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THE INTEGRATED MANAGEMENT SYSTEMS: THE ROLE OF THE MAIN CONTRACTORS

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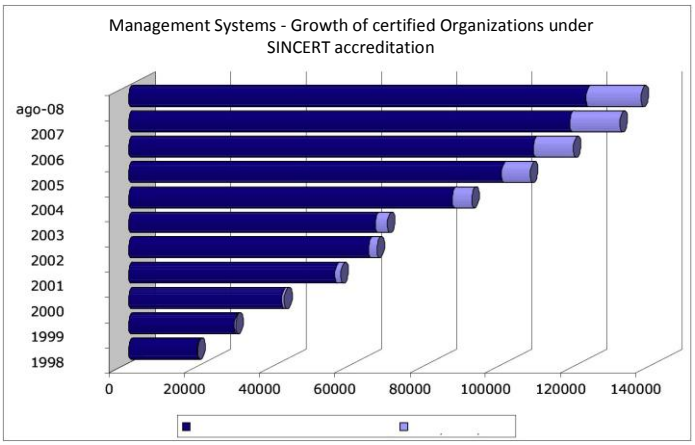
Abstract
The authors examined the concept and qualitatively assessed the effectiveness of integrating different Management Systems (Quality Management System, Environmental Management System, Health & Safety Management System and, in case, Social Accountability Management System) established at Italian Main Contractors in order to improve the Contract Management.
Accordingly to findings gathered by the authors, Quality Management Systems are widespread in Italy and in Southern Europe over the last decade, because of a legal compulsory requirement stemming from the Public Works Acts enforced in 1994 and further developed in 2006 in conformity to European Directives.
Nevertheless, in spite of such a dramatic rise in the amount of certifications conforming to the ISO 9001:2008 Standard, the reliability of Quality Control-related procedures tremendously failed, being the corresponding rules quite often discarded in the field.
Actually, only a small amount of Large Private Clients awarded their own tenders to main Contractors available and wishful to comply with Quality Planning's clauses, while a large majority of public Clients seems uninterested in checking effective application beyond formality of the ISO 9001 standard.

Keywords: OHSAS 18000, SA 8000; Quality Management Systems, Health & Safety Management System;

INTRODUCTION

Very few Italian and Southern European Contractors are certified in conformity to the ISO 14001:2004 Standard and even less complying with the recent BS OHSAS 18001:2007 Standard.



(source: Musa, SINCERT, 2008)

Consequently, it is not surprising that neither Clients nor Contractors have any practical perception of the document PAS 99:2006, a BS specification aimed to bring together the shared requirements and to support the integration of Quality, Environmental and Safety requirements.
Social Accountability Management requirements (with reference to SA 8000) should find also place in such a perspective, if not for ethical reasons, at least to deal with unfair competition.
Whenever constrained to comply with possible requests established by the Clients, the best effort that Contractors display is intended to widen the scope of the basic Quality certification, installing inside the original Quality Management System the other ones.
Through this action, Contractors set up a pseudo-integrated Management System suitable to engender a sort of added value.

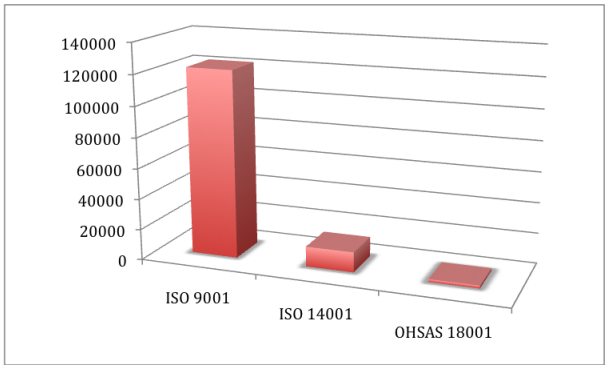
Aim, Objectives and Approach

The aim of this paper is to examine, in form of essay, the issues of Integrated Management Systems, and their fall out in Italy, and to report about some findings dealing with such an approach, highlighted in connection with a firm belief of the authors: the efforts made by the Client towards an effectively Integrated Management System could be easily made trivial whenever the Main Contractor is unable or unwilling to reflect the Management System rules into its actual behaviour.
Actually, only a small amount of Large Private Clients awarded their own tenders to main Contractors available and wishful to comply with Quality Planning's clauses, while a large majority of public Clients seems uninterested in checking effective application beyond formality of the ISO 9001 standard.
Moreover, amongst the different existing environmental and energy sustainability certification schemes for buildings, LEED is now at opening stage also in Italy, due to an effort of the Provincia Autonoma di Trento (a Local Authority in the Northern, colder part of Italy, endowed with considerable self-government capacities).
LEED, originally conceived for action in the U.S.A., does not deal just with performances of the buildings, it states specific obligations to the ownership on matter of construction technology and methods, starting from the construction stage.

Integrated Management Systems vs Performance Approach?

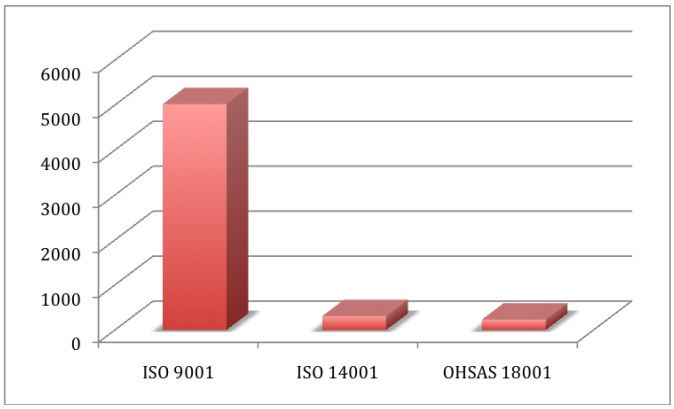
The LEED Certification Scheme is the last in order of time in a series of standards (usually non-mandatory standards) aimed to determine higher quality from General Contractors' behaviour. In this case, the certification scheme goes beyond a close scrutiny of the actual performance on duty of the building, and includes whole process aspects: design, components production, on-site building, environmental impact.
This approach involves a soft refusal somehow of the end-user performance approach (do-it-as-you-like, just make it work) in favour of a more holistic, systemic, back-looking approach (check performances, check the whole process and sum up the energy tidbits). In fact the purpose of LEED and LEED-like systems is to avoid high energy performing buildings obtained through unsustainable construction processes.
A more basic, less specific tool, the first as to spread and age, is of course the ISO 9001 standard, today updated to the 2008 release, which in fact evolved year after year from a starting imprinting of quality assurance. Especially, critical productions were the main target for this standard: installations for the military purposes (with specific benefits for European Contractors working on account of the US Army or the Navy), or nuclear power plants.

More recently a conscious attempt was made to implement ISO 9001 more stringently in terms of product quality, i.e. as assurance of adequate global performance of final products, as an attempt to manage and monitor apparently detached processes, like the selling process or the purchase/procurement process.
This perspective, basically non-mandatory, and conceived as a result of free agreement between Contractors and Clients, was made mandatory in Italy within public works procurement procedures: in the Nineties, a new "framework legislation" established the obligation for General Contractors to obtain an ISO 9001 Conformity Certification in order to be qualified to bid to Public Administrations for project of a certain importance (more than 500,000 euros)
Recent global data confirm the effect of a State enforced approach to ISO 9001 in respect of other Management Systems.



Conformity certificates issued today in Italy (source: ACCREDIA, 2009)

One of the many consequences of this is a difficult readability of the effective quality assurance level given by the different contractors: actually, while we can recognize very good and valuable certifications, on the other side some "QMS" can be found not worth the paper they are written on: which means that a Private Client can effectively assess the real quality of its bidders, while the Public Administrations are not allowed to exclude a bidder if it can provide an ISO 9001 certificate together with other non-technical requirements required for qualification.
The last data show even larger divides between Quality Management Systems and Environmental /Safety Management Systems.



Conformity certificates issued from January to September 2010

(source: ACCREDIA, 2010)

In Italy, in front of about 250 certification available schemes, QMS (Quality Management Systems) amount to more than 30 % of issued certificates. The Construction industry deploys at least 80 Certification bodies altogether, and more than 27 thousand ISO 9001 conformity certifications from its beginning: the building sector shows up consequently the most overworked certification block, and also regretfully the lowest technical literacy in the quality business.
We must consider also that the expertise hoarded within the Building sector in the field of the different Management Systems we are dealing with here (ISO 9001, ISO 14001 and BS OHSAS 18001) consists in a unilateral approach, limited to the Contractors via legislative approach, because in any case the same legislation does not require the same behaviour to the other main subjects of the process: Clients, Inspection Authorities, Design Teams, etc. Nevertheless, while Client, Designers and Public Authorithies are rarely "MS conscious", Suppliers are much more sensible to the issue, confronted as they are with more and more stringent requirements from a wider, more private market.
In any case, except for praiseworthy policies of a number of strong professional Clients (Public Clients, like Italferr, Infrastrutture Lombarde and others among them, or Private Clients), the unilateral mandatory approach to MS prevented from establishing a strong community able to share the vision, some practical principles and a common language.
Furthermore, total quality lip-service rhetoric (an empty rhetoric as far as the construction industry is involved today) was spent to cover the simple fact that "non conformity" is a phrase actually unfamiliar, outside strict contract's boundaries, in the dialogue between General Contractors and Clerks of Works.
A non conformity has to be necessarily reported by the contractual counterpart, and in any case Management Representatives and Quality Management Units are too often considered as antagonistic and estranged parts to the Site Managers of their own company.
Lacking in any case a systemic approach by all the subjects of the process, as seen above, this is the reason why the integration of different Models and Management Systems fails to be determinant.

Products or Processes?
The first question to ask deals about the amount of innovation determined in Europe by the mandatory introduction of ISO 9001 Management Systems: QMS standards are doubtless popular because they look easy, or even trivial ("who is not really unable to comply with them?"), and this faulty view never let to obtain full matching complement with product standards. Product standards are indeed more in the custom, even in their performance envelope after the New Approach, but they are much less insubstantial, and much more difficult to cope with: so the way it goes is "product standards are too complicated and too expensive to conform to, while QMS are for us, because we do know how work is to be done".
What mentioned above helps to understand how intimately International Standardised models may stem from a context where cultural appropriation results in technical behaviour sometimes even supported by certification processes. In other places and other contexts, as opposite, a deeper concern for technicalities about the built object leads to consider planning and construction methods themselves as a source of guarantee.
The Italian approach aims to reconcile the two visions analyzed above, offering a medial approach which, on one side countermands the most relevant aspects of both, on the other side delivers well-devised Designers (Architects, Architectural Engineers, Structural Engineers, Designers of Building Services, Landscape Designers, etc) to a job market which is unable to absorb all of them as designers; luck is, but not by chance, that their profile is very flexible; as a consequence, would-be Designers-to-be are instead absorbed by the

construction industry and its ancillary industries: their enrolment discounts the price of lack of knowledge in process management and control, and training starts almost from scratch, with the result of higher costs for the industry, no injection of authoritative contributions, and professional development based more on empirical parroting than over strong research in process innovation.
Leaving the complicated educational issue and going back to Contractors and sites, provocatively we might say this happens as a consequence that the attention given to management standard in Italy in the last 20 years is due more to their bad, widespread deployment, than to effective improvements obtained by the industry in terms of better behaviour towards their Clients and building process practices.
The role of the Management Representative was never pivotal - and it is not today - in company organization charts, neither when the MR was involved "just" in Quality Systems, nor when the MR's competence is widened to cover Integrated Management Systems.
QMS yesterday, IMS today, seem to be always peripherical to the real core of the business, of the financial issues and of the industrial relations between unions and companies.
All this considered, we might even question the choice of keeping today the all-purpose, all-industry scope of ISO 9001. Actually, the mandatory effect given to the standard by Italian Codes determined two opposite perceptions: at first, in the Nineties, the firm opposition due to the publicly declared "impossibility" to implement ISO 9001 according to the Contractors because of their "peculiar field of work"; later, and more and more today, the intrinsic "universal" scope of ISO 9001 is the mitigating circumstance for a trivial, almost lip service, implementation which leads to no significant action.

QMS, IMS and Innovation

In the background, stands the main issue of "innovation" in building site organization: is it a must-have? Furthermore, are Management Standard Schemes actually effective in such a direction? In one perspective, as an example, a comparison between a site of the '70s and a site of the '10s in Italy shows an absolutely significant evolution/innovation in provisional facilities (formworks, scaffoldings, truck mounted decks, glass pane vacuum pad grippers, safety provisions in general), handling machines (more and more performing tower cranes, sophisticated microelectronics controlled truck mounted cranes), road work machines, and not only machines in general, but also in building technologies and processes.
Minor changes we can detect instead (unless cases of more than accurate industrial secret protection) on subject of planning, controlling and monitoring, in spite of interesting and promising innovations proposed as a result of Home and European funded University Research: for instance a technology developed up to the field application stage employs transponders and wi-fi transmission networks to map workforce positions and to report the operating parameters of site machines, making available on the construction site the equivalent of a centralized monitoring and control centre of a "classical" factory.
In our knowledge, a sole exception of implementation of a somehow sophisticated, complementary technology is the usage of microtrasponders to tag and trace concrete specimens for law compliant testing purposes, in a major project in Central Italy.
In any case, process and procedure innovation which allowed the draft and the diffusion of ISO 9001, ISO 14001, BS OHSAS 18001 or other 9001-like standards (as SA 8000 in the field of social accountability) was the consequence of a "good will" approach of Clients who wished to minimize the risk of litigation along the buying-selling process. Such a "good will", solidly based on a possible mutual interest to minimize costs and to reduce processing times, proceeded from the empirical analyses of a great number of "sour cases", through the investigation of the reasons why something went wrong between client ad supplier. The drafting method itself explains why a mandatory approach to quality evaporates whenever

processes are under scrutiny, while it is much more effective if product quality is the involved.
In practical terms, a tools aimed to obtain harmony and concurrence in willing partners' business, is used (in Italy at least) as a certification basis to build up a confidence in Public Clients during the procurement process: in other terms, the chain QMS-certification-certificate leads to the gate of pre-qualification as entry point to the public works market. The reason why almost everybody enters the gate lies in our opinion, following the few data available, in the different attitude of the Public Client in respect of a Private Client.
If it is true that ISO 9001 was conceived under the Clients' initiative, and specifically under the pressure of their Purchasing Divisions, as a way to reduce costs and increase quality, then the success of QMS in the Client's perspective lies on the Client's willingness to implement a systematic effective watch and scrutiny over the execution and fulfilment of the contract: which means that not the mandatory presence of a QMS at the Contractor's office is the key, but - in case - the mandatory effectiveness of the Public Client. With due exceptions of course, a supplier Quality certification in case of an absconded Client may not be worth the paper it is written on.
It is a self-explaining paradox that the pre-qualification procedure regards QMS and its certification as documents to be delivered to the SOA (a private organization conceived to be witness of the fulfilment of pre-qualification requisites), and not to the Client.
This paradox may be explained by the peculiar atmosphere of the Nineties in Italy, in which the law makers of the age felt little confidence in the Public Clients and the awarding Authorities in general, and preferred to set up a guarantee mechanism which is fully external to the straight contract relationship Client-General Contractor.
Consequently, the law established as a fact the otherwise disputable theory that a subject not directly involved in the contract may effectively give guarantee where other internal means failed: such a course gave a job and a responsibility beyond the possibilities of Certification Bodies, authoritative as they may be.
So, the legislative philosophy adopted in the Nineties, beyond a per se non criticizable mutual benefit between Certification Bodies and Contractors, led to consider as insignificant or at least peripheral the contents of Management standards and practices in various fields (Quality MS, Environmental MS, Health & Safety MS, etc). In such a way, many Public Clients widely illiterate about MS contents and methods by themselves imposed do not even receive a conformity certification of their possessions, and above all fail to be real, interested promoters of standardized, even law regulated procurement processes.
The indifference of the Public Client, as a chain effect, induced unreasonable readings of the standards, an absolutely discretionary choice in the selection of building sites to be audited by the Certification Body to start with.

All-business standards and business-related standards

As a result, for instance, the Quality Plan requested by ISO 9001 is correctly understood, drafted and used just by very few Contractors: the Quality Control on site, if present, is the minor substitute of the requested extensive Plan, which is conceived by the standard as a wide-range, general, continuously updated Construction Management Plan, including detailed, specialized, most of all interconnected plans (Supply Plan, Resources, Work & Time Plan, Communication Plan, Work and Performance Control Plan, Logistic Plan, Financial Plan, and whatever plan a wise contractor can think of for the specific site). Even at educational level, due to the scant consideration reserved to management and organizational matters in Architecture and Building Engineering courses, it may not be easy to make

students aware of the difference, as they often reckon the two plans to be inverted (quality plan as a sub set of quality control plan).
The "vision" of ISO 9001, and its foundational process approach, which are suggested as a key to a successful development of a building site and to a profitable completion of a job order, is too in the majority of cases vilified to a few documents containing instructions for quantity and (sometimes) quality survey and (sometimes) to a field survey.
The deep understatement in which is held the role of QPs (Quality Plans) is leading to dire consequences specifically in a public works market in which tools for an efficient and documented job management are few and sparse. This perspective is certified by the effort of the law makers to insert in the process a relatively new character in Italy, the Public Process Manager: he/she is a individual, not an organization, an office or a department, a sort of Project Manager short of means and generally lacking specific experience. Further, the cardinal role of the briefing phase was introduced, but both the set up / execution of a Project Execution Plan, and the creation of a support unit including the project sponsor, were forgotten.
QPs were conceived by the standard maker to adjust the structure of the QMS to the peculiar aspects of different job orders from different Clients: in this role, QPs might have been - whether seriously adopted and not just formally issued - beneficial to lack of method and to the habit of issuing documents neither detailed nor in context.
On the other side, it is undisguised that the preference accorded both by Clients and Contractors to the realm of Quality Control during production points, in the management field, to something very near to the description/prescription approach in product standards field. This leads the companies to underestimate and understate the importance of thinking in terms of processes, possibly because an all-business standard like ISO 9001 cannot avoid to put the matter in ways misinterpreted as vaguely expressed, unspecific when not trivial. From this, a formalistic view follows, centred on "building police" inspections, sanctions and penalties, while the positive, prize oriented cut is not understood and ignored. Furthermore, quality records (simply "records" in the 2008 release), instead of being produced as a "natural" output of construction activities, are routinely postponed, and too often fabricated or misreported: the feeling towards quality records, and their pointless registration, only increases the bad reputation of QMS as formal, bureaucratic constraint.
Finally, the last questions. Are we allowed to conclude that QMSs did determine innovation in the building process? May a crudely simplified implementation of QMSs have obtained their scope, i.e. to trigger actions to remove the sources of uncertainty planted before the construction activity on site began? What meaning may have the continuous improvement concept when it's stuck to the sole Contractor, separate from its Clients and its joint-venture partners? Moreover, what is the perspective of investment in education and training when the bidding is done more and more frequently by temporary ventures of several Contractors with no interest to share procedures, management systems and education and training policies?
We should well keep in mind on this subject that ISO 9001 heavily emphasizes the role of training and education, but it excludes workforce management and union accords from its scope: is a reference to SA 8000, now ISO 28000-2010, enough?
What we have observed shows positive exceptions. Regretfully, lacking a systematic review of a significant amount of cases, it would be partiality or undue favour to report identities and references to specific job orders.
Nevertheless, we can outline undisputed situations in which Public Clients and Private Clients resolved to implement earnestly the QS standard: along the flow of those jobs, the process quality and the final product quality were effectively and positively oriented: which is, combined with the many negative examples above, crystal clear evidence of the miscalculation committed by the law makers when QS standards were limited only to

contractors' pre-qualification and to the decrease of bid bonds or guarantee bonds. At this point, it would be ungenerous to blame Certification Bodies as sole culprits: the limited scopes of the legislative approach themselves prompted the CBs to a slack behaviour as a matter of course, widely contributing to indulge in a trivial view of QMS. As it always happens, cultural shortage determines severe backlash in practical matters.

Beyond ISO 9001

The ISO 14001 Environmental Management System, as long as the LEED requirements, was in high favour at Clients, while it showed much more restricted usage by Contractors, especially in respect of ISO 9001. Yet, ISO 14001 is itself related to law requirements on matter of waste reduction and disposal in industrial activity. Beyond that, the standard is linked to BS OHSAS 18001, because the environmental issues are not disjointed from workers' health, which is of course environment-related.

ISO 14001, a standard ISO 9001-like, so conceived for its integration in QMSs, boasts wider success than its homolog, at least abroad: a well known application was sponsored by the Olympic Delivery Authority, who manages the job orders in view of the Olympic Games, London 2012.

As to BS OHSAS 18001, the running risk is of the same kind of ISO 9001: the British standard was recently recognized, in view of its becoming an European Standard, by the Italian legislation. The approach is too similar to what mentioned above: the certified Safety Management System is due to relieve the responsibility of owners and managers of building companies under criminal and civil law, if those subjects can give evidence that a health & safety management system was established. Absolutely correct in principle, this approach might easily skid towards purely formal documents leaving things worse than they were, with responsibilities ironically flowing in any case towards dead and injured workers. Few implementations are known at the moment, but it is not rash thinking to foresee in the health and safety field the same effects resulted in the quality management field: law constraints favouring widespread implementation might determine no factual application and scepticism as well.

Yet, a doubtless interest and innovation can easily be traced in OHSAS 18001: for instance, the requirement to investigate near misses accidents (keeping records and looking for causations, like aviation authorities investigate missed collisions events), not only actual accidents resulting in death or injury.

This kind of contents, likewise in ISO 9001 implementation, shows success whenever it actually determines a change in managers' thinking, and conversely leads to nothing if no cultural belief is induced. Like old Romans said "leges sine moribus vanae": laws are vane whether not absorbed in habits and custom.

System Integration

ISO 9001 and other mentioned standards were specifically conceived to be integrated. To support the efforts of integration, a "publicly available specification" was published by the British Standard Institution: the PAS 99 "Specification of common management system requirements as a framework for integration".

This pre-standard contains useful guidelines to build up an "Integrated Management System": purview of the PAS 99 is to help in creating a common frame of "general" management requirements, in number of six, as intuition can suggest and as ISO Guide 72 points out:

- Policy
- Planning
- Implementation and operation

• Performance assessment
• Improvement
• Management review

Generally speaking, the Integration of Management Systems is not a solution but an opportunity to go deeper into single subjects and scopes of the standards: actually, integration is worth in the measure it can widen the comprehension of the management about each standard scheme, and it can proceed beyond the sum of each standard scheme implementation.

In the specific field of the construction industry, system integration clashes both with the ineffectual relationship between Contractor/Client, and with the increasing practice of the JVs making the bidding. From this should stem the importance of Quality Plans, and of contributions given by Subcontractors and Suppliers.

Under those points of view, Management System integration stems from the basic asset of a Quality Management System. Which as a consequence shows that the construction industry, starting from non-convincing QMSs, will have even more chances to derail along the system integration process.

CONCLUSION

As a conclusion, the authors point towards two lines of action in the building field, at least for public works procurement and construction in Italy:

- first, give back tenability and authority to ISO 9001 implementation, through cultural and technical growth of Public and Private Clients, and through a thorough investigation about the implementation and certification of the scheme;
- second, innovate the processes active at the Contractors and their Subcontractors/Suppliers, deploying processes of integration among the requirements of richer, more articulate projects/contracts which might be defined under success of the point above.

Outside such a perspective, QMSs and their integration into IMSs would be expedient and beneficial only to commercial purposes of advice / certification markets.

Useful and correct as the standards may be, they would be to no avail effective to change the order of things. The rush to enforce new standards, and even more to enforce them through the law, all the more so as one still sees unaccomplished precedents, strikes as misguided at best. Something is needed "from the heart" here, because we are confronting cultural and educational problems, not simply technical and economical problems. Quality, Environment, Health and Safety, Social Accountability, and other concepts of that kind, are matters of culture and education, and their solution needs a cultural, educational, heartfelt response, oriented to make clear that there are no savings in cutting quality, in being harmful to the environment, in understating and undertreating health and safety, in downsizing social responsibility running Voodoo Economics and importing cheap labour, in short in sparing brainwork and substituting paper to specific, well coordinated efforts to solve the core of the challenges.

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