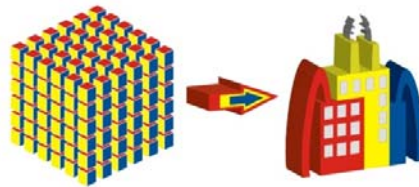


Project title: “Matrix of knowledge for innovation and competitiveness in textile enterprises -  
TexMatrix”

Project duration: 2016-2018

# Report Benchmarking Questionnaire on consortium / European level



This project has been funded with support of the European Commission.

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## INTRODUCTION

The TexMatrix project is aimed at developing innovative skills within textile companies.

As a tool for in-depth investigation, a questionnaire was developed to measure the aptitude for the innovation of the participating companies.

The aim of this guide is outlines how to maximize Benchmarking's action from the approach, such as “you do not have to think of being in a prize race, but whose focus is self-consciousness that leads to the emergence of real points on which action needs to be taken to improve”.

The questionnaire consists of a first part regarding companies generality, followed by 4 areas, primary objects of the survey: Conditions, Resources, Activities and Results.

Since innovation is not univocal, but it can have many "different" shapes and aspects, it can also be guided by diverging or seemingly opposing lines and, above all, between different factors can create synergies or mutual levers.

Each area of inquiry is then divided into specific sub-areas, where the issues are analyzed in the related questions. Questions are divided into two types:

- Likert scales, with selectable values from 0 to 5, referring to the overall PDCA model of total quality management.
- Multiple Answering Questions where the interviewee can choose between a rose of alternatives.

The sample analyzed corresponds to the companies that have joined the project at the invitation of the partners.

Most of the questionnaires were compiled directly online on the platform [www.advan2tex.eu/portal/](http://www.advan2tex.eu/portal/) while some questionnaires were completed on the paper form and subsequently transcribed in the online version.



## MASTER OF COMPANIES

The reference sample is comprised of 64 companies of which: Italian for 14.3%, Slovenian for 15.9%, Portuguese 19% and Romania 50.8%.

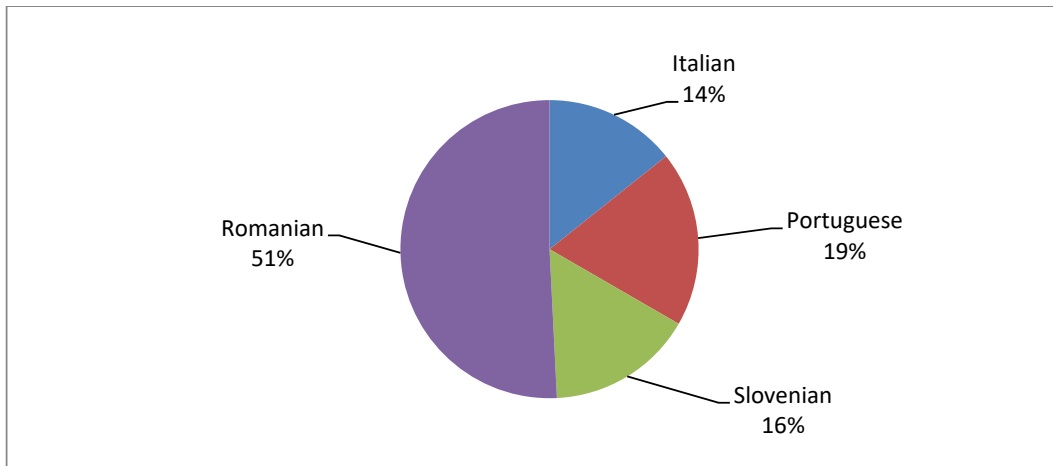


Fig. 1: distribution of the nationality of the sample

All the companies are from the textile sector, and most notably, most (57.1%) operate in clothing / fashion, followed by technical fabrics (41.3%).

Most companies, 63.5% operate in one sector, the trend decreases progressively (19% from 2 sectors, 14.3% for 3 sectors, 1.5% for 4 sectors and 0 for 5 sectors), although it should be noted that 1 company has compiled all 6 sectors.

There is also a fairly proportional trend along the traditional production chain: a few spinning (4) followed by several fabric producers (12) which they are composed by 10 weaving manufacturer and 2 knit manufacturer; there is a contraction in the number of dyeing and printing companies (10) followed by an expansion of companies operating in Clothing / Fashion (36). Although some companies have filled multiple choice (ie yarn / fiber producer and clothing), companies that only operate in clothing / fashion and are therefore not producing textiles, yarns or dyes are 23.

	Clothing/ fashion	Technical textiles	Yarn/ fiber producer	Textiles & fabrics	Dyeing & finishing	Other
sum	36	26	4	10	10	15



Other Companies	
2	Home Textiles
1	Fur and leather goods;
1	Geotextiles for agriculture
1	Manufacture of sandpaper
1	Furnishing: hotel textiles
1	Knitwear
1	Knitwear - stockings
1	tapestry
6	Non specified

Table 1: Sector division

Diversification by number of employees is the field that records one of the most homogeneous of the sample being analyzed, in fact varies between 22.2% and 30.2%. Therefore, as significantly homogeneous will be taken as a distinctive factor for subsequent analyzes.

The results show that 54% of sample companies consist of more than 50 employees.

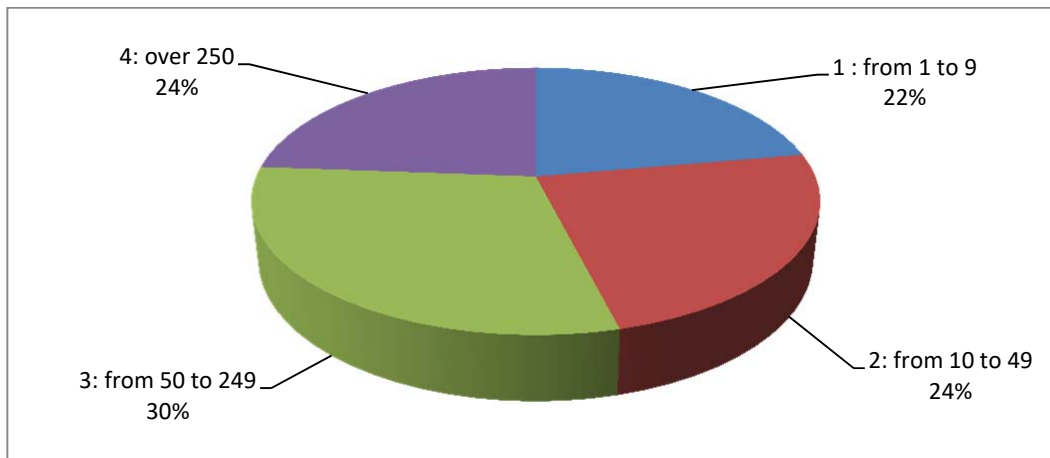


Fig. 2: distribution of the company size

As far as exports are concerned, the share above 75% is the most aggressive (41.3% of the total). It can be noted that more than half of the companies export more than half of the products (adding the number of companies exporting from 50 to 75% and over 75%). By interpreting the data, it is possible to state that the export area of 50-75% is the demarcation line, attributable to internal or market choices, between the export-oriented or the internal market.

It should also be emphasized that a considerable share of the reference sample, the (19.0%), is exclusively for the domestic market.

The 12 companies that do not export there are:

- 1 Italian, 2 Slovenian and 9 Romanian,



- 8 operate in "Clothing / Fashion"
- 11 have a turnover of less than EUR 1 million (out of 16 companies that make up their share)
- and 2 less than 10 million Euros (out of 24 companies that make up the relevant quota);
- 1 company has more than 49 employees, 3 10 to 49 and 8 companies have less than 10 employees.

While the 26 companies who export more than 75% are:

- 7 Portuguese, 3 Slovenian and 16 Romans;
- 14 operate in Clothing / Fashion, 2 are Dying and 1 textile & fabric manufacturer;
- 4 have turnover over 100 million Euros (out of 5 companies of this range), 4 have turnover of between 50 and 100 million Euro (out of 6 companies of this range), 8 companies have turnover between 10 and 50 million Euros (out of 12 companies of this range), 8 companies have sales between 1 and 10 million Euros (out of 24 companies of this range), and 2 companies have sales below 1 Million Euro (out of 16 companies of this range);
- 13 companies have more than 250 employees, 10 between 50 and 249 employees, 3 are in the range between 10 and 49 employees.

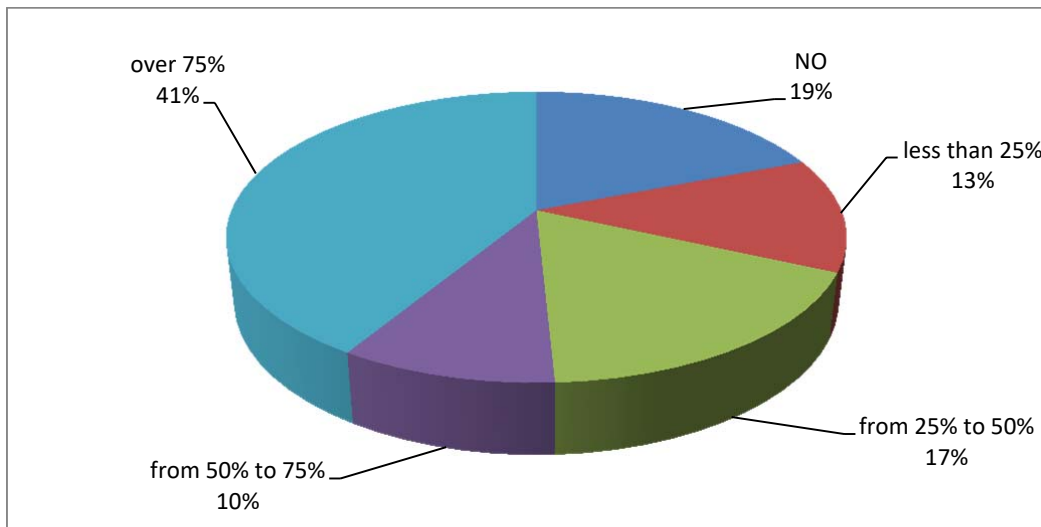


Fig 3: export of products

Despite the homogeneous distribution found in the company size, the turnover of the companies is less homogeneous, it can note the largest area is between 1 and 10 million euro and 63% of businesses have a turnover of less than 10 million euro.

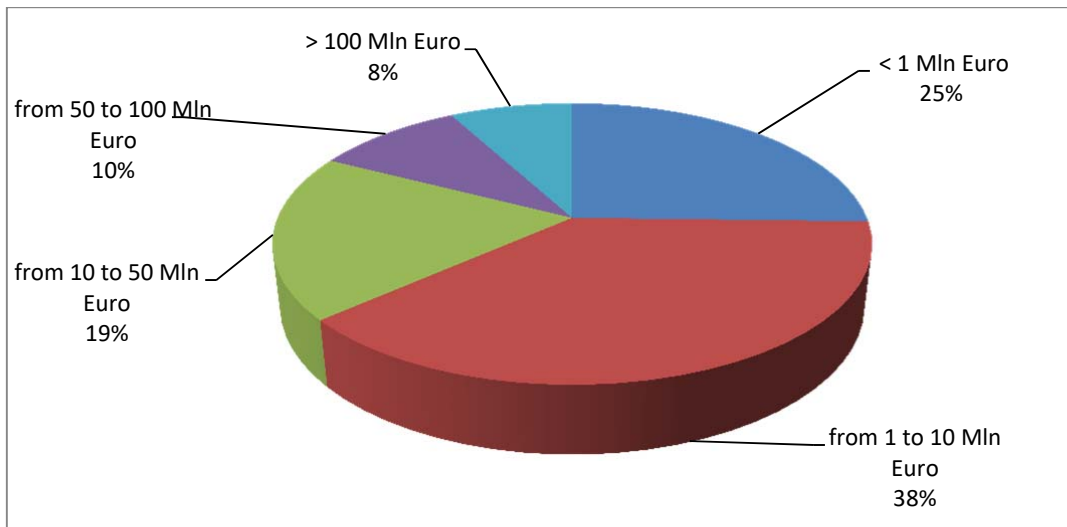


Fig. 4: companies turnover

Regarding the evaluation of interest in innovation, it emerges that IT is the least involved field, while the other fields are between in a fairly low range (from 3.05 to 3.87).

It should be noted the interest in innovation actions follows a common dynamic: trends have a minimum point on value 1 and then they mark a steady growth. The peaks are at "4" value for 6 counters on 7, with the exception of the "IT" field, which shows the peak on value "3".

It can therefore be deduced that involvement in innovation activities has a dynamic like "or low" (as the "0" values are higher than those for "1") or "medium / high involvement", since no indicator records values "5" above the "4" value.

It emerges that 52.4% of companies evaluate product innovation as value "4".

The ranking at value "4" is, from highest: product 52.4%, sales (39.7%), design and technology 38.1%, search 30.2%, service 28.6%, IT 20, 6%.

Look at the rank on values "5", it can be note that: the product is equal to the service (22.2%), the technology is equal to sales (19%), design is equal to research 17, 5%, IT tail up 7.9%.

So, comparing the "4" and "5" results, it turns out that the service passes from the penultimate row to the first row, a sign that for a considerable share of the sample it plays a major role in business priorities.

By observing the value "0", it can note that:

- there are no companies that do not invest in products;
- companies that do not invest in technology invest in product and design;



- companies that do not invest in design invest in almost all other fields, though few in services;
- companies that do not invest in services (5) invest heavily in other fields, it is noted that IT 3 does not invest, while 2 have evaluated their commitment 4;
- companies that do not invest in sales invest in almost all other sectors. It should be noted that a company invests only in product and design;
- companies that do not invest in research invest in other areas, albeit low in IT.

Instead, observing the cases where a company is fully engaged in one sector, it is noteworthy that even values in other fields are fairly high.

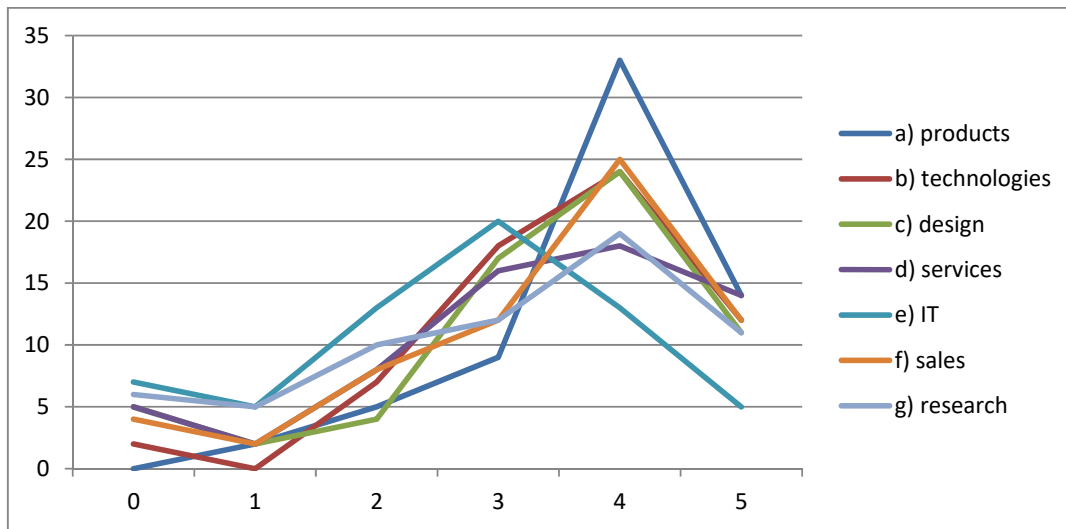


Fig 5: assessment of innovation interest

Regarding investment in innovation activity, the question is open, for easier analysis it has been decided to split into defined clusters.

These cluster are: between 0 and 1%; between 1 and 5%; between 6 and 10%; between 11 and 20%; over 20%.

It emerges that most companies do little investment in innovation activities: 63.5% have a share between 0 and 5%, of which 18 companies altogether are in the range of 0 to 1%.

Two companies represented over 21% of the share of innovation activity, which raised considerably the average (6.9%).



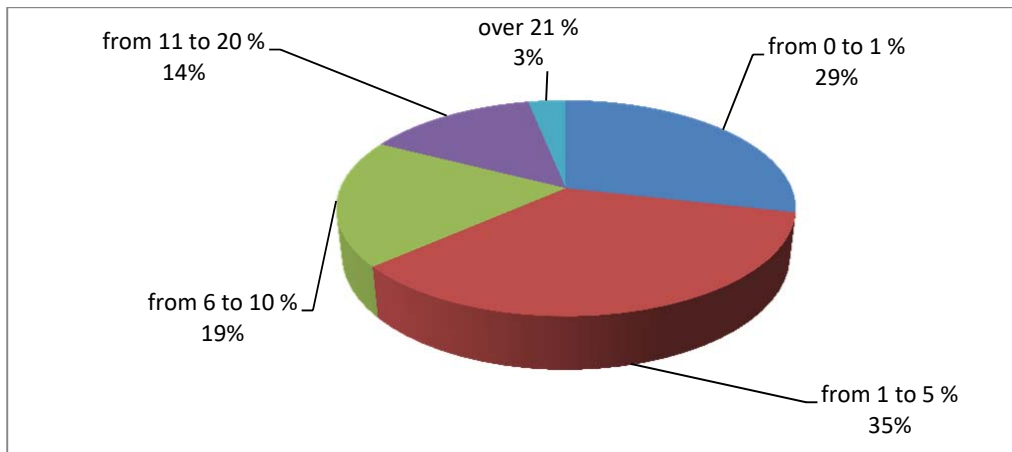


Fig 6: investment on innovation activities

Innovation is mainly aimed to the introduction of new products on the market, so it can be assumed that the main driving force is the profits increase, and it is obtainable by product development, another important factor is addressed to increase market share.

The increase of production capacity register a lower interest, although the "2" and "3" options have the highest values.

It can therefore be inferred that the priorities in terms of innovation and development is lead to obtain a reference position or to consolidate a dominant position on the own market.

It can also assume the intention is to maintain the achieved position in medium/long period, thus justifying the propensity to increase production capacity.

Another significant fact is 44% of the respondents are CEOs, and the rest are in head of areas.

It should be noted that some of the interviewees occupy several positions, especially in smaller companies, which can not adopt a broad structure.

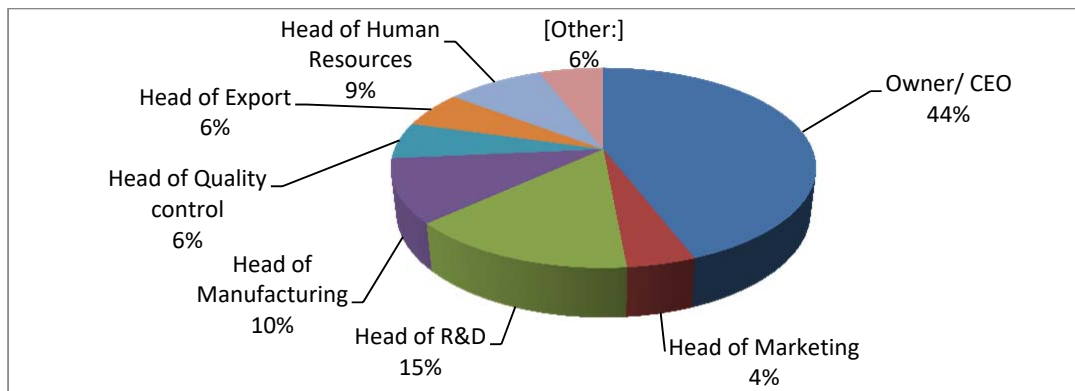


Fig. 7: position in the company



There is a gender parity: 32 respondents are males and 31 are females.

As far as age is concerned, the graph show two minimum points, corresponding to the range 41-45 and 56-60.

It can be noted that in the face of an analysis of a broad spectrum of age, the extremes result in lower or lower values: 1 less than 25, 2 more than 65.

Nearly half of the interviewed (42.8%) are between 46 and 55.

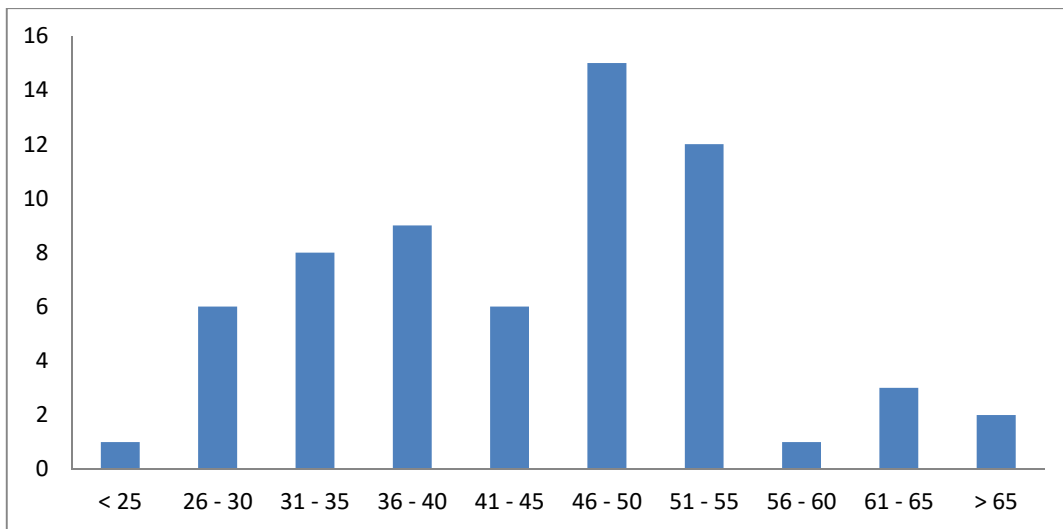


Fig. 8: age of the interviewed persons



## CONDITIONS

### INNOVATIVE CULTURE

Although companies are almost unanimous on consider innovation as a business value and outlining the idea of encouraging continuous change, the activities regarding promotion and surveillance record a decrease: not all companies have currently tools devoted to the primary focus on innovation.

There are many companies that encourage a continuous change: 40 companies report a high value.

More in depth, the adoption of mechanisms for technological surveillance marks a peak at value "3" (34.9%), a signal that in these field could occur potential develop.

The question **“What are the motivation instruments for innovation activities inside the enterprise?”** has not been submitted to all sample companies because it has been included in the questionnaire after the pilot tests.

On the 54 companies that answered this question, it can note that motivational force for people is aimed at personal and professional growth, while bonuses or financial facilities became second.

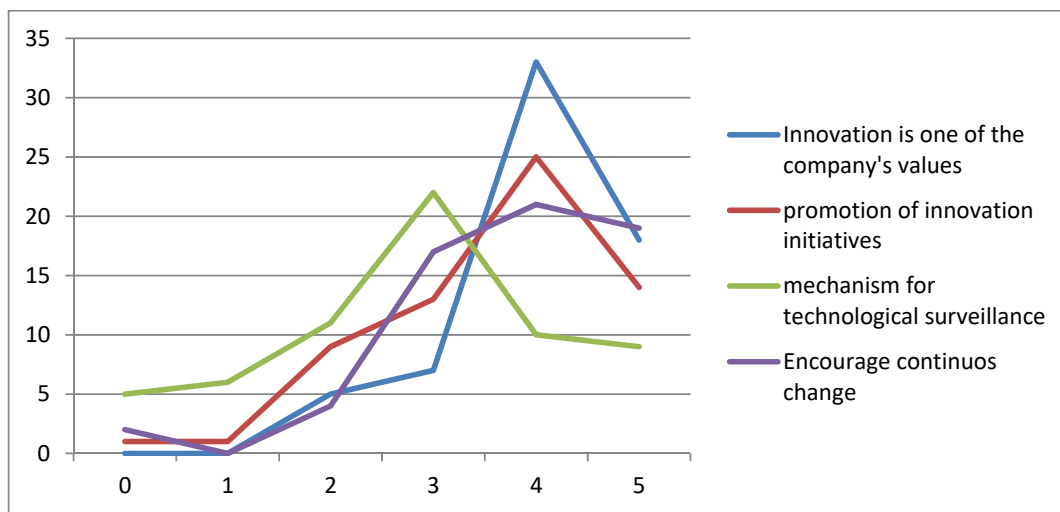


Fig. 9: innovation culture



a) opportunities for career development	b) confidence in the organizational management and ensuring of a stable future	c) possibility of participating in specialization or training programs	d) connecting the personnel to the company's objectives and mission	e) salaries increase, bonuses, other financial facilities
33	35	30	30	22
52,4%	55,6%	47,6%	47,6%	34,9%

Table 2: motivational instruments

### STRATEGY

As far as innovation strategies are concerned, it can be observed that 23 companies, or 36.6%, attribute an average value to the medium and long-term innovation policies shared with employees.

The same condition is recorded regarding innovative strategies translated into medium to long-term objectives (33.3%), as well as the resource-valuation sector (30.2) .

The value decrease on the value "2" with a 33.3% for the presence of a regularly evaluated plan with employees and external actors.

However, as far as the evaluation of regularly monitored projects is concerned, companies give an average high rating, in fact, only 19% rated "0" and "1".

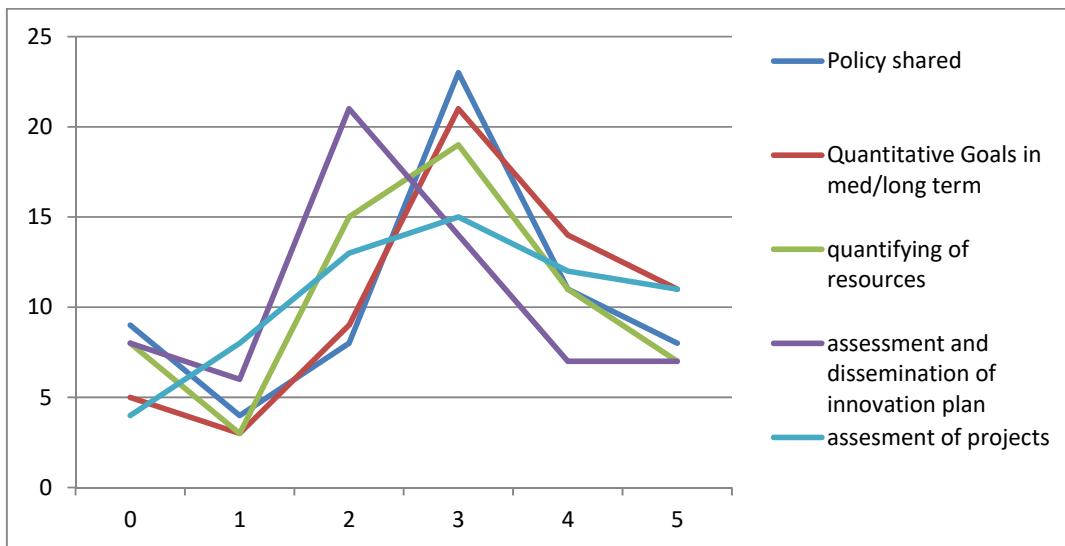


Fig 10: innovation strategy



### LEADERSHIP

Concerning leadership, almost half of the companies (49.2%) emphasize that there is "an innovative vision that guides the definition of the organization's strategy" by filling the value "4", instead 12 are the companies that evaluate it as maximum possible.

The ability to identify the figures involved in innovation activities is on average 3.03, with a higher spread between "2" and "3", and a 33.3% peak on value "4".

Of the 63 companies, 16 identify as "1" the budget line for the promotion of innovative activities. Exactly the same percentage (20.6%) is found for the "2" and "4" values.

The data collected is more homogeneous with the creation of leadership figures emerging through innovation policies, with values of 27%, 20.6%, 22.2% respectively for "2", "3" values, "4".

It is noteworthy that leadership is well inclined to innovation in the company, even through the emergence of specialized figures, it is found that the definition of a budget line on this issue does not have the same weight.

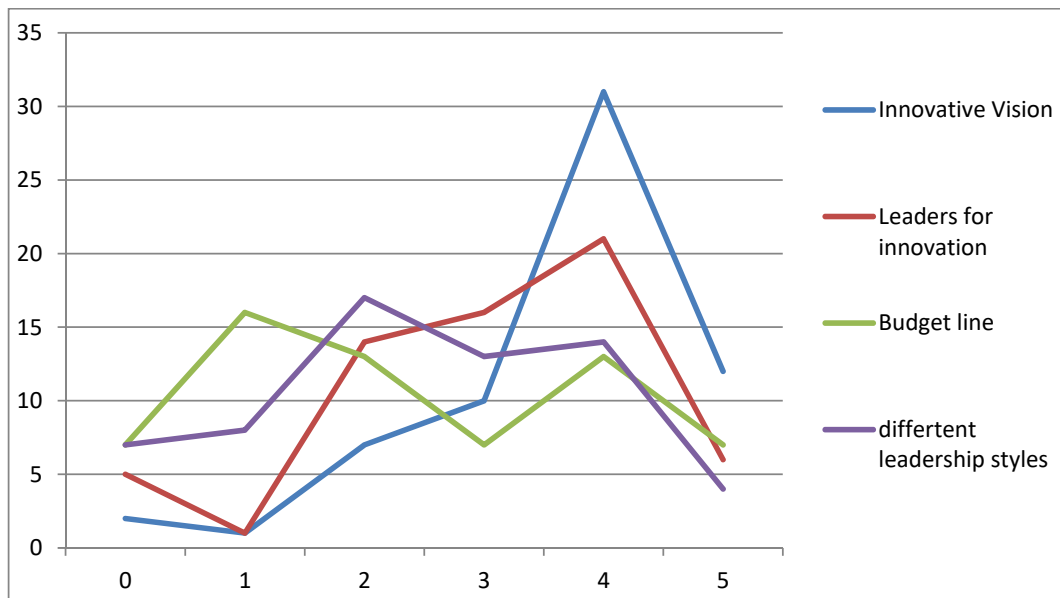


Fig. 12: leadership innovation



## RESOURCES

### HUMAN REOURCES

It can note employees within the company play an important role in innovation activities. Specifically, it can be noted that for the 4 related questions relative to the likert scale, the average is slightly above the "3" value.

20 companies choose an average value to identify the presence of a policy dedicated to innovation-oriented resources. 15 companies, on the other hand, are those that are identified in a high average value.

The training promoted in the company results to have a peak at value "4" for 33.3% companies. Companies that define a medium-low value are 41.2% of the overall.

Employees are involved and play an important role in innovation activities for 66.6% of companies, while the rest of the sample considered is as medium importance.

Over 60% of the surveyed companies consider the technical level as appropriate preparation.

As far as training activities are concerned, 54% of the sample opts for internal training, in order to follow, job-rotation and support activities amount to 47.6%. The 44.4% of companies acquire a technical training, this is higher than management training adopted (34.9%).

Training provided by authorized organizations is made from 27 companies. While marginal value is related to traditional training with classroom lessons.

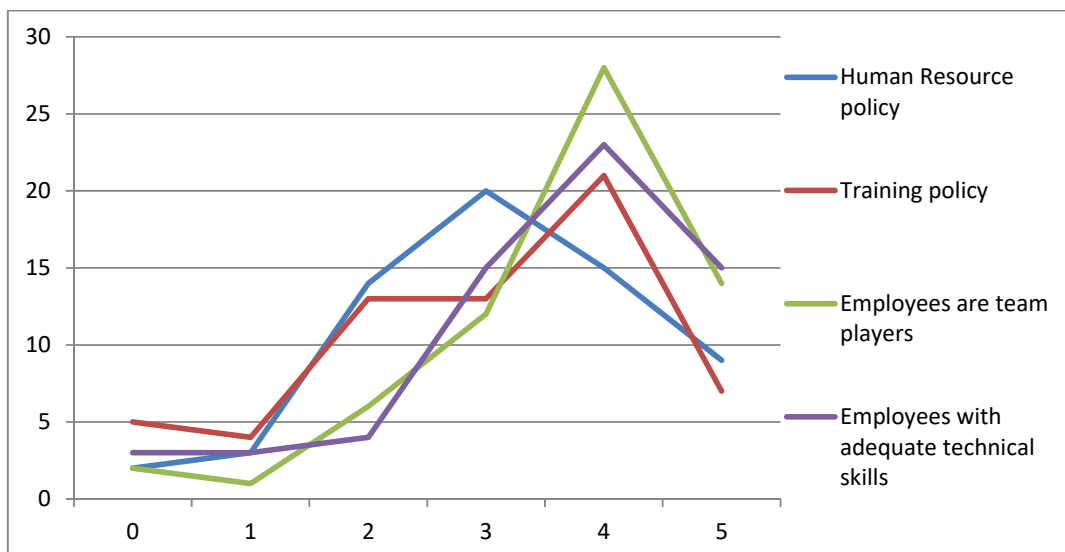


Fig. 12: human resources dedicated do innovation



a) Technical training	b) Management training	c) Traditional training (i.e.: lessons by a teacher on a classroom)	d) Work-based, training on the job, job-rotation or e-learning	e) Internal training	f) Training provided by authorized organizations
28	22	18	30	34	27
44,4%	34,9%	28,6%	47,6%	54,0%	42,9%

Table 3: trainig activities

### ORGANIZATIONAL STRUCTURE

The organizational structure of the interviewed companies appears to be a promising aspect of innovation.

A large sample (49 companies) uses the creation of multidisciplinary teams on innovation activities, even if it is not supposed to be continuous.

The 76.2% of companies uses partnerships with external companies, suppliers or consultants to develop innovation activities.

A high average value is attributed to knowledge management, the 52.4% cover the "3" and "4" values.

An analogous trend occurs in the stimulus and the management of ideas.

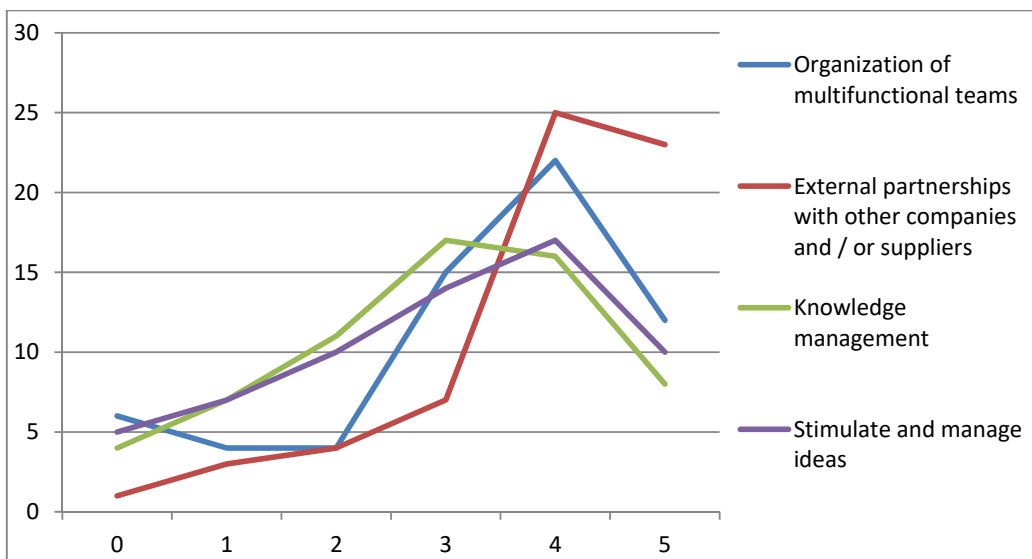


Fig 13: organizational structure



### MATERIAL RESOURCES

In terms of material resources, the access to innovative materials and technologies is considered from 68.3% of companies.

Regular technology integration planning is medium-high importance: 22 companies identified it as "4" value, and 11 as "5" value. The average drops from the previous question from 3.68 to 3.30.

Access to specialized resources has different peculiarities, and is more ordinary: 11 companies identified it as value "2", 14 as value "3", 16 as value "4" and 13 as value "5". Noteworthy 8 companies have shown a value of "0", far superior to the 3 companies who signed "0" for technological research and the 5 companies who do not plan the technological implementation.

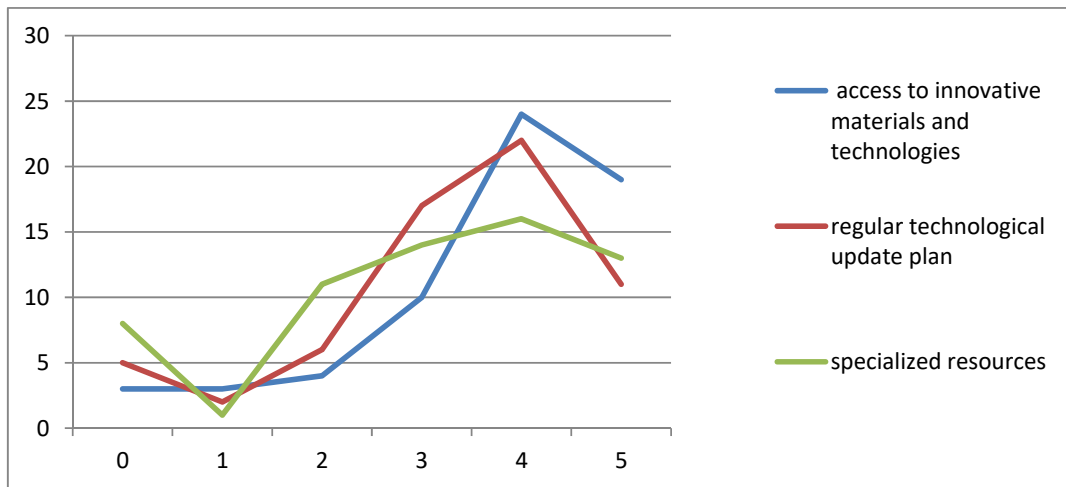


Fig 14: material resources dedicated to innovation

### EXTERNAL RELATIONSHIP

As far as external relations and innovation-related partnerships are concerned, it is possible to note that most participating companies feel this aspect important.

There are only 9 companies that do not have links with research centers and/or universities. There is a steady growth of up to 30.2% of companies that consider at higher level their relationship with these organization.

The involvement of customers and suppliers is also important with a high average trend. The same goes for participation in trade fairs, including international fairs.

The analysis of markets and trends in social behaviors also has a similar interest.



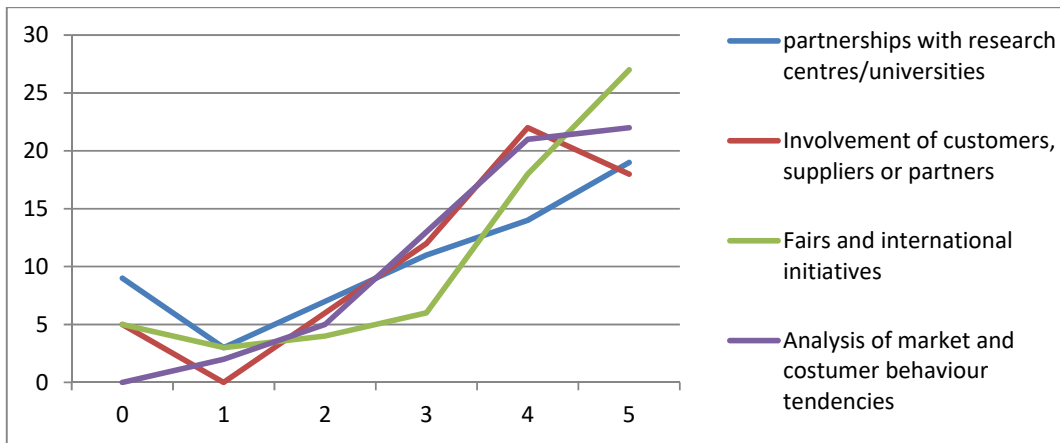


Fig 15: external relationship

### FINANCIAL RESOURCES

With regard to seek for external financial resources, two points of higher concentration can be noted: 15 companies do not have purpose on this issue; however 24 companies estimate their approach to the search for external funds as "4" value.

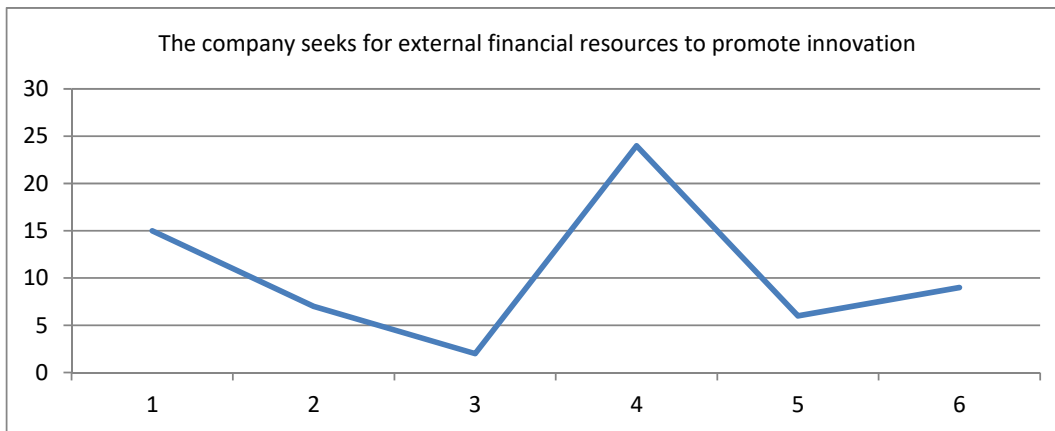


Fig 16: external financial resources



## ACTIVITIES

### MANAGEMENT OF IDEAS

The positioning of companies in planning for the development and implementation of innovative ideas is on medium-high value: 69.3% is distributed in the range of "3" and "5" values.

The methods and the resources for innovation that the companies interviewed use are different, the most significant issue being the development of ideas from internal staff (84.1%), while 68.3% is targeted at industry fairs . The relationship with customers and suppliers plays an important role, in fact 52.4% of companies have such policies.

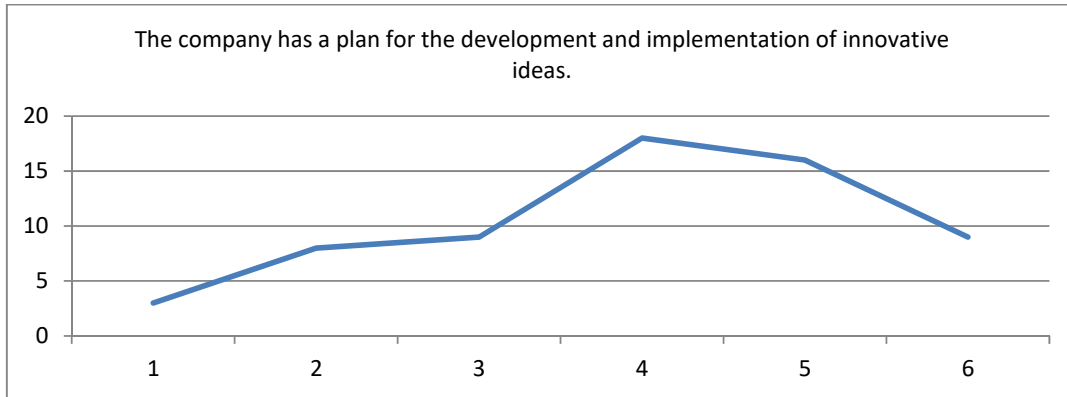


Fig 17: management of ideas

a) Innovation ideas from own staff	b) Scientific magazines	c) Business fairs	d) Marketing Dept.	e) Internal R&D Dept.	f) Clients & suppliers
53	23	43	25	33	33
84,1%	36,5%	68,3%	39,7%	52,4%	52,4%

Table 4: methods and sources for information

### PROJECT PORTFOLIO

It emerge that 85.7% of companies manage project portfolio on the basis of internal analysis; the 60.3% is based on technology and production reports.

Significant data are related to the few companies who take into account the environmental sustainability aspects: only 27%.

The efficiency of projects in relation to economic terms is considered quite important, but it is to be noted that around 20/25% of enterprises do not consider the economic results so important to the effectiveness of the projects implemented.



a) Internal analysis meetings	b) Technological / production reports	c) Financial /Accounting data	d) Personnel competencies	e) Environmental analysis
54	38	25	29	17
85,7%	60,3%	39,7%	46,0%	27,0%

Table 5: instrument adopted for the management of innovation project

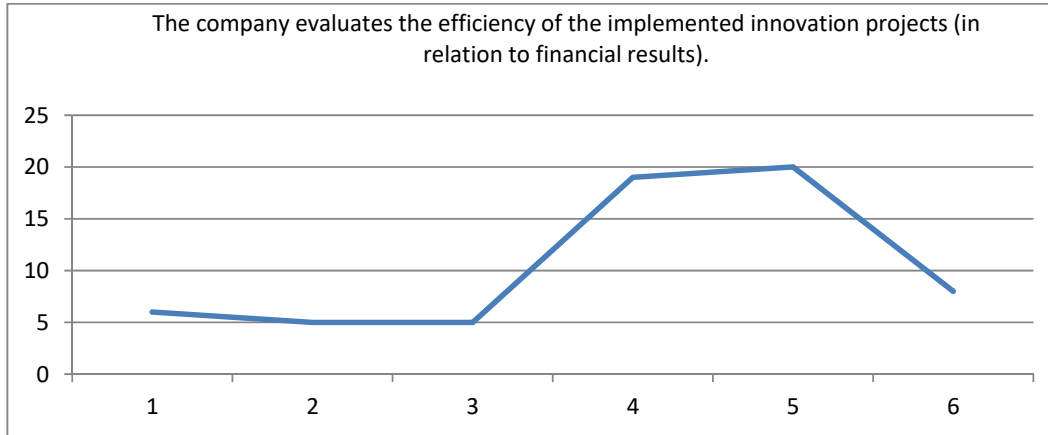


Fig 18: assessment of project efficiency in terms of financial results

### SURVEILLANCE AND KNOWLEDGE MANAGEMET

Surveillance and knowledge management does not have the same impact recorded on other fields analyzed: in fact, the average values range between 2.75 and 3.30.

For an in-depth vision, it can note that companies who filled "0" are significant: they constitute 9.5% do not adopt a strategic surveillance plan, while 36.5% of businesses rank it as value "3". There is a very similar dynamics regarding the presence of information systems for surveillance and knowledge management.

The activities to understand market needs and opportunities sign a greater interest: 34.9% of companies have assessed their position as "4".

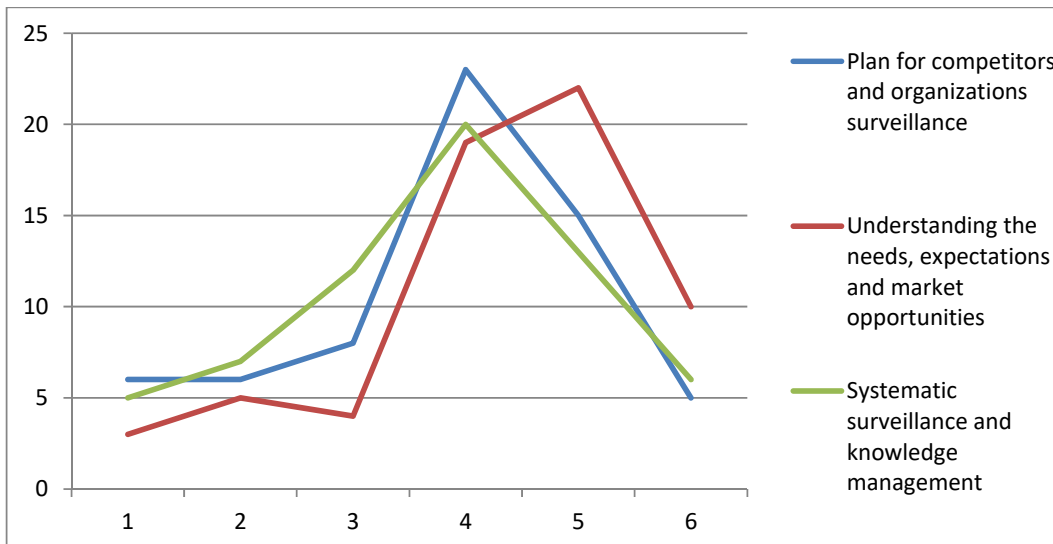


Fig 19: Surveillance and knowledge management

### INNOVATION PROMOTION

Company communication, in relation to the delivery of an image of innovation, generally shows a low consideration: in addition to 12.7% of companies that do not manage a communication plan, it should be noted that most companies (52,4%) is set between "3" and "4" values.

The data on the instruments used for the formation of partnerships show fairly homogeneous values: the range is between 49.2% of partnerships in R&D projects and 74.6% of direct communications.

No one company did not mark anyone of the 4 fields, while 8 companies filled all the 4 fields. It can be observed that for the 12 of companies that do not use R&D projects and associations, 11 use direct communication or partnership agreements.

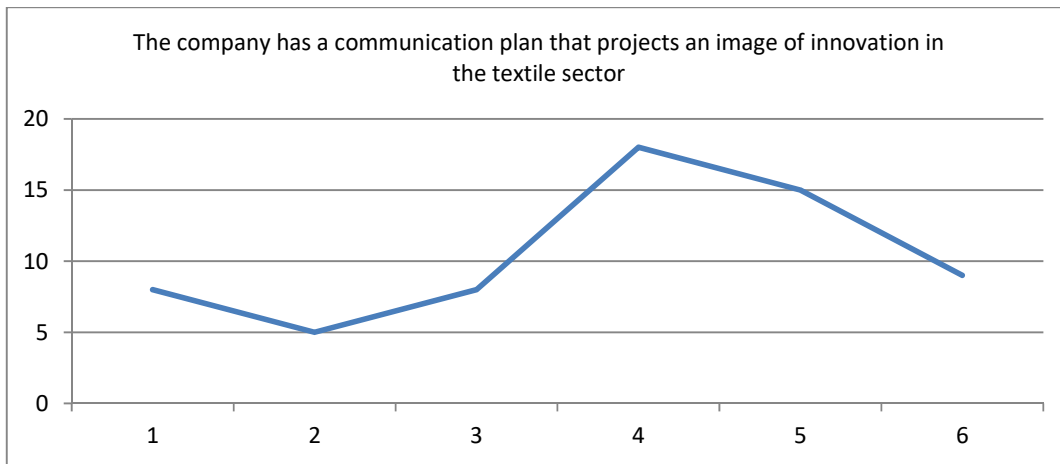


Fig 20: communication plan that concerning innovation image

a) direct communication	b) partnership agreements	c) member in professional associations and clusters	d) partnerships in R&D projects
47	40	34	31
74,6%	63,5%	54,0%	49,2%

Table 6: instruments used for partnerships

### INTELLECTUAL PROPERTY RIGHTS

Firstly It should be noted the 28.6% of companies who do not handle any kind of intellectual property in their projects, and the share of 34.9% companies who do not have registered patents.

At the extremes of the scale, 46% of companies have a strong involvement in the use of IPR in portfolio activities, while 31.7% of companies rated "5" the patents themselves.

The position of companies that have scored values "1", "3" and "4" should be focused in order to assess whether their patents are not fully evaluated because their impact is marginal to core business or if the registered patents are under a kind of obsolescence.

Individual-owned property rights show a homogeneous trend even if the companies involved are just over 20%, excluding internal patents, so the share climbs to 31.7%.

It can also note that for the 20 companies who filled "5" value in the patent claim, only 8 companies have applied them , 7 companies have mark documentation on patens, 5 companies are design oriented and 3 companies are models and label oriented; instead 4 companies are interested in acquiring patents and 2 in acquiring licenses.



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**TEX MATRIX**  
of knowledge for innovation and competitiveness in textile enterprises

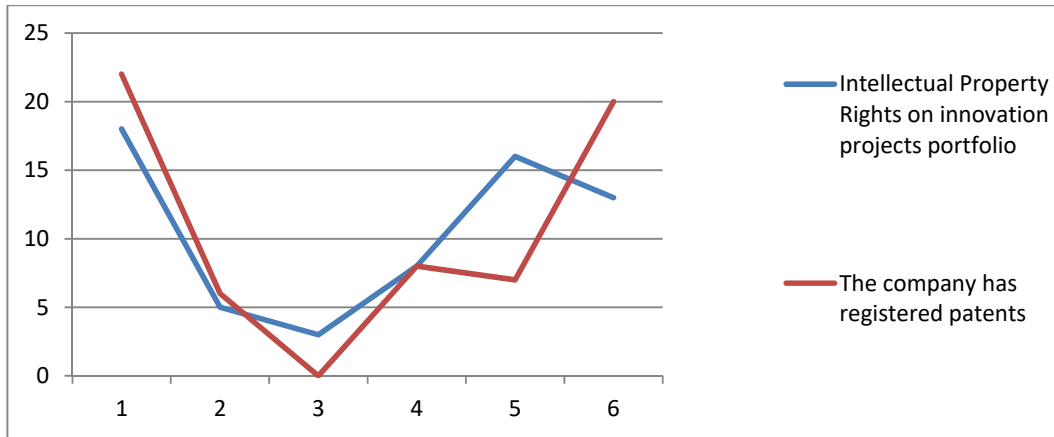


Fig 21: IPR Management

a) Internal patents	b) Acquisition of patents	c) Documentation on patents	d) Acquisition of licensees	e) Design	f) Models and Label	g) None of listed
20	7	13	13	13	17	13
31,7%	11,1%	20,6%	20,6%	20,6%	27,0%	20,6%

Table 7: activities regarding IPR



## RESULTS

### EVALUATION AND MONITORING

The averages recorded in this field are significantly low: the approaches to the protection of individual property rights (justified by the fact that there are few companies investing in this field) and the sensitivity to sustainable technologies are particularly low. Indeed, in these two areas, the overall of companies who do not are involved are 31.2% for IPR and 19% for sustainable technologies. However, there are some sensitive share to these issues, though most of them are positioned at "3" value.

Customer involvement is more oriented to customer satisfaction: 31.7% of companies evaluate it as "4" (and adding it with "5", they covers 55.5%) and systemic monitoring (31.7% of companies currency as "3").

The question **“The company evaluates the impact of innovation on”** has not been submitted to all sample companies because it has been included in the questionnaire after the pilot tests. The question asked to score only three possible answers, as it actually sums up three areas: it asked the interviewer to give priority by choosing the three most important factors.

On the 54 companies who responded to this question, it is reported that 39 selected the increase in orders and customers portfolio, followed by 36 companies who evaluated the impacts of innovation in terms of profit growth. So 32 selected the portfolio of products, processes and services.

It should be noted that only 10 companies have compiled the three fields simultaneously, which suggests a fairly homogeneous diffusion with other goals.

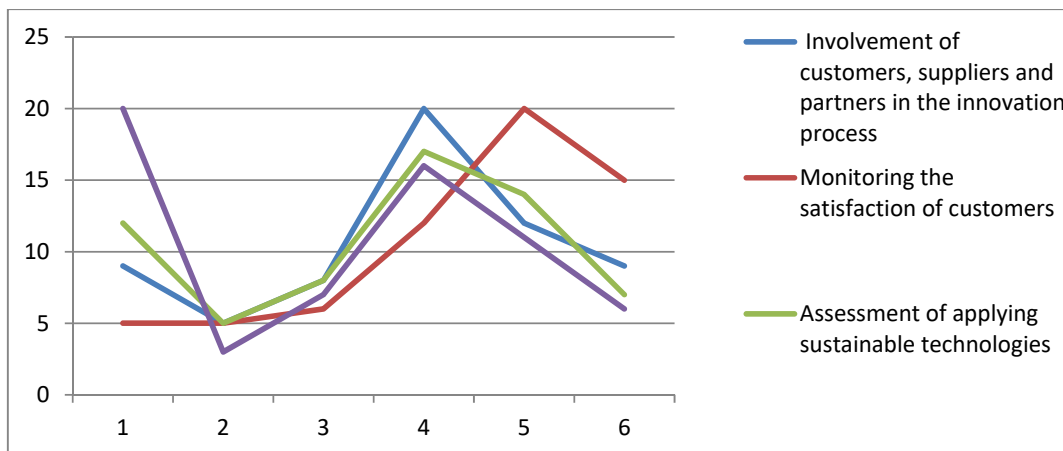


Fig 22: evaluation and monitoring of results



a) Increased profit	36	57,1%
b) Increased number of employees	4	6,3%
c) Increased portfolio of patents and other IP rights	7	11,1%
d) Increased portfolio of customers and orders	39	61,9%
e) Acquisition of new equipment	17	27,0%
f) Reduced production cycle	10	15,9%
g) Reduced consume of utilities (electricity, gas, water etc.)	11	17,5%
h) Reduced expenses for environment protection	0	0,0%
i) Reduced expenses for health preservation	0	0,0%
j) Increased portfolio of new products / processes / services	32	50,8%
[Other:]	0	0,0%

Table 8: assessment of impacts of innovation

IMAGE

The company image is more oriented towards the evaluation of the image return, which marks an average value of 3.05 against 2.94 of the other two fields under observation, suggesting that the influence of innovation in the brand and as innovation policies can add value to the image of the brand, it has a rather high weight.

What is affected is the share of "0" values: 11 concern correlation between brand value and innovation, 8 are referred for innovation results, and 7 regards image return evaluation.

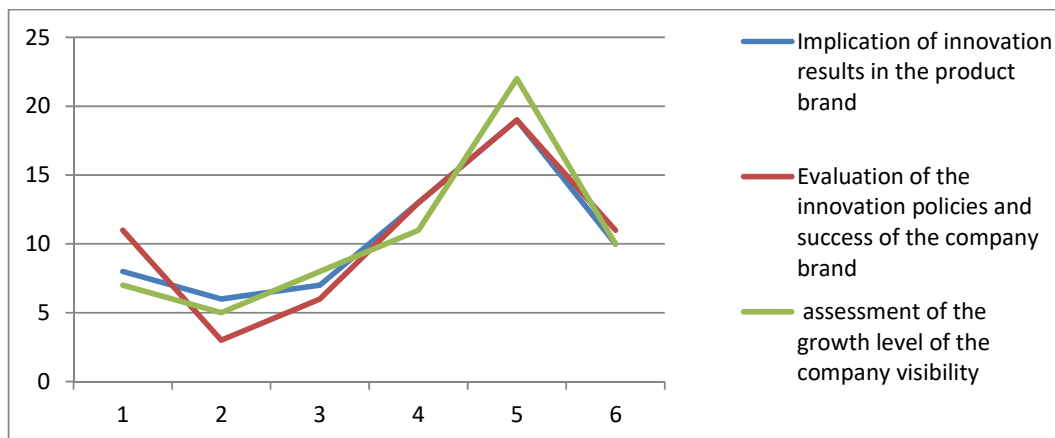


Fig 23: Assessment of return on image





### LEARNING FROM FAILURE

Failure assessment is a fairly consolidated practice: most companies (41.3%) scored it as "4"; this quote and the values "3" constitute the overall share 65.1%. It might also point out there are 4 companies that do not operate in this regard.

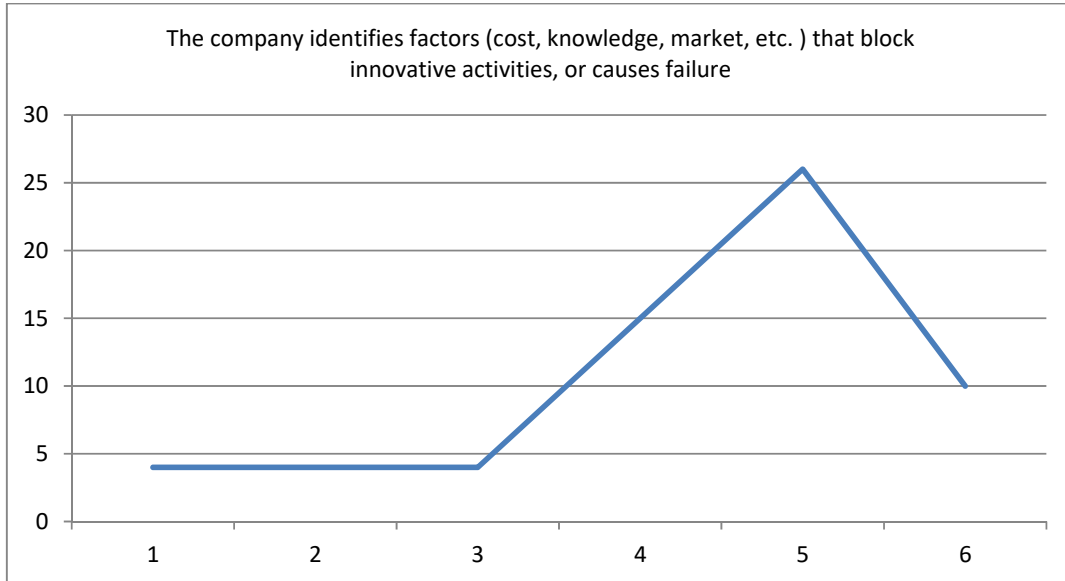


Fig 24: Identifying factors that block innovation

## CONCLUSIONS

Analyzing of companies who participated to the questionnaire, it can reveal common dynamics, there is a general propensity to innovation involved in all of the areas under consideration; particularly highest values are addressed to innovative culture, company leadership, human resources, external partnerships and the management of ideas.

The customer / supplier relationship has been analyzed in different areas of this questionnaire, and it has always shown discrete values of interest from the interviewed people, this is a sign that is one of the major sources of information for companies. However, it should be noted that there is a lack of monitoring actions. This scope could potentially lead to an increases of innovation capacity, due it can pose the base on planning and definition of related procedures.

The ideas from internal equipment and developed by the company's staff represent one of the data with the highest registered application share (84.1%). This can also be explained by referring to the aptitude of companies to primarily train staff on both the technical and management side, adding to the relative weight that employees have for management, and it can also be recalled the ongoing motivational impact, which involves the consolidation of roles and the increase in skills and qualifications. In fact those motivational activities are considered more significant than direct benefits or financial incentive. Another adding-value factor can be attributed to the recognition of innovation-related leadership figures.

Communication skills seems to be considered as little relevance: although no weak values have been found, the averages are still lower compared to other areas, such as innovative culture. One would expect a certain correspondence between the two domains, which, on the other hand, does not match the collected data.

The use of patents, both internal and under license, shows a low presence. When a company use patents, they have a significant return, even if there is no strong and structured profile in the management and development of activities aimed at creating, managing or implementing patents. This trend is also confirmed by the poor attitude recorded by the evaluation of the results regarding the protection activities of the I.P.R. It is noted that companies are more oriented towards developing their own patents rather than acquiring them.

Environmental sustainability issues found low confirmation, both in terms of innovation opportunities and in terms of results. This field, which is marking a general interest that goes beyond the textile sector, could therefore be a potential development area.