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Quality Management in Administrative Services of the Italian Universities

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Introduction

The implementation of Quality Management Systems (QMS) in University has many peculiar aspects. For instance, the individuation of three distinct fields of application is possible: in fact QMS can be implemented in teaching, research or administrative supporting processes and often there's no integration among those systems.

One of the most significant consequence of this situation is the difficult individuation of all the university stakeholders and the definition of their roles in the QMS.

Possible university stakeholders are listed below:

1. students
2. families
3. industries and economical subjects
4. society
5. professional orders
6. graduates
7. researchers
8. professors
9. ...

Professors are a very peculiar case, because their roles radically change focusing on different application fields. Considering teaching or research activities, they are certainly the main actors. Professors are responsible for teaching programs, including lessons, examinations, students' tutoring and so on. Professors are also responsible of laboratories activity and research projects, experiments, contracts and publications.

Therefore, QMSs relating to teaching or research are strictly connected with professors involvement in those processes.

But when the focus is on administrative supporting processes the role of professors radically changes: they become the most important and demanding stakeholders, as they are the main users of the service provided. A considerable number of central administration offices (or decentred ones) dedicate to professors support the greater part of their activities.

The “*Good Practice*” project promoted and guided by Milan Polytechnic School since 2000, demonstrated that we can't even forget that the professors' roles change from an university to another: for example there are activities that are completely managed by professors in some university, but that elsewhere are under other structures control. Moreover, sometimes professors decide and execute an activity, while somewhere else they only take a decision, leaving the

execution to clerks. Undoubtedly, every university trying to implement QMS has to carefully consider this aspect in order to establish which is the exact role of professors in their organization and to correctly define all the responsibilities. In this case good practices individuation and analysis can help to point out critical elements, while solutions from similar situation can be learned. The investigation described below is just an example of this approach.

The investigation

About two years ago, Florence University decided to start a process that, in three to four years could lead to the implementation of a quality management system (QMS), EN ISO 9001:2000 compliant, in the area of the administrative services. The scope of the project was clear: put all supporting processes, including service dedicated to students, professors, researchers and so on, completely under control.

In the same period, other important processes, as the certification of the teaching activities in the degree courses and a quality system for the research activities, were started as well. In this way, a very complex situation raised and the Quality Systems Office, which have the mission to pursuit the QMS implementation, had to be helped to better understand the problem of such process, learning from the experience of other universities as well.

Consequently, an exploratory investigation was decided by the Administrative Head of Florence University to understand the trends and the good practices emerging in the area.

The investigation was conducted by the Quality Systems Office in cooperation with the authors of this paper, scientific advisors for quality management in the university. The strategy adopted was to have a direct contact with Quality Managers of other universities, or at least, with people in charge of implementing this kind of projects. When the contacts were impossible or information was not enough, several sources, as published documents or internet sites, were also examined in order to have an as complete description as possible of the investigated projects.

The expected results of the investigation were:

- An analytic survey of initiatives about quality in all areas of Italian universities, with a specific attention to the administrative services dedicated ones.
- Quantity, typology and application field width of those initiatives.
- The individuation of possible good practices in QMS implementation to be transferred in other situations.
- The correlation between quality related projects in each university and dimensional parameters and organisational variables, expressly defined in order to find potential reasons of those situations.

The investigation methodology

First contacts were established from June to August 2005 with 77 Italian Universities' CODAU members (the association of the administrative heads), on a total of 83: only 28 replies were obtained. The staff decided for a second contact in September 2005 and the total number of universities providing information rose to 44. This result is worth commenting on. The investigation conducted was the first of this kind among Italian universities and 57% is an absolutely relevant reply rate, even considering that it wasn't an "institutional" activity, that is a survey conducted by the ministry. This is probably a first symptom of a favourable atmosphere for quality in university.

But it was not enough, thus an accurate research of documents, internet sites and other sources were conducted: in December 2005 information about all 77 universities was available for analysis.

In order to have uniform data about each university and to point out the same critical elements, a common scheme was adopted during all the survey activity, including:

- Initiatives
 - Number
 - Involved area (e. g. teaching, research, administrative services)
 - Typology (e.g. reference model)
 - Application field

- Political commitment level
- Presence of dedicated office or structure
- Information sources.

From January to March 2006 the collected information was analyzed by the staff, under the guide of the authors of this paper, and in April a synthesis was published and sent to all Italian universities.

The work included:

- Florence Administrative Head presentation.
- Methodology description.
- Information collected.
- Good practice individuation.
- Short results observations.

According to the belief that this investigation in a so tumultuous area could be useful only with regular updating, Quality Systems Office staff decided to get an annual review of the work.

To complete investigation contents two good practice were selected, that is two example of interesting implementation of multiple quality initiatives, including administrative services related ones.

Parameters definition

Before analysis could start, some parameters, helpful for a deeper understanding, were defined. First of all, a lot of dimensional parameters were considered, believing in the existence of an influence of university size on quality oriented initiatives. At the very beginning absolute parameters were selected, like number of students, professors and clerks, later on other “relative” parameters, able to give more information, were added.

So we defined:

- Ratio of students to professors R_{SP}
- Ratio of professors to clerks R_{PC}
- Ratio of students to clerks R_{SC}

The first parameter R_{SP} is very important considering quality initiatives in teaching area, while the second and third ones are probably significant for the implementation of initiative in administrative and support services. Undoubtedly, a little number of students for each professor have beneficial effect in teaching activities, while if each clerk has to support a smaller number of students or professors, services could be managed quickly and effectively, according to QMS standard possibly implemented.

As a matter of fact the three parameters are not independent, being:

$$R_{SC} = R_{SP} \cdot R_{PC}$$

and so we will go on using only the first two, as we have not distinguished administrative processes involving students as opposed to professors.

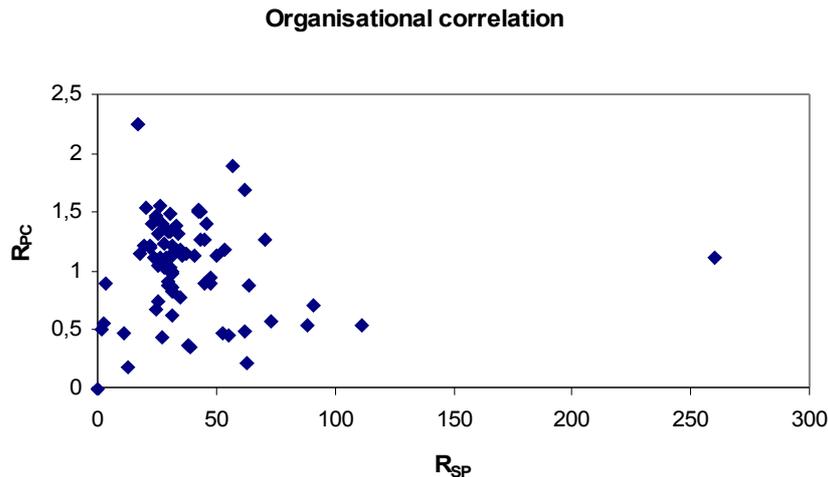


Figure 1 - Scatter plot of main drivers

Moreover as no correlation exists between the two parameters chosen, we will separately analyse the two drivers impact.

In following studies, other parameters could be defined to have a deeper insight on the results.

According to this approach, a correlation between actual values and number and typology of initiatives was assumed and opportunity to define the optimal conditions was also considered.

At the same time, other organisational variables (i.e. state or private university, number of faculties and so on) were assessed to verify if initiatives were influenced even by those aspects.

We decided to use in the following analysis the CNVSU (Comitato Nazionale per la Valutazione del Sistema Universitario – University System Assessment National Committee) universities classification. According to this classification we have:

- Small university – less than 20.000 registered students
- Medium university – between 20.000 and 40.000 registered students
- Large university – more than 40.000 registered students.

At the end of 2005, in the 77 investigated universities we have 11 large universities (14,3%), 19 medium universities (24,7%) and 47 small universities (61%).

Investigation results

First of all a general classification of quality oriented initiatives is mandatory for the remaining of the work.

The first important fact is that 64 universities (on 77 total), accounting for 83%, declared to have started or already implemented quality related initiatives and 49 of them (76,6% of the latter, about 64% of total number) have projects at least of two different typologies: this gives evidence of a great commitment to “quality” in Italian university in recent years. As a further confirmation, we also underline that about 24% of the universities have a dedicated office for quality projects management and almost all of them have implemented more than one initiative: this is quite natural, in fact the establishment of a dedicated office is explained only by a great attention to quality and the promotion of multiple projects. In relation to this issue, the importance of top management commitment clearly emerges: even according to EN ISO 9001:2000 model principles, when top management is firmly determined to quality culture, projects start and hit to their target, initiatives positively take place and so on. But when management policy is not clear and only motivated by external needs, QMS implementation becomes difficult and ineffective.

It’s interesting to point out that there’s no difference in geographical classification: at least quality is equally distributed in northern, central and southern part of Italy.

We can note that projects on quality are largely diffused in every size universities with a little decrease in small ones (about 74% instead of more than 94%). This aspect can be explained considering that sometimes small universities have so specific characteristics and so restricted range

of action that quality initiatives are estimated as unable to improve their performance. On the contrary largest universities have a so complex management that QMS become necessary to put all elements under control.

This weak “dimensional effect” seems however to be confirmed by these notes, where we consider 3 different dimensional parameters (number of students, professors and clerks):

- Considering the 20 universities with the largest number of students, only 3 have no quality initiatives about administrative services and only 6 have no initiatives in teaching activities. Just one have no quality project at all.
- Exactly the same situation is detectable considering the 20 universities with the largest number of professors
- Even considering the 20 universities with the largest number of clerks we find only 3 institutions that haven't realized quality initiatives in administrative services.

Can we assert that dimensions influence quality projects, at least in administrative services? Probably not, but, as we said above, is true that Italian largest higher education institutions have a greater necessity to adopt methodologies and instruments able to help them in the management activities.

Focusing on initiatives typology, we note that quality has almost the same diffusion in teaching and administrative support services (about 66%), while only 31% of the universities has already started this kind of projects in research activities. Various reasons of this different distribution can be identified.

The large diffusion of quality initiatives in teaching activities in the degree courses often arises from external influences, like CRUI (Italian Universities Rector Conference) activity (i.e. CampusOne project), or national or local administrations constraints related to special funds assignment. Moreover, Italian universities are already involved in international programs, like “European Union Bologna Process”, to create a common evaluation framework for Higher Education Systems. QMS implementation in administrative services is necessary to optimise support activities management in order to obtain efficiency and effectiveness improvement, even according to the growing autonomy of Italian universities. Furthermore, the requirement of a better use of financial and human resources can be satisfied with such an organisational model.

Even quality projects in research activities are more frequent than we expected, showing that, even if later than in the teaching activities, some quality principles are taking field. We must provocatively notice that, research activities, more than teaching, is under the self-determining control of Professors, who has only to assure the results to the authority giving the funds (sometimes), and Professors are certainly the hardest category to harmonise in a quality system.

Coming to projects' typology there are no correlation with universities size, except for administrative services ones. In fact, while in teaching and research activities, large, medium and small universities account almost for the same percentage (about 70% and 35% respectively, a little less for small ones), considering administrative services we note that 84% of medium universities, 82% of large universities but only 55% of small ones have implemented this type of projects. The reason of such difference is probably due to the organizational complexity of largest universities: increasing the size, there are so many services to supply, customer to satisfy, staff members to be involved, critical activities to be checked, that implementation of QMS models became mandatory in order to effectively rule them. Moreover, quality services in public administrations in general, is now very relevant in Italy and even university is involved in performance continuous improvement. On the contrary, differences in application field typology seem to come from geographical classification (Table I): while in northern universities percentages of quality initiatives are 77% for teaching, 27% for research and 73% for administrative services and in central universities they are 65%, 35% and 61% respectively, in southern universities we reach 52%, 33% and 57%.

Table I - Geographical diffusion of quality projects

	Teaching	Research	Administrative services
North	77%	27%	73%
Central	65%	35%	61%
South	52%	33%	57%

Fewer initiatives are observed in southern Italy; and multiples projects are less present. The reasons of different figures for teaching and research quality projects (the first more present in northern part, the latter in southern part) should require a further analysis: only a mistake due to incomplete information or something else?

Finally, considering organisational variables, we observe that quality initiatives have a larger diffusion in state university (86%) than in private ones (71%): the urge for public administrations to optimise their management and to improve the coherent use of resources can explain this quite significant difference. On the other hand, number and typology of quality projects seems not to be influenced by number of faculties.

Drivers

We can now focus on the previously defined drivers, drawing up the hypothesis that a value range of these could exist, able to favour quality initiatives implementation.

First of all we calculate the average value and median value for the three parameters in the various typology; we obtain the following results (Table II):

Table II - Average and median values for drivers in different typologies

		R _{SP}	R _{SC}	R _{PC}
Teaching	Average	41,89	42,89	1,04
	Median	31,20	32,41	1,11
Research	Average	36,20	37,68	1,06
	Median	31,74	34,14	1,14
Administrative services	Average	40,43	42,48	1,07
	Median	31,06	36,40	1,13

We can observe the median value for the three parameters is almost equal in the three typologies, and the average values are quite similar too. This could be a first indication that universities involved in quality projects implementation have analogous organisational structure.

Trying to support this statement we can now analyse the various typologies, starting from teaching activities.

In Figure 2 we represent the university with active quality projects for teaching activities, in comparison with universities with no initiatives, correlating this to the students to professors ratio and professors to clerks ratio. No clear pattern is shown by the data, both in position of the average and in the dispersion.

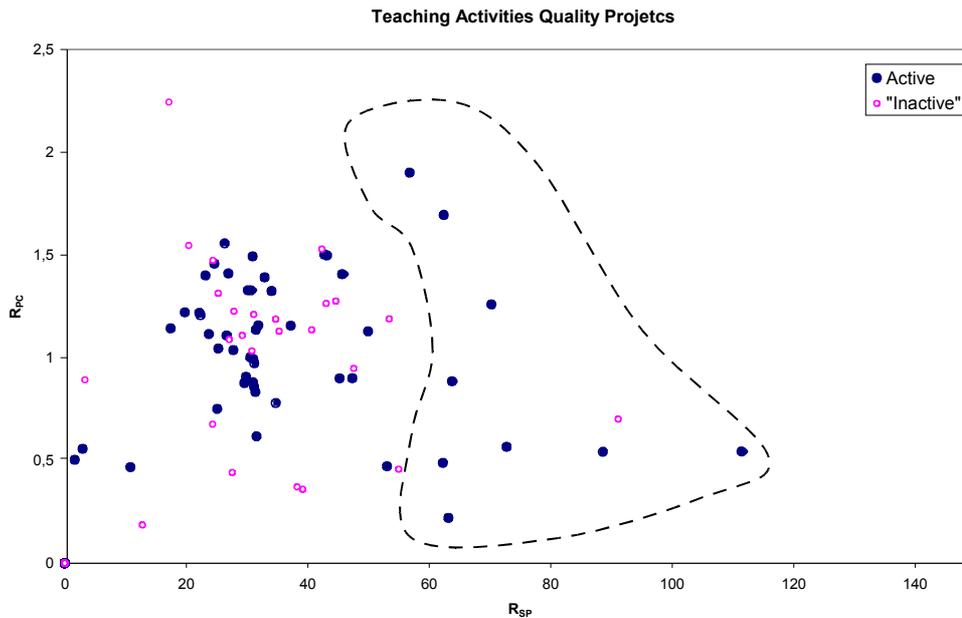


Figure 2 - Active teaching quality activities vs. drivers

Student t-tests show no evidence of a significant difference of the means in both drivers. Fisher F-tests on variance ratio, giving at first a significant difference between the groups, after we removed two outlayers with an abnormally great R_{SP} , switched to not significance.

Nevertheless, without trying to apply more advanced statistical analysis, it is possible to observe an interesting behaviour which could have a justification: Among the universities with the most critical ratio of Student to Professors (R_{SP}) all but one have started or already implemented teaching related quality projects, as pointed out by the dashed curve area.

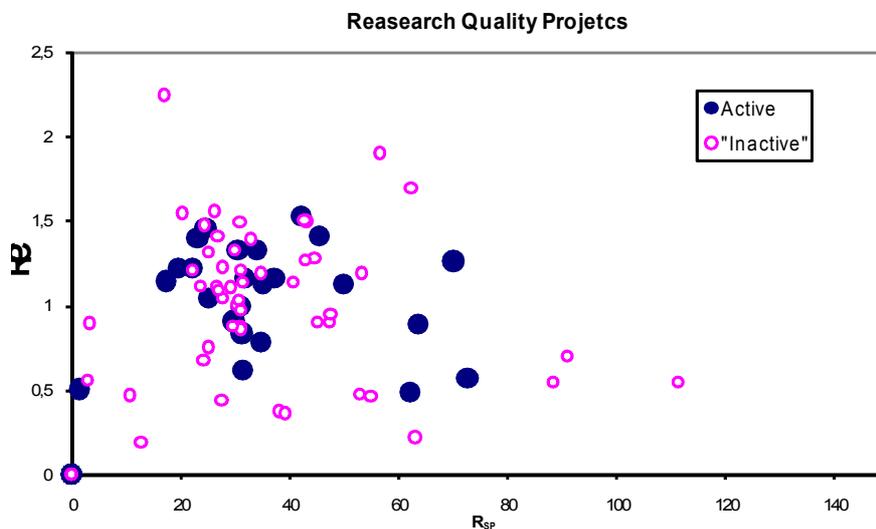


Figure 3 - Active research quality activities vs. drivers

Considering research activities we illustrate in Figure 3, although statistical tests do not allow to refuse the null hypothesis, in comparing the two groups, we can observe that the few universities having approached research activity with quality management, are less dispersed than the other, that is they have such two drivers nearer to their means. We could state that "in order to concentrate on research quality projects you should have no extreme or critical situation in those drivers". This statement is coherent with present consideration on this area, which is still residual in quality processes.

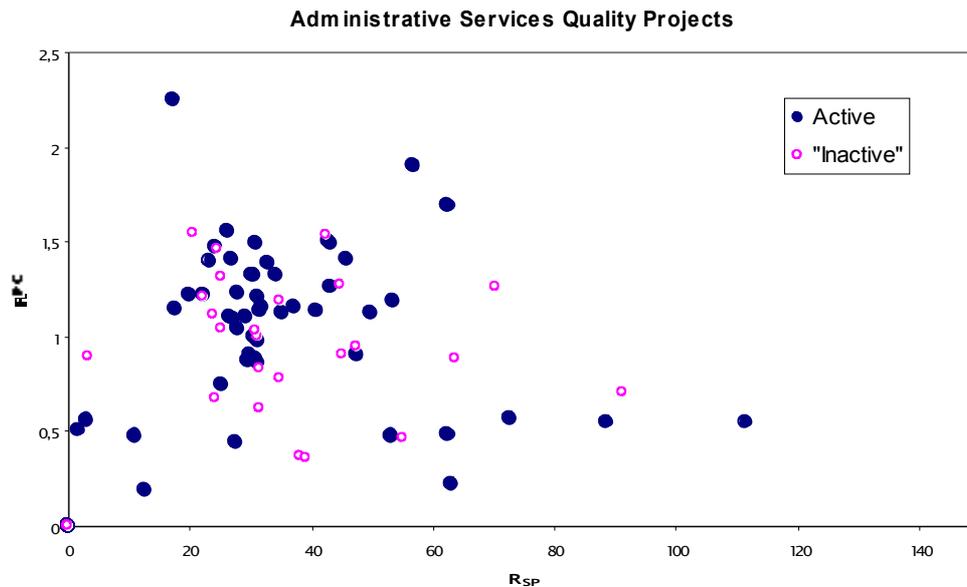


Figure 4 - Active administrative services quality activities vs. drivers

Coming to administrative services we can observe from Figure 4 that the situation is opposite to Figure 3, as the more dispersed universities, with respect to the two drivers, have initiatives on quality management for administrative services. We could state that anomalies in these drivers push (as an urgent need) or help (as a resource availability) in going towards quality management.

What can we sum up? Certainly, information incompleteness and excessive simplification in the driver chosen don't allow us to infer with enough confidence that a correlation between quality initiatives and such parameters exists, but some suggestions can be drawn:

- It seems that in some situations, extreme ratios push or help in quality management approach to the specific service (as the administrative ones), or give no room to extend the quality to other activities (as research ones).
- Such considerations risk to be too simple (although not obvious) and we think that we should consider other variables, as the motivation of the choice of total quality implementation, the history and the road to quality in each university, the external and internal factors that actually pushed in this direction. But these analysis should require deep interviews with several actors of these processes.
- Deepening the knowledge of this phenomenon will be the starting point to identify some good practices that could become a reference model for implement total quality in other universities.

Developments

Considering the results obtain with this investigation about quality initiatives in Italian universities, and particularly focusing on their limitations we suggest some hypothesis for the following developments of the research activities in order to obtain more interesting and complete analysis.

- The data collection should be more accurate. In this first edition of the investigation, a lot of information has been collected by web sites search. For the next one, it could be useful to better define the questionnaire to be sent to the different universities in order to underline the most important elements and to try to obtain a greater number of answers from them.
- As we have seen above, the chosen parameters are not able to describe in a satisfying way the situation about quality initiatives. The definition of more suitable drivers seems necessary for a deeper analysis of the results and a better understanding of their significance.
- According to several previous experiences, a very critical factor in quality initiatives success is a strong political commitment. Without a clear quality policy definition any QMS implementation project is destined to failure: in fact, all QMS framework (ISO, EFQM, etc.) indicate this definition and the following diffusion of those concepts as mandatory. What about

it in quality initiatives in Italian Universities? Are the top management levels really involved in the described initiatives? Are they really supporting them? Answer to these questions could be a very interesting aim for the next steps of the investigation.

Conclusions

An investigation on quality initiatives in Italian universities was conducted by Quality Systems Office of Florence University in order to better understand the trends and the good practices emerging in the area considering three application fields: teaching activities, administrative processes and research. Some preliminary dimensional parameters and organisational variables were also defined to evaluate their influence on those projects.

We observed a large diffusion of quality initiatives for all application fields, involving in different ways all typologies and all geographical areas.

Finally considering the adopted drivers, we found the existence of some patterns in data that can explain some motivations and favourable situations in which quality management initiatives can take place. Further investigation and analysis could lead to a possible individuation of good practices in universities organisational structure able to positively influence quality initiatives implementation.

References

- [1] Catalano G. - La valutazione delle attività amministrative delle università: il Progetto "Good Practice" - Edizioni Il Mulino, Quaderni del Comitato nazionale per la valutazione del sistema universitario pp. 196 (2002)
- [2] Catalano G. - Valutare le attività amministrative delle università. Aspetti metodologici e buone pratiche - Edizioni Il Mulino, Quaderni del Comitato nazionale per la valutazione del sistema universitario pp. 296 (2004)
- [3] Lagrosen S., Seyyed-Hashemi R., Leitner M., - Examination of the dimensions of quality in higher education - Quality Assurance in Education Volume 12 Number 2 pp. 61-69 (2004)
- [4] Lomas L. - Embedding quality: the challenges for higher education - Quality Assurance in Education Volume 12 Number 4 pp. 157-165 (2004)
- [5] Srikanthan G., Dalrymple J., - A synthesis of a quality management model for education in universities - International Journal of Educational Management, Volume 18 Number 4 pp. 266-279 (2004)
- [6] A. E. Osseo-Asare, Longbottom D., W. D. Murphy - Leadership best practices for sustaining quality in UK higher education from the perspective of the EFQM Excellence Model - Quality Assurance in Education, Vol. 13 No. 2 pp. 148-171, 2005
- [7] Sirvanci M. B. - Critical issues for TQM implementation in higher education - The TQM Magazine, Volume 16 Number 6 pp. 382-386, 2004

Web sites

- [8] "Good Practice Project", http://www.cnvsu.it/indagini/programmi_ricerca/view.asp?ID_PDR=8
- [9] "CampusOne CRUI Project", <http://www.campusone.it/?Arg=128>
- [10] "European Union Bologna Process", http://www.eua.be/eua/en/policy_bologna.jsp