto moto industry, Electro industry, household appliances.
	Production of plastics parts and sheet metal parts for household appliances.
	Mould making factory, injection moulding factory
	Injection moulding process of thermoplast
	Chemistry and rubbery industry.
	Mould making industry
	Plastic Converting
	Sating Production
	Production of normally, shafts
	Production of moulds for thermoplasts

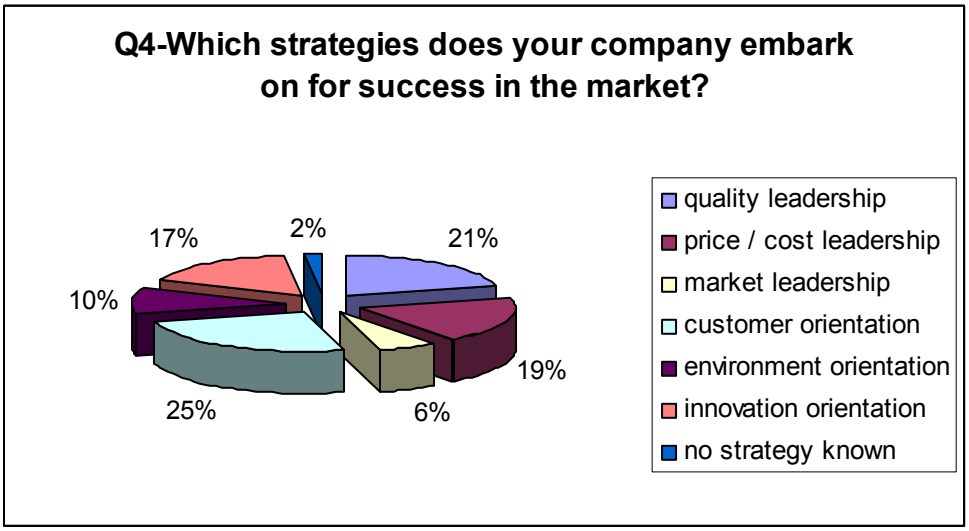
Question 2	How many employees does your company employ?			
	0-10	11-50	51-250	250<
	5	1	8	1



Question 3	How many years does your company exist?		
	0-10 years	11-50 years	50< years
	7	5	2



Question 4	Which strategies does your company embark on for success in the market?	
		Use
1	quality leadership	10
2	price / cost leadership	9
3	market leadership	3
4	customer orientation	12
5	environment orientation	5
6	innovation orientation	8
7	no strategy known	1



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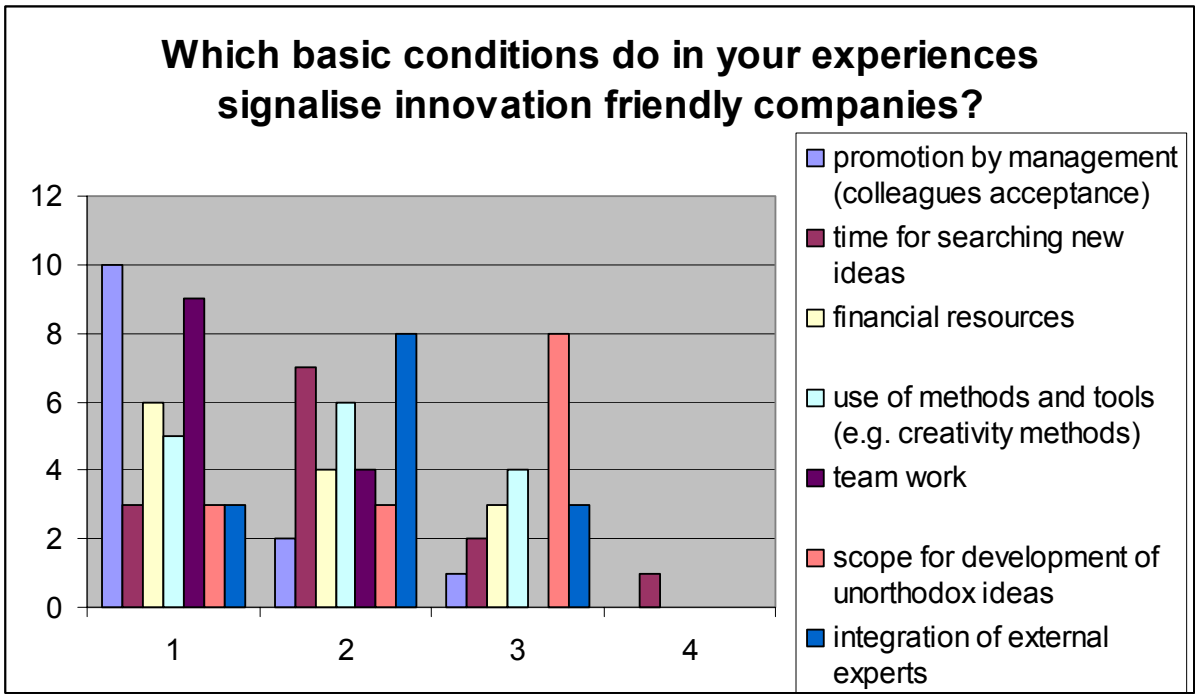
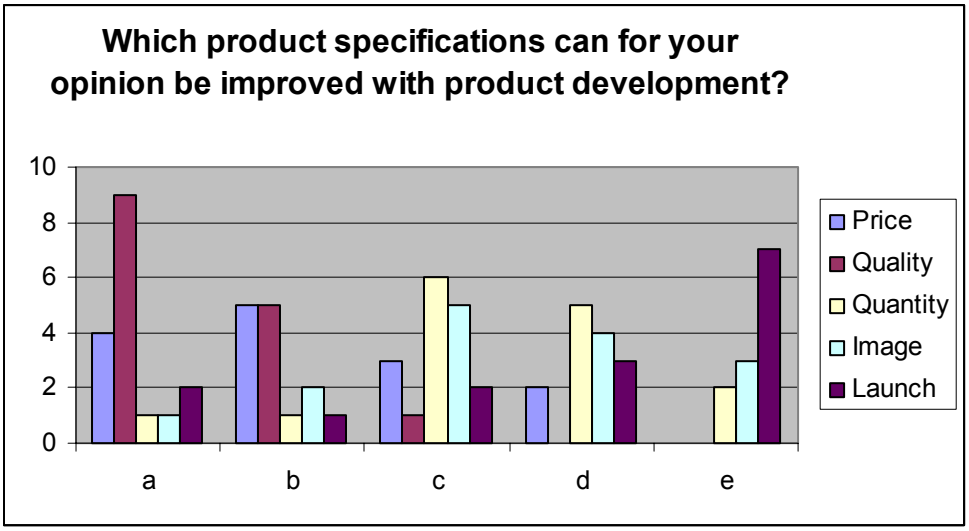
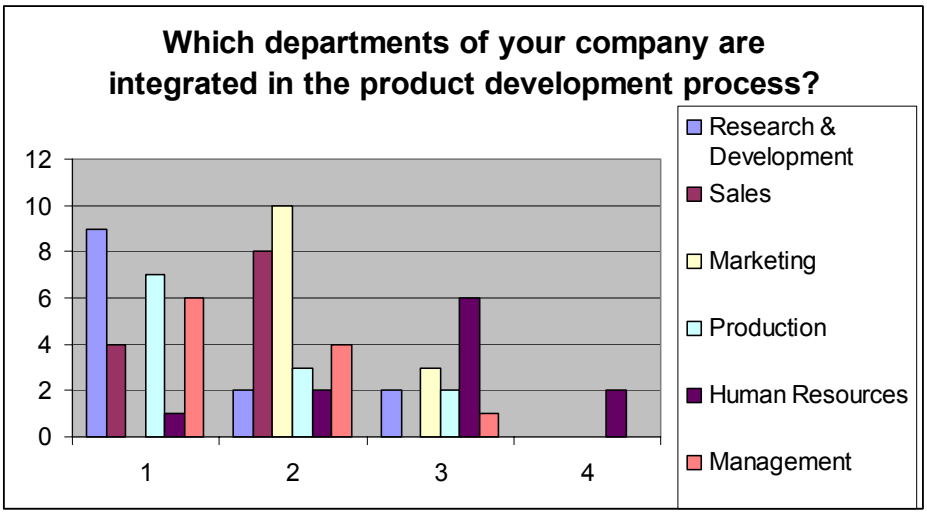
Question 5	Which basic conditions do in your experiences signalise innovation friendly companies?				
		1	2	3	4
1	promotion by management (colleagues acceptance)	10	2	1	0
2	time for searching new ideas	3	7	2	1
3	financial resources	6	4	3	0
4	use of methods and tools (e.g. creativity methods)	5	6	4	0
5	team work	9	4	0	0
6	scope for development of unorthodox ideas	3	3	8	0
7	integration of external experts	3	8	3	0



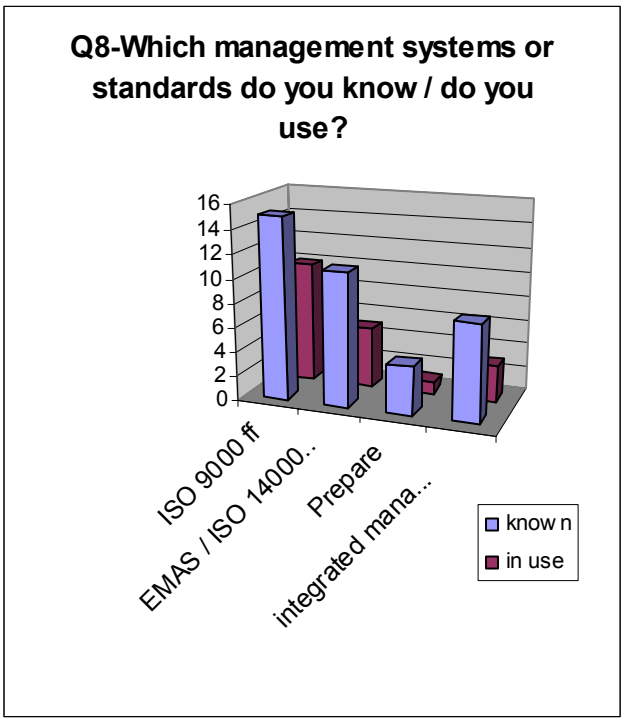
Question 6	Which product specifications can for your opinion be improved with product development?					
		a	b	c	d	e
1	Price	4	5	3	2	0
2	Quality	9	5	1	0	0
3	Quantity	1	1	6	5	2
4	Image	1	2	5	4	3
5	Launch	2	1	2	3	7



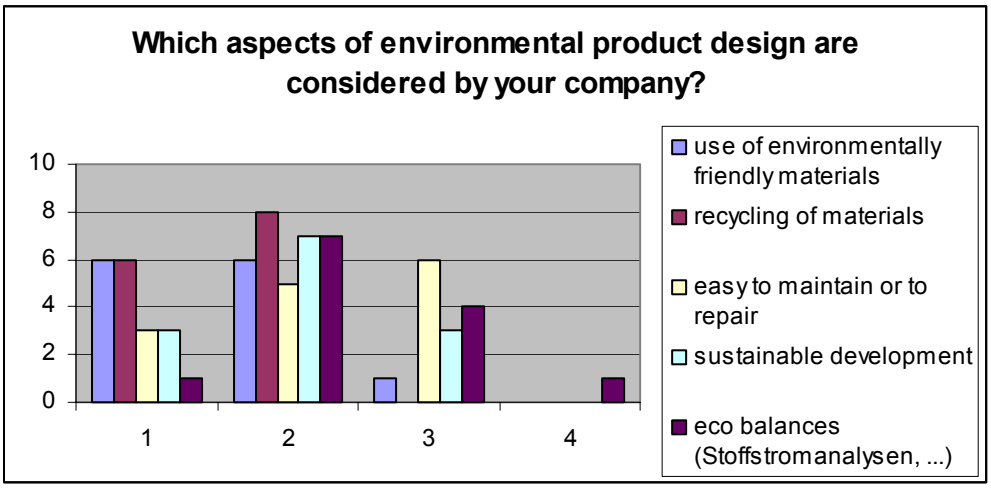
Question 7	Which departments of your company are integrated in the product development process?				
		1	2	3	4
1	Research & Development	9	2	2	0
2	Sales	4	8	0	0
3	Marketing	0	10	3	0
4	Production	7	3	2	0
5	Human Resources	1	2	6	2
6	Management	6	4	1	0



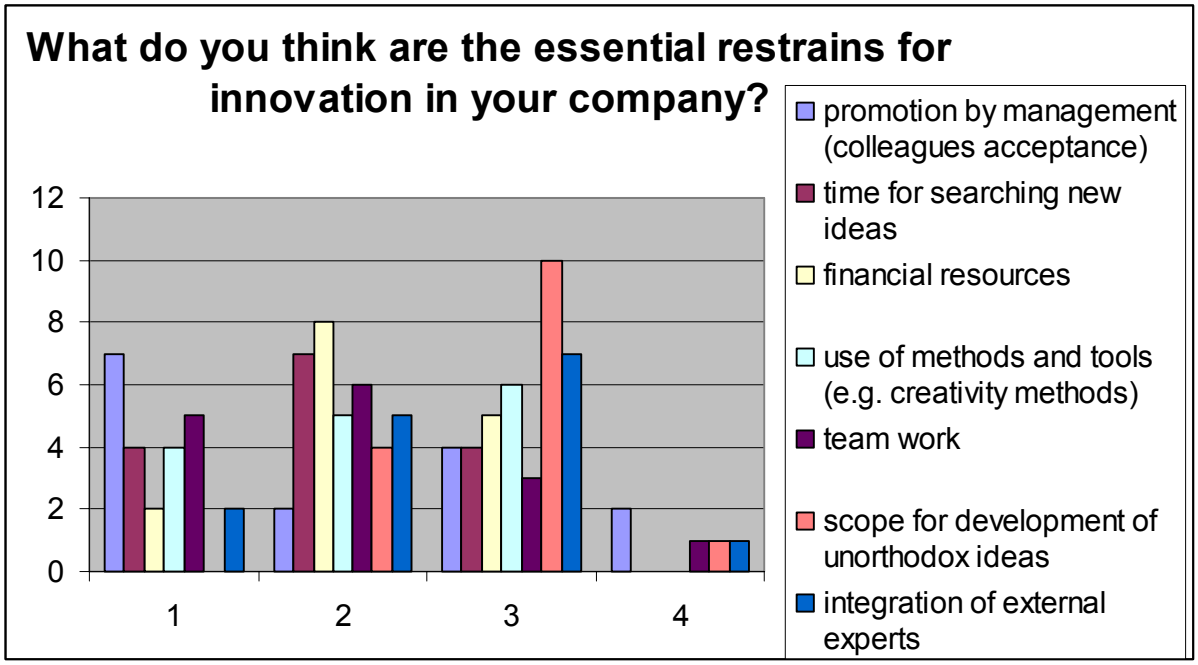
Question 8	Which management systems or standards do you know / do you use?		
		known	in use
1	ISO 9000 ff	15	10
2	EMAS / ISO 14000 / BS 7750	11	5
3	Prepare	4	1
5	integrated management systems	8	3



Question 9	Which aspects of environmental product design are considered by your company?				
		1	2	3	4
1	use of environmentally friendly materials	6	6	1	0
2	recycling of materials	6	8	0	0
3	easy to maintain or to repair	3	5	6	0
4	sustainable development	3	7	3	0
5	eco balances (Stoffstromanalysen, ...)	1	7	4	1



Question 10	What do you think are the essential restrains for innovation in your company?				
		1	2	3	4
1	promotion by management (colleagues acceptance)	7	2	4	2
2	time for searching new ideas	4	7	4	0
3	financial resources	2	8	5	0
4	use of methods and tools (e.g. creativity methods)	4	5	6	0
5	team work	5	6	3	1
6	scope for development of unorthodox ideas	0	4	10	1
7	integration of external experts	2	5	7	1



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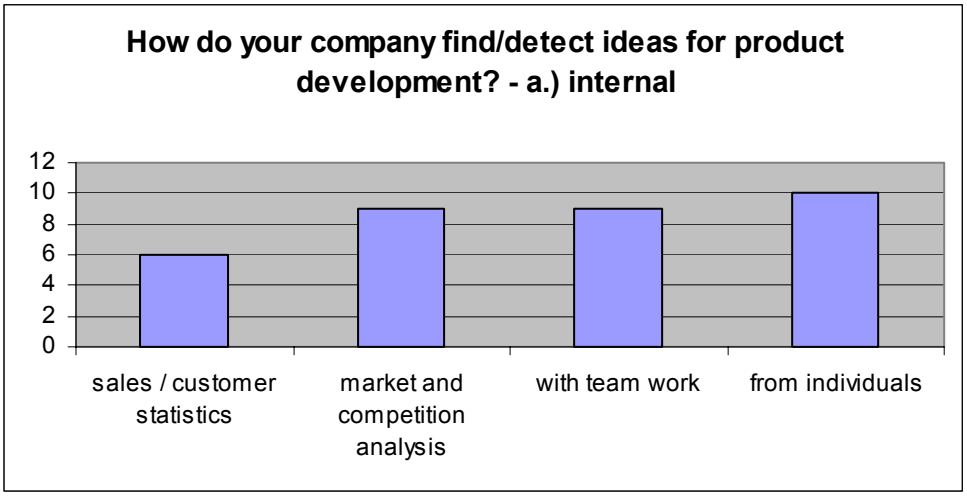
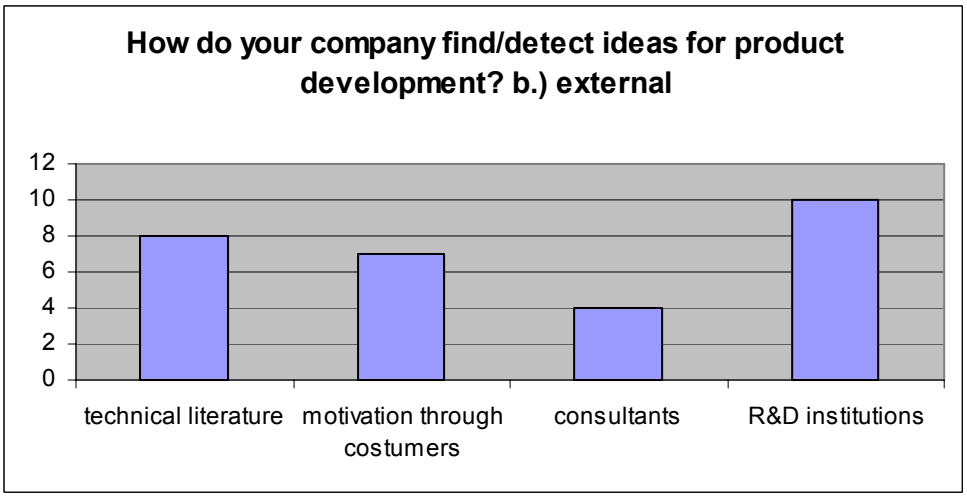
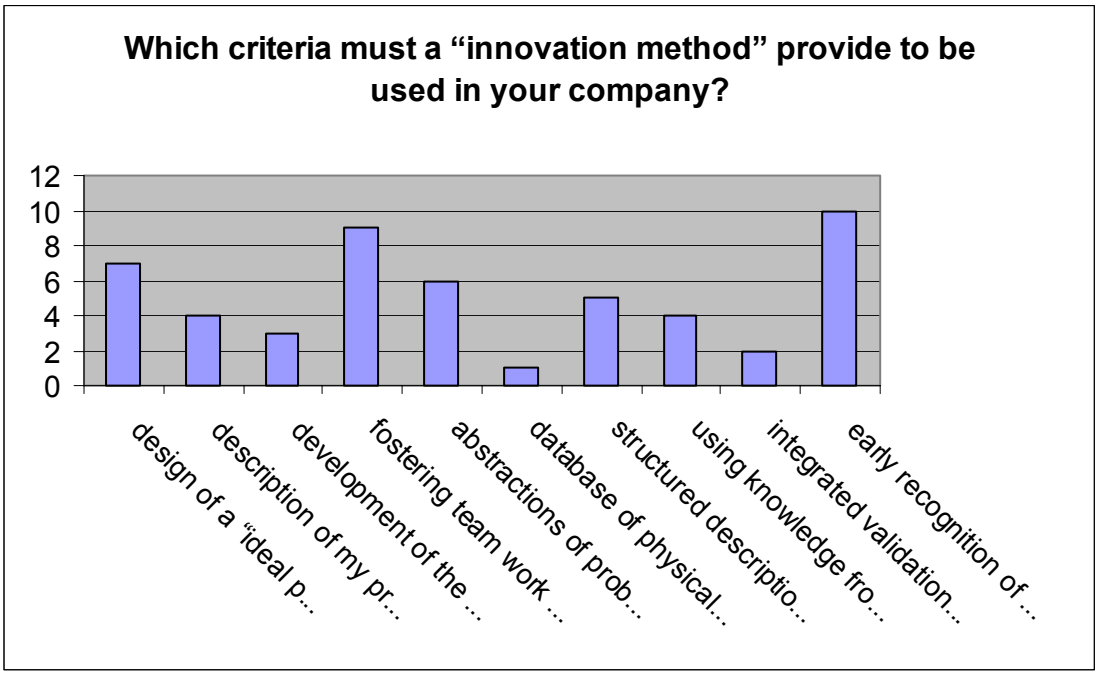
Question 11	How do your company find/detect ideas for product development?	
*******	a.) internal	
1	sales / customer statistics	6
2	market and competition analysis	9
3	with team work	9
4	from individuals	10
*******	b.) external	
1	technical literature	8
2	motivation through costumers	7
3	consultants	4
4	R&D institutions	10

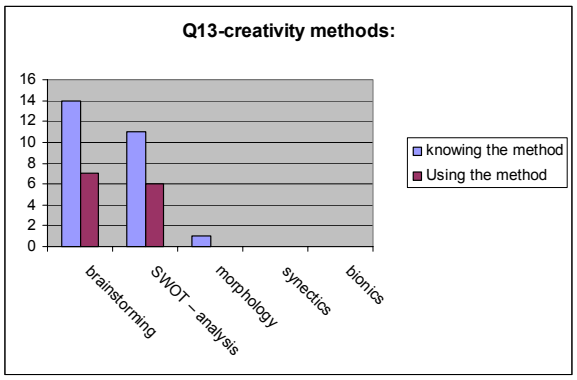




Question 12	Which criteria must a “innovation method” provide to be used in your company?	
1	design of a “ideal product” to derive medium- and long term intentions for product development	7
2	description of my product/process with general trends of evolution	4
3	development of the main contradiction, which have to be overcome, to achieve inventive solutions	3
4	fostering team work (creativity inside teams)	9
5	abstractions of problems to increase creativity	6
6	database of physical effects (e.g. How can we move liquids?)	1
7	structured description of customers requirements	5
8	using knowledge from other industries	4
9	integrated validation tools	2
10	early recognition of error risk of products and processes	10



Question 13	I. Which methods or tools are known respectively used for product development in your company?						
	II. If these methods or tools are used in your company, can you evaluate by your experience the usability of them for product development						
	creativity methods:						
		knowing the method	Using the method	1	2	3	4
1	brainstorming	14	7	6	3	1	0
2	SWOT – analysis	11	6	4	2	2	0
3	morphology	1	0	0	0	0	0
4	synectics	0	0	0	0	0	0
5	bionics	0	0	0	0	0	0
	TRIZ – theory of inventive problem solving:						
*********		knowing the method	Using the method	1	2	3	4
1	resource checklist	3	1	0	3	0	0
2	ideality – ideal product	2	2	0	3	0	0
3	function and attribute analysis	6	3	2	3	1	0
4	inventive principles (technical and physical contradiction)	1	0	1	1	0	0
5	database of physical effects	3	0	2	0	1	0
6	trends of evolution	1	0	1	2	0	0
********	other methods						
*********		knowing the method	Using the method	1	2	3	4
1	QFD - quality function deployment	8	4	2	3	1	0
2	patent search & analysis	6	3	0	2	1	0
3	FMEA – failure mode and effects analysis	11	5	4	2	1	0
4	cause - effect analysis (e.g. fishbone diagram)	7	2	2	2		0
5	scenario techniques	1	0	0	0	0	0
6	Pareto - analysis (ABC-analysis)	8	5	4	1	2	0
7	mind mapping	0	0	0	0	0	0


Q13-creativity methods:
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14
12
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8
6
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2
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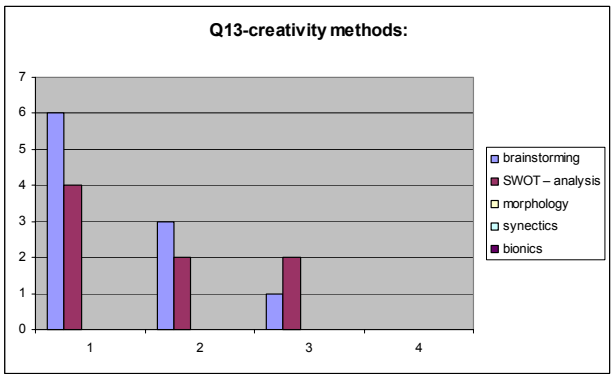
brainstorming
SWOT – analysis
morphology
synectics
bionics
knowing the method
Using the method


Q13-creativity methods:
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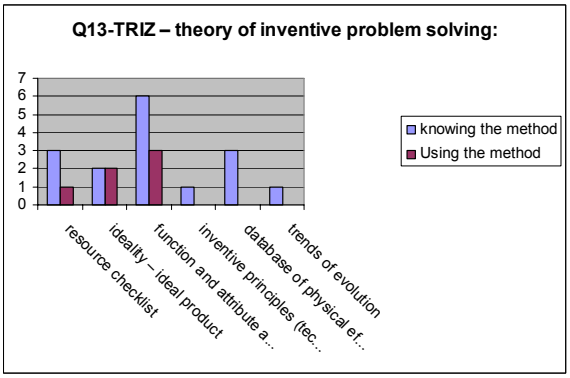
brainstorming
SWOT – analysis
morphology
synectics
bionics


Q13-TRIZ – theory of inventive problem solving:
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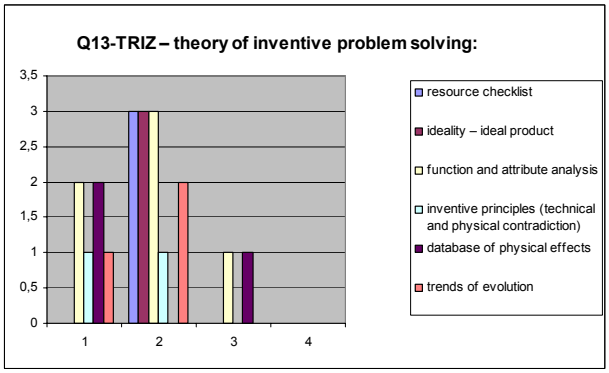
knowing the method
Using the method


Q13-TRIZ – theory of inventive problem solving:
3,5
3
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2
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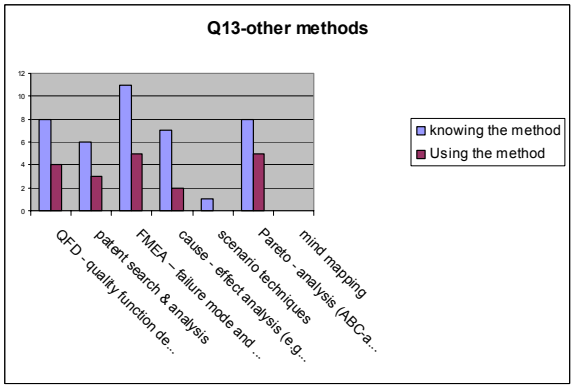
resource checklist
ideality – ideal product
function and attribute analysis
inventive principles (technical and physical contradiction)
database of physical effects
trends of evolution


Q13-other methods
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10
8
6
4
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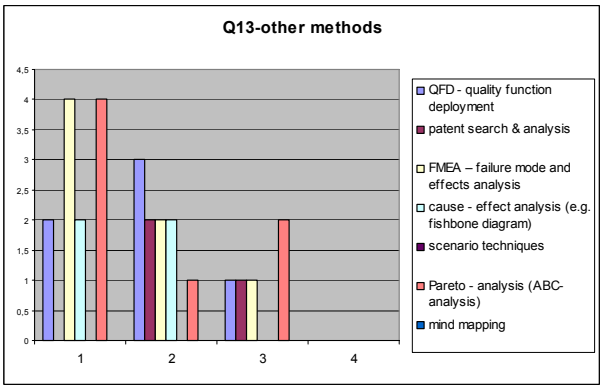
0
QFD - quality function de...
patent search & analysis
FMEA – failure mode and ...
cause - effect analysis (e.g...
scenario techniques
Pareto - analysis (ABC-a...
mind mapping
knowing the method
Using the method


Q13-other methods
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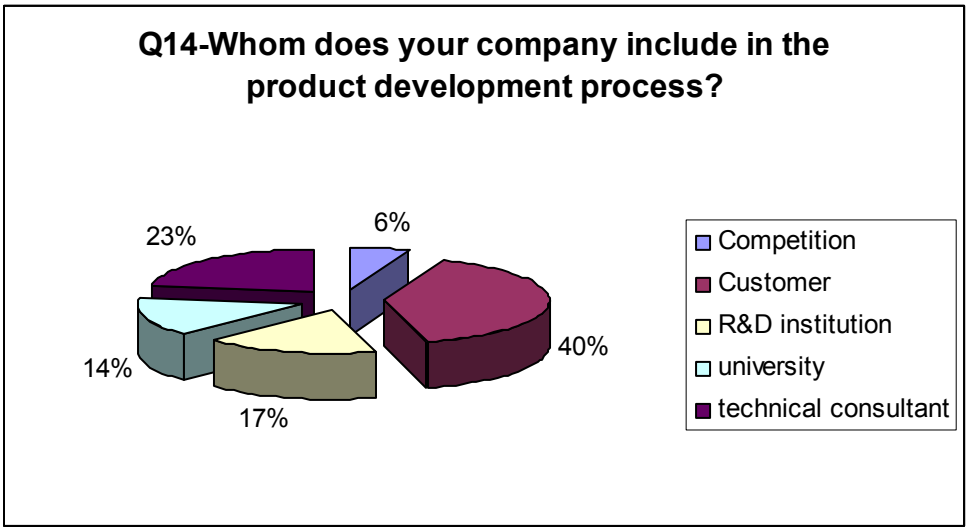
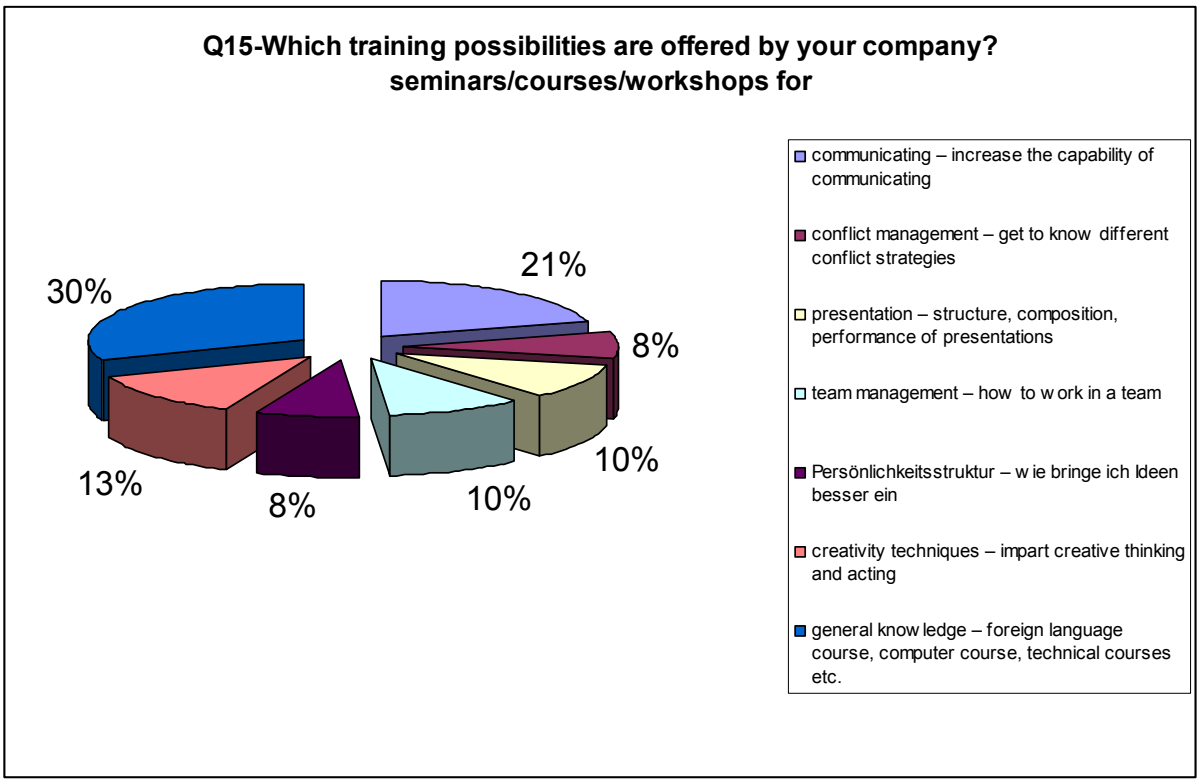
4
QFD - quality function deployment
patent search & analysis
FMEA – failure mode and effects analysis
cause - effect analysis (e.g. fishbone diagram)
scenario techniques
Pareto - analysis (ABC-analysis)
mind mapping

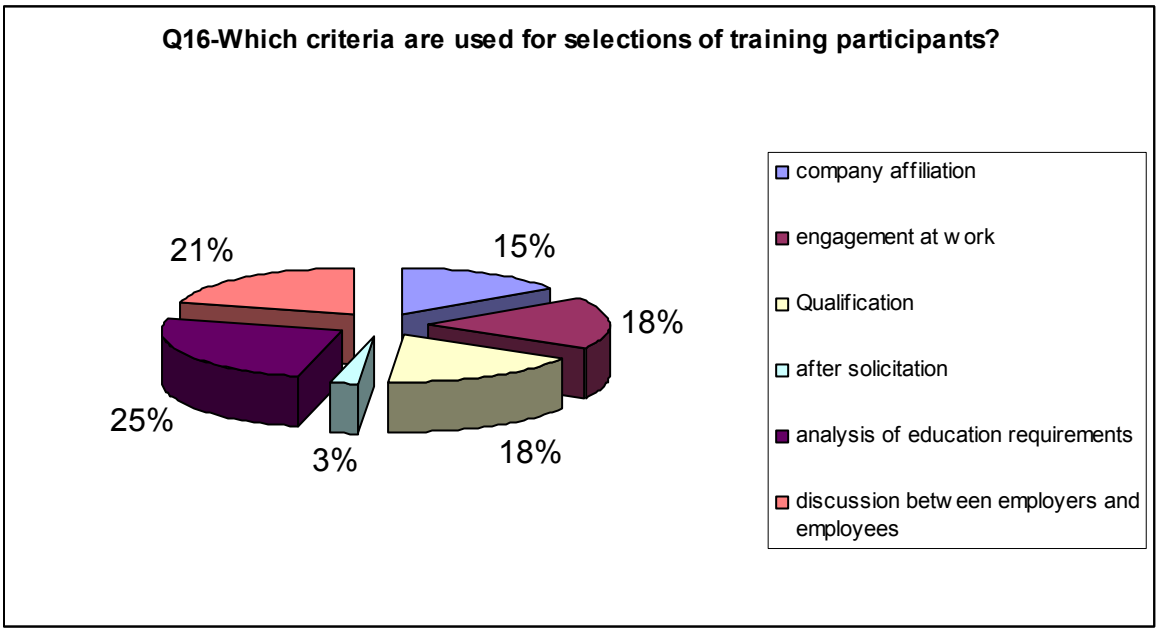
Question 14	Whom does your company include in the product development process?	
1	Competition	2
2	Customer	14
3	R&D institution	6
4	university	5
5	technical consultant	8



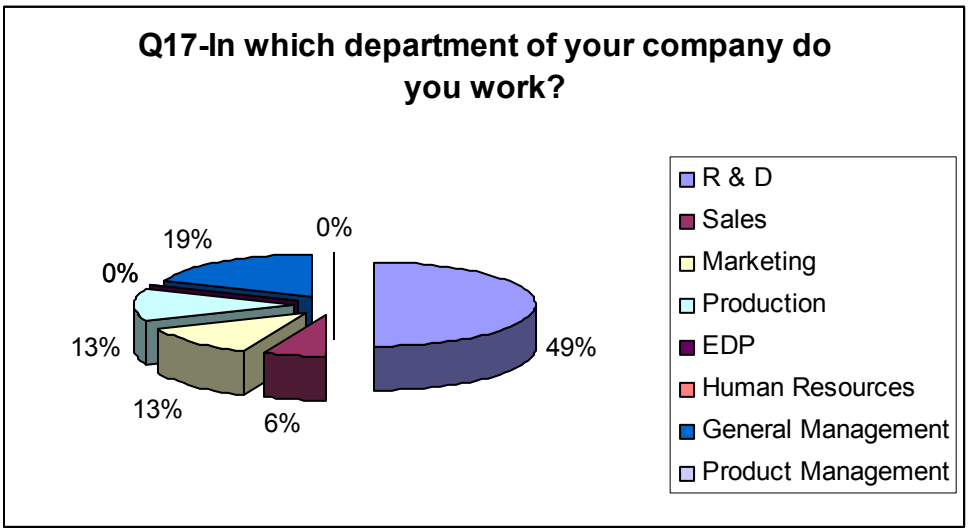
Question 15	Which training possibilities are offered by your company?	
	seminars/courses/workshops for	
1	communicating – increase the capability of communicating	8
2	conflict management – get to know different conflict strategies	3
3	presentation – structure, composition, performance of presentations	4
4	team management – how to work in a team	4
5	Persönlichkeitsstruktur – wie bringe ich Ideen besser ein	3
6	creativity techniques – impart creative thinking and acting	5
7	general knowledge – foreign language course, computer course, technical courses etc.	12



Question 16	Which criteria are used for selections of training participants?	
1	company affiliation	6
2	engagement at work	7
3	Qualification	7
4	after solicitation	1
5	analysis of education requirements	10
6	discussion between employers and employees	8



Question 17	In which department of your company do you work?	
1	R & D	8
2	Sales	1
3	Marketing	2
4	Production	2
5	EDP	0
6	Human Resources	0
7	General Management	3
8	Product Management	0



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Question 18	Please describe in keywords the three most important environmental problems which your company is facing with ?
1	Noise
2	Water pollution with hydraulics oil
3	Use of environmentally friendly materials
4	Rest from cleaning line for stainless steel
5	Pollution of air
6	Separate collection of waste material
7	Water pollution
8	Rational material use
9	Rational energy use
10	Gas during melting process
11	Chemicals during hot zincing process
12	Graphite electrodes
13	Waste emulsion