GORENJE VELENJE

REPORT FOR INTEGRATION OF WORK AND LEARNING (IWL) PROJECT

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1 SUMMARY

Modern companies that compete on the global market are exposed to the increasing pressures of cost reduction and innovation that are achieved by permanent technology updating. One of their key issues is how to make their employees respond effectively to the technological change. How to develop their knowledge and skills quickly enough in order to be able to effectively apply new

technologies and to contribute to their company specific solutions? Gorenje company, which exports 95% of its production is not an exception.

Gorenje has responded to this challenge like many other modern companies. It has developed the internal training market for the identification of training needs. It provides several forms of in-company training. It sends employees to seminars, longer courses and formal education and offers grants to pupils and students. It has established close co-operation with local schools. However, coping with the training needs is becoming increasingly demanding. There are sudden requirements for training to which it is difficult to respond on time. There is a question of proper training needs identification arising from the demanding communication between the production departments and the training unit. Training by doing remains casual, unsystematic, unregistered and unrecognised. Prior knowledge of workers who are sent again to a particular course is not properly assessed. Training outcomes are not systematically evaluated. In short, the increasing demands for training are ever more difficult to be responded adequately by the existing approach. It is becoming too time consuming and costly to send ever bigger numbers of employees to specific courses.

In our project we initially agreed to help improve the situation by the new approach to the training needs analysis and by the establishment of the in-company certification system. This led us first to the analysis of key jobs and related knowledge and skills needed for their effective performance – technologically required standards of knowledge. Individual training needs have been defined as a difference between these standards and prior knowledge of a particular job holder. Organisation, department and group training needs would be established by summing up individual ones. While the technologically required standards of knowledge would be determined in teams of technologists, supervisors and Human Resources (HR) department specialists, the information on the prior knowledge remain incomplete. It is only registered which level of formal education one has acquired and which courses he/she has been sent to by the company. The knowledge and skills acquired in the working process and a factual competence of an employee remain unclear. A complete information on individual's knowledge and skills (competencies) would also be needed for the in-company certification system. Therefore we finally ended up with the proposal to introduce the analysis of key jobs and related competencies and to introduce monitoring and development of competencies to be carried out under the supervision of immediate supervisors and complemented by the training department.

The project has ended when the development phase was to be turned in to the phase of implementation. The model and its computer back up have been presented to the company management, technologists and HR experts. While the last two groups have shown their interest the management is still contemplating about making a new step towards a real learning organisation.

The proposed model could help in:

- anticipation of training needs,
- career/succession planning,

- evaluation of training and staffing,
- certification of qualifications,
- shifts towards employee oriented leadership,
- keeping updated evidence of human resources – competencies.

2 BACKGROUND

2.1 General Information About The Organisation

Gorenje was established when a craft workshop set up in 1950 moved to Velenje in 1960 and shifted its activity to manufacturing of household appliances only. Internationalisation of Gorenje began in 1971, with the first representative office being established in Munich, Germany. Today, Gorenje encompasses the main company factories and headquarter offices in Velenje and 35 subsidiary companies (11 in Slovenia and 24 abroad – in the areas of ex-Yugoslavia, Eastern and Western Europe and the USA). In 1997, the process of privatisation was completed and the main company Gorenje in Velenje became a joint-stock company, while the subsidiary companies took on limited company status.

Gorenje's total of 7189 employees makes it the biggest employer in Slovenian industry. Gorenje is the country's second biggest exporter, exporting to over 60 countries across the world (95% of its total production). In 2000, 2.7 billion SIT of pure profit was made, which is about 24 million DEM. In the field of household appliances, Gorenje has the biggest share of the domestic market, as well as the markets in Croatia and Macedonia. In the European Union (EU) its share is 3%.

The Gorenje company's main activities are:

- production, marketing and maintaining of big household appliances: appliances for cooking, washing and cooling/freezing, which represent about 90 % of all activities;
- production of machines and tools;
- production of small parts, components;
- production of electric water heaters and kitchen furniture,
- other services: gross and small trade, tourism, transport, and
- a distribution network including world-wide product maintenance.

Gorenje is one of the few companies in Slovenia that has managed to maintain its dominant position in the Slovenian market as well as to achieve remarkable export results. Gorenje can boast a marketing strategy, an appealing production programme, stable-financing sources, and profit generated from sales of its appliances. This is the result of extensive modernisation and enlargement of its production capacities, with simultaneous control over production and labour costs. The biggest emphasis has been put on environment friendly products, the quality and price of appliances and human resource development.

Gorenje intends to strengthen its share of EU markets and to increase its exports to the Central and Eastern European (CEE) countries in the future. By introducing new technologies (automatics and robots) and maintaining the same number of employees, the aim is to produce annually 2,500,000 household appliances of appealing looks, high quality, user and environmental-friendliness and an attractive price. Gorenje has obtained the ISO 145001 certificate and maintains the entrepreneurial culture, which is manifested by the employees' strong affiliation with the company.

The organisational culture values are written down in the collective agreement and reflect an awareness of the importance of permanent education and training. They include the following:

- relations towards co-workers, including respect of personal integrity;
- relations towards consumers;
- relations towards products which should be of high quality and should comply with European standards;
- relations towards work process (alertness, creativity and permanent education and training);
- management style (indirect, informal, every employee has the right to give initiatives and receive a response to them); and
- common affiliation (mutual trust and success).

2.2 The Organisation's Technology And Human Resources

Gorenje's human resource development is systematic, with remuneration procedures and co-decision-making existing at the macro and micro levels. They have introduced some forms of **team work**: i.e. *integrated working places* enabling workers job rotation, which contributes to fewer occupational diseases and injuries. Gorenje publishes a newsletter through which its employees are informed about all the changes and developments in the company. The policy of life-long employment is being implemented and is proving to be very successful. In the Velenje region Gorenje is the biggest employer, and apart from the Coal mine Velenje, all the other are rather small. This contributes to a small labour turnover in the company.

The **human resource system** is organised in line with the organisational values. The aim is to provide all employees with:

- the possibility of personal growth and development;
- life-long development;
- promotion within the company;

- equal opportunities;
- remuneration according to performance;
- recognition of achievements;
- equal status;
- possibility of communication; and
- full employment.

Gorenje uses modern technology enabling quality and environmentally-friendly production. Technology is updated according to the needs for new products, which are sent to the markets every two to five years. Changes in technological processes are accompanied by intensive workers' training. Gorenje trained 1,888 workers in the year 2000. As a consequence the share of workers without vocational or professional qualifications falls and the share of educated and trained workers increases (see Table 1).

Table 1: Educational structure of employees in Gorenje (in %).

(Source: Gorenje Human Resource Management Reports)

Level of Education	1990	1992	1995	1997	2000
I. and II.	59.8	55.6	55.1	52.3	47.6
III. and IV.	19.8	20.7	21.5	23.8	25.1
V.	15.2	17.5	17.2	17.5	19.9
VI.	2.6	2.9	2.8	3.1	3.2
VII. and VIII.	2.6	3.3	3.2	3.4	4.3

*I. degree applies for unfinished primary school;

II. – finished primary school;

III – 2-year secondary school;

IV – 3-year secondary school;

V – 4-year secondary school;

VI – non-university post secondary degree (up to two years)

VII – university degree

VIII – post graduate degrees

Despite the improvements, disparities still exist between the demanded and actual education of employees. The biggest problem remains the surplus of those with I. level *(no primary school, no qualifications)* and a shortage of those with II. and III. levels (lower vocational qualifications). Equally there is a surplus of employees with secondary education (IV. And V. level) and a lack of employees with post secondary education. Gorenje is trying to overcome this by training its workers and by granting scholarships to obtain employees with VI. and VII. levels.

2.3 Education And Training In The Organisation

Education and training form the basis of Gorenje's development strategy. The human resource development department implements it with the support of the internal educational centre. The aim is to raise the level of knowledge and skills at all levels, and to train workers for continuous adjustments to changes and challenges stemming from the environment. The right to education is granted to all categories of workers, but the core groups for training are:

- newly-employed and employees to be assigned a new position;
- those who are expected to face bigger changes in technology and production; and
- managers.

The need for education and training is generated by the company's business activity, mostly by new technologies, rationalisation measures and endeavours to maintain competitiveness. The existing Training Needs Analysis (TNA) involves:

- annual interviews, which are limited to the core workers only;
- demands expressed by the floor managers;
- a Training Catalogue prepared by Gorenje education centre, which encompasses 12 areas and offers 123 courses provided in the company and/or outside, by various providers as well as lists of other educational offers by Slovenian or foreign educational institutions; and
- individual applications to the offered courses.

The TNA is the responsibility of the educational department. On the basis of the TNA, an annual plan of education and training activities is designed, covering the following:

1. Functional training:

- general: foreign languages, computer literacy, management skills and communication;
- training for specific positions: new technologies, etc;
- training for direct needs of the production process;

- for young managers: team work, internal entrepreneurship, business plans (implemented as part of the Gorenje Business School established 8 years ago);
- periodic training, designated for specific positions and compulsory by law: courses for fork-lift truck drivers, safety and health-at-work courses, etc.; and
- for managers: gatherings and conferences for all managers in Slovenia and abroad.

2. **Area of formal education:**

- scholarships for students and pupils; and
- co-financing of part-time studies for employees for IV., V., VI., and VII. levels of education.

3. Traineeships (for first-time employees) which are implemented on the basis of pre-prepared programmes.

In 2000, the number of staff being functionally trained for the direct needs of the production process was 3,584. 279 workers were part-time students, 87 were receiving scholarships and 122 were undergoing traineeship.

Most of training is implemented in the Gorenje education centre using its own resources, including lecturers and trainers, and some is provided in co-operation with Slovenian and international educational institutions. Gorenje is also providing facilities for practical classes for pupils of engineering and electro techniques from the secondary school centre in Velenje. Apart from this, on-the-job training for workers is being implemented by supervisors who are specially trained for the task.

Education and training is closely linked with the system of **human resource development.** The focal tool is an "interview with a co-worker" conducted annually and leading to the steps and measures of improving his/her individual professional career. The interview is carried out by the immediate superior. For the moment it is applied for the core workers only. Human resource development is supported by the recruitment practice. When a need for a new worker is identified, an internal mobility of workers is thought of first. First-time workers are employed for a fixed period of time and only after an initiation phase their future possibilities in the company are decided upon.

2.4 Gorenje As An Environment For Integration Of Work And Learning (IWL)

The described characteristics of Gorenje company indicate that it has been in a position which increasingly demands adjustments between work and learning. Even more, there have been significant changes in the philosophy and practice of management that create a supportive environment for the establishment of closer links between the two. In particular one could mention the following characteristics:

- the awareness of the need for permanent training, which could be identified not only in the company's documents and between managers, but also between the employees; the concept of learning organisation is often mentioned in the company;
- every year big numbers of employees are involved in education and training, which is adjusted to the needs of different target groups and to the changing technological environment; no group of employees is excluded from this process;
- there exists a method of training needs analysis, which is based on the functioning of the internal labour and training markets;
- In the course of restructuring Gorenje has not only preserved but has also strengthened its human resources and education and training departments;
- Gorenje has established its own Business School;
- Gorenje co-operates with educational institutions in Slovenia and abroad;
- on-the-job training has been widely used for the majority of employees;
- supervisors are trained to master a wide range of tasks;
- integrated working places, which enable job rotation and on the job learning/training have been introduced, and
- last but not least, in Gorenje they showed a great interest for the integration of work and learning project.

3 CHOSEN DEVELOPMENT ISSUES AND THEIR ARGUMENTATION

After the initial meetings between the research/development teams of the Faculty of Social Sciences and Gorenje the interest of Gorenje for the project was clearly expressed and the support was given by the member of the managing board responsible for human resources. It was decided to focus on two or three main issues and to limit the impacts of introduced changes to one organisational unit only, at least during the experimental phase. Since in the year 2000 the production of cooling/freezing appliances was moving to the new premises, where new technology has been installed, it seemed to be a good case.

In the new factory there is a lot of space for the movement of materials and people. In comparison to the old one workers may feel a bit isolated working on big machines and conveyers, and have less opportunities to communicate with each other. However, physical working conditions have improved significantly. The production process is computer aided. It was expected that on average every worker needed one grade higher education than before. Management shared the human resources department view that technological change was so big that every worker needed not only to be retrained for the tasks in the new work environment but needed also a better understanding of the production process, of the organisation of work and interpersonal relations in order to autonomously strive for effective and high quality production. Basic computer literacy and more communication skills was demanded especially. In addition, not every worker had as high formal education as it was demanded, what caused additional education deficits. About 1,500 workers needed to be retrained in a short period of time. Co-operation of the School Centre Velenje (mainly a vocational and technical engineering school) was anticipated.

Gorenje prepared a complex programme of education and training. All the activities were not relevant for the integration of work and learning project, and our team was not able to take part in all of those. We agreed to co-operate in the reconsideration of training needs analysis and in establishing an in-company certification system.

Training needs analysis

The introduction of a new production line for refrigerators and deep freezers and related need for »massive« training of employees has brought under the examination the existing practice of training needs analysis (TNA). The need to review it is perceived mainly by the human resource managers, while the educational specialists are less enthusiastic about it. The opinions of technologists vary. Nevertheless, it must be mentioned that the existing practice of TNA is not very systematic and anticipatory. It is like a fire fighting, as some of the human resource experts express themselves. The educational programmes are created primarily on the bases of urgent requests of technologists from the production units rather that on the basis of anticipated needs. Such a system operates under the constant time pressure, and the question is how effective it is.

Speaking more correctly, the existing TNA is made in the framework of the internal training market. The demand for courses is coming from supervisors and technologists on the basis of work problems that their workers are facing with or/and on the basis of the information on courses that is distributed in the company by the educational department. Any employee can apply for the courses that are announced by the educational department. The supply of courses is prepared by the educational department on the basis of the demand coming from the production units, on the basis of experiences from the previous years and on the basis of courses offered by the external education and training institutions. Except from the urgent needs there is an annual cycle of course preparation and announcement, collection and approval of applications, and realisation of courses.

- Although the internal education market can cope with some failures of the external one it shows its own deficiencies.

- The first one is that it is lagging behind the production needs. Technologists and supervisors usually come in the last moment. After they solve the technical problems they expect their workers to have adequate competencies to step in the production process effectively, usually without special training. The educational department may be highly co-operative, however, it needs some time to prepare training and to carry it out. This leads to sub optimal efficiency and nervousness on the production and on the training side. The accelerated technological change makes such situations less and less acceptable.

- Technologists and supervisors are not specially trained for the detection and expression of training needs. No systematic approach has been used and no link with job analysis has been made. They are usually focused on the narrow technical issues that seem to be close to their experiences. A wider understanding of technologies, of work organisation, interpersonal relations and learning fall out of their horizon, or they would express these in rather general terms, i.e. in the level and field of education needed by employees.

- The communication between technologists and supervisors on one hand, and education and training experts on the other goes indirectly via internal training market procedures and is not systematic. A team-work is missing. Even more, technologists and education and training experts speak different languages. The first speak about the tasks to be performed and the second about the education and training programmes offered. A precise link that could be expressed in terms of competencies is missing.

- A problem that results out of such a situation is the lack of co-ordination between the human resource department, department of education and the technologists and supervisors from the production lines. The lack of co-ordination results in the acceptance of sub optimal solutions. A part of the co-ordination problem is also that the existing rather reach databases that are generated at different points of human resource management (e.g. participation in the education and training programmes, career development plans, job description) are not inter-connected, and therefore the synergy of data combination is missing.

The enumerated deficiencies indicate the need for a consistent and systematic approach to identification of training needs on a company level. This is the first task that the Faculty and Gorenje teams have addressed.

Certification system

Most of Gorenje workers have taken different courses of functional training. They learn a lot at their work places also. This practice is expected to expand. However, the skills and competencies obtained this way are not recognised either internally or externally. The remuneration and promotion systems build much more on the formal education. This is why non-formal education and training do not motivate workers as they could have otherwise. In addition, there is a lack of information about the competencies of individual workers. Personnel decisions are made more difficult and less accurate. The stock of human resources and competencies of the company is not correctly reported, what can contribute to its losses. In spite of frequent trainings of production workers, often at their work places, the idea of learning organisation in terms of learning and training as a part of everyday work and management activities has not been put into practice yet.

The idea is to elaborate a system, which would better certify education and training achievements. Gorenje management is determined to do it for internal purposes. However, several problems will have to be solved.

- In the company qualification/competence standards have not been established. The basic element for the building of a certification system is missing.

- There is no formal procedure of competence checking and issuing of certificates. Only information on formal training of every employee exists. The experiences of the company with the 'acknowledgement of knowledge and skills obtained at the work place' from the past have not been well preserved and reflected.

- Management has not been trained and has not taken yet for its responsibility to develop the competencies of their employees on a daily basis. This has not been the attitude of workers either.

- It would be desirable to link the in-company certification system with the national one, which is in the process of elaboration. The question how remains opened.

This is the second task to be addressed in our Integration of Work and Learning project in Gorenje. Both seem quite demanding. However, we hope to link them in order to economise with time and energy and to come to the solutions simple enough for the application.

4 ISSUES

4.1 Training Needs Analysis

4.1.1 The Model

After having discussed the issue a few times in the joint sessions of Gorenje and Faculty of Social Science teams we have proposed a model for the assessment of training needs. According to our proposal the assessment of training needs should be composed of five steps:

- job description,

- determining of the technologically required standards of knowledge and skills,

- determining of career and personal development related knowledge and skills,

- identification of prior knowledge and

- identification of training needs.

Training needs present the discrepancy between the technologically required standards of knowledge and skills plus career and personal development related knowledge and skills on one hand and prior knowledge of workers on the other. The discrepancy identified separately for each employee is the basis for one's enrolment into different training programmes. It also serves the educational department to sum up most frequently needed skills and prepare adequate training programmes.

The proposed model for the assessment of training needs is schematically presented in figure 1.

Following is a short explanation of the procedure. The forms to be used in the procedure of the assessment of training needs are presented in the annex. However, they are adjusted to the solutions accepted in Gorenje and not to the original idea that is explained in the following paragraphs.

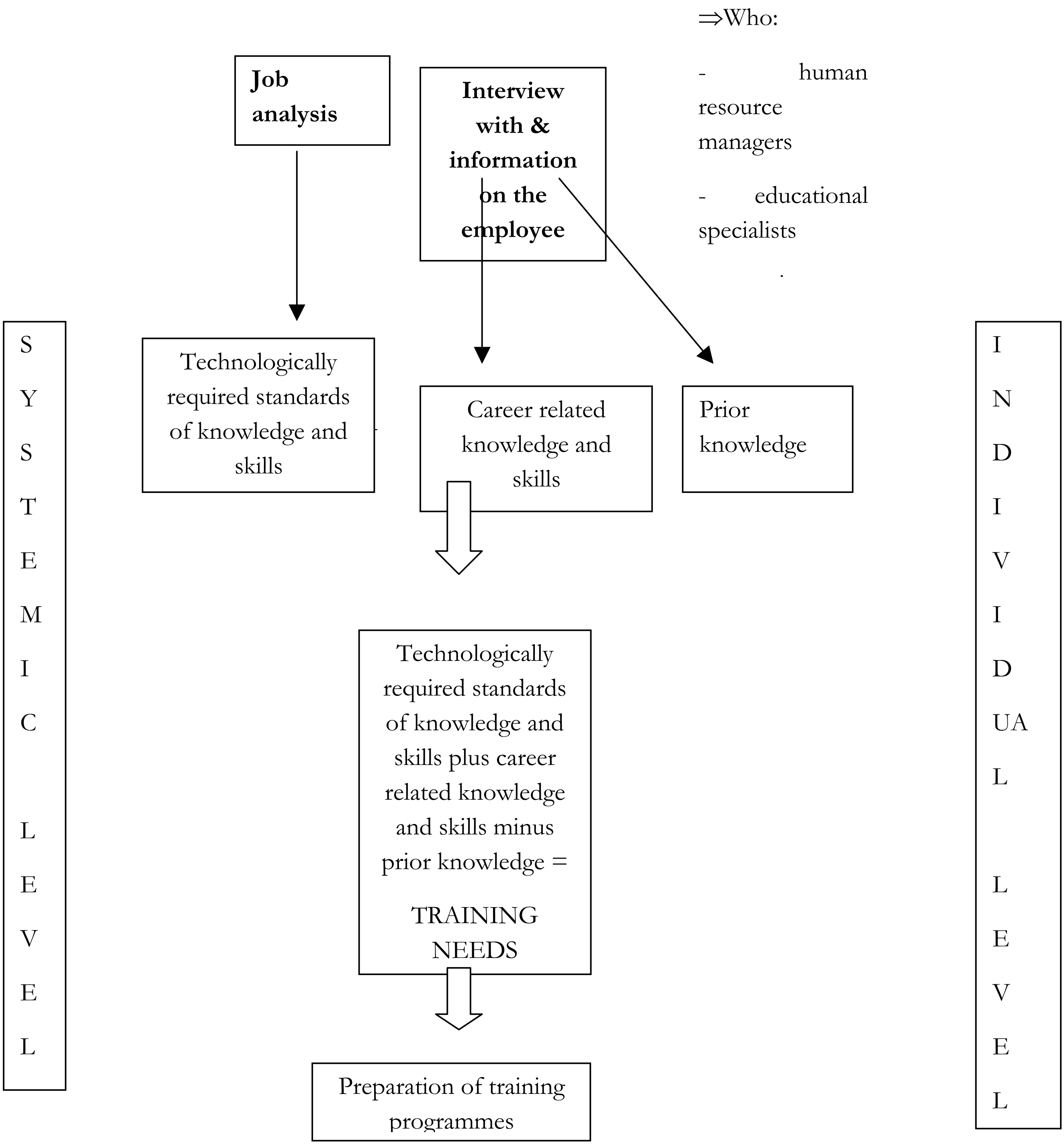


Figure 1: Model for Assessment of Training Needs

Job description

Job description starts with the enumeration of tasks that constitute a particular job. Tasks could be divided in line with the functional division of work (Scarpello, Ledvinka, 1988, p. 186):

- work with objects,
- work with data and
- work with people.

Each job is usually composed of all mentioned elements, the differences are mainly in the proportions. This is the critical point of job analysis because it must go beyond the description of tasks related to the working with objects only, and must also include the other two aspects i.e. working with data and people. Besides the professional knowledge and skills, such a holistic description leads to general knowledge and understanding of the work process and organisation, which is important for successful job performance.

It is desirable that job analysis is a team work of technologists who are most familiar with the technological process, heads of departments and human resource managers. In doing this they can help themselves with the existing job analysis and national qualification standards.

Standards of knowledge and skills

The essential part of standards is knowledge and skills, which must be possessed by an employee to be able to perform his/her work successfully. Even more, competencies in terms of one's 'capacity to organise knowledge and apply it to advantage in a concrete and demanding setting' (Tujinman, Schomann, 1996, p.469) should be sought. Competencies refer to the three components of intangible capital: knowledge, organisation and innovation in application. Apart from human they include cultural capital. This clearly shows that technologically required standards of knowledge and skills go beyond technological determinism. They include not only knowledge and skills, which are determined by technological hardware, but also soft skills related to organisation, interpersonal relations, communication etc.

In the first stage for each task standards of knowledge and skills are determined. This gives an unaggregated form of standards. However, they could be divided into two categories: understanding and commanding. Understanding and commanding represent qualitatively different levels of knowledge, i.e. informative and formative, of which the last comes close to competencies. For each task it must be determined what an employee should understand and should be able to command when working with objects, with data and with people. The national qualification standards (NQS) could be used as a reference. This part of the analysis should again be performed by a team of technologists, heads of departments and human resource managers.

For the next stage it is suggested that the standards are aggregated into two groups: general and professional knowledge and skills. Each group can be further divided into different elements:

- general knowledge into reasoning, arithmetic knowledge (mathematics) and mother language;

- professional knowledge into technical, information knowledge, knowledge about quality, foreign languages, leadership, inter-personal relations and communication.

For determining of the levels of required general knowledge the American scale (Source: Dictionary of Occupational Titles, 4th Edition, JIST Indianapolis, Vol. I and II, 1991) has been adjusted to the Slovenian educational levels (see Appendix No.2; within the brackets adequate Slovenian educational degrees are indicated). The standards of professional knowledge and skills are graded into two levels: understanding and commanding. The aggregation of knowledge and skills brings us closer to the education and training logic and helps in preparation of the relevant programmes. This is a task for human resource managers in co-operation with the training experts.

The proposed divisions of tasks on the work with objects, with data and with people and of standards of knowledge on those that are referring to the understanding and commanding is important because of various reasons. First, it enables an analytical understanding of a particular task and its connections to the working process as a whole. Second, it exceeds the »robotisation« of workers in terms of their focusing on the immediate tasks only and having no holistic picture of the working process. Third, it makes easier the identification of required general knowledge, besides the professional one. And finally, the contextual description of tasks and standards of knowledge and skills, which goes beyond the stages of technological process, presents a better base for preparation of training programmes.

Career related knowledge and skills

For the identification of technologically required standards of knowledge and skills the unit of observation is a job. One deals with the systemic level of the organisation. Career related knowledge and skills could be identified on the level of individual employees. They are focused on one's personal development plans. However, the anticipated needs of the organisation could also be taken into account. The identification is made usually by a combination of questionnaires that are distributed by the human resource or career planning department and filled in by the employees themselves, and career interviews with employees lead by superiors or career development experts. In some organisations extended performance appraisal interviews are also used for this purpose. In any case, it is desirable to rely on the existing practices already used in the organisation, if there are.

Identification of prior knowledge

Identification of prior knowledge also is focused on the individual. Its purpose is to save time and money of individual employees and the organisation and to provide for quicker and more focused human resource development. Various sources of information could be used for this purpose. The existing data on employees' formal training could be found in their personal files stored in the education department. Annual career planning and performance appraisal interviews with employees could be another source of information. This is a responsibility of supervisors and career planning people. Employees themselves may also initiate the demonstration of their competencies. Identification of prior knowledge is in fact a part of a certification of qualification and competence development procedures. Partially it could be made on the basis of competence development forms (see appendix).

Identification of training needs

The identification of training needs could be done according to the following formula:

Training needs = (technologically required standards of knowledge and skills + career related knowledge and skills) – prior knowledge

For determining of the training needs the discrepancies between technologically required standards of knowledge and skills (levels of required general knowledge and the descriptions of required professional knowledge and skills) plus the career related knowledge and skills and the prior knowledge are used. The discrepancy presents the training need, or may, in some cases, indicate also a surplus knowledge. It is desirable also to compare prior knowledge separately with the technologically required standards and with career related knowledge and skills. In the first case the identified training needs could be interpreted as urgent. Their fulfilment is necessary in order to make ones work effective for the organisation and satisfying for the person. In the second case the training needs must be met before one makes a new step in his/her career. A surplus knowledge may speed up one's career.

The identified training needs may thus be used for work with the individual employees, e.g. for their enrolment into appropriate training programmes, for their career planning, promotion and other kinds of intraorganisational mobility. However, on the basis of training needs new education and training programmes could also be prepared. The education department must only sum up all the deficiencies in knowledge and skills identified on the level of individuals to see for which areas new programmes are most needed. The information on prior knowledge of employees may help create an information file on organisation's human resource potential. Standards of knowledge and skills and prior knowledge identification could be considered as half way to the internal certification system.

4.2 Certification system

Our two teams moved to the issue of certification only after the discussion on the training needs analysis was mainly finished. It was easier to seek for rather complex solutions stepwise although we had in mind the synergy to be achieved by linking the solutions for both issues. Another reason was that we wanted to link the organisation's certification system with the emerging national one.

The preparation of the internal certification system should address the following four issues:

- determination of qualification standards,
- competence development in organisation,
- identification of individual's competencies and certification of qualifications and
- establishment of links with the national certification system.

Qualification standards

As it is presented in the model the determination of qualification standards takes the same course as in case of training needs analysis. It starts with the job analysis and ends with the technologically required standards of knowledge and skills. In order to avoid 'technological determinism' bias one could speak about the needed competencies with the accent on effective utilisation of knowledge and skills in the process of work. There is one difference, however. It should be decided if a qualification standard is elaborated for each job in the company, for more jobs or for the competencies used as a part of several jobs performance. It seems reasonable that the company qualification standards are narrower than the national ones. However, each job may not be a good basis, especially if there is a practice of job rotation and integrated work places.

Competence development

This is perhaps the most important element of the certification system. It accentuates the importance of permanent attention to the competence development on the side of supervisor and employee. If this becomes a daily practice of managers and employees the organisation enters the club of learning organisations as a full member.

Job analysis leads to the registration of all the important tasks. For each task a set of needed competencies is identified. The role of a supervisor is to monitor the performance of his/her employee, to register the achieved level of each competence and to help employee to develop them. The level o competence could be measured on the four points scale:

1 – command of essentials,

2 – full command of a standard situation,

3 - able to command non standard situations and innovate,

4 – able to transfer knowledge including generic one.

Each improvement could be registered in a competence development form (attached in appendix). Supervisors may use several methods in order to raise the level of competence of their employees: on-the-job training, instructions, job (re)design (job rotation, enlargement, enrichment), group meetings and discussion, sending to courses or training inside and outside company etc. If this is done carefully throughout the organisation it may significantly contribute to the development of human resources, what increases organisation's capacities to cope with technological change and to innovate. A certification of qualifications/competencies is made easier on these bases.

One could hold competence development of groups displayed at the work places. This would have similar function as the forms that indicate work plan achievements, productivity growth, cost reduction or absenteeism. They would motivate employees to develop their competencies.

Individual's competencies identification and qualification certification

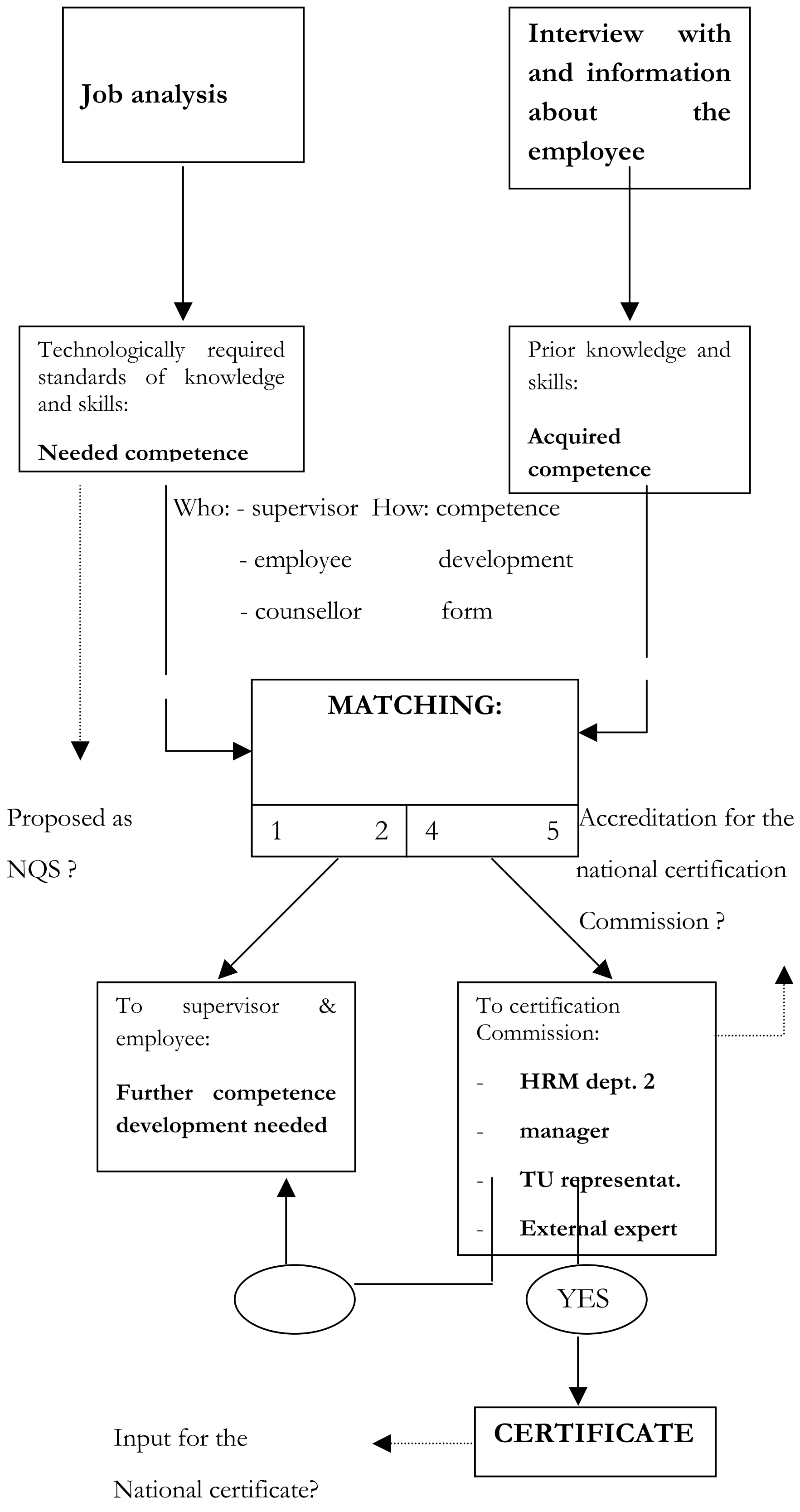
The first step in individual's competencies certification brings us back to the training needs analysis. The identification of prior (one could say existing) knowledge is in question. A common denominator of the qualification standards and individual's prior knowledge is competencies, in this case factual or acquired ones.

The identification of individual's knowledge and skills could be made in various ways (see 'Identification of prior knowledge'). In addition, self-assessment of an employee could be a part of the procedure. This is relevant when the system of assessment is simple and transparent enough, and it is desirable to be of this kind. The most important role should be given to the supervisors. They could assess the existing/prior knowledge when making performance appraisal interviews. However, it is much better if the attention to their team members' competencies is paid more than once or twice a year. Ideally it is a matter of daily management practice. For this purpose a competence development form could be used. Supervisor checks its content weekly or at least monthly. The summing up of the changes in the form may be a good point for the annual performance appraisal interview and for the checking of employee's personal growth. This may lead also to the identification of training needs, especially if a supervisor has information on the employee's course attendance, which is usually provided by the training department. In any case, the self-assessment of the employee and his/her supervisor must come to the common grounds. Otherwise a reconciliation of a supervisor's supervisor is needed.

The next step to be made is matching of the acquired and needed competencies. It may not be estimated only on the 'yes or no' basis. The information on individual's competencies is summed up and graded, e.g. on the six point scale:

- achieving level 2 for less than 50% of competencies – INSUFFICIENT COMPETENCE,
- achieving level 2 for 50% to 75% of competencies – SATISFYING COMPETENCE,
- achieving level 2 for at least 75% and level 3 for at least 25% of competencies – AVERAGE COMPETENCE,
- achieving level 2 for 100% and level 3 for at least 50% of competencies – FULL COMPETENCE,
- achieving level 2 for 100% and level 3 for at least 75% of competencies – PROFICIENT COMPETENCE,
- achieving level 2 for 100% and level 4 for at least 50% of competencies – TRAINER COMPETENCE.

One could shape a certification system in a way that when an employee achieves the fourth level (FULL COMPETENCE) he/she would be proposed to the internal certification commission to be awarded adequate qualification certificate. The proposal may be made by the employee him/herself but not without a supervisor's signature. A supervisor may consult a human resource or education department advisor for certification before sending in the proposal. Achievement of the first to third grade means that further competence development is necessary. The company may change the grading system depending on the existing competencies of employees and on how big accent it wants to put on their development.



Job analysis
Interview with and information about the employee
Technologically required standards of knowledge and skills:
Needed competence
Prior knowledge and skills:
Acquired competence
Who: - supervisor
- employee
- counsellor
How: competence development form
MATCHING:
1
2
4
5
Proposed as NQS ?
Accreditation for the national certification Commission ?
To supervisor & employee:
Further competence development needed
To certification Commission:
- HRM dept. 2
- manager
- TU representat.
- External expert
YES
CERTIFICATE
Input for the National certificate?

Figure 2: A model of in-company certification system

A certification commission could be composed of five members:

- an expert from human resource development department, e.g. specialist for education and training or for career development;
- supervisor's supervisor;
- one of co-workers who already has been awarded a certificate from a similar field, and who also represents trade union (if there is in the company);
- an expert from outside the company, e.g. representative of the relevant branch of the Chamber of Economy;
- a permanent president of the commission (while the other four may vary), who knows the system in detail and is recruited among the human resource department experts.

The commission checks for the eligibility of application and determines the mode of competence verification. Competence development forms, documentation on course attendance and other forms of education and training, oral and written examination, presentation of a product, demonstration of competence at the work place and similar methods may be used. If a commission concludes that high enough competence standards are achieved it issues a certificate. If not, this is a signal to the worker and his/her supervisor that further competence development is needed. It also indicates that maybe too loose criteria for the competence assessment are used. The awarded certificate may have an impact on ones remuneration, job assignment and promotion. It is registered in the employee's personal file.

Links with the national certification system*

A company could face a dilemma whether to link its internal certification system with the national one or not. This linkage would raise the value of internal certificates and would have higher motivational impact. However, it could also increase a turnover and bargaining power of the employees. We have proposed Gorenje to make this linkage although it may contradict the policy of life long employment in the company. It could be assumed that motivation effects would outweigh the losses of human resources due to turnover. In Slovenia the mobility of labour is rather low in general, especially in the regions with only a few major employers like Velenje region is.

The linkages of in company certification system with the national one could be at least the following:

- certain in company standards of qualifications could be proposed for the approval of national qualification standards;
- an application could be made for one of the national certification commissions to be located in the company, that would examine the competencies and issue certificates to its own and

to other companies' employees; this commission would not be the same as the one for in company certification;

- the employees who are awarded in company certificates may apply for the national ones in case of full matching, or may combine two or more in company certificates for this purpose.

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*National certification system in Slovenia has got its legal backing in the year 2000. Its main elements are national qualification standards to be determined centrally and national qualifications to be issued to the individuals who meet the national qualification standards. The checking of the meeting of the standards and issuing of national qualification certificates is in the hands of national certification commissions composed of trained experts from the field. The commissions are located in various institutions, such as chambers of economy and craft, school centres, big enterprises and similar (see Phare MOCCA Programme Slovenia, 2000).

5 THE STEPS AND CHARACTERISTICS OF THE DEVELOPMENT PROCESS

The **first step** in the development process was to make the firm interested and to get support from top management. In Gorenje this was not a difficult task since the company leads a policy of constant change and adaptation to the market and technological demands.

The **second step** was a creation of in-company team responsible for the preparation and implementation of the change in Gorenje. Experts from human resource and education and training departments were appointed. Depending on the topics discussed the composition of the team varied. The participation of technologists and field managers in some discussions was of a particular value.

Third, we agreed on the topics and the organisational unit, where to implement the changes. The choice of the new factory for refrigerators and deep freezers had its positive and negative sides, as it turned out later. The positive side certainly was that this was a new physical and organisational unit. No firm structure to resist a change could be expected there. Since everything was designed anew a new approach to training needs analysis and certification of competencies could be a constitutive part. And in fact there was no explicit objections expressed from the factory representatives. The objections came from some experts of human resource and educational departments rather. The negative side was that the preparation of the factory to start a production was rather complex and under the time pressure. There was not enough time to discuss and to try out the changes. In such a situation management and experts frequently reverted to the old practices.

Fourth, we collected the most important information and relevant materials related to training needs analysis and certification system in the firm. The two teams had several common discussions in order to harmonise the differences in expectations and to exchange the opinions about possible changes. Soon after we started we got a message that in Gorenje they would like to follow the philosophy of one of their most successful products: ‘simple and logical’. This also indicated that big changes would be difficult to implement. At the end, however, we proposed the solutions as presented above. Following are some details of the discussions on the models and their implementation.

First we proposed the methodological framework for **assessment of training needs** composed of several elements. As to job analysis the initial idea in Gorenje team was to make it comprehensive in order to serve other purposes also and not just for training needs analysis. In the first version it contained several elements, e.g. working conditions and required characteristics of employee. After the first presentation meeting the company team changed its mind and decided to exclude, for the assessment of training needs, irrelevant parts. One of the company's fears was that the proposed job analysis would lead back to a rigid system that existed years ago, which would decrease organisation's flexibility and would be too complex. The other fear was that the number of employees involved in job analysis would be too high. The final result was therefore a simplified version leading to training needs only.

The discussion on technologically required standards of knowledge and skills focused on several points. Initially the idea was to group the unaggregated standards into three different categories: recognising, understanding and commanding. The final simplified solution was the acceptance of two categories: understanding and commanding (in technical sense), where the former applies to so-called informative knowledge and the latter to the formative one. The discussion was also on the aggregated standards. Initially three groups were proposed: general knowledge, professional knowledge and skills. Every category was divided further on. However, further discussion brought some changes. The category of skills (sensorial and locomotive) was excluded and the elements of the professional knowledge were slightly changed. The management knowledge was replaced with the knowledge about leadership, inter-personal relations and communication, and the element of the foreign knowledge was added. This was closer to the firm's practice.

One of the most obvious professional problems was related to the shift from the description of tasks to the required standards of knowledge and skills. The question was how to describe the required knowledge, i.e. competencies. For successful »translation« of tasks into the competencies, the co-operation between the technologists and educational specialists is essential. Further efforts to improve this part of the organisational practice would be needed. More frequent meetings and professionally mixed teams would be recommended.

The expert for career development was interested to keep career related knowledge and skills in the model. However, career development system in Gorenje was in the process of implementation for core employees only. This is why this element could not be taken into account in case of the new refrigerators/deep freezers factory, where training needs of big numbers of workers, who were not considered as core ones, were in question. The exception could be made for some of white collars.

The discussion on who to identify the prior knowledge of employees lead to the following solution: Education and training experts should identify the competencies expected on the bases of formal training, while supervisors should evaluate their actual competencies as they appear in the work process.

The discussion on the certification system opened the following dilemmas:

- Would it pay off if the firm invests quite some time for the establishment and running of the certification system? The discussion between the experts gave a positive answer. There have been so many competencies developed among the majority of employees that their recognition would have an important motivation effect and would enable a better overview over the company's human resources. It would ease the internal mobility of labour.

- There was a question if employees would demand higher remuneration on the basis of newly acquired certificates. That could be the case. However, in the bargaining process it should be taken into account that certificates based on competence development contribute significantly to the employability of employees, which has a value in itself in the conditions of labour market flexibility.

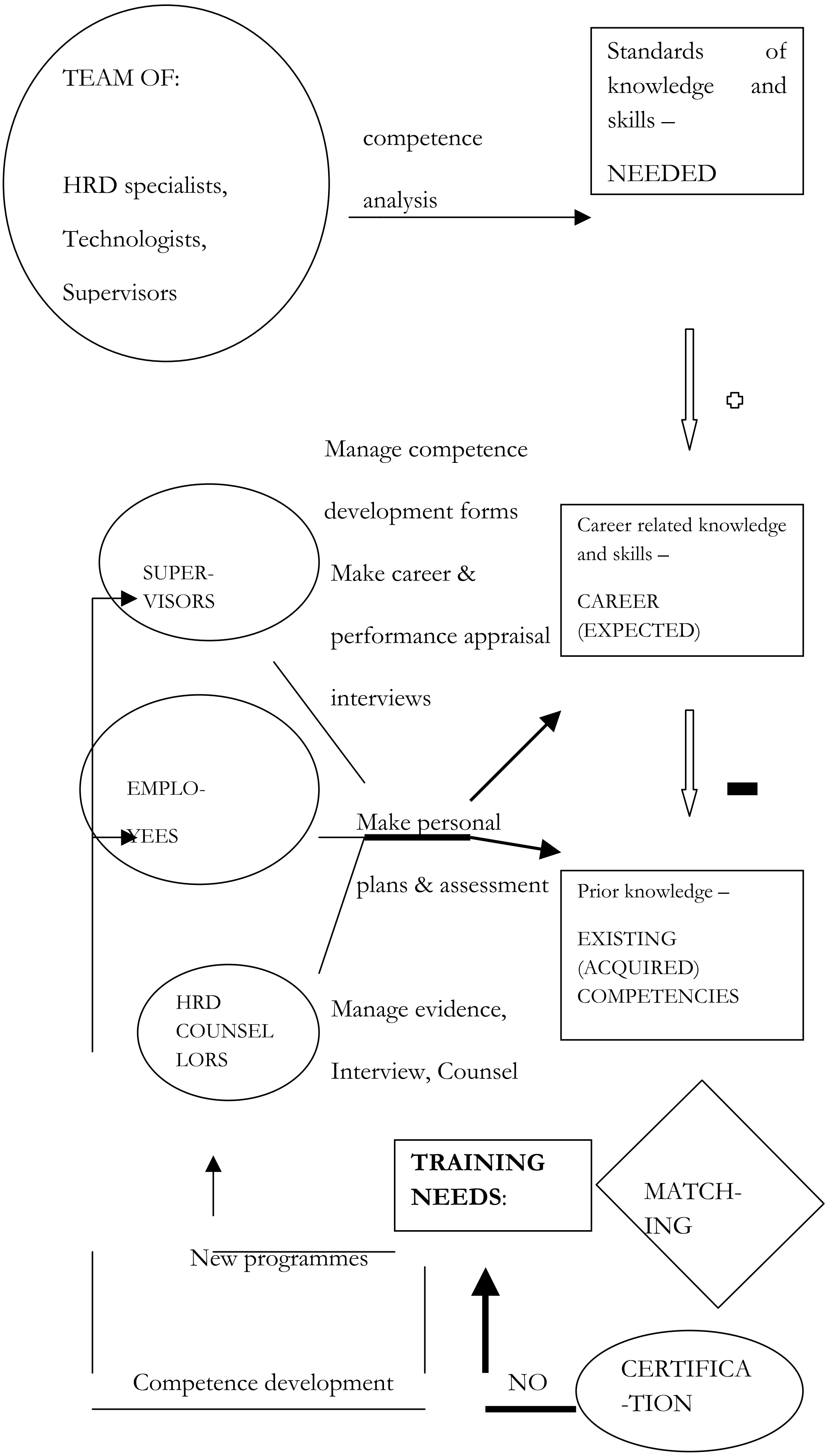
- A slight fear was felt about eventual increment of external mobility, especially in case of linking internal certificates with the national ones. It was estimated, however, that traditionally low regional mobility of labour, the position of Gorenje as the main employer in the region as well as its life long employment policy would continue to play a stabilising role.

- The main dilemma was about a redefinition of the roles of managers on all the organisational levels. As elsewhere in Slovenia management in Gorenje was rather task then people oriented. A competence based certification of qualifications would demand its reorientation. Managers should pay much more attention and time to the identification, development and evaluation of their subordinates' competencies than they did in the past. A redefinition of their roles, motivation and training for their effective performance appeared as a rather demanding task.

By the end of our project in Gorenje it turned out that both procedures: of training needs analysis and of certification of qualifications were rather complex and demanding for implementation. Therefore the two teams decided that both solutions should be linked together into a competence development system as it is shown in figure 3. This would save time and energy to all experts involved, and make human resource management at this point more transparent and coherent. The steps to be made are described in the annex.

A computer aided methodological tool for assessment of training needs has been developed. It could simplify and speed up the generation of technically required standards of knowledge and skills (required competencies), monitoring of the existing competencies and training needs that could be identified on the individual, group, department and other levels. It is a tool that enables managers to have an updated overview of employees' competencies, to avoid paper work and to have an online link with HRM and training departments.

Due to the lack of time a step towards a list of competencies has not been made. It has become obvious that the initial list of standards of knowledge and skills should be reshaped in the direction of competence profiles that would include some key competencies as well as those that are job specific (Tacitkey, 2001; Shaw, Kamarainen, 1998). However, a bottom up approach has been recommended.


TEAM OF:
HRD specialists,
Technologists,
Supervisors
competence
analysis
Standards of knowledge and skills –
NEEDED
Manage competence
development forms
Make career &
performance appraisal
interviews
SUPER-
VISORS
Career related knowledge and skills –
CAREER
(EXPECTED)
EMPLO-
YEES
Make personal
plans & assessment
Prior knowledge –
EXISTING
(ACQUIRED)
COMPETENCIES
HRD
COUNSEL
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Manage evidence,
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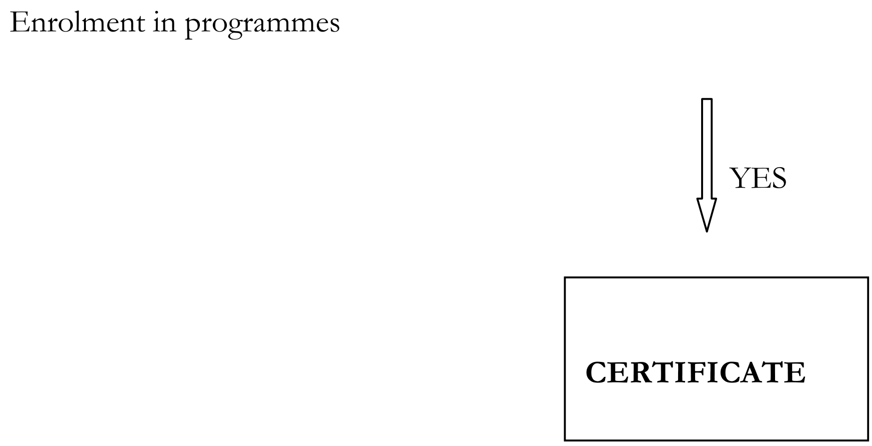

Figure 3: Linking of training needs analysis and in-company certification of qualifications into a competence identification, monitoring and development system.

The final step that both teams made together was a presentation of the project results. Experts from the human resources and education and training departments and top managers of the new factory participated. The response was positive and the main conclusion was that the changes in the traced direction should be made. Participants suggested to make an operational plan for stepwise implementation of the proposed solutions. They estimated that the most critical point for the implementation would be training of managers for monitoring, development and evaluation of competencies. Gorenje team informed top management about this conclusion with the aim to get support for a wider implementation of the described proposals.

6 CONCLUSION

We could say that finally agreed methodological framework presents the compromise between the theoretical and practical knowledge. The whole development process has been characterised by the intense co-operation between the working teams. Different views were discussed and working tasks equally distributed. One of the important side-results is the establishment of more regular communication between the representatives of different departments within the company Gorenje. A co-operation between technologists, human resource managers and educational specialists, which was not very common, proves to be very fruitful for internal dynamic. We hope that it will make different experts speak mutually understandable expert language and that it will increase the frequency of a team work.

During the project some more or less expected troubles occurred. One of those was a low preparedness of some individuals to change the existing practice. It soon became clear that there is a difference between declaring the openness to development change in principle (on a general level) and the real acceptance of change and innovation. Change and innovation brought about by integration of work and learning (IWL) in the companies effect not only the areas in which IWL is directly implemented. It has wider impacts on the organisation of work and can not be implemented in the framework of a traditional organisation. It changes the autonomy and responsibilities of individuals and groups, and the management practice.

Currently some of the solutions that have been agreed upon by both teams have been experimented. This means that the models of training needs analysis, certification of qualifications and competence development have not been fully implemented. A green light from the top management is waited for. However, after the presentation of the project it seems that we have reached the point of no return. The awareness that something should be done on the company wide scale in the near future in order to better develop and utilise human resources is increasing.

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ANNEX 1:

Methodology for assessment of competences and training needs in Gorenje company:

a) **Steps required for assessment of the competences and training needs**

b) **List of competences acquired through work**

c) **Form for assessment of competences and training needs**

A. STEPS REQUIRED FOR ASSESSMENT OF THE COMPETENCES AND TRAINING NEEDS

PERSONS INVOLVED: human resource managers, technologists (engineers) and workers' supervisors (low and middle level management)

I. WORKING PLACE

1. **STEP**

Description of the working place (title, sector, department) and the tasks (job tasks) performed within that working place. Job tasks are divided into work with:

a) the objects,

b) the data, and

c) the people.

2. **STEP**

For each job task it is established which are the needed competences for its successful performance (i.e. what employees need to know and be able to do, to perform the job successfully).

3. **STEP**

For each competence it is determined to which type of professional knowledge it belongs. Types of professional knowledge are the following:

a) TK – Technical knowledge,

b) KQ – Knowledge about quality,

c) IK – Informational knowledge,

d) KFL – Knowledge of foreign languages,

e) MK – Managerial knowledge, knowledge of inter-personal relations and communications,

f) – Other knowledge.

(This typology can be modified – to a more/less detailed one; other types of knowledge/competences can be added, etc.)

4. **STEP**

For each of the competences needed for performing the job tasks on the particular (observed) working place, the required level of competences is determined.

For determining the level of competency the following scale is used:

"0" – no competency; competency not used

"1" – knowing and understanding of the basics

"2" – handling of the standardised situations

"3" – handling of the non-standardised situations and innovating

"4" – the ability to transfer knowledge to others

5. **STEP**

The level of required general knowledge is determined. The level of general knowledge is divided into three categories: the reasoning, the use of mathematics, and the use of mother tongue.

The required levels are based on the American scale (Source: Dictionary of Occupational Titles, 4th Edition, JIST Indianapolis, Vol. I and II, 1991) and adopted to the Slovenian circumstances (and education levels).

II. INDIVIDUAL

6. **STEP**

For a concrete individual working on the observed working place (performing the observed job) it is determined what is his/her level of formal education.

7. **STEP**

The individual's level of competency for performing certain job tasks at the observed working place is determined. This is done in two ways:

a) By determining the competency acquired through work (on the job), and

b) By determining the competency acquired through various forms of formal additional (permanent) education/training (i.e. different forms of training in the company or organised by the company).

The level of individual's competency acquired through work is assessed for each individual employee by his/her immediate superior. For doing this, the superior uses the list of competences, needed for performing a certain job *(see part B)*.

The individual's level of competency acquired through different forms of additional (formal) education and training is determined on the basis of information on which competences result from certain forms of education and training. It is assumed that the company's department responsible for education and training would be able to define the achieved competences on the basis of the curricula and the content of each education and training programme, and would also be able to determine the level of achieved competency.

For determining the level of each competency of individual (both for the competences acquired through work, and for the competences acquired through formal training), the following scale is used:

"0" – no competency; competency not used

"1" – knowing and understanding of the basics

"2" – handling of the standardised situations

"3" – handling of the non-standardised situations and innovating

"4" – the ability to transfer knowledge to others

8. **STEP**

For each individual the competences that he/she has, but are not directly linked to the current job (and are not achieved through performing the current job or through training in the company) are added to his/her list of competences. The information on these competences is determined from the annual career interviews with individual employees. Such competences are, for example: knowledge of foreign language(s), computer competences, organisational competences, etc.

III. COMPARISON OF THE JOB-REQUIRED COMPETENCES AND THE ACTUALLY ACHIEVED COMPETENCES OF INDIVIDUALS

9. **STEP**

The comparison of data on the required level of general education and required competences on each job (working place) with the actually achieved level of general education and actually achieved competences of individuals, shows the possible lacks in both: the formal education and the competences of individuals.

In the situation when the individuals show lower competences from the required ones for performing certain jobs, there is a need for additional education and training.

In the situation when the individuals show high levels of competences achieved through work, while they do not reach the required level of general education, there is a possibility of certification of competences of individuals thus giving them some proof of being competent for performing a job.

Possible

10. STEP – Certification of competences acquired through work and through shorter forms of training

B. LIST OF COMPETENCES ACQUIRED THROUGH WORK

1) *Title of the working place* ______________________________

2) *Organisational context* ______________________________

   a) Sector ______________________________

   b) Department ______________________________

3) *Name and surname of the employee* ______________________________

To be completed by immediate supervisors

TYPE OF PROFESSIONAL KNOWLEDGE	COMPETENCE	LEVEL OF ACQUIRED COMPETENCY*				
		0	1	2	3	4
Technical knowledge (TK)						
Knowledge about quality (KQ)						
Informational knowledge (IK)						

knowledge (IK)						
Knowledge of foreign languages (KFL)						

Managerial knowledge, knowledge of inter-personal relations and communications (MK)						
Other knowledge (O)						

*** LEVEL OF ACQUIRED COMPETENCY:**

"0" – no competency; competency not used

"1" – knowing and understanding of the basics

"2" – handling of the standardised situations

"3" – handling of the non-standardised situations and innovating

"4" – the ability to transfer knowledge to others

C. FORM FOR ASSESSMENT OF COMPETENCES AND TRAINING NEEDS

I.) Job description

1) *Title of the working place* ______________________________

2) *Organisational context* ______________________________

   c) Sector ______________________________

   d) Department ______________________________

3) *Description of job tasks*

Table 1

TASKS	DESCRIPTION
WORK WITH OBJECTS	
WORK WITH DATA	
WORK WITH PEOPLE	

II.) Competences

Table 2

<table>
<tr><th rowspan="2">Tasks</th><th rowspan="2">COMPETENCES
(professional knowledge and skills required for successful performance of job tasks)</th><th colspan="6">Type of professional knowledge*</th></tr>
<tr><th>TK</th><th>KQ</th><th>IK</th><th>KFL</th><th>MK</th><th>O</th></tr>
<tr><td rowspan="2">WITH OBJECTS</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

WITH DATA							
WITH PEOPLE							

***Type of professional knowledge:**

TK – Technical knowledge,
KQ – Knowledge about quality,
IK – Informational knowledge,
KFL – Knowledge of foreign languages,
MK – Managerial knowledge, knowledge of inter-personal relations and communications,
O – Other knowledge.

Table 3

GENERAL KNOWLEDGE	**LEVEL**
Reasoning	
Mathematics	
Mother Tongue	

III.) Training needs

Title of the working place ____

Name and surname of employee ____________________________________

Table 4

KNOWLEDGE	**REQUIRED COMPETENCES ON THE EXISTING WORKING PLACE** ***(professional knowledge and skills required for successful performance of job tasks)***	**PRIOR KNOWLEDGE** **Level of competency acquired through work (D) and level of competency acquired through participation in formal and informal education/training (FI)**
General knowledge	***Level***	***Level***

Reasoning							
Mathematics							
Mother Tongue							
Professional knowledge	***Description***	***LEVEL OF ACQUIRED COMPETENCES****					
		D FI	***0***	***1***	***2***	***3***	***4***
Technical knowledge		*D*					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
Knowledge about quality		*D*					
		FI					
		D					
		FI					

Informational knowledge		*D*					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
Knowledge of foreign languages		*D*					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
Managerial knowledge, knowledge of inter-personal relations and communications		*D*					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					

Other		*D*					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					

*** LEVEL OF ACQUIRED COMPETENCE:**

a) Acquired through work (D)

b) Acquired through participation in formal education/training (FI)

"0" – no competency; competency not used

"1" – knowing and understanding of the basics

"2" – handling of the standardised situations

"3" – handling of the non-standardised situations and innovating

"4" – the ability to transfer knowledge to others

Table 5

KNOWLEDGE	EXPECTED COMPETENCES ON THE ANTICIPATED WORKING PLACE *(professional knowledge required for successful performance of job tasks)*	PRIOR KNOWLEDGE Level of competency acquired through work (D) and level of competency acquired through participation in formal and informal education/training (FI)					
GENERAL	***Level***	***Level***					
Reasoning							
Mathematics							
Mother Tongue							
PROFESSIONAL KNOWLEDGE	***Description***	***LEVEL OF ACQUIRED COMPETENCES****					
		D FI	***0***	***1***	***2***	***3***	***4***
Technical knowledge		*D*					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
Knowledge about quality		*D*					
		FI					
		D					
		FI					
Informational knowledge		*D*					
		FI					
		D					
		FI					
		D					
		FI					

Knowledge of foreign languages		*D*					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
Managerial knowledge, knowledge of inter-personal relations and communications		*D*					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
Other knowledge anticipated on the working place		*D*					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					
Other relevant knowledge possessed by individual		*D*					
		FI					
		D					
		FI					
		D					
		FI					
		D					
		FI					

*** LEVEL OF ACQUIRED COMPETENCE:**

a) Acquired through work (D)
b) Acquired through participation in formal education/training (FI)

“0” – no competency; competency not used

“1” – knowing and understanding of the basics

“2” – handling of the standardised situations

“3” – handling of the non-standardised situations and innovating

“4” – the ability to transfer knowledge to others

ANNEX 2

The method for determing the level of required general knowledge

For determining the levels of required general knowledge the American scale (Source: Dictionary of Occupational Titles, 4th Edition, JIST Indianapolis, Vol. I and II, 1991), which was »translated« into Slovenian educational levels should be used as the tool (within the brackets are stated our translators into Slovenian educational degrees) *(see Appendix NO.?)*

For determining the required level of reasoning the following scale should be used:

1. Apply common sense understanding to carry out simple one- or two-step instructions. Deal with standardised situations with occasional or no variables (primary school).
2. Apply common sense understanding too carry out detailed written or oral instructions. Deal with problems involving a few concrete variables in standardised situations (lower vocational school – two-years).
3. Apply common sense understanding to carry out instructions furnished in written, oral or diagrammatic form. Deal with problems involving several concrete variables in standardised situations (vocational school – tree years).
4. Apply principles of rational systems to solve practical problems and deal with a variety of concrete variables in situations where limited standardisation exists. Interpret a variety of instructions furnished in written, oral, diagrammatic or schedule form (secondary school or higher school).
5. Apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Interpret an extensive variety of technical instructions in mathematical or diagrammatic form. Deal with several abstract and concrete variables (university).
6. Apply principles of logical or scientific thinking to a wide range of intellectual and practical problems. Deal with non-verbal symbolism in the most difficult phases. Deal with variety of abstract and concrete variables. Comprehend the most abstruse classes of concepts (specialisation, master degree, Ph.D.).

For determining the required level of language knowledge (mother tongue) the following scale should be used:

1. Recognise meaning of two- or three-syllable words. Read rate of 95-120 words per minute. Compare similarities and differences between words and between series of numbers. Print simple sentences containing subject, verb and object, and series of numbers, names, and addresses. Speak simple sentences using normal word order, and present and past tenses (primary school).
2. Passive vocabulary of 5000 – 6000 words. Read rate of 190-215 words per minute. Read adventure stories and comic books, looking up unfamiliar words in dictionary for meaning,

spelling, and pronunciation. Write compound and complex sentences, using cursive style, proper and punctuation, and employing adjectives and adverbs. Speak clearly and distinctly with appropriate pauses and emphasis, correct pronunciation, variations in word order, using present, perfect, and future tenses (lower vocational school – two-years).

3. Read a variety of novels, magazines and encyclopaedias. Read safety rules, instructions in the use and maintenance of shop tools and equipment, and methods and procedures in mechanical drawing and layout work. Write report and essays with proper format, punctuation, spelling, and grammar, using all parts of speech. Speak before an audience with poise, voice control, and confidence, using correct Slovenian language (vocational school – tree-years).

4. Read novels, poems, newspapers, periodicals, journals, manuals, dictionaries, thesauruses, and encyclopaedias. Prepare business letters, expositions, summaries, and reports, using prescribed format and conforming to all rules of punctuation, grammar, diction, and style. Participate in panel discussions, dramatisations, and debates. Speak extemporaneously on a variety of subjects (secondary and higher school).

5. Read literatures, book, and play reviews, scientific and technical journals, abstracts, financial reports, and legal documents. Write novels, plays, editorials, journals, speeches, manuals, critiques, poetry, and songs. Conversant in theory, principles, and methods of effective and persuasive speaking, voice and diction, phonetics, and discussions and debates (university or postgraduate level).

For determining the required level of arithmetic knowledge (mathematics) the following scale should be used:

1. Simple calculations – add and subtract two digit numbers. Multiply and divide 10's and 100's by 2,3,4,5. Perform the four basic arithmetic operations and operations with metric scales (primary school).

2. Add subtract, multiply, and divide all units of measures. Perform the four operations with like common and decimal fractions. Compute ratio, rate, and percent. Draw and interpret bar charts. Perform arithmetic operations with monetary units (lower vocational school – two-years).

3. Compute discount, interest, profit, and loss; commission, mark-up, and selling price; ratio and proportion, and percentage. Calculate surfaces, volumes, weights, and measures. Calculate variables and formulas; monomials and polynomials; ratio and proportion variables; square roots and radicals. Calculate plane and solid figures; circumference, area, and volume. Understanding kinds of angels, and properties of pairs of angels (vocational school – three-years).

4. Deal with system of real numbers; linear, quadratic, rational, exponential, logarithmic, angle and circular functions, and inverse functions; related algebraic solution of equations and inequalities; limits and continuity, and probability and statistical inference. Deductive

axiomatic geometry, plane and solid; and rectangular slide rule, practical algebra, geometric construction, and essentials of trigonometry (secondary or higher school).

5. Work with exponents and logarithms, linear equations, quadratic equations, mathematical induction and binomial theorem, and permutations. Apply mathematical operations to frequency distributions, reliability of tests, normal curve, analysis of variance, correlation techniques, chi-square application and sampling theory, and factor analysis (university).

6. Work with limits, continuity, real number system, mean value theorems, and implicit function theorems. Apply fundamental concepts of theories of groups, rings, and fields. Work with differential equations, linear algebra, infinite series, advanced operations methods, and functions of real and complex variables. Work with mathematical statistics, mathematical probability and applications, experimental design, statistical inference, and econometrics (postgraduate level).

ANNEX 3

COMPETENCE DEVELOPMENT FORM (a general example)

	COMPETENCE LEVEL OF EMPLOYEES						
	A	B	C	D	E	F	G
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
JOB 1: Task 1							
Competence 1							
Competence 2							
Competence 3							
……………..							
Competence X							
JOB 1: Task 2							
Competence 4							
Competence 5							
Competence 3							
…………….							
Competence Y							
JOB 1: Task Z							
Competence 2							
Competence 6							
Competence 1							
……………...							
Competence W							
JOB 2: Task 1							
Competence 7							
Competence 8							

Competence 5

……………..

Competence P

JOB 2: Task 2

Competence 4

Competence 5

Competence 3

…………….

Competence Y

………………

Description of levels of competence:

1 – command of essentials

2 – full command of a standard situation

3 – able to command non standard situations and innovate

4 – able to transfer knowledge including generic one