

Appendix A. - Cost analysis

Total costs consist of:

1. Certification costs
2. Training costs
3. Own resources costs
4. Consultant costs

1. Certification costs

There are nine certification companies in Croatia. Regardless of their size, competency and number of countries where they are accredited, it is fair to say that their rates are relatively similar and that depend on the following general elements:

- company size (number of employees and locations)
- field of certification (activity to be certified)

and specific elements:

- number of visits for documentations review, pre-certification and certification
- following annual audits

Recommendations for selecting a certification company could be as follows:

- price
- worldwide acknowledgement (especially if a particular market is targeted)
- references in similar or reputable projects (companies)
- training
- partners consultants

Guidance certification prices are as follows:

Number of employees	Pre-certification and certification (1st year)	Annual audit: (2 audits - 2nd and 3rd year) (some companies allow 3 audits in two years)
up to 10	1300 EUR	900 + 900 EUR
up to 20	1800 EUR	900 + 900 EUR
up to 40	2300 EUR	900 + 900 EUR
up to 60	2800 EUR	900 + 900 EUR
up to 120	3300 EUR	1400 + 1400 EUR
up to 250	3800 EUR	1400 + 1400 EUR

Prices are for guidance only (varying as much as +/-30%). Accurate information on pricing can be obtained from the certification company on the basis of information about the company in question.

2. Training costs

Each company should appoint a management member as a Management Representative for Quality (MRQ). Larger companies can organize dedicated department or QA teams for building, follow up and improvement of quality management system, as well as some additional positions for managing quality management system (Quality Assurance Manager).

Internal auditors could be also appointed. They should complete an adequate auditing training.

There are several "schools of quality" in Croatia, mostly managed by consultant companies.

An average school of quality covers topics such as: philosophy and principles of quality, explanations of standards and guidelines according to the ISO 9000 standards, internal audits (internal independent quality assessment), ... and it could last from seven days to several months, while the respective costs amount to approximately 1000-5000 EUR per student.

Most of the certification companies organize seminars on specific topics lasting from two to five days, with favorable prices and with a more competent approach than consultant's institutions, but some lectures/courses could be common to certification and consultant institutions.

For employees, it would be ideal to attend to several courses organized by various consultant and/or certification companies.

The minimum of courses attended would be:

Internal auditor	2-3 days	approx. 150-500 EUR	by certification company
Lead auditor	5 days	approx. 800 EUR	by certification company

It is recommended that at least 10% of employees complete training for internal auditors, organized by selected certification company if practicable.

The representative for quality or QA manager or QA team should complete additional training, however not necessarily entire additional training but assorted courses recommended by certification or consultant company. Most of the training could be performed while building the system and cooperating with consultants.

Recommended total cost for training should not exceed the amount calculated as follows:

$$\text{COST} = \text{number of employees} / 10 * 250 \text{ EUR.}$$

The certification itself requires only a part of employees to be trained for internal auditors (1 for small, up to 10 for large companies), and costs should not exceed 150-500 EUR.

The following elements also make additional considerable impact:

- selected employees' previous knowledge
- number of QA team members
- number of planned internal audits
- plans for quality management system development towards the total quality management
- plans for company and production process reorganization..

3. Own resources costs

Own resources costs refer to company's time and human resources engaged in building a quality management system.

The cycle of implementation of the system in a company can take from four months (for already well organized company) to 12 or more months, in which period Representative for quality management or QA manager should invest at least 30% to 100% of his/her time in building, organization and coordination of the system QA team members (normally department managers or their assistants) are engaged for a minimum of 25% of their working time, and technical personnel (1-2 employees) is engages engage approximately 75% of their time in production of documentation.

Own resources costs are relatively high if a company develops the system on their own on the basis of their formal education knowledge acquired on seminars and courses but without consultant's services.

Consultant's services could improve and speed up the process, in which case the major workload is on company employees.

For small and highly organized companies this would refer to the cost for 2-4 employees/month (gross wage rate), while for large companies it would be 12 or more employees/month

Inadequate training or consultants, unorganized or inert companies, could extend the cycle for several times.

4. Consultant costs

Consultant costs are the considerable element in the calculation.

Nowadays, there are several consultant companies and independent consultants in Croatia. Most of them cooperate with one certification company.

This defines their style and methods, training and consulting according to the respective certification company.

A distinction should be made between consultants for a quality system management according to ISO 9000 and consultants for reorganization of company and processes.

Consulting for reorganization of the company and production processes is the issue of special consulting with appropriate methodology, principles, training and costs and these are not the subject of this assessment.

On the other hand, almost any Quality Management Representative or QA manager in any company CAN (but not necessarily) be a good consultant for quality management systems based on ISO 9000, since he/she could provide minimal preparations for winning the certification.

The errors that may consequently result are as follows:

- copying other system that may not necessarily be either similar or adequate for the purpose
- techniques and styles (time and costs) that are not adjusted to company's requirements and plans

Unlike the technical ISO standards, which provide details, ISO 9000 standards are generic in order to be applicable to different systems/companies. These provide GENERAL guidelines as to what a company should have/do, but do not define method for doing so since this issue is left to a particular company.

The METHOD depends on many factors:

- sociological and economy environment (market qualities are not the same in USA, Africa, etc., ...)
- quality costs (when a product becomes too expensive)
- market requirements (market defines quality)
- level of documentation for following up the organization and production should be tailored to requirements
- controls and test should be tailored to employees competence and company needs, ...

The role of consultant is very important since the wrong direction in system development could result in unnecessary and excessive costs, inadequate system that would not become operative, employees demotivation and repulsion, ...

When selecting a consultant, is it useful to find out his/her:

- experience and references
- general organizational and expert knowledge
- level of communication skills and cooperation with selected personnel
- plan and methodology of work ...

The consultant costs are most clearly defined if calculated on the man/day cost basis according to the project/plan for implementation of the quality management system.

Price for a consultant's day can vary from 50 EUR (retired QA managers) to 900 EUR (trained consultants - in certicator rank or certicators).

Reasonable consultant cost calculation is: $COST = \text{number of consultants/days} \times 250 \text{ EUR}$. (minimum approx. 12 days for small companies up to minimum 30 days for large companies; number of visits depends on number of employees/engaged employees, processes/types of production, quantity of machinery and measuring devices, ...)

The following influences the costs:

- consultant visits on site
- preparation for meetings and respective analyses
- exchange of documentation - electronically
- training during consultations
- production of prototypes and templates
- production of documentation, ...

More accurate calculation should be supported with documentation on status assessment and project methodology.

Consultants draw up plans after having reviewed a company (approximately 1 days) and it should contain:

- job schedule, engagement of consultants and company employees
- results of system implementation, such as quality management system documentation (how, what, what and why)
- project control points for measuring results
- project critical points and risks, ...

5. Subsidies

Presently, there are several subsidies for implementation of ISO 9001, ISO 14001, HACCP available in Croatia.

Subsidies can be granted by:

- branches of industry or associations
- state (ministries and chambers)
- foreign states (branches of industry, investment supports, market research, ...)
- international (development, investments, banks, ...)

Subsidies for training and education, could cover as much as 50% to 100% of the implementation and certifications costs.