

KnowME

Skills and Knowledge Management in the Metal and Electrical Industry

INDUSTRIAL RELATIONS AND SOCIAL DIALOGUE

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Overall Interview report

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KnowME: report on in-depth interviews (summary overview)

Statistical and general data on the in-depth interviews in the four partner countries. There have been 24 interviewed SME companies. Participants by sector were: Three metal producing companies and three electrical and electronics industries in the case of Lithuania and Slovenia, and it was similar in Latvia and Slovakia. The number of employees varied from 15 to 280; the employees' education structure was mixed and was generally spread over all the professional ranges. The companies are predominantly export oriented towards the EU, Russia, eastern countries, and they are producing both final products and intermediate products. Many companies have in-company R&D departments or have some R&D support, also quality management systems are in place and functioning.

The persons interviewed have different positions in the company and are the following:

HR managers, directors (CEOs) or chairmen of the board and company owners.

Their work experience in that position varied between 5-9 years in Lithuania to 8-20 years in Slovenia. Predominantly those interviewed were male (12) and (6) female (Latvia not included) and the females were younger (35 to 40 years old) than the males (31 to 74 years old).

The company's personnel structure was reported by Lithuania and Slovenia. Companies in the **electrotechnical field** have a more diversified structure (all professional levels) and more higher educated employees, as well as a younger employee structure. At the same time in the metal sector it has an experienced workforce (long term experience) and a somewhat older employee structure. In both sectors the employees fluctuation is low, some 1 to 2% per year.

On the question regarding strategic mid-term aims-plans and actual skills/actual needs/VET profiles in the companies, the answers showed that: **few documented strategic plans**, generally ISO 9000 procedure based while **mid-term planning** is generally more market based/predictive on market trends.

The actual skills needs in companies are covered by skilled employees; additional VET training of the employees is performed when needed. VET graduates coming from schools have a good knowledge, but no practical skills. The majority of companies do not report /communicate the deficiencies in the VET education to the VET schools/authorities. Some companies collaborate very well with VET schools and universities. Skills/skilled workers on the market are available, but almost all need adaptation to the work tasks, sometimes they also go through a specialization process.

Questions regarding company training and educational concepts showed that trainings are basically by topic, where a concept of planning of the yearly number of hours per employee is established. Internal training is performed by the company's own staff, specialization or practical skills are as upgrading knowledge and skills combined with mentoring. Training **thematics are chosen** mostly **on:** technical /professional area/ IT skills. **The company could obtain financial support for** training for employees. The methods are different from taking part in external seminars, conferences, and exhibitions; also with VET/ other educational institutions.

As for the practice of sharing of training in the supply chain, the picture is not uniform: generally sharing occurs in the company, but in some cases is not accepted/used. For companies, knowledge (KN) is important. Looking from the area of KN and by importance: all areas are important, some more emphasis is on professional/expert KN (technology, production, R&D, own products). KN is important also in: sales, marketing; and organizational knowledge to make the structure more efficient. A KN of own products has been identified as of importance and the linkage with customers' needs/products (intermediates' products).

The updating of KN in R&D occurs upon trends in the profession.

1. Knowledge management system (KMS)

Regarding the existence of KMS, it was found that no formal KM system was in place or in some cases less formal/some prescribed procedures were used.

Exceptions to this are the following: **KM planning on an annual basis where** the skills and knowledge needs were linked to a business plan, and new products' development. **Skills and Knowledge Planning** needs are also part of the ISO 9000 QM framework. **Knowledge content and knowledge plan proposals** come from various initiators and is up to management decisions on the execution of those plans. **The financing of training/education** is in the business plans for planned training. Sometimes individual employee proposals are regarded.

Knowledge needs plans and the type of knowledge usage plans depends on the company size, and are also specific by sector, electrical, metalworking. Normally knowledge area priorities, pace of acquisition and the use of knowledge are defined in some plans.

Identification of knowledge needs goes through the following type of preparations' analysis of trends by the management and proposals from innovative employees; meetings of teams/departments. **Needs determination** is done in the form of annual plans and the development of mid-term plans (new product)

2. Knowledge needs/acquisition

Knowledge acquisition is performed through external sources (seminars, conferences, cooperation with universities, and different trainings). Knowledge is gained most regularly with internal trainings by qualified staff and the training process alongside the development of new products. There are also practices where mentoring, practical work on joint projects are used to obtain new knowledge (e.g. new technology). Job rotation as a method for multi-purpose skill acquisition is used mostly on the production level.

3. Knowledge development (KD)

There were no special measures detected for knowledge development during the interviews. KD occurs during the work process, spontaneously (production workplaces typically). Types and methods of how KD is performed are:

- **Mentoring/training** programmes
- **Coaching:** seniors in departments to younger employees – typically a 2-year process
- **External cooperation:** creation of joint training VET programmes with VET schools (for employed staff)

Maintenance of a knowledge base is in the form of documented individual competences, some companies have defined procedures to that issue.

There are cases of a **transfer of knowledge and skills from the older staff to the young, with** no problem in Slovenian companies but the same is less likely in Lithuania.

Knowledge allocation/distribution

The distribution of knowledge occurs differently according to job level. At lower level jobs: it goes through natural distribution – meetings, also with on-job training by internal staff. **At the higher level jobs (R&D, technology)** it is accomplished through meetings in the project management system, also competences identification and complement, in some cases a list of experts is established for the support of specific purposes.

Knowledge allocation takes place on the managers' level, head of units level and is registered in the documentation (personal files in some cases). **List of competences of individual employees as a tool for the allocation of knowledge detection** are used, but are not a common practice.

Rules about allocation, distribution are not specially prescribed, mostly in the document storage system by project documentation, used for the transfer of knowledge.

Mentoring is used as a typical type of live activity for knowledge and experience distribution through project work/ for beginners.

Knowledge usage

Usage of knowledge depends on knowledge perception, where educated staff are more receptive for new knowledge. There are no specific rules in place for usage. It is done through broader team or teams' meetings on task performing and problem solving issues. Joint projects in the company are leading to the joint work of different departments.

Knowledge exchange as way of knowledge usage is more inside one department rather than between company departments, but regularly in the case of a new product launch, joint project work.

Knowledge retention

Knowledge retention comprises retention when an experienced employee is leaving the company because of retirement and also leaving to change the job. This specific knowledge and skills are to be transferred over time to the younger employees who will take over some specific job where sensitive knowledge is being created and used in the company. Measures to protect KN on retirement and job termination has not been seen as a major problem and also because of the low turnover of the staff. Intellectual property rights (**IPR**) **sensitive issues** are regulated in employment contracts. There are **tandem work periods** before the departure of an older employee and in the same framework a **defined hand-over period** (approx. one month or more) is in use, also a complete handover of documentation is included.

Future skills and knowledge planning

Future skills and knowledge planning is performed in the **metal industry** in some cases as long-term planning technology related – Lithuania. In the **electrical and electronics industry** mostly short/medium term planning is used because of the rapid changes in the market and customer requirements. **Planning is performed by** human resources and competent managers; sometimes through meetings of competent staff on the company level and is a product strategy-related process.

The quality of knowledge plans is better in companies with R&D departments. **Factors of influence for new knowledge** are technology change, market change, environmental regulation, growing needs for interdisciplinary knowledge/competences.

Cooperation with social partners

Cooperation with social partners, which includes trade unions and educational institutions/authorities is varied. Cooperation with **trade unions** is good where cooperation occurred (trade unions are organized inside the company) (SI) and there are also bad experiences (SLK) as well. Cooperation with **VET schools** has shown some good practices, but is not satisfactory on practical training issues, with some exceptions (Slovenia- specific programmes in VET joint practical training centres). There is **good cooperation with universities** through joint R&D projects, but rather weak or not responsive enough when study programme changes are in question.

Problems, strengths and advantages of companies regarding knowledge and skills

Main problems companies have indicated are:

- Few young people on the labour market with adequate training and skills.
- Young graduates coming from VET do not have enough practical skills – shortage of training places for practicing in companies and availability of mentors/ poor quality of practical training in training centres
- Short-term planning for knowledge/ skills needs – financial constraints
- Youngsters do not want to work after finishing VET
- Fragmented/variable production programmes – new tasks for employees without necessary specialization – also cases with enough time to re-train
- Level of productivity still too low

Strengths/advantages:

- Qualified workforce in companies:
- “up to” the actual needs
- Up-to-date technological level
- Some activities towards knowledge management, informal process (LIT)
- Adaptability to new technology products; IT knowledge of youngsters for production areas
- Older employees: ready for updating their skills/knowledge for saving jobs coming from self-reflection (not yet a common practice)
- Knowledge and skills exchange between generations throughout the company
- Flexibility in the supply of products, ability to customize products

- Long industrial tradition in the metal and electrical industry
- Long tradition of VET in the electrical and metal sector school system – structured and well-trained and qualified workers/ technicians (knowledge base)

- Good knowledge and culture in standardization, technical regulation and quality management.

Similarities and differences (summary)

In the following lists some similarities and differences are given coming out of an analysis of the responses by countries and by sectors.

Similarities by countries (all):

- **Skills of existing employees:** satisfactory, some sort of training/skills upgrading exists in companies
- **VET/High school graduates:** lacking practical knowledge
- **No formal KM system/KM systemic approach** in place in companies
- **Sharing/distribution/use of knowledge:** more comprehensive within more R&D intensive companies,
- **Company best practice training experience:** not always shared in the supply chain

Similarities by sector – electrical:

- **Relatively intensive process in knowledge exchange/ new knowledge generation:** needs for training/updating skills/ competences of employees
- **Exchange of knowledge:** more intensive in higher qualifications; at the technology/production level: building up specialization
- **Knowledge spreading/use:** team work/experience sharing through projects/mentoring – adapted to specific company output (e.g. projects, intermediate products/product customization)

Similarities by sector – metal working industry:

- **Process of knowledge/skills upgrading:** needs covered with internal staff training competences of the employees (training packages with VET)
- **Exchange of knowledge:** mentoring newcomers – job rotation/ practical skills/building up
- **Knowledge spreading/use: more ad hoc (meetings) and mentoring:** adapted to the specific company output

Differences by sector:

- **Practical skills:** more individual approach at production level in metal
- **Job rotation:** more intensive in electrical production
- **Level/ intensity of specialization:** higher in metal
- **Pace of knowledge change/growth:** electrical
- Knowledge related to:
 - Metal – to new technology/processes
 - Electrical – to rapid market change/customer demand changes & technology possibilities

Differences by country:

- Practices in KN transfer/sharing between employees:
- Level/duration of the practical part of training during VET programmes
- The VET tradition and programme forming procedure is different – (the challenge to make them comparable could be to do it within the European Qualification Framework perspective)

General and specific points to look at further (proposal for consideration)

Existing employees' knowledge & actual empl. profiles versus actual and short term company needs: responses showed that companies are to a large extent satisfied with additional trainings (specialization; upgrading). Remains a question how to obtain or what new skills – new /changed VET programmes are to be prepared.

VET/high school graduates:

- Poor or no practical experience/skills; which way out?
- Need for a practical adaptation period/mentoring for employees in companies – tasks/jobs
- Also as a job rotation enabler

Best practices identified: practice of pupils in companies during the VET programme as a good experience; employee competence files in companies as a tool of knowledge management/upgrading planning

Knowledge management: planning of future KN needs is a strategic issue, by what extent is it to be considered in a company where no systemic procedures are in place yet – lost opportunities?

Knowledge acquisition/distribution/use: should it be reasonable to integrate it in planning?

Conclusions (about possibilities for further work)

The following issues are proposed to be further considered as a basis for recommendation for companies:

- Best practice promotion: practical cases
- Main deficiencies/shortcomings to tackle first
- Motivation for "future" thinking
- Tools/methods for knowledge/competence growth and management

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