Odd Bjørn Ure

Formal education in an informal Norwegian culture of enterprise training

Six cases collected from maritime and offshore environments

Country report from Norway to subproject 4 of Lifelong Learning 2010

Fafo

SIXTH FRAMEWORK PROGRAMME

LifeLong Learning 2010

Odd Bjørn Ure

Formal education in an informal Norwegian culture of enterprise training

Six cases collected from maritime and offshore environments

Country report from Norway to subproject 4 of Lifelong Learning 2010

Fafo-paper 2010:21

ISSN 0804-5135

Print: Allkopi AS

This study has been prepared within the research project no. 5123321, Lifelong learning 2010, financed by the European Commission's 6th Framework Programme.

Innhold

Introduction

Background

As part of the EU project LLL2010[1], inscribed in the 6th Framework Programme on research, this subproject sets out to analyse a rare phenomenon, small and medium sized enterprises (SMEs) offering formal education to their employees. The title of the subproject reads 'The role of SME's in promoting adult participation in lifelong learning'.

Amid the multitude of non-formal training activities, - often of shorter duration, very neatly integrated into the production process and frequently labelled 'workplace learning', - the scope of this study is to identify why and how small and medium-sized enterprises engage in formal education leading to some form of diplomas and certificates recognised by the formal education system, which in Norway is supervised by the Ministry of Education and Research.

Outline of the report

The reporting from the case studies starts out with explaining how the six cases were selected and continues with grouping them into two industrial clusters within the Norwegian economy. Then follows a reminder of what we know about the overall education and training context in which the six SMEs under scrutiny are operating. The following section sums up main observations about formal (and informal) training practices in the six enterprises. Then we identify hindering and promoting factors for enterprises to engage in training. Afterwards we address two additional topics emanating from our interviews. The first is how our observations can be placed within the general framework of learning cultures in enterprises. The second topic leading up to the conclusions is how training strategies in SMEs relate to the overall functioning of an enterprise and its general strategy. In a final section providing an outlook and some recommendations, we return to the macro trends in Norwegian enterprise training and present a couple of ideas for how to spur formal education in SMEs. The complete text of each case study can be found in annex 3 to this report. Annex 1 contains a summary of the core results according to the research questions of the subproject. That summary builds on the newly released comparative report encompassing results from the twelve partner countries in the project LLL2010.

Methodology and selection of cases

The following strategies were tried out in order to identify Norwegian enterprises for case studies:

[1] http://lll2010.tlu.ee/

1. contact branch organisations, trade unions and associations for SMEs to know if they had some overviews that could serve for identifying SMEs according to the criteria for subproject 4.
2. make use of a database with information on all registered Norwegian enterprises by searching for enterprises respecting the criteria for SP4, and then call up relevant SMEs.
3. recontact enterprises already known by colleagues at Fafo who then could open some doors to managers, particularly to human resources managers, with a view to conduct interviews.

We reached quite a few SMEs having only one employee in formal training. As this could reflect quite isolated phenomena based on a training initiative from one single employee, we did not go forward with case studies in those SMEs. In general, we registered a very low interest in participating. The very theme of formal training and its link to non-formal training was considered quite abstract or academic. One reason for this might be the high appreciation of non-formal competencies in the Norwegian labour market and a tendency to avoid any strong demarcation between formal and non-formal learning.

The third strategy that we tried out was the most successful. It allowed the Fafo team to make use of other information sources and to draw on knowledge from fellow colleagues while drafting the case studies. Hence, some of the companies serving as cases were contacted following previous talks and surveys undertaken by Fafo.

In each enterprise visited we had interviews with the Human Resources Manager or with the General Manager in case there was no separate HRD function. We also interviewed two employees enrolled in formal education and their line managers. The latter interviews lasted 30-45 minutes, while the former had a duration of approximately 1 hour. In average four interviews were carried out in every enterprise. We used semi-structured interview guides for, respectively, employees, managers and line managers. A template for these three guides were translated into Norwegian and adapted to national training cultures. In addition, the case studies draw on written materials, such as annual reports as well as strategic documents and plans produced by the enterprises. Other support material is listed among the references at the very end of this national report. All interviews were recorded and transcribed. In agreement with the enterprises, neither the company names nor the names of persons interviewed should be identifiable in any documentation issued by Fafo following the interviews.

The interviews were conducted from April to June 2008; that is at the peak of an economic upswing when few believed that the financial system was unstable, and when an economic recession was not widely considered to be a likely scenario.

Acknowledgements

In addition to the time and support provided by the contact persons and interviewees in the six enterprises under scrutiny, I am grateful to research assistant Bjørg Eva Aaslid who skilfully conducted two of the six case studies. Moreover, several colleagues from Fafo were helpful in identifying enterprises apt for case studies, particularly Sigmund Aslesen who provided valuable comments during the work. The professional association HR Norway kindly allowed us to access their last survey on Human Relations in Norway. Finally, the drafting

of the present report has benefitted from fruitful discussions with the co-ordinators of the subproject, Günter Hefler and Jörg Markowitsch at the Danube University Krems in Austria. The subproject forms part of the project Lifelong Learning 2010, which is co-ordinated by Ellu Saar at the Tallin University.

Description of the six cases

The guidelines for conducting interviews encouraged us to find cases from production activities ("sector family A") and business-to-business services ("sector family B"). According to the Norwegian official register of enterprises, two of our cases are situated in 'sector family A', while four cases fall into 'sector family B'. We collected cases from maritime and offshore environments, in other words from the maritime industrial and petro-industrial clusters that are defined according to which NACE codes they can be split into[2] (cf. Reve, T.; Jakobsen E.W. 2001). Our six cases can therefore be presented as follows:

Case*	NACE**	Maritime industrial cluster	Petro-industrial cluster
XY ToolSyst	29.22	x	
XY Shipbuilding	35.111	x	
XY Maritime	74.209	x	(x)
XY Metals	28.75	(x)	
XY Offshore	35.114		X
XY ICT	72.22	(x)	

* According to a standard procedure for anonymisation of the enterprises serving as cases, they are labelled XY.., followed by further identification.

** NACE is a standard classification of economic activities. See: http://www3.ssb.no/stabas/Classification-Frames.asp?ID=342101&Language=nb

A parenthesis indicates that the official classification of an enterprise does not correspond to the NACE codes defined for each cluster. When comparing the activities such as they were revealed during the interviews with the official classification, we were struck by a certain inaccuracy in the Norwegian register. Hence, e.g. XY Maritime is not more into production of services (i.e. NACE 71-74) than other cases belonging to the maritime-industrial cluster.

Background for formal and non-formal training in Norwegian SMEs

The third Continuing Vocational Training Survey[3] reveals that 86% of Norwegian enterprises offer some kind of training for their employees. This is the 2nd highest score among European

[2] See annex 1 for details.

[3] CVTSIII. Provisional data from 2005 available from EUROSTAT at http://www.trainingineurope.com/

countries. The following statistics is based on the Norwegian Learning Condition Monitor covering adult employees aged 22-66 (M. Bråthen et al. 2007):

- 6,3% of the employed have participated in formal further education in the course of one year. This share has oscillated between 6-7% from 2003 to 2007.
- Close to 50% of the employed have participated in courses or other training during one year. This is down from 57% in 2003.
- 52% of those participating in formal further education were subsidised from their employers
- 25% of those enrolled in formal further education studied during their work hours, with no wage reduction.
- 2% of those in formal further education were on study leave with no wage reduction.
- Most job-related training takes place during work hours. More than three out of four received pay during such training (mostly non-formal).
- In 2006, employees spent in average 20 hours at courses, seminars and in other job-related non-formal training. This is down 6 hours (i.e. 23%) from 2003.
- Employees in small enterprises (below 20 people) participate less frequently in formal further education. However, those participating tend to receive more funding from employers than workers in larger enterprises do.

Against this background of stable participation in formal further education, falling participation in non-formal job-related training and quite favourable financial conditions for workers attending training; we discuss below the findings from six case studies.

Formal Adult Education and its relevance for enterprises

Formal vs. non-formal education and training

The definition of formal education adopted in LLL2010 follows the OECD wording and refers to education provided by the system of formal educational institutions, which 'normally constitutes a continuous ladder of full-time education for children and young people'.

Norway has a relatively streamlined education system but gradually less centralized. Compared with other countries, the Norwegian Ministry of Education has a strong role in defining what counts as formal education. As a general rule, no other ministry is e.g. allowed to issue certificates forming part of formal education (Ure, O.B. 2007). This quasi-hegemony also affects adult education. There is however no NVQ system similar to various versions found in the UK.

We came across management training programmes that are highly appreciated in the branch(es) to which the enterprises belong but whose conformity with the formal education system is questionable. The litmus test of this conformity takes often place when a learner having attended such training, applies for enrolment in formal education and simultaneously requests that this specific course will allow him/her to have the study programme shortened (cf. the notion 'equal competencies').

One more borderline between formal and non-formal training that we encountered was training which at a later stage could entail diploma from international bodies, like a Project Management Institute and a Quality Assurance Agency (cf. XY ToolSyst). This training was deemed very useful for the enterprise because it could demonstrate to the environments, notably to customers, that international standards were followed. Albeit the transnational recognition of such training, it is however questionable whether it can be labelled as formal. This was however no major concern for the HRD people in the enterprise interviewed, neither for the majority of the other companies that we visited.

The other main observations concerning the relevance of training are presented below.

Training investments and competition

When an employee trained by one enterprise leaves in order to work for local competitors, the transfer can be labelled 'poaching'. This phenomenon is neatly described in academic literature based on economics (e.g. Moen, E. R. , Rosén, Å. 2004). In a Norwegian context this has been discussed against the backdrop of specific vs. transferable knowledge, the latter implying that competencies can be transferred from a company to a branch or to an even larger part of the labour market (cf. B. Rasmussen:62).

Our interviews revealed however a very limited fear of 'poaching'. In one case this can be explained by the fact that the staff turnover was low and that most of the workforce is highly

integrated in local communities. This contributes to forming a stable workforce for which long-term formal education is not a risky investment for the enterprise. There are reasons to believe that more attention is paid to poaching in the urban centres of Norway but without being any major concern in Norwegian HRD policies. Hence, close to half of enterprises interviewed in a large panel survey states that they consider their training as useful for other companies (ibid.).

One prominent example of an inattentive view on "poaching" was found in a small ICT company with a deliberate strategy for empowering employees in a labour market context by means of formal education leading to recognised exams. Another inattentive view on this issue was found in a shipbuilding company, which indeed is vulnerable to the loss of well-trained and experienced workers, but which has experienced that any loss is swiftly compensated by staff recruitment from local competitors .

Recruitment procedures

Closely linked to considerations on 'poaching' and return of investments in training are the recruitment procedures. In this regard, two observations reveal attitudes towards formal education:

- When hiring new people personal characteristics, motivation, interest and commitment are seen as more important than formal qualifications (XY Maritime)
- diplomas are useful when assessing the skills of job applicants (XY Offshore) and are particularly important for those recently graduated (XY Shipbuilding)

These points are further developed below while discussing the formalisation of Human Relations Development.

Technological improvements and changes in the work organisation

As expected, technology improvements were mainly driven by the customers and the efforts to come up with new solutions for them. This observation adds to common knowledge: Apart from very high-tech industries, SMEs do note usually have RTD departments that are the driving force in the in-house research and technology development. Instead, they buy research services from external vendors, including universities.

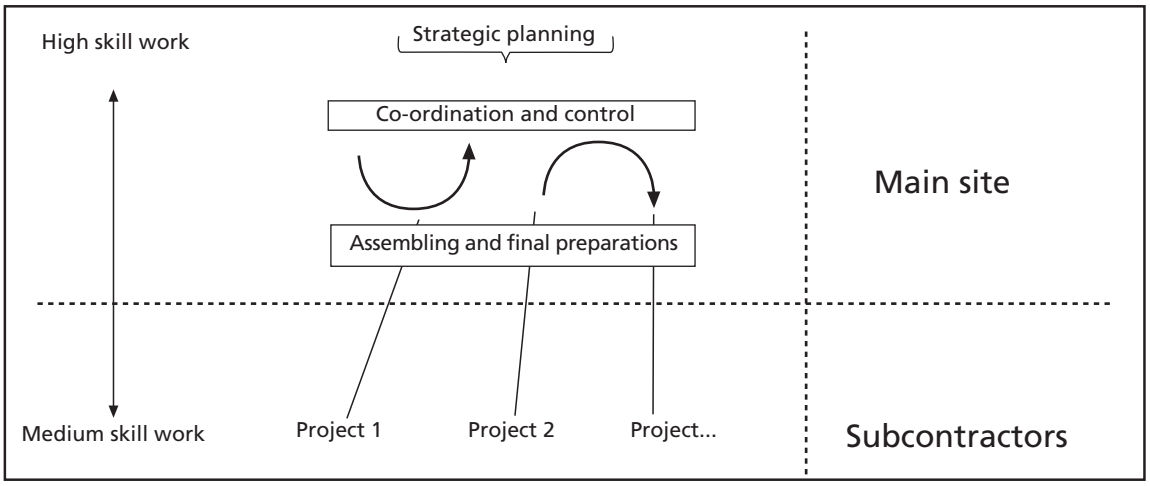
In the maritime-industrial cluster, our interviews suggest a move from routine-based production to more high-skilled services such as design of vessels. In several cases the companies are investing abroad while concentrating the domestic production on knowledge intensive activities, often at the main site. Examples of such high-skilled work operations are assembling and the final preparations of vessels. Such efforts use to go hand in hand with a transformation from a labour-intensive to a systematically project-based work organisation at the main site (cf. Teige 2007:205).

Of equal importance is the loosening of the line organisation that entails from shipbuilding increasingly set up as project-based work, opposed to stationary industrial production (Aslesen 2008:11f). This implies that the production of a vessel is organised as one main enterprise, which is split into several sub-enterprises carried out by subcontractors spread across several countries. When a traditional shipyard then concentrates its core business on assembling and final preparations of multiple sub-enterprises, it is faced with huge co-ordination tasks.

Our interviews therefore reflect the emergence of new organisational models based on a move from production to projecting and planning (cf. Aslaksen:2008), requiring higher skills among employees at the main company sites. These employees need to develop expertise in strategic planning, co-ordination and control of complex construction projects (ibid:11). Such professionalization requires more employees with higher education and a general upskilling of employees at all levels.

These points are summarised in the following illustration:

Figure 1.1 Key activities and skills needs in project-based work organisations



A similar development has led to the mushrooming of Construction Management companies in the Building and Construction industry. Moreover, the offshore industry has seen the emergence of major engineering companies specialising in putting together sub-enterprises for the main customers, that is in many cases an oil company.

As to the distinction made for identifying case studies in SP4, that is between sector family A (broadly speaking: production) and sector family B (i.e. services); this transformation could over time imply that more maritime enterprises concentrate on delivering business-to-business services.

Against this background, the frequent sorrows voiced by HRD managers whom we interviewed about problems in recruiting experienced and high-skilled staff are not merely a side-effect of a tight labour market and the upswing for maritime industries. There are strong concerns that the transformation from labour intensive into knowledge intensive maritime production is hampered by a general skills deficit. There are therefore several initiatives for channelling money into these industries, among other things a 'maritime knowledge network' residing on eight corporate donators that finance professorships in Norwegian higher education institutions[4].

[4] http://www.norskindustri.no/printart2536.html

Usefulness of training

A general impression from interviews with the management and learners is the high relevance for the work organisation of non-formal training. By attending shorter training courses not necessarily leading to formal competencies, the workers acquire skills enabling them to handle immediate work tasks (cf. XY Offshore). Whether the training leads to formal exams or is acquired through practical work is a minor issue, as long as the enterprise succeeds in providing both company-assisted training in schools and in-company training (XY Shipbuilding).

We encountered several examples of formal education being embedded in workplace learning, for example when learners write their assignments and theses on themes related to the production process. Learners interviewed state that a motivating factor is project work or practical experiences, during which relevant implications can be drawn from their daily work or at least from activities affecting fellow workers.

Links with external providers of training and other external bodies

In the two regions were we conducted interviews there are public and semi-public development agencies that the enterprises make use of. Such infrastructures or networks also provide links to training providers, including formal education institutions.

There is a maritime association gathering most enterprises belonging to the maritime cluster on the north-western coast of Norway. This association endeavours to regulate the co-operation and competition between its corporate members, also with regard to staff recruitment and training. This association has also mediated the setting up of tailor-made university courses, mostly devoted to technological upskilling and management training of staff in the member companies. Either via this association or by direct contacts, the enterprises also collaborate with local upper secondary institutions and relevant tertiary education institutions (cf. XY Metals).

A historical retrospective on the Norwegian maritime cluster (or complex, as it is also called) concludes that its survival in a fierce international competition:

> "...depends heavily on its infrastructure of supporting institutions, which facilitates new ventures by making available technical, market, insurance and financial knowledge and contacts" (H. With Andersen 1997:500).

The maritime association referred to above can be labelled a 'supporting institution' and it has also been active in drawing on other institutions, such as the local labour market service during the downsizing period that preceded the present bonanza in the Norwegian maritime sector (cf. B.K. Teige 2007:195ff).

Proceeding then to our two cases from the south-western coast of Norway, they also reveal a tendency to lean on public and semi-public agencies for enterprise development. There is however no maritime association that can co-ordinate enterprise training. Each enterprise is therefore more active in concluding agreements with local training providers. Our data do not allow for any appreciation of the pros and cons of arranging training via an association

for enterprises belonging to the same branch, compared with individual agreements between a company and a training institution.
Independently of the geographical location of our cases, the Norwegian Labour and Welfare Service (NAV) is often utilised and assists enterprises, for example with regard to training of unemployed. Hence, XY Offshore is assisted by this public service while reintegrating employees on long-term sick leave. Accordingly, XY Shipbuilding receives subsidies for recruiting young people who are unemployed or have not completed compulsory education.

The issue of validating prior learning experiences appears when enterprises liaise with higher education institutions. Some interviews disclosed a quite strict application of validation procedures. It was therefore pointed out that a more favourable interpretation by local universities of the rules for assessing workers' (and other learners') prior learning, might inspire more employees to consider starting up formal education (XY Offshore).

Internal training infrastructure and national training frameworks

In some enterprises a more formalised HRD policy is on its way. This formalisation is often sparked off by a steep increase in the number of employees. The most important tools in the upcoming HRD policy are appraisal interviews that, among other things, contribute to identifying skill gaps, which subsequently can lead to training plans.

Such measures to spur HRD are found in Basic Agreements between the social partners. In these agreements annual stocktaking of competencies and staff training plans are featured. Provisions for regulating work-based learning were added to Basic Agreements between the social partners in 1994. First out was the Norwegian Confederation of Trade Unions (LO) and its counterpart on the employer side, the Confederation of Norwegian Enterprise (NHO). This chapter established continuing training as a joint responsibility, and required employers to pay for continuing training in response to in-company needs. Similar chapters were later included in Basic Agreements between other social partner organisations, covering most private and public sectors of the Norwegian economy (Ure 2007).

No assessment of the significance of this chapter in the Basic Agreements is available. Statistics suggest that 86% of Norwegian enterprises offer some kind of training for their employees. This is the 2nd highest score among European countries (cf. CVTSIII)[5]. There are however few indications that this specific chapter in the Basic Agreements directly inspires training arrangements at the level of the firm (cf. Bowman 2005). This can partly be explained by a strife about how to finance employee training that is not directly related to company needs. Hence, there are claims from trade unions for better financial arrangements for employees on training leave. This claim remains an unresolved issue on the social partner agenda (Ure 2007).

This conclusion coincides with observations from our interviews confirming that local trade unions are not among the main instigators of company training, neither formal nor non-formal. The exception is training in health, environmental and safety issues, of which XY ToolSyst is an example. Furthermore, in one enterprise the trade unions pushed forward information on and support to formal education trajectories (XY Metals).

[5] Provisional data from 2005 available from EUROSTAT. http://www.trainingineurope.com/

Patterns of support/non-support for formal education in enterprises

Given that there was widespread support to training (including formal education) in the enterprises where we interviewed, patterns of non-support cannot be identified. However, we depicted some hindering factors that we will account for alongside a number of promoting factors.

Hindering factors

Time

In general time is a larger obstacle than money. In the present favourable business climate, the delivery schedule is said to be too tight to allow for extensive training. Hence, the limit that employees experience is more the time they can spend on training without delaying fellow colleagues than the number of training opportunities (XY ICT). In bad times, to the contrary, training budgets become tight. However, it was pointed out by the management in companies which now are developing their HRD strategies, that once such plans with a long-time perspective are up and running, they might attenuate the dependence of training investments on changing business cycles.

Training costs and spare time

Beside the observation that funding is a minor problem in the enterprises visited, our interviews reveal that employers pay most of the training costs for employees enrolled in formal education. The other part of the deal is that the learners have to invest their own spare time in studying. This requires a quite high motivation among the learners who state that they depend on patience from their families.

Self-selection to further and continuing training

The act of sacrificing their spare time implies that those employees who are most committed to enrol in education courses tend to be selected. This mechanism can ensure that, from the viewpoint of the management, the training investments are channelled to employees who most likely will succeed. It might however reduce the number of employees who accept to enrol in formal education.

There is furthermore a tendency that younger workers are those contacting the HRD department to discuss their plans for formal education. Such self-selection of young and often already qualified staff to undertake training is a very common phenomenon and does not stem from any deliberate discrimination from the side of the enterprise:

1. Young workers are more in need of upskilling than their experienced colleagues
2. Experienced workers have climbed the hierarchy and have less time to leave their commanding/co-ordinating positions to start up training
3. Workers aged -/+55 tend to ponder more on their pension and retirement than on further upskilling.

Again, this selection makes it more likely that the enterprise invests in training for those who are motivated enough to complete a demanding educational trajectory. The other side of the coin is that self-selection is probably not to the advantage of an enterprise in a long-time perspective. This issue could be addressed during the present strengthening of HRD and training policy going on in several enterprises that we visited.

Promoting factors

Quality assurance and ISO certification

The framework for the survey outlined that quality management and certification respecting ISO standards may be a factor promoting HRD and training in enterprises. This was confirmed in some of our interviews where we found that ISO training defines the framework for company training. However, this training mostly concerns non-formal training (cf. XY ToolSyst) and our six case studies did not allow drawing any direct line between training sparked off by ISO certification and formal education.

This observation was further elucidated in XY Metals and XY Shipbuilding where a central training priority of the management was to enable employees to fulfil ISO standards, together with in-company training connected to the specific work tasks of the employees. This close connection to the production process and consequently to the informal as well as non-formal learning linked to workplace learning, might explain why ISO training seems to be somewhat decoupled from formal education.

In XY ICT it was confirmed that most of the training offered to employees relates to requirements imposed by the recent ISO certification but it was stressed that this certification primarily formalised a systematic work on quality, which had gone on for years. External input to the firms' quality assurance was also reported in XY Offshore, where demanding customers and fierce competition within the offshore sector push the enterprise to continuous quality improvement and recertification of quality certificates.

Self-conducted on-the-job training

One factor of relevance for the amount of training at enterprise level was found in the high-tech company XY ICT. Here, both the learners and the management confirmed that the staff can spend considerable time on systematic information search with a view to develop high quality solutions for customers. This stimulates individual learning and it appears that the staff is committed to take part in formal and informal training offered by the enterprise.

Another form of self-conducted training was identified in XY Shipbuilding where a non-hierarchical communication style allows workers to ask the technical department for assistance without permission from their supervisors. This leads to a more fluid transmission of

knowledge between various layers of employees and is therefore beneficial for the in-company training.

Formalisation of Human Relations Development

One reason for the ongoing work to strengthen the HRD infrastructure in many firms is linked to the rapid staff increase. The influx of new employees creates a need to formalise internal procedures, notably with a view to disseminate established rules and procedures to the new staff. This formalisation also applies to the HRD policy, and some companies increasingly engage in earmarking sums for training in their annual budgets.

In spite of this growing emphasis on planning, our interviews suggest that informality still reigns. One reason for this might be related to the trust that prevails in local communities. This was clearly demonstrated in the informal recruitment practices that we encountered in some companies. When new employees were hired, the effect of knowing somebody already working in the enterprise, or having acquaintances in the neighbourhood, was considerable. Tools or instruments charting and testing the skills level of job applicants are rarely used. Formal documentation and signing of agreements, i.a. regulating the continuation of training started in a previous job, was often a minor concern. In some cases, applicants who recently have graduated and who therefore cannot provide references of their conscientiousness and reliability in previous jobs, have their diploma closer scrutinised (cf. XY Shipbuilding).

Topics emerging while conducting the case studies

During our work on writing up a report based on six cases, two topics caught our attention: one on the theoretical framework underpinning this subproject within the EU project LLL2010. The second topic relates to the implicit and explicit company strategies underlying the semi-structured interview guide that we used.

Training cultures and six Norwegian case studies

The point of departure of subproject 4 is that training, at least co-financed and either organised or selected by enterprises, supports workplace learning. Such training assists employees in achieving goals set by the enterprise in any of its core activities or support processes. The training forms part of the learning infrastructure of enterprises, which can be understood as learning organisations (Markowitsch, J. & Hefler, G.; 2008). The philosophy behind the subproject is that the training policy and ensuing measures within SMEs can be split into two 'training cultures'. Below we will account for each feature of these two cultures, which as every 'ideal type' are certainly somewhat stylised.

Reactive training culture

- The average training activity (over a multiyear period) is comparatively low.

A general lack of statistics on training expenses impedes us from assessing the accurate level of training investments. Apart from austere training budgets in periods of recession, no case study disclosed any deliberate low training activity lasting from a dip to an upturn in the business cycle.

- Training mainly reacts to a need and the training volume depends on the increase/decrease of these needs

This criterion resides on the assumption that the immediate training needs emerging have not been accounted for in advance, e.g. by means of (prospective) skills analysis and forward- looking training plans. As our cases reveal many ongoing attempts to systematise HRD strategies and training plans, it appears that the training in former times was responding to various needs that were not extensively forecasted.

- Changes in external factors may lead directly to more/less training

Also this criterion concerns the balance between internal planning and external impact by assuming that the internal Human Relations Management (HRM) and HRD are not robust enough to counteract immediate changes in the environment. This phenomenon was directly

touched upon when managers in those enterprises presently strengthening their HRD system, commented that one effect could be a training strategy with an activity level solid enough to survive economic downturns.

- Training mainly seen as a cost factor and therefore minimized

As we discovered few efforts to calculate training costs, the importance of these costs in the general functioning of the enterprises could not be assessed. The only observation apt for qualifying this issue was that when training costs had been minimised on earlier occasions, this was due to a dip in the business cycle and not to a general tendency to reduce such costs.

In sum, given that none of our cases were selected with a view to illustrate why SMEs do *not* invest in training, we did not come across any company characterised by a typical reactive training culture.

Expansive training culture

- The training activity is high and tends to make full use of the potential to support work-place learning

In all cases workplace learning is prominent and is widely used, also in enterprises with little formal education. Because of problems in measuring the training in quantitative terms, it is difficult to assess whether it is high, - for example how it can be ranked with average training costs of companies belonging to the same NACE code.

- The training culture is understood as an investment with significant value added

Such an understanding is shared by the training and personnel managers as well as by the managing directors that we interviewed. Whether the views on the value added of training expressed by training and personnel managers in the medium-sized companies are widely accepted throughout the organisation, is a question that needs further investigation. Interviews with the learners suggest however that the value of training is appreciated among employees and by trade unions, although the latter do not put training and education high on the agenda for social dialogue.

- Within the Training Potential, the use of training and other opportunities to support learning at the workplace are optimised

Albeit satisfied with the amount of training offered to employees in view of the time that can be spent on training in profit organisations, our case studies did not reveal a general satisfaction with overall training activity. More could be done to better liaise formal education with everyday workplace learning. In the small enterprises (XY Maritime and XY ICT) this link is easier to handle on an everyday basis than in companies counting hundreds of employees. The medium-sized enterprises are however developing HRD strategies that aim to optimise the link between formal education and workplace learning.

- Changes in external factors have little effect on the level of training activities

As commented in the section on reactive training cultures, external factors are still affecting the level of training but the strengthening of HRD and training strategies should lead to a reduced dependence on such factors.

In sum, all cases can be placed under the broad heading of expansive training cultures. This classification has partly to do with the fact that financing training was a minor problem in the enterprises visited. The way in which they are treating, or are planning to treat, HRD and training points in the same direction.

An issue that could be subject to more attention in the analysis of an expansive training culture is its dependence on external training providers, perhaps particularly institutions of formal education. To what extent does such a culture depend on educational institutions actively promoting their training? And secondly, what should be expected from an enterprise belonging to an expansive training culture in terms of systematic contacts with training providers? Our six case studies have raised this question without answering it. However, the existence of a regional association for maritime enterprises at the north-western coast of Norway suggests that this has embedded a culture of training in member companies.

Enterprise strategies from the most general to the most specific strategy

One purpose of the cases studies is to relate training strategies in SMEs to the overall functioning of an enterprise and its general strategy. This does not mean that a specific training strategy, e.g. in terms of formal education, can be directly derived from the most general strategy of the company. Nevertheless, the many strategies and sub-strategies alluded to in SP4 invite us to make a list of enterprise strategies from the most general to the most specific one. This list could be set up in the following way:

Explicit or implicit strategies
Business strategy
Human Relations Management strategy
Human Relations Development strategy
Training strategy
Strategy for formal training
Strategy for non-formal training

For most of these strategies it is possible to identify measures and arrangements supporting them. For example in the case of XY ToolSyst, we saw that systematic efforts in technology development and development of customer relations underpinned several of its internal strategies.

The two last strategies on this list were hardly identified in any of our cases. We did however capture views and opinions on formal vs. non-formal training, but without depicting any distinctive strategies detailing the general training strategy. There are reasons to believe that the ongoing formalisation of HRD found in several of our cases will forge closer ties between HRM, HRD, training strategies and specific training activities. Nevertheless, few SMEs have an administrative apparatus facilitating strategic planning to the extent that there is a hierarchy of strategies from the most general to the most specific one.

Whether such systematic work on strategies can boost training and competence development in enterprises, included those of a small and medium-size, is an issue of investigation. A 2008 survey on Human Relations can shed some light on this question (HR-Norge 2008).

The 180 HR managers who filled in a questionnaire were i.a. asked to rate the convergence between the general enterprise strategy and seven activities ("fields") in the realm of Human Relations. The HR activity labelled 'employee development' was closest to the term 'education and training' used in the present project report. Interestingly enough, the HR managers only experienced *a certain degree* of correlation between 'employee development' and the overall strategy of the firm[6]. As to employee development, there were no significant differences between branches in which the HR managers are working. When jointly assessing all seven 'HRD fields', the professional association for HRD personnel concludes that the link between HR and the overall enterprise strategies is rather weak. Moreover, the HR managers opinion that the quality of the HR carried out in enterprises should be improved (ibid). These findings therefore suggest that the work to better liaise training policies with HRD strategies, and later with general enterprise strategies, is no specific challenge for SMEs but applies to enterprises across all size categories.

[6] The score was 5 on an ascending scale from 1 to 7.

Conclusions, Outlook, Recommendations

Conclusions

Formal education in an informal Norwegian training culture is not a contradiction in terms. It coincides with the nature of the enterprises under scrutiny; that is SMEs of a size allowing for smooth and informal work procedures, included training practices. Also, the informality cohabits with deliberate strategies for empowering employees in a labour market context by means of formal education leading to recognised exams.

Furthermore, the informality has something to do with relations of trust, which often are found in smaller local communities. Without claiming that the few cases constituting this report mirrors any national training culture, they can at least paint contours of a subculture (in the positive sense of the word). This culture was found along the south-western and north-western coast of Norway and is most likely different from subcultures of training in the larger urban centres.

Amidst the usual mix of collaboration and competition that is found in local industrial areas there is a trust; thus underscoring general findings of Norwegian training patterns, notably a limited fear that competitors are 'poaching' their highly trained employees. This is further explained by low staff turnover and by the fact that most of the employees are highly integrated in local communities. This contributes to forming a quite stable workforce for which long-term formal education is not a very risky investment for the enterprises.

Another feature is the willingness to pay for training of relevance for the enterprise without looking too much into budgets. Such rough accounting procedures for training expenses will probably become more formalised when the (in many cases) nascent HRD strategies become full-fledged. They reflect however a more or less conscious strategy of seizing opportunities to fill skill gaps when learners are willing to start up training and when company profits allow for unpredicted training expenditures. In spite of difficulties in allowing employees to leave the workplace in times when the delivering schedules are very tight, the post-2004 upswing in the maritime industrial and petro-industrial clusters entices enterprises to be quite generous in financing the upskilling of own staff.

As part of the positive attitude to training, formal education is financed without neatly assessing whether it strictly falls in line with company needs. Hence, the somewhat nebulous borderline of training for the company vs. training for personal upskilling, which the Basic Agreements between social partners reside on, can be crossed without much ado. Trade unions primarily push forward training in health, safety and environmental matters.

In some enterprises a more formalised HRD policy is on its way. This formalisation is often sparked off by a steep increase in the number of employees. The most important tools in the upcoming HRD strategies are appraisal interviews that, among other things, contribute to identifying skill gaps, which subsequently can lead to training plans for each employee or for the entire company.

Non-formal training is generally deemed more relevant for the enterprises than formal education because it is closer to the production process and to the daily work of employees.

However, learners in formal education also build on the production process when they use their experiences in writing their assignments and theses. Learners state that a motivating factor is project work or practical experiences, where relevance can be drawn from the daily work or at least from activities affecting fellow workers.

Technology improvements are mainly driven by the customers and by efforts to come up with new solutions for them. In the maritime industrial cluster, our interviews suggest a move from routine-based production to more high-skilled services such as design. Companies are investing abroad while concentrating the domestic production on knowledge intensive activities. Such efforts use to go hand in hand with transformations from a labour-intensive to a systematically project-based work organisation.

Outlook and recommendations

A revolving issue in the discourse on strengthening innovation in enterprises, including those of a small and medium size, is how long-term investments in training and research should become less dependent on shifting business cycles. At the very beginning of this report, we provided background information about stable participation in formal education of employees since 2003; in other words during a business upswing that has hit Norwegian petro-industrial and maritime-industrial enterprises, alongside the entire Norwegian economy. Our cases shed some light on mechanisms that can explain this stability.

In spite of mounting surpluses possibly used for financing formal education, it is hard for the enterprises to send employees on training. In one sense, the order books are too full. This certainly underlines the long-term perspective needed for systematic investments in formal education. However, our interviewees' inclination to have a joint view on formal education and non-formal training suggests that the overall training activity can be on the increase although the registered participation in formal courses is stable. But macro figures show a falling participation in non-formal training (cf. the background paragraph at the beginning of this report).

SMEs are rather conscious about the value of formal exams and diplomas. Such formal proofs are appreciated by interviewed managers as well as employees. What we saw was an attitude to adopt a general view on all kind of in-house competencies, without attaching any exclusivity to formal education. If we had interviewed SMEs mainly staffed by holders of PhDs, the picture might have been different.

The Norwegian society has however traditionally highly estimated acquisition of skills in informal contexts and appreciation of prior learning has been a key ingredient in recent educational reforms (cf. Ure 2007). If we also bring into this picture that academic diplomas - contrary to more hierarchical societies - are modestly used as a social distinction in Norway, and consequently do not decisively forge social identities (cf. R. Sakslind 2006, O. Skarpenes 2007), we cannot expect that the business and economic climate since 2003 can modify views on education and knowledge that are constituted over a long time span.

The point made on how the present situation has evolved in the long duration, does not rule out that today's training patterns can be changed. Employees in part-time formal education have to sacrifice much of their spare time and often face problems in combining daily job tasks and time for studying. This view is shared by employees and managers. Although employees in formal education are allowed to be off work while attending compulsory training sessions,

and they also get a leave a couple days before their exams; few enterprises are generous in allocating time for self-studies during official work hours. Once a training trajectory is approved as relevant by the management - and this criterion is often stretched to the benefit of the employee, - the learners interviewed are however offered quite generous financial conditions; implying that very few costs, if any, are paid from their own pocket.

Perhaps employees would have been given more time for reading the syllabus if the enterprises received some public training subsidies. At the time of conducting the interviews, the only contribution from the public purse came from local employment and social offices (NAV) in terms of training for reintegration of young dropouts from schools and for unemployed people. This situation has partly to do with the fact that the only ongoing state education and training programme of relevance for SMEs is devoted to learners with a low level of competencies in reading and writing. In addition, there are smaller projects enticing the innovative capacity in SMEs, that is by means of collaboration with higher education institutions and research centres. The six enterprises interviewed did however not take part in any such project either.

We observed some mechanisms of self-selection to formal education: Those who are most active in proposing specific training programmes, and often younger employees, are those enrolling in such training. All together, these observations lead to the following interrogation:

If people with expertise were available, they could replace the employees undertaking formal education while the latter were off work for training. It would make sense to introduce a public scheme along the same lines as experiments in "allowing SMEs to rent a researcher for a week or two". Other efforts to reduce the sacrifices of employees in formal education could concentrate on the learning conditions offered by schools in charge of further and continuing training. The opinions we received on how schools could improve their procedures for validating prior learning do not point in one specific direction, apart from a tendency to prefer a softer application of these procedures. In the opinion of our informants, this should particularly apply to rules for shortening study periods when employees can prove that they possess equal competencies acquired in non-formal settings. Some learners said however that they understood why formal education institutions are practicing strict rules for validation and recognition of prior learning. Whether this convergence of views reflects the dominance of an old school culture or, alternatively, a trust in the ability of the formal education system to continuously ensure the quality of training which is of relevance for enterprises, is a wider issue.

References

Aslesen, S. (2008): *Den maritime klynga i bevegelse*. Fafo-notat 2008:03. Oslo

Bowman, J. R. (2005): *Employers and the Politics of Skill Formation in a Coordinated Market Economy: Collective Action and Class Conflict in Norway*. Politics & Society, Vol. 33, No. 4, 567-594 (2005), Sage Publications.

Bråthen, M. et al. (2007) *Livslang læring i norsk arbeidsliv. Fordeling, omfang og finansiering*. Resultater fra Lærevilkårsmonitoren 2006. Fafo-rapport 2007:04

Hefler, G. (2010): *The qualification-supporting company – The Significance of Formal Adult Education in Small and Medium Organisations*. Comparative Report – Subproject 4 – LLL2010. Danube University Krems 2010.

HR Norge: *HR-undersøkelsen 2008. HR i Norge –Hvordan møter vi forventningene?* HR-Norge i samarbeid med Ernst & Young. Oslo, 2008.

Markowitsch, J. & Hefler, G. (2008): To Train or not to Train, Ch. 2 in MARKOWITSCH, J. & HEFLER, G. (Eds.) (2008) *Enterprise Training in Europe - Comparative Studies on Cultures, Markets and Public Support Initiatives*, Vienna, LIT Verlag.

Moen, E. R., Rosén. Å (2004): Does Poaching Distort Training? *Review of Economic Studies* (2004) 71, 1143–1162.

Rasmussen, B. (red.): *Et bærekraftig nytt arbeidsliv, Kunnskapsstatus og problemstillinger*. Program for arbeidslivsforskning. Norges forskningsråd 2005, Oslo.

Reve, T.; Jakobsen E.W. 2001: *Et verdiskapende Norge*. Oslo, Universitetsforlaget.

Sakslind, R. (2006): Knowledge as culture and cultures of knowledge, in: José Resende and Maria Manuel Vieira (eds.), *The School at the Frontiers of Modernity*, Cambridge Academic Press, 2006.

Skarpenes, O. (2007): Den legitime kulturens moralske forankring. *Tidsskrift for samfunnsforskning 48*: 531-563, Oslo.

Teige, B. K. (2007)**:** *Development and implementation of the Norwegian Competence Reform Program*: *Rhetoric and Reality*. PdD dissertation, University of Leeds. January 2007.

Ure, O. B. (2007): *Lifelong learning in Norway: a deflating policy balloon or an act of piecemeal implementation?* National report in the frame of the EU 6th framework project LLL2010. Fafo-report 2007:30, Oslo.

With Andersen, H. : *The Norwegian maritime cluster since 1850*, in 'C.F. Sabel, J. Zeitlin (ed.): "World of possibilities. Flexibility and mass production in western industrialization", Cambridge University Press 1997.

Annex 1: A summary of core results according to the research questions.

(Excerpts from Chapter 10.2. in the comparative report comprising 12 countries, cf. Günter Hefler (2010), page 249ff, see the project website www.lll2010.tlu.ee).

1. How do SMEs perceive differences of formal, non-formal and informal learning?
By our case-study approach, we could see, that a significant number of representatives of SMEs perceive differences between formal and non-formal adult education. Formal adult education is potentially its own topic within enterprises' training and HRD function. Given the strong self-selection bias, we could say little about the proportion of enterprises that understand formal adult education as a different subject.

In our case studies, participants use different strategies to explain how they see differences between formal, non-formal and informal learning. Some interviewees directly refer to the differences between training courses and institutionalised formal adult education that leads to recognised qualifications on a hierarchical ladder. The particularities are explained by referring to typical examples for formal and non-formal courses. Other representatives use the differences between any form of taught courses, any form of off or on-the-job training and more informal workplace learning. Formal and non-formal learning are not seen as separate entities, however, formal adult education is described as a kind of 'extreme case' of non-formal courses; for example, with reference to the number of hours involved or the general content compared with the current activities in a workplace.

Although we find examples for both strategies in one country, an obvious link exists between awareness of the distinction between formal and non-formal adult education and the organisation of *the formal adult education system* and the importance of formal qualification in the labour market. In countries with comparatively small variability of programmes and providers in formal adult education and comparatively high value for formal employment qualifications, we find more company representatives using a clear distinction between formal and non-formal adult education (.....)

2. How is formal adult education linked with the work process in SMEs?
The link between formal adult education and the work process depends on three main factors. The most important question concerns the type of participation pattern in formal adult education, which explains the available common ground for employee and employer for participation in a specific programme. Moreover, the general support for workplace learning, training and organisational is important. Finally, the responsiveness for the requirements of employed students of established formal adult education programmes become of particular importance, too.

In formal adult education, the individual employee must, more often than in general training, take the initiative to participate . The nature of the link between the education and the workplace depends on the type of participation event. However, employers still play a role in creating opportunities for formal adult education according to particular requirements of the organisation and groups of workplaces (....)

3. Which are the main reasons and motivations for SMEs to invest in LLL (formal adult education in particular)?

(....) Organisational cultures towards training – labelled as training cultures – are proposed as a way to understand the organisation's choices of training: enterprises could become highly engaged in training, but they are not forced to do so. Our typology of training cultures, organised along the opposition between reactive and expansive cultures, tries to explain, as an 'independent' variable, an enterprise's decisions in training. However, reasons normally discussed for training activities could encourage the development of more expansive training cultures.

Information on training cultures of enterprises provides a first proxy for the support for formal adult education. Within expansive training cultures, support for formal adult education is also likely to be high. However, when studying the particular enterprise's general training approach, SMEs' support for formal adult education could be much greater than expected. Hints for a compensating function of formal adult education can be found in the human resource policy of enterprises that lack the opportunities or competences to set up an extensive approach to training in general.

4. How can the employers, especially SME, promote the participation of adults in formal adult education?

Opportunities in the current workplace to use learning outcomes – no matter, how and where they are achieved – lead to better individual and organisational results that provide the basis for more specific employer support for formal adult education. Enterprises' cultures of training, workplace learning and organisational learning are therefore of crucial importance, although cultural levels are difficult to assess, to measure and to compare. The support identified for training and particularly formal adult education, could also be interpreted as a qualitative indicator of the general availability of learning opportunities and an enterprise's capacity to transform individual and organisational learning into various, desirable organisational outcomes.

The demanding nature of participation in formal adult education makes employer support particularly important. Organisational support for individual participation of employees includes strengthening existing motivation, easing time constraints, supporting competences development, reducing individual financial burdens and providing incentives connected to the participation. However, establishing of and communicating general guidelines in favour of formal adult education is even more important for encouraging participation. Employees should be able to rely on support for their plans before individual negotiations, although more informal communication of available support may be sufficient (.....)

5. How do employees gain access to companies' support of formal adult education?

In contrast to company training in general, the individual employee more often takes the initiative and opts for participating in formal adult education. Consequently, channels for negotiating support by the employer organisation are even more important in formal adult education.

Availability of support first depends on the type of participation event. Second, established pattern of support for general formal adult education are important. Case studies have shown no specific procedures for negotiating formal adult education, different from the general ways the organisation and the individual employee communicate about training. Aside from informal contacts, periodic appraisal interviews are the most frequent way to discuss needs and intentions of formal adult education.

6. What are the main obstacles for SMEs to invest in LLL and formal adult education?

(....) When an organisation's training culture best explains the level of training activity, we also ask about obstacles for training: What are the main deterrents to developing an expansive training culture for SMEs? Crucial resources for developing an extensive training culture include organisational competence and training experience disseminated within the organisation . In our case studies, we found many enterprises in which the management expresses high commitment to training; however, they also confess that their organisations make little progress in successfully applying training. Therefore, any support for the further development of training activities depends on improving the organisational competences in training. Public programmes for co-funding training should be particularly aware of these challenges and look for instruments that could support the development of required organisational competences and therefore the development of more expansive training cultures

Key requirements for formal adult education are local availability and the inclusion of work-based elements in the curriculum. Small enterprises interested in training could hardly overcome the obstacle of the lack of local institutions; in particular, those that offer training on lower ISCED levels. Non-availability of customised provision of formal adult education to one or a group of enterprises also restricts the use of formal adult education, irrespective of the established training culture. Therefore, in countries showing low levels of diversification of their formal adult education system, enterprises may find it more difficult to become active in the field. When customised programmes are not available, enterprises could hardly do more than provide individualised support for participation.

7. How/Why do SMEs exclude certain groups from training or formal adult education or why do they favour investing in one group more than the other?

Reactive training cultures typically concentrate on necessary training activities for a small, core team of employees. Therefore, all employees not belonging to the core segment of the workforce risk exclusion from any training offer or support for self-chosen formal adult education. Reasons for not including groups of employees in training could be explained best by segmentation theories of the labour market. Reactive training cultures fit this theory of segmentation. However, while we traditionally have employees in the core and in the secondary segment of the workforce within the same organisation, today we more often find enterprises

with only a core workforce, as any more marginal activities have been outsourced in different ways. Consequently, we find little evidence for more direct discriminatory practices, but the structural effects of reactive training cultures are sufficient for explaining inequalities in access to company training.

Participating in formal adult education could help a person to leave an unfavourable workplace with few learning opportunities and little support for individual growth and to gain access to a favourable workplace. Therefore, in principle, we expect to find a significant number of employees to be engaged in formal adult education, despite or even because of their employer's ignorance. This would be in line with findings which emphasise the compensating nature of individual investment in training. The change of the workplace is often not a goal after finishing formal adult education, but an intermediary step, as even a more supportive environment provides important resources for a longer developmental process. Fundamentally improving the labour market position often requires 'Returning' to education for consecutive steps in the formaladult education system. In particular, for younger employees, an important first step is gaining permission to enter a university (.....)

8. How do SMEs evaluate the national formal adult education situation for their own organisational purposes?

SME representatives could contribute comparatively little to assessing the appropriateness of formal adult education to their organisational needs. Comments are only related to selected elements of the formal adult education system that actual interest a particular institution. More general assessment of formal adult education depends on an organisational need for qualifications. Often, representatives hardly distinguish between the initial qualification system and the formal adult education system, while the latter shares the good points and the flaws of the former.

(.....)

Annex 2: Definition of functional industrial clusters and other sectors

Source: Kvinge, T. (2007), *Essays on foreign direct investments and host country effects*. Centre for technology, innovation and culture. Faculty of Social Science. University of Oslo. (Definition based on Reve, T., Jakobsen, E.W. (2001), *Et verdiskapende Norge.* Oslo: Universitetsforlaget)

Table A3.1 Definition of functional clusters and other industrial groups.

NACE[3]	Petro-industrial cluster
23.2	Refined petroleum products
35.114	Building and repairing of oil platforms and modules
35.115	Installation and completing of work on platforms and modules
35.116	Other floating equipment
NACE	Maritime industrial cluster
29.111	Marine engines and parts
29.12	Pumps and compressors
29.221	Lifting and handling equipment
35.11	Building and repairing of ships and boats
35.111	Building and repairing of ships and hulls more than 100 g-r.tons
35.112	Installation and completion work on ships and hulls more than 100 g-r.tons
35.113	Building and repairing ships
35.117	Ship breaking
35.12	Building and repairing of pleasure and sporting boats
NACE	Seafood industrial cluster
15.2	Processing and preserving of fish and fish products
15.411	Crude fish oils and fat
17.52	Cordage, rope, twine and netting
NACE	Metal industrial cluster
27.1	Basic iron, steel and ferro-alloys
27.2	Tubes
27.3 (-27.33)	Other first processing of iron and steel minus cold forming and folding
27.41	Precious metal production
27.42	Aluminium production
27.5	Casting of metals
28.1	Structural metal products
28.2	Tanks, reservoir and containers of metal
28.3	Steam generators
28.4	Forging, pressing and roll forming
28.5	Treatment and coating of metals
28.61	Cutlery
28.62	Tools
28.63	Locks and hinges

28.7	Other fabricated metal products
29.21	Furnace and furnace burners
29.51	Machinery for metallurgy
37.1	Recycling of metal waste and scrape
NACE	Forest industrial cluster
21.1	Pulp, paper and paper products
21.2	Paper and paperboard
29.55	Machinery for paper and paper production

NACE	Tele and IT industries
22.33	Reproduction of computer media
30.02	Computers and other information processing equipment
32.2	Television and radio transmitters and apparatus for line telephony and line telegraph
NACE	Machinery and equipment
29.119	Other engines and turbines and parts
29.13	Taps and valves
29.14	Bearings, gears, gearing
29.2[4]	Other general purpose machinery
29.3	Other agricultural and forestry machinery
29.4	Machine tools
29.52	Machinery for mining, quarrying and construction
29.53	Machinery for food, beverages, tobacco
29.54	Machinery for textile
29.56	Other special purpose machinery
29.6	Weapons and ammunition
29.7	Domestic appliances
30.01	Office machinery
31.1	Electrical motors, generators and transformers
31.2	Electrical distribution and control apparatus
31.3	Insulated wire and cable
31.4	Accumulators, primary cells and primary batteries
31.5	Lighting equipment and electric lamps
31.6	Electrical equipment
32.1	Electronic valves and tubes and other electronic comp.
32.3	Television receivers, sound or video recording
33.1	Medical and surgical equipment and orthopaedic
33.2	Instruments and appliances for measuring, testing, navigation
33.3	Industrial process control equipment
33.4	Optical instruments and photographic equipment
33.5	Manufacture of watches and clocks
34.1	Motor vehicles
34.2	Bodies for motor vehicles
34.3	Parts and accessories for motor vehicles
35.2	Manufacture of railway and tramway locomotives and rolling stock
35.3	Manufacture of aircraft and spacecraft
35.4	Motorcycles and bicycles
35.5	Manufacture of other transport equipment n.e.c
NACE	Construction and consumer goods
15–16[5]	Manufacture of food products, beverages and tobacco products
17–19[6]	Manufacture of textiles, wearing apparel, dressing and dyeing of fur, leather and leather products
20	Wood and wooden products

22.1	Publishing
22.2–22.3[7]	Printing and service activities related to printing
25.21	Plastic plates, sheets, tubes and profiles
25.23	Builders' ware of plastic
26.1	Glass and glass products
26.2	Non-refractory ceramic goods other than for construction purposes; refractory ceramic products
26.3	Manufacture of ceramic tiles and flags
26.4	Bricks, tiles and construction products
26.5	Cement, lime and plaster
26.6	Articles of concrete, cement and plaster
36.1	Furniture
36.2	Jewellery
36.3	Musical instruments
36.4	Sport goods
36.5	Games and toys
36.6	Miscellaneous manufacturing
NACE	Other chemicals, rubber, plastic, other metals and non-metallic mineral products
23.1	Coke oven products
24.11	Industrial gases
24.12	Dyes and pigments
24.13	Manufacture of other inorganic basic chemicals
24.131	Carbides
24.139	Other inorganic basic chemicals
24.14	Other organic basic chemicals
24.15	Fertilizers and nitrogen compounds
24.16	Plastic in primary form
24.17	Synthetic rubber in primary form
24.2	Pesticides and other agro-chemical products
24.3	Paints, varnishes and similar coatings, printing ink and mastics
24.4	Pharmaceuticals, medicinal chemicals and botanical products
24.5	Soap and detergents
24.6	Other chemical products
25.1	Rubber products
25.22	Plastic packing goods
25.24	Other plastic products
26.7	Cutting, shaping and finishing of stone
26.8	Other non-metallic mineral products
27.33	Cold forming and folding
27.43	Lead, sink and tin production
27.44	Copper production
27.45	Other non-ferrous metal production
37.2	Recycling of non-metal waste and scrap

[1] According to a standard procedure for anonymisation of the enterprises serving as cases, they are labelled XY.., followed by further identification.

[2] NACE is a standard classification of economic activities.

See: http://www3.ssb.no/stabas/ClassificationFrames.asp?ID=342101&Language=nb

[3] See Statistics Norway (1994).

[4] Except NACE 29.21 (Metal industrial cluster) and 29.221 (Maritime industrial cluster)

[5] Except NACE 15.2 and 15.411 (Seafood cluster)

[6] Except NACE 17.52 (Seafood cluster)

[7] Except NACE 22.33 (Telecommunication and IT industries)

Annex 3 Case studies supporting the National Report from Norway to Subproject 4 of LLL2010

Formal education in an informal Norwegian culture of enterprise training

This annex contains six cases that all have been approved for publishing.

Case study 1

Bachelor training adds to software certification: XY ICT Norway

A.1 Main activity, characteristics of the organisation and its environment

The enterprise XY ICT[1] counts 40 employees. Its main activity is to develop customer solution based on automatization of IT operations. According to the statistical classification of economic activities, the enterprise belongs to NACE 72; that is 'computer and related services'. Around 15% of the staff has upper secondary education as their highest level of formal education. The rest of the employees are trained in higher education institutions. Every year, two new apprentices start their training period. 30% of the employees are women. Today, XY ICT only counts employees with a Norwegian passport but an upcoming 24 hour customer service can modify this picture.

The enterprise dates back to year 2000 when it separated from a larger company. This offshoot is now undergoing a phase of consolidation during which no dividend is paid to the share owners, of which the founding figures own more than 40% of the shares. Presently, even institutional investors have to accept that the yearly surplus is entirely reinvested in the company. The annual turnover is expected to reach 5 mill Euros in 2008 and the net surplus has been gradually increasing over the years.

Situated at the south-western coast of Norway and relatively far away from the 2nd and 4th cities of Norway, namely Bergen and Stavanger, the wage level of the local enterprises can drop somewhat lower than in the major Norwegian cities. However, a long period of economic growth in the region has partly equalized the wage level for similar jobs across enterprises in the same sector[2]. There is now a general scarcity of qualified labour, which puts the employees in a favourable wage bargaining position. Many enterprises in the region increasingly depend on hiring temporary workers, particularly from the new EU member states.

The strategic plan of XY ICT states that the enterprise should be further developed while keeping the present location as the main site. In a broad sense, the enterprise belongs to a maritime cluster which also is found in other Norwegian regions. This cluster at the south-western coast has evolved from shipbuilding and construction of fish vessels into a technologically advanced supply industry sustaining a variety of maritime activities, including oil and gas exploration and extraction. Enterprise XY ICT has at least one pillar in this cluster by offering ICT solutions to the maritime sector in addition to serving customers in land based industries. The fact that the entire region for centuries has been a thriving industrial labour market has equipped it with a qualified and experienced work force.

[1] This name is invented according to a standard procedure from the project LLL2010 to make information anonymous with a view to protect the interviewees and allow them to speak more freely.

[2] Cf. interviews with regional development officers covering the same geographical area. These interviews were carried out for another project by early April 2008.

At a regional level there are examples of employees leaving for a better job in neighbouring enterprises, but there are presently few signs of widespread underinvestment in training for this reason[3]. At least, the fear of 'poaching' employees from the neighbour does not appear to influence the training policy in the enterprise interviewed. Moreover, our interviews in public and private regional development offices revealed a general positive attitude to training in the entire region (industrial district) but perhaps with an emphasis on non-formal training.

Three labour unions have concluded agreements with XY ICT Norway. Two of them belong to nation-wide umbrella unions; the third and largest, also has a national coverage but it mainly organises engineers who have passed three years in higher education. The major traits of this structure of unionisation were inherited from the large enterprise from which XY ICT Norway was decoupled eight years ago. The small work organisation of 40 employees facilitates informal communication channels, which also affects how the trade unions are advocating the interests of their members. Besides wage negations, the issues most frequently discussed between the management and trade unions are insurances and compensations travels, which is of high importance due to much travelling for the employees.

Although the formal structure, with worker s representation in the board and various committees, is put into place, the informality has led to a simplified communication pattern in which most issues belonging to the social partner agenda are discussed in the same forum (AMU: Arbeidsmiljøutvalget).

A.2 Business strategy

The business strategy is twofold. The main strategic line for the maritime sector is to offer ICT services in *international* markets. On the other hand, l*and based industries* are mainly being approached in the Norwegian market. At the moment, the solutions offered to customers in the maritime sector meet less competition than ICT solutions developed for the domestic industrial market. The enterprise is not in a position to fix prices above the relatively standardised price level set for each market segment.

A.3 Current challenges and initiatives to meet these challenges

After having worked in line with ISO standard for several years, the enterprise was last year ISO certified. More and more clients wished such a formalisation of all quality aspects. In addition, there have for years been close links with a technical university, which from time to time carries out quality checks alongside providing technology solutions. This technical university also serves as a discussion partner from which some Research and Development services are purchased. The management details this connection as follows:

> "...that university is very important for the quality assurance of our customer solutions. We are in a continuous development track. It is a challenge, for such a small enterprise, that we all the time have to develop products and our competencies; and deliver (punctually) in such a demanding branch...."

XY ICT has a biannual strategic plan which outlines a quality system encompassing the following:

- the organisational structure
- whatever document with implications for the future

[3] Same information source as above.

- all processes and resources needed while implementing quality management

It follows from this that both formal and non-formal training forms part of the quality system of the enterprise.

As for similar enterprises in the ICT sector, the border line between work and leisure time is for many employees quite fluid. Employees tend to engage in ICT related activities after the official work time and this can also have indirect effects on their interest for continuing training. One effect is that it is less drastic for employees to plunge into ICT related learning during their spare time. In spite of the considerable amount of theoretical texts that the employees have to go through during the formal education in question, the obstacle to undertake studies at home can be lower in the ICT sector. Our interviews confirm this.

Another effect is that the devotion to deliver quality solutions during long days at work can understimulate the social skills of workers. Such skills are however of high importance in customer support and in the general functioning of XY ICT. In order to counteract this side effect, the management has introduced some procedures for instigating people to take a break from their computer during the work day. This implies meeting other colleagues in a fitness room to do some simple exercises and then perhaps discuss an issue verbally instead of exchanging e-mails.

B – Human Resources Management (HRM), Human Resources Development (HRD) and training policies of the enterprise

B.1 Organizations of responsibilities and core processes in HRM and HRD

The managing director has a line responsibility for all staff and also decides on matters of training. The recruitment procedure often resides on an employee knowing somebody and recommending a potential job applicant, who then is called in for an interview and eventually hired by the managing director.

The frequency of appraisal interviews depends on the persons involved and the positions held; varying from every second year to twice a year. Line managers are consulted during this process and they communicate skills needs to the managing director. As line managers have no responsibility for staff policy, only the managing director conducts the interviews. A copy of a summary of the appraisal interview solely remains in the hands of the employee and the managing director. One key component in the appraisal interviews is to find out what each employ is really good at and how these skills can be further developed, i.a. by means of more training. Other parameters are professional capacities, serviceability, contribution to the sales turnover of the firm as well as each employee's potential for further personal and professional development.

It should be noted that input on skills needs is also provided by a group of employees in charge of technical aspects of the firm. This 'technical group' meets once a week and counts around 12 people.

The annual staff turnover rate is low in XY ICT. During the first six years of its life time hardly any employee left the company. Then five people went back to the large enterprise from which XY ICT was separated. Otherwise, the workforce has been stable.

Offers for training courses are announced in multiple ways; partly during conversations between the management and each employee but also during staff meetings gathering all employees every second week. Moreover, there is a notice board on which all kind of announcements can be featured.

B.2 Human Resources Development (HRD) objectives

The biannual strategic plan reads that human resources development is to be adapted to market needs. This entails a continuing development of competencies within the firm in terms of knowledge of IT as well as personal skills. By means of analyses of markets and customers this process should be adapted to the two major market segments in which the firm operates. Such analyses have a major impact on HRD and will be carried out every year. As pointed out in section C3 below, it is worth noticing that the analyses are not linked to regulations on training established in the frame of social partner agreements. The analyses comply however with the main idea in these agreements, while taking the market situation and the views of the enterprise as the point of departure in defining future HRD.

B.3 Human Resources Development (HRD) strategies and use of public support schemes for Human Resources Development and training

Public support schemes for HRD and training in particular are not widely utilised but the recruitment of two new apprentices every year implies that the enterprise receives a public grant. In addition, XY ICT is assisted by a regional development fund when setting up a world-wide customer service helpline.

While expressing views on further assistance to work on HRD in the enterprise, the management reverts to its collaboration with a technical university in terms of Quality Control and Research and Development (cf. section A3 above). This university is also one of the providers of the formal education course in question. Universities are singled out by the management as the most appropriate provider of external HRD support. Assistance from them is deemed more relevant than for example branch organisations and intermediaries such as consultants. This applies particularly to support for training. In this respect, the management maintains that more input from highly informed representatives from universities could be beneficial for the enterprise.

C – Formal education within Human Resources Management (HRM) and Human Resources Development (HRD) of the enterprise

C.1 Understanding of and awareness for formal education by enterprise

Training in software delivered for example by Microsoft and Hewlett Packard enables employees to make use of specific software. MS and HP may even require that those using the software are trained by them. The learners attending such product specific courses, normally of short duration, receive a certificate. The management of XY ICT states that such courses certainly boost the sales figures and the training appears to be very successful. The management maintains that non-formal education by means of certificates issued by e.g. Microsoft and Hewlett Packard represents a kind of 'default training', reflecting a main training track for ICT companies that utilise software from such multinationals in the development of solutions for customers. In addition, non-formal education comprises shorter courses for example in Linux programming.

The management of XY ICT opinions that there is also a need to invest in longer training courses and employees are therefore encouraged to enrol in formal education. One reason is that this renders the employee more self-confident and more robust in the labour market. Another reason is that in the frame of documentation towards customers the enterprise often has to present the CVs of the employees. Then documented formal education is important.

From the point of view of the enterprise, formal education provides the employee with more general skills.

> "...as an enterprise in continuing development we need staff with broad competencies acquired in formal education..."

The management is committed to staff training and has clear views on the distinction between formal and non-formal education, as demonstrated in the following observation:

> "It appears that employees endowed with long education, formal education, have a somewhat more analytical approach to the tasks they are starting on. This education gives them more depth, which again is reflected in what tasks people are asked to carry out. I think this is correct, consciously or unconsciously."

C.2 Experiences with formal education in the enterprises

The initiative to offer formal education came from the managing director. The final degree is Bachelor of Science in IT operation. The course is tailor-made by two universities and designed for enterprises that specialise in developing solutions for IT operation.

The selection of who should be offered the training takes various forms in XY ICT: some are instigated by fellow colleagues while others are asked by the management. In view of the considerable amount of theoretical issues that are included in the syllabus, the learners need to be highly motivated. As the training trajectory is based on Internet supported learning and takes place in the evenings, the learners have to be quite devoted in order to go through a course estimated to three years of full-time studies.

The first four employees enrolled in the training in 2005. One has left the enterprise and new ones have started the same learning track. Presently six employees progress from module to module but they are allowed to follow their one pace, including taking a pause if needed. After completing all together 30 training modules, the learners will receive the title Bachelor of Science in IT operation. The learners generally meet once a week after work with a view to discuss the syllabus and prepare for their hand-in exercises.

With a view to benefit from the collaboration when dong exercises together, the six learners try to adjust the learning rhythm to each other. Thus, if one learner has joined the training course lately, he or she tries to study more subjects simultaneously in order to keep track with fellow learners having enrolled in the course earlier. The flexibility of the course facilitates this adaptation and there are examples of learners taking a pause before they return to the Bachelor training half a year later.

C.3 Regulations on and support for formal education

Collective agreements ("Basic agreements") between social partners contain regulations on training of employees in line with company needs. Such agreements also apply to XY ICT where most of the employees are members of unions, at the same time as the enterprise forms part of a national employers' organisation. These agreements are however not utilised as a framework for defining staff training in XY ICT. Our interviews suggest that the amount of training offered is high and there is presently no urgent need to use formal paragraphs as a levy to plan more and better training for the staff in XY ICT.

The fact that the management is conscious of the needs to upskill the staff partly explains why further and continuing training is not a central item on the internal trade union agenda.

The range of non-formal and formal training offered to the employees points in the same direction.

All costs are carried by the employer. As the official working hours are not used for attending the bachelor training, there is however a trade-off in the sense that the employees have to invest their own spare time. This is underlined by the fact that also when the employees meet at work with fellow learners attending this course, they do this in the evenings.

D – Participation in formal education, workplace learning and Human Resources Development policies of the enterprise

D.1 The relation between workplace, workplace learning and the chosen formal education

On-the-job training forms part of the daily work. Employees do not have to declare how they use each working hour and they are relatively free to use part of their work day to search for information and upskill themselves in order to solve problems and challenges encountered during their work for customers. Self-studies with a view to search for solutions to various problems arising can consume up to half of the work day of certain employees. The interviewees report that the work is relatively learning intensive in the sense that they frequently, as part of problem solving, have to search for new information. The work organisation is small and informal, characterised by free working conditions provided that project deadlines are respected.

This often implies that they learn something new. During the periods when employees in any kind of training are passing their exams, the production process has to be adjusted in order to allow the candidates to concentrate on proving what they have learned.

When asked about how long time it would take for a new colleague to handle the same work tasks as they presently are responsible for, the learners estimate around six months but this certainly depends on prior experiences in IT operation. Interestingly, this half year learning period corresponds to the estimations from the management on how much time it takes for a new employee to be fully operational.

As to the contribution of formal education courses to the functioning of XY ICT, it is appropriate to ask how the formal education can be related to the daily work of the employees.

Certainly, this varies from module to module of the Bachelor course in question. Depending on the work situation, modules can have direct relevance, as one of the learners told us:

> "Once I should make a help file to an html application produced by a colleague of mine. I imported it into a help file generator, like we at that time were doing in a specific course. I used considerable less time than I would have done without attending that course".

This example does however not overshadow the fact that the bachelor programme is more of a general nature, also containing theoretical background knowledge; although many exercises centre on problem solving for imaginary customers. The formal education does therefore not immediately contribute to problem solving at work. But the learners now understand better how and why things function as they actually do, while they earlier primarily observed what happened.

When interrogated on how the training could be improved so that it became more relevant for his daily work, one learner responded:

"....in that case the training would have to be directly related to the tools and equipment that the enterprise possesses. That would be another form of training. What I am now attending is engineering education as a subject in line with a standard".

The standard referred to is probably the application of engineering knowledge in the field of IT operation.

When asked whether the learners would have been able to follow the Bachelor-course without the work experience they have already gained, the answer was yes but it was added that in such a case they would have had to spend more time on the training.

Another aspect of workplace learning in XY ICT is how the daily learning in the enterprise, included the skills obtained in the many non-formal training courses, can be utilised in the context of the Bachelor training attended by six employees.

Before being admitted to start on the Bachelor training, both learners interviewed had to prove that they possessed 'general study competencies'. This was no obstacle for none of them because they both have completed upper secondary education with a combination of subjects allowing them to enrol in higher education. The two learners interviewed did not apply in order to have their bachelor training shortened on the basis of documented prior learning ("realkompetanse"), for example the skills acquired while working in XY ICT. We were told that a colleague of them who had passed some higher education courses might apply for this in the near future.

In fact, each higher education institution has some leeway to fix their own rules as to what kind of prior learning that is considered equivalent to the knowledge taught at universities. As part of feasibility studies, some university colleges strong in teaching of engineers have experimented with recruiting candidates with prior learning from technical work but without 'general study competencies'.

Back in 2005, some employees in XY ICT who enrolled in the Bachelor training had to apply for admittance on the basis of documented prior learning ("realkompetanse") and this was accepted by the university.

Overall, it appears that employees from XY ICT make use of the available rules for assessment of prior learning both with regard to admittance to higher education and in terms of shortening studies. With a view to recruit more employees to the Bachelor training in question, it could be appropriate to ask the two universities in charge of Bachelor of Science in ICT operation to specify their internal rules for assessment of prior learning. This specification could serve a support document for XY ICT in further recruitment of employees to the Bachelor training.

D.3 Formal education, individual career goals and the work-family-personal life balance

The interviewed learners tend to consider the Bachelor education as part of their long term personal development, without paying particular attention to in-company promotion and future pay rise. One of them remembered to have signed an agreement regulating rights and obligations but the content of it, which might have included clauses on leaving the enterprise, was no guiding principle for thoughts and considerations on the Bachelor course. Moreover, there is some interest in pursuing training after having obtained the Bachelor degree.

Both learners interviewed state that the enrolment in the Bachelor course has partly affected the way in which they organise their family life. Amongst other things, it can be difficult to find time and space for quiet reading of the syllabus. Provided that the employee is willing to exchange previous leisure activities with self-studies, it is possible to follow the pace of the course implying at least two evenings per week devoted to learning activities. When asked

how this learning process could be improved from the point of view of the self-studying employee, one remedy suggested was to receive some subsidies allowing to spend time on course preparations during the official work hours.

D.4 Assessment of promoting and hindering factors for the use of formal education forsupporting the daily work and for pursuing individual career goals

The two employees whom we interviewed opinion that the Bachelor education is well organised. There are in general few factors related to the actual training that impede them from progressing towards the final exam. There are however room for improving the presentation of the training contents. Hence, the modules could have been more interactive, for example by means of video technology. One learner would also like to attend lessons from time to time, particularly for explaining the most demanding theoretical subjects addressed.

Both learners pinpointed that they do not meet fellow learners outside the enterprise as part of the training. Such gatherings could have improved the co-operation, which now only takes place virtually. This is however no precondition for obtaining good notes, which they actually have received for some of their joint works.

The learners confirm that the Bachelor education is theoretically demanding. This coincides with views expressed by the management on the distinction between formal and non-formal learning, reflected in training leading to SW certificates vs. to exams sanctioned by the formal education system.

E – Synthesis and suggestions - The significance of formal education within the Human Resources Management and Human Resources Development of the enterprise

While addressing the 15% segment of the staff that has upper secondary education (including apprenticeship certificates) as their highest level of education, the Bachelor course in ICT operation aims to consolidate XY ICT as a high skill, high technology enterprise. The rest of the staff is mainly composed of engineers trained in higher education institutions. The engineers benefit from shorter non-formal training that is offered to all staff categories. The bulk of the enterprise training relates to requirements imposed by the recent ISO certification. However, this certification primarily formalised a systematic work on quality, which had gone on for years.

Among other factors promoting HRD in XY ICT is that the staff can spend considerable time on systematic information search with a view to develop high quality solutions for the customers. This stimulates individual learning and it appears that the staff is committed to take part in various forms of training offered by the enterprise.

Moreover, attitudes of the management seem important. Compared with enterprises interviewed in the frame of a programme for work-based training[4] revealing a quite inattentive view on the distinction between non-formal and formal learning, the management in XY ICT has a deliberate policy on supplementing non-formal training of employees with formal education courses.

The potential danger of 'poaching' is presently no concern for the management. If an employee trained by one enterprise leaves in order to work for local competitors, this transfer can be labelled 'poaching'. As long as this is not considered as a threat for XY ICT, there is

[4] Cf. the evaluation of the Competence reform in which Fafo was involved ("Kompetanseutviklingsprogrammet 2000-2006. Sluttevaluering", SNF og Fafo 2006.)

room for a longstanding training policy. The fact that the staff turnover is low and that most of the workforce is highly integrated in local communities, contributes to forming a stable workforce for which long-term formal education is not a risky investment for the enterprise. The policy on HRM emphasises the empowerment of employees so that they become more self-confident and robust in a labour market context.

The HRD resides on multiple ways for detecting and channelling skills needs. Alongside the usual input from (demanding) customers, there are internal fora that contribute to this. Stable contacts with universities are also of importance when dealing with skills needs, in addition to the systematic use of appraisal interviews involving the manager and each employee.

As to factors that could potentially hinder further progress in HRD and particularly in training, a continuing tight delivery schedule tend to limit the amount of training that employees can start on. Presently, the limit that employees experience is more the time they can spend on training without delaying fellow colleagues than the number of training opportunities.

When employees have to use their spare time to benefit from the formal education offered by the enterprise, those employees who are most committed to enrol in education courses tend to be selected. From the viewpoint of the management this can ensure that the training investments are channelled to employees who most likely will succeed, but it might reduce the number of employees who accept to enrol in formal education. Furthermore, if more learners were offered similar learning as the Bachelor in ICT operation, a combination of self-studies during their spare time and meetings gathering all learners enrolled in the course could be appropriate. Such a blend of Internet based learning and face-to-face learning could be beneficial, even when reduced to a few meetings per year for example during a long weekend.

Case study 2

"In-company training is important to secure the quality of the employees" XY Metals Norway

A – General characteristics of the enterprise

A.1 Main activity and characteristics of the organization and its environment

The enterprise XY Metals Norway[5] first started up as a factory of machinery in the late 1940s. In the 1960s the enterprise changed its main activity into production of metal products and work on machinery for the maritime market. The enterprise now belongs to NACE 28; 'Production of metal products, other'.

XY Metals merged with a larger international company in the late 1990s and is today a department of a main office located in the same region. The enterprise employs 38 people. In addition, there are two apprentices and four externally hired employees. 12,5 % of the workers have a foreign citizenship and the enterprise has only one female worker. There are no temporary workers. During last year, there was no staff turnover but this varies from year to year. On annual basis, the number of employees who quit is seen as manageable.

The enterprise has a work council ("bedriftsutvalg") where both the management and employees are represented. Safety is a central topic in this council. Education might also be mentioned in this forum; lately training of apprentices has e.g. been on the agenda. The enterprise XY Metals is member of an employers' association and a collective agreement regulates wages and other working conditions. Two trade unions have recruited all employees as their members. There seems to be a good dialogue between employees' representatives and the management. Informal meetings are held on the site once a month. Appraisal interviews of the employees are carried out every year.

A.2 Business strategy

Given that XY Metals is a smaller department of a larger international company, the business strategy is not developed at each site, but is communicated from the main office situated in the same region. The total market of the international company is four-fold, while XY Metals only contributes to two markets: offshore and merchant. The offshore market is rather cyclic. This makes it important to have several strings to one's bow, thus allowing to draw on a number of markets. Such flexibility is regarded as a central competitive advantage for the company and its different departments.

The overarching business strategy focuses on innovation. The main office has a research and development group working on product development; particularly preoccupied with an environmental perspective. Being environmentally friendly and promoting a safe working en-

[5] This name is invented according to a standard procedure from the project LLL2010 to make information anonymous with a view to protect the interviewees and allow them to speak more freely.

vironment is a central objective and the ambition is to imbue the whole organisation with this objective. XY Metals follows ISO standards and has two ISO certificates, both contributing to quality assurance in the enterprise, of which one is an environmental certificate.

The business strategy of the company is not to be the cheapest in the market but to offer good quality products. The wage level is competitive, even though some smaller technical enterprises might offer better payment on a daily basis. A stable framework and work environment is seen as a central advantage at all levels of the company and its local departments. XY Metals is located in a municipality counting around 9000 inhabitants and endowed with educational opportunities from ISCED level 1-6. This contributes to a favourable local framework. The enterprise can also benefit from a business environment composed of craft workshops, wood industry, tech-firms, food production and fish trade.

A.3 Current challenges and initiatives to meet these challenges

Especially the last two years, it has been a challenge to get hold of apprentices and skilled personnel for the technical positions. Both general and vocational education at ISCED 3 level is provided by local schools. The closest higher education institution, i.a. offering training in marine technology and machinery, is situated in the nearest city at a 6-7 miles distance. The problem of recruiting personnel is seen in connection with the demand and supply at the local vocational upper secondary school and a pressured labour market. The need for more personnel is also linked to an increase in oil and offshore activities, alongside a higher demand from customers in the maritime market.

The management has contacted representatives of the Norwegian Labour and Welfare Administration (i.e. the local office of NAV) and local politicians with a view to encourage them to engage in training of unemployed in the region, – in line with the needs of the labour market. According to our informant, this could also contribute to a more meaningful life and a good alternative to idleness for the unemployed. The enterprise is also present at local arrangements for vocational guidance of lower and upper secondary students. These arrangements are mostly held by the municipality or the county administration. Hence, we see that the enterprise actively influences its local environment in order to improve general framework conditions.

B – HRM, HRD and training policy of the enterprise

B.1 Organizations of responsibilities and core processes in HRM and HRD

The enterprise has a common personnel department at the main office in a nearby municipality, where there is a training manager with overall responsibility for training in the whole company. This person has not yet been involved in the training procedures of XY Metals. The main office is involved in more general procedures, such as setting up contracts when hiring new people. Hence, the management at the local sites have presently the main responsibility for HRM and HRD. The local management makes the assessment and decisions and knows the needs of the employees.

A qualified personnel is central for the XY Metals and recruitment has been a cornerstone of the personnel policy during the last years. When hiring employees, prior experience is important; preferably a certificate of completed apprenticeship acquired after two years in vocational upper secondary education within machine programs and two years in an enterprise. Hence, people are not accepted "from the street". The management staff at all levels needs to

be highly qualified and they have often been in the enterprise for a long time: *"You have to go all the steps"* is the maxim. The interviewed employees also state that it is important to have some prior experience to be able to carry out the works tasks.

More focus on recruitment also necessitates training of the employees. Ideas for training activities may come from the personnel department but the activities are initiated and put into action by the general manager of XY Metals. He is also actively involved in deciding which courses and what education that is necessary. There is close collaboration with a vocational upper secondary school in the neighbour municipality and with another school in the municipality where the main office is located. The management emphasizes practical experiences during upper secondary education as crucial to prepare the students (and the schools) for the modern labour market.

The enterprise carries out most of the training itself. In-company training is a central part of HRD policy and is planned and followed up on behalf of the employees (see the section HRD objectives below). Some of the in-company courses are however carried out by some tool and machine suppliers. Such external help is seen as fruitful, but the management underlines that any assistance in providing training should be based on the needs of the enterprise and on a thorough understanding of its internal processes.

The HRM and HRD policy also strongly leans on welfare arrangements. These include medical services, insurance and efforts to reduce the number of employees on sick leave.

B.2 HRD objectives

The enterprise follows ISO standards and has two ISO certificates. ISO 9001 concerns the organization of the line of production and the necessary training. When hiring new employees a "development plan" is established, listing already completed and planned courses as well as future training needs. This list is set up in cooperation between the leader and the employee. It mainly contains the most necessary training initiatives, and the plan is followed up through the yearly appraisal interviews. There is a positive attitude towards these standards both among the management and employees, and they are seen as a necessity within their market. The standards to a large degree regulate the in-company training. The employees can also ask for additional courses.

> "We look at the needs and opportunities to climb, for those who want to so."

Education is a central part of the HRD objectives of the enterprise. In-company training is seen as a means to secure the quality of the employees. The competences and qualifications of the employees are assessed when they are hired, and are regularly followed up according to the needs of the enterprise and the ISO standards.

B.3 HRD strategies and use of public support schemes for HRD/training

XY Metals Norway has two common strategies or methods to increase the qualifications and competences of the employees: In-company courses and putting people together at the workplace with more skilled personnel (cf. peer learning). The manager presents a classical picture of *"the boy who is taking over the responsibility of the farm"*. The horse in front, the father behind the plough and the son backmost to see how it is done. He qualifies this illustration by saying:

> "We think the best method is to learn from the one who knows something in advance; this has proven to yield good results".

The management claims that there is no external body or educational institution that "produces" or prepares people for XY Metals, and therefore the internal strategies of in-company training are assumed to be effective and appropriate. E.g. before sending people to courses in programming, the management entices them to work closely together with a skilled programmer for a certain period of time. This concerns both regular workers and apprentices.

Public support for HRD activities is not a well investigated field for XY Metals Norway, except the regular support for training of apprentices. Because of a steady budget and busy working days, applying for public support for HRD has not so far been a prioritized activity.

B.4 Significance of training activities

Both of the interviewed learners are currently attending in-company training. This term covers non-formal training within the enterprise that does not lead to formal credentials recognized by the public education system, but the employees might receive some certificates and justifications for completed in-company courses. One of the employees has recently started and has been in training for half a year. He has completed a whole string of in-company courses. The progression is to a large degree left to the employee to decide on, so there is no time limit for when he should finish the in-company training. The other employee has been working in the enterprise for a longer period and has been through continuing formal education, above all provided by an institution at the level of tertiary vocational education (ISCED 4). This training was completed over a 2-3 year period and he is now doing in-company training to enter a new position in the enterprise. He is presently a line manager. In general, in-company training seems to be a continuous activity in the enterprise.

The significance of training activities in XY Metals Norway can be illustrated by the use of individual development plans set up for each employee. These plans are seen as favourable by the management and the employees, who both appear to be quite satisfied with this strategy.

"As long as it's on paper, things happen".

There is also a separate budget for training activities.

C – Formal education within HRM/HRD of the enterprise

C.1 Understanding of and awareness for formal education by enterprise

According to the management *"all education increases the level of the enterprise"*. The division between formal and non-formal training does not seem to be very widely used and does not form part of the 'enterprise vocabulary' or the prepared development plans. The field of operation of the enterprise is competitive and demanding. The burning issue is therefore what training is necessary to develop a competent staff. In addition, adjustment to individual preferences is seen as important but it is the responsibility of each employee to announce and claim their individual skills needs.

The enterprise is able to recruit 30-40% of its apprentices after they have obtained their certificate. According to the management many of them take formal continuing education, but during the last years this has not been very common learning trajectory. Some return to

the enterprise and some join other enterprises. From the point of view of the management, XY Metals Norway contributes to and encourages building up general competences.

Practical experiences are highly valued in the enterprise. In a hypothetical choice between recruiting two workers, where one has a strong theoretical background with excellent exams, and the other has a strong professional background during which he got "dirt on his hands", the management would assess the last applicant to be more qualified than the applicant with a theoretical background. As the manager puts it:

"You often have to start at the ground floor".

C.2 Experiences with formal education in the enterprises

From the management's point of view, experiences with formal education are positive, even though there has only been a small amount of formal training the last two years. The employees get information about potential courses and training once they start in the enterprise, and a development plan is made where all *necessary* training is implemented. According to one of the employees, further information on possibilities for formal education comes from the trade union. The initiative to enter formal education, besides the requirements defined by the management, is left to each employee.

The interviewed employee who has been in formal further education experienced a rather inflexible organization of the study. It was a two-year full-time educational path with a predetermined pace. Nevertheless, there were some opportunities to choose between different programs. The studies were related to the employee's prior work experiences, which gave him an exception from a preparatory course. The more general subject recently included in the study programme were not seen as relevant by our informant; they turned out to be an obstacle for the more practical aspects of the study. One employee has the impression that more formal education leads to more "office work". He states that this is not necessarily desirable for a worker who enjoys practical work "on the ground". He appreciates the combination of office and practical work, but does not want to leave his practical field.

C.3 Regulations on and support for formal education

There are no regulations for formal education in the enterprise XY Metals, apart from the minimum requirements for being hired (mentioned in section B.1 above). The management sets up a development plan based on the present and future needs of the enterprise. Additional further and continuing education is left to the individual needs of the employees.

All employees are members of two different trades union (one for operators and other blue collar workers; the second mainly organising foremen and line managers). The interviews reveal that at least one trade union regularly provides information on educational opportunities. It is also possible to get a scholarship for formal continuing education through the trade union. The enterprise XY Metals also contributes, e.g. by giving the employee a leave of absence. According to an employee who has been in formal education, his scholarship implied an obligation to work in the enterprise in the same position as before for a certain time after finishing the training. There are no such agreements or arrangements in connection with in-company (i.e. non-formal) training of employees.

C.4 Assessment of promoting and hindering factors for the use of formal education within the HRD-approach

The interviewed employees feel that the enterprise supports their professional development. They are allowed to attend the courses they need. There is no specific emphasis on or enco-

uragement to enrol in formal education. As to the content, the theoretical syllabus and more general knowledge normally integrated in formal education are perceived as a hindering factor from the employees' perspective. Updated teaching and curriculum is seen as important for the learning process.

The management mentions that repeating and refreshing courses for employees might be a future offer aimed at improving the company's skills level. Evening courses of further and continuing education could also be a promising alternative.

D – Participation in formal education, workplace learning and HRD policies of the enterprise

D.1 The relation between workplace, workplace learning and the chosen formal education

The combination of theory and practice through workplace learning is appreciated by the interviewed employees. Workplace learning and in-company training is seen as more valuable for the enterprise than formal education, both from the management and the interviewed employee's perspective. The employees are able to decide and influence on the pace and progression of the in-company training in collaboration with a more experienced worker. The interviewed employees are satisfied with their tasks, and they see their daily work as learning intensive. In a longer time perspective one of the employees acknowledges the value of more general knowledge.

D.2 Decision on the formal education, processing of the decision and support/non-support by the enterprise

Decisions regarding potential formal education as a part of the employee's development plan are made by the management at the local department of XY Metals Norway. Relevance for the tasks of the employee and the ISO standards seems important for getting support and approval from the management. Regarding decisions on financial support the trade unions might be involved. One of the motivations from an employee's perspective when engaging in further and continuing education seems to be getting new challenges.

D.3 Formal education, individual career goals and the work-family-personal life balance

Another motive for participation in formal education is to avoid working shifts. The enterprise XY Metals offers different arrangements for shifts, e.g. one week working in the morning, one week during evenings. There is an opportunity for internal exchanges between the workers that creates more flexibility. There is also a "super shift" allowing to work for two weeks and then having one week off. This might be preferable for parents with shared custody. The employees also get paid when they are home with sick children and there is financial support for medical services.

The employees seem to be rather self-motivated in their choice of formal and in-company training. They want new challenges and personal development. The work-family-personal life-balance does not seem to be a problem. Nevertheless, the employees do not seem to have any ambitions for entering formal continuing education in the future. The interviewed learners are in the middle of in-company training and they are now entering new positions, both being satisfied with their present tasks and planned career goals.

D.4 Assessment of promoting and hindering factors for the use of formal education for supporting the daily work and for pursuing individual career goals

Overall, there seems to be an attitude both in the management and among the employees that in-company learning is better sustaining the daily work than formal continuing education. Such attitudes might constitute a barrier to formal education, but they might also reflect a realistic assessment of the needs of the enterprise. The statement from the management that "there are no external providers that can prepare employees for the enterprise", might also mirror a lack of provision of relevant formal both.

As an example of a promoting factor, one employee suggested that shorter, more intensive formal education courses in specific thematic fields could promote participation in formal education. This would also be easier to combine with family and personal life than taking long-term educational tracks.

E – Synthesis - The significance of formal education within the HRM and HRD of the enterprise

The enterprise XY Metals is rather small and has a quite non-hierarchical structure. Line managers, operators, shop stewards and the management seem to cooperate well. There is no overview of how many of the employees who have been engaged in formal continuing education, but such training has not been prominent during the last two years. The highest priority from the management's point of view is training to fulfil the ISO- standards and in-company training connected to the specific work tasks of the employees.

At the same time, the management is positive towards all forms of education that can contribute to the total functioning of the enterprise. There are no information channels in the enterprise regarding opportunities for formal education, apart from a follow-up of the individual development plan of each employee during the appraisal interviews. This necessitates some initiatives from the employees themselves in order to explore their opportunities. In this regard, the trade unions are central actors, both for information on and support to formal education trajectories. The fact that there is a collaboration with local upper secondary institutions and, consequently, opportunities for employees to attend relevant tertiary education nearby, is a factor promoting learning. The enterprise has an outreach strategy towards educational institutions and is actively facing challenges in recruiting qualified personnel.

The fact that in-company training is perceived as more important for the enterprise is not necessarily a sign of barriers regarding formal education. The management of XY Metals follows up the training ambitions in its HRM and HRD strategies while applying a learning-by-doing approach. Moreover, the employees that we interviewed were satisfied with these strategies because they allow for staff development.

Case study 3

Engineering education for highly motivated employees A case study of XY Offshore Norway.

A.1 Main activity, characteristics of the organisation and its environment

XY Offshore[6] dates back to the first decade of the 20th century. It is situated at the southwestern cost of Norway and forms part of a petro-industrial cluster, in which some companies also deliver products and services to the maritime cluster. However, the two clusters can be distinguished[7] and although XY Offshore earlier was strong in welding of ship constructions, it is now primarily delivering to the offshore industry. XY Offshore therefore belongs to NACE[8] 35.114, which is Construction and Repair of Oil Platforms and Modules.

This transformation took place in the early 1970s when the oil exploration and production gained strength in the Norwegian economy. Then, XY Offshore redefined its business strategy and captured parts of the offshore market. The enterprise has experienced a successful transformation from welding of ship constructions to technologically advanced deliveries destined for the offshore industry, amongst other things based on 3D modelling.

The *permanent staff* counts today 360 after having augmented by 100 over a 12 months period. The staff is composed of 55 women, 15 apprentices and there are approximately 25 non-Norwegians from 20 nations, of which the majority comes from Poland.

The number of employees hired on *temporary contracts* reaches for the time being 400, thus exceeding the permanent workforce. Among those on temporary contracts, the share of operators with craft certificate is relatively higher than for other staff categories. Temporarily employed operators tend to have longer contracts than those hired in with a university diploma. This is explained by a tendency to hire high-skilled staff for very specialised short-term tasks.

Together with neighbouring enterprises belonging to the petro-industrial cluster, XY Offshore has to devote considerable efforts into recruiting new employees. The competition in recruiting employees is rather fierce in the whole region but XY Offshore has the advantage of being relatively small, thus allowing the workers to influence more on their daily work than in conglomerates with more bureaucratic organisational structures. The staff turnover is not accurately determined but is estimated to be relatively low, reaching around 3% per year.
The sales turnover reached 94 million Euros in 2007. Profit margins have somewhat oscillated during the recent years of economic upturn but they are on an upward trend.

[6] This name is invented according to a standard procedure from the project LLL2010 to make information anonymous with a view to protect the interviewees and allow them to speak more freely.

[7] cf. Reve, T.; Jakobsen E.W. 2001: Et verdiskapende Norge. Oslo, Universitetsforlaget.

[8] A statistical classification of economic activities.

A.2 Business strategy

XY Offshore belongs to the so-called EPC segment of the offshore industry; embracing Engineering, Production and Construction. The main activity of the enterprise is to develop and produce aluminium constructions destined for offshore platforms. There are more competitors delivering steel constructions than among those using steel as a metal. For the customers steel is cheaper in a short run while aluminium reduces long-term maintenance costs. Some major customers of XY Offshore are therefore willing to accept the higher initial investment costs.

One ingredient in the business strategy is to widen the array of offshore services by offering new solutions to offshore customers. For this purpose, a new division entirely devoted to offshore services has recently been set up....

A.3 Current challenges and initiatives to meet these challenges

Similar to neighbouring enterprises, XY ICT has - during the last few years - rapidly expanded its workforce and there is a quite fierce competition in the region to recruit qualified workers. The rapid growth of the company leads to new internal structures. One organisational change is a closer integration of internal functions related to purchase, inventorying and projecting.

The most recent organisational changes are done with a view to establish closer ties with suppliers that possess important knowledge. Alongside the flow of knowledge between XY Offshore and the suppliers, this integration also entails better flow of information inside the company. One of the learners interviewed tells us how he has experienced this change:

> "....Now I have easier access to those at the other end. I produce specifications that the purchasing people receive from me. Then they buy what I asked for, perhaps after having consulted with me. The incorporation of the purchasing unit in the engineering department has facilitated our daily work" (C3-P2-25-28).

The work on quality is linked to certification and there is an annual quality check in order to recertificate what the enterprise does in this domain. The offshore industry has to respect strict documentation procedures, partly imposed by the customers, but often put in place by virtue of a mutual collaboration between oil companies and the offshore supply industry. This quality work is linked to the HRD strategy. Customers need to know who will have a key position during a project and CVs of the key personnel are enclosed to the documentation.

This implies establishing intermediate aims for each company department, defining concrete aims for the whole company and the subsequent elaboration of plans; including training activities for the overall workforce alongside management training.

The HRD strategy is also linked to current work on Health, Environment and Safety, most directly in the sense that employees have to acquire knowledge and keep themselves informed in order to avoid hazards and accidents. The integration of work on Health, Environment and Safety and, on the other hand, quality assurance implies that the HRD department has an overall responsibility for all these matters.

B – Human Resources Management (HRM), Human Resources Development (HRD) and training policies of the enterprise

B.1 Organisation of responsibilities and core processes in HRM and HRD

The HR department was set up one year ago. The interviews that we carried out suggest that its foundation bears proof of the increasing importance attached to this function and probably

also to systematic competence development of the staff. There is no specific HRD-function in each operational department of the company. All work on HRD is carried out by this department, e.g. during recruitment of new staff.

Training courses are normally identified and financed by each line manager who has a budget for such training. This applies both to longer and shorter courses, but for the longer ones the HR department has to be involved when more principal questions arise, for example the extent of paid training leave for passing exams. Occasionally, the HR department is also called upon for assessing the need to arrange and finance training of relevance for several departments of the enterprise. This concerns for example more generic skills that cannot be relegated to one single department. In such cases the HR department might allocate money from a central training fund, which is about to be shaped. As a prolongation of the systematic appraisal interviews that the HR department is now trying to implement throughout the organisation, the central training fund administered by the same department might in future use more money from that fund for financing skills needs revealed during appraisal interviews.

A representative from the management presents the challenge in the following way:

> "...we have now got a strong HRD department... (...) but it takes time to make a thorough overview of the skills gap of our employees, - what do they feel that they need (to know), where do they wish to work? Are we in a position to offer them concrete training activities? Today, there is perhaps too much ad hoc training; someone needs a course while working on a specific project....." (C3-M2-124-127)

As to the role of line and middle managers in instigating employees to engage in non-formal and formal training, the employees whom we talked to report that this management layer is actively supporting various learning activities. Most training seems to be channelled through line and middle managers, including the HR manager, and these are the main information source for employees about new training activities.

While the bulk of the communication earlier was informal, there is now a challenge to establish and explain routines to people from remote nations and cultures. Some of them may not even know the product. This has repercussions on human resource management and development. To give an example: the number of employees hired on temporary contracts in two departments of the enterprise amounts to, respectively, 2/3 and ¾ of the permanent staff. A representative from the management tells us how he regards these changes:

> "....very much of the internal communication and interaction was in former times very informal; we had our own workforce, experienced people who knew each other very well, - knew the specifications, the contracts and how the work should be carried out... " (C3-M2-95-98).

After informing us that one department that he is in charge of now has a permanent staff of close to 70 employees, supplemented with 50 on temporary contracts, the management representative goes on:

> "They (the new ones) are good professionals but a completely new way of communicating is necessary. We need new routines and procedures. We cannot cope with things in an informal manner as we did earlier (.....) Previously, we claimed that one of our advantages was that we were small and flexible, that we could turn around quickly. And that was correct. This now becomes a disadvantage. We cannot (today) allow ourselves to exercise the

previous leeway because everybody (inside the company) does not know us well enough" (C3-M2-98-104).

The in-house social partner dialogue is also marked by the influx of temporary staff. Recently, much time has been allocated to an examination of the rules and regulations on working conditions and all other aspects of the life of the enterprise.

Collective agreements ("Basic agreements") between social partners contain regulations on training of employees in line with company needs. Such agreements also apply to XY Offshore where most of the employees are members of trade unions, at the same time as the enterprise forms part of a national employers' association.

Clauses in these agreements cover i.a. skills analyses and in-company training plans but they do not instigate the present training activities in XY Offshore. Shop stewards tend to endorse the present work on setting up a revised system for appraisal interviews and for systematic management training. The actual input to what training the entire staff should be offered, seems however to come as much from the management layers as from trade union representatives.

B.2 Human Resources Development (HRD) objectives

Earlier, the enterprise practiced a system of appraisal interviews, which presently is being revised because it was so extensive that it led to huge differences in how it was practiced. Some departments carried out the entire interview while others developed their own abbreviated versions. The HR department, which is only one year old, is now about to set up a simplified system that can serve as a planning tool for the whole enterprise. A management representative explains the upcoming system in the following manner:

"What we then plan to do is that the signals reaching the manager of each department should be summarised and serve as base line information for the HR department. Today, we do not have the disposal of a skills database allowing us to retrieve key information on staff matters" (C3-M-260-266).

The management representative enlarges on the skills database and says that it might embrace the future age composition of the workforce, including when experienced key staff are expected to retire. Expectations of a continued shortage of skilled labour exacerbate the need to develop an enterprise retirement policy, which aims to retain skilled staff when they approach the official retirement age.

B.3 Human Resources Development (HRD) strategies and use of public support schemes for Human Resources Development and training

A rough distribution of the 360 employees shows that 200 are operators with a craft certificate, 130 are technicians and engineers, the remaining 30 is a miscellaneous post; mostly composed of civil engineers and other university trained employees.

A representative from the management shares some thoughts with us on the recruitment of various staff categories:

"At one moment, we deliberately concentrated the recruitment on those with an craft certificate as their highest level of education. I would have preferred that they were endowed with a deeper theoretical knowledge, at least two years of vocational tertiary education. But it appears that in our company, in which my department delivers some basic input to the production process, there are good ties between various staff. Some engineers and middle

managers have limited practical experiences...(...).. So it is good to have a mix between them and those with craft certificates". (C3-M2-134-139).

As to support from public schemes, the enterprise has benefited from its local environment, for example a regional development office. The local labour market service (NAV) assists in reintegrating employees on long-term sick leave. There is a local collaboration unit between enterprises and upper secondary schools; and also with a local labour market centre. Furthermore, XY Offshore regularly trains apprentices and is compensated for this by receiving public subsidies.

During the last year the only contact with public arrangements in the field of HR at national level has been an application to a public scheme for strengthening employees' basic skills (Basiskompetanseprogrammet) . This application was however not retained. At a branch level, the enterprise has benefited from courses in the field of human relations arranged by the 'Manufacturing School' (Industriskolen). This course provider belongs to the Federation of Norwegian Industries, of which XY Offshore is a member.

C – Formal education within Human Resources Management (HRM) and Human Resources Development (HRD) of the enterprise

C.1 Understanding of and awareness of formal education by enterprise

XY Offshore has concluded a co-operation agreement with the university college that provides the formal continuing course in which the two interviewed learners are enrolled. This agreement primarily covers training of engineers, included lectures and shorter courses aimed at updating knowledge in the field of engineering, particularly at Master level.

As to non-formal training, the HR department reports that it tends to concentrate on internal management training and training of foremen with a view to contribute to teambuilding. An external trainer has been hired in to assist the enterprise in setting up such training, which typically lasts for half a year implying one gathering per month.

There is moreover some training in handling the system of salaries and auditing. The software used for this (Agresso) needs to be applied skilfully and employees are therefore attending non-formal training that, differently from the training offered by Microsoft, does not lead to any certification but normally to a simple justification for having attended courses in using this Financial, Accounting and Reporting Software.

For operators there are strong regulations of what kind of certificates, including craft certificates, that are required. This certainly also applies to the engineers and to administrative staff occupied with financial reporting and auditing. In general, there seems however to be somewhat more room for appreciation of relevant work experiences among these staff categories than for operators. On the other side, there are at the moment less methods at hand for testing practical work experiences among white collar workers (auditing, administrative staff) and engineers than among operators.

A representative from the management whom we interviewed expresses the following view on documentation of skills:

".....we receive CVs with dozens of references to courses lasting a couple days. That is not exactly what we are looking for. Such experiences are only the most relevant ones if we are searching for something very specific." (C3-M2-146-148).

While balancing formal and non-formal training, we see that non-formal training is a widespread phenomenon in XY Offshore. A strengthening of the co-operation with a university college might pave the way for more formalised training of the workforce in the future. This will probably be more as a supplement to the formal training than a replacement of it. It is acknowledged that it is very demanding for employees to attend formal education while working full time.

As a management representative puts it:

> "... for economic reasons.... you cannot be off work and go to school. So, many people are left behind and don't see any opportunity to do that. My opinion is that we should give priority to enrolling people in (formal) studies" (C3-M2-150-151).

C.2 Experiences with formal education in the enterprises

For the moment three employees are involved in part-time studies leading to Bachelor degree in engineering. Two employees are presently enrolled in continuing training at Master level and one worker is attending part-time vocational tertiary education. One of the learners heading for a Bachelor degree in engineering started his continuing training before being hired by XY Offshore. He was employed as a trainee but his prior working experiences have paved the way for larger responsibilities.

In addition, some employees are attending shorter modules that probably can be classified as formal education, such as training of board members in enterprises, training in organisational psychology as well as courses in drawing and modelling.

The Bachelor training for engineers consists of two steps (2 years + 1 year) and is developed in co-operation with local enterprises also belonging to the petro-industrial cluster. The educational track attended by the interviews is devoted to pipes, machine pipes and construction, while a similar offshore related track for part-time studies in engineering will concentrate on electrical engineering. The fact that the gatherings of students take place during weekends allows part-time students from neighbouring cities to attend during their spare time. The two tailor-made Bachelor courses are therefore relevant for employees from enterprises on the entire south-western coast of Norway.

One of the management representatives interviewed explains how the enterprise views the link between the formal education exemplified with part-time studies to become an engineer and the non-formal training mainly in the field of management training. The idea is to extend the collaboration with the university college which offers the training of engineers in question. The manager further explains:

> "...we have also started discussing with the university college whether it can offer a combination of tailor-made management training; while ensuring that the learner, provided that s/he studies the necessary syllabus, can pass an exam leading to credit points" (C3-M1-371-374).

C.3 Regulations on and support for formal education

The learners in XY Offshore have to use their spare time when they attend formal continuing training. All other costs, such as training materials, are normally born by the enterprise but this varies because some employees can also receive co-funding from the trade unions they are members of. In the latter case, the workers normally attend non-formal training. For all training considered to be of relevance for the company, the employees can have at least one

day off prior to exams. Furthermore, the working days devoted to exams are also paid by the enterprise.

Rights and obligations related to the engineering education are not formalised. Both learners interviewed tell that they have not signed any contract regulating, i.a., payback conditions if they should decide to leave the enterprise immediately after having passed their last exam. Arrangements around the training have mostly been settled informally. This informality coincides with our observations on trust in a relative small community that we observed while conducting interviews for another project[9]. There seems to be a limited fear of 'poaching' employees from the neighbouring firm, although there is some labour mobility between local companies.

D – Participation in formal education, workplace learning and Human Resources Development policies of the enterprise

D.1 The relation between workplace, workplace learning and the chosen formal education

Given that the Bachelor training in engineering has been developed in close co-operation between offshore companies and a university college, workplace learning is an integral part of the training in question. One of the learners explains how he will produce a written assignment linked to his workplace:

> "We are designing a pipeline system that needs to be calculated and so on. It will be a real project integrated in our production. So I am allowed to utilise the resources at the workplace as part of my training....I estimate this written assignment to represent two or three months full-time work..(...).. It is very important for me to link the written assignment to a concrete project. Then there will be more than theory, there will be some practise involved also" (C3-P1-125-135).

He adds that the two employees, who simultaneously started up the Bachelor training, are jointly writing this work-related assignment and that the company allows them to call upon experienced colleagues when necessary.

The other learner interviewed also confirms the relevance for his present job of the training he is attending, and provides us with the following example:

> "...when I am doing calculations I may use equations that I have learned at school. That is useful to me. We are practising exercises in drawing and construction, so I make use of what we learned at school." (C3-P2-297-298).

When invited to compare non-formal training not entailing any diploma with the formal learning in engineering offered by his company, one of the learners interviewed states:

> "I started out my ongoing training in order to put in place formalised education.(..).. Prior learning experiences are at least as important when carrying out a job and for being hired. It is nevertheless more straight-forward to assess anyone who can demonstrate formal competencies.(..).. I felt that it was high time to receive formal competences" (C3-P1-368-371).

[9] We then interviewed regional development officers in the area where XY Offshore is situated.

Confronted with the same question, the other learner first says that short-term internal courses set up by the enterprise are directly relevant for his daily work. When invited to distinguish between relevance for himself as a private person and as an employee, he maintains:

> "As a private person the formal education is probably of highest importance. In a job context, they (formal and non-formal training) may be of equal importance. The enterprise also needs people with formal education. It has to sell the internal competencies." (C3-P2-361-363").

One learner reports that the question of broad engineering education versus narrow offshore training is frequently discussed among students enrolled in the course. This question emerges because the course is tailor-made for a few enterprises and not necessarily for the entire offshore industry. This practical angle leads to very concrete and relevant training but not necessarily broad engineering competences. All in all, the learner is however satisfied with the present training, while recognising that it could at some points have transmitted broader competencies (C3-P1-322-326).

One of the learners interviewed has twenty years of work experience before enrolling once more in formal education. This lapse of time makes it relevant for him to attend a preliminary course in maths and physics, although he formally has an exam from upper secondary school that could allow him to skip this course. He further informs that neither he nor any fellow learners applied to the university college for shortening their training period on the basis of prior non-formal learning experiences. Only those students who had prior formal learning equivalent to the syllabus of the Bachelor training in engineering, were allowed to skip some of the exams. On this point, the learner concludes:

> "I could have skipped parts of the syllabus in social sciences and in project management, which I am accustomed to..(...)... I do not have to use much time in reading these subjects before passing my exams..." (C3-P1-229-234).

The other employee attending engineering training reports that a fellow learner, who had worked as a teacher in a public school, succeeded in having her prior work experiences recognised and translated into a few ECTS points[10]. On the contrary, those with prior work experiences from the offshore sector were told by the training provider that this experience could not be translated into any ECTS points. To the great surprise for the learner from XY Offshore, the university college providing this training had informed the engineering students that they could collect ECTS points while working in the offshore sector during their engineering training. The employee at XY Offshore states that there is no logic in recognising work experiences from the offshore sector *during* the study period and, at the same time, neglecting the relevance of equal experiences obtained *before* enrolling in the engineering studies (C3-P2-206-223).

D.3 Formal education, individual career goals and the work-family-personal life balance

One of the learners interviewed in the two-step Bachelor training in engineering tells us that his family commitments impose him to make a pause after two years (that is when having passed an intermediary exam of 120 ECTS). However, after this pause he plans to study one more year to obtain a Bachelor degree.

The other learner admits that his fast track (the estimated 3 years of full-time studies achieved during 3,5 years as part-time student) requires a patient family. He then adds that

[10] European Credit Transfer and Accumulation System (ECTS) is a standard for comparing the study attainment and performance of students of higher education.

any plans for continuing towards a Master degree will not be realised before his 'spare time is reconquered' (C3-P2-341).

Regarding the extent of training offered to the employees, one of the managers interviewed admits that there are certain limits:

> "I am concerned about the possibility for employees to pass an exam, but we are presently facing a situation with high pressure at work, much overtime, and if people in addition have small children in custody, there are limits to what they manage (.....) We are presently in an expansion phase" (C3-M1-414-418).

Hence, there seems to be a joint understanding among all interviewees that the balance between work-family-personal life is key; both in regulating the amount of training that can be absorbed by the employees as well as their learning conditions.

D.4 Assessment of promoting and hindering factors for the use of formal education for supporting the daily work and for pursuing individual career goals

Alongside the balance between work-family-personal life evoked above, the interviews with the management reveals that there is a general problem in balancing time and money for training of the company's employees: In prosperous times there is no time for training and in meagre times no money can be allocated to training (C3-M2-214). This is the reason for ongoing attempts to strengthen the co-operation with a university college and for a more systematic link between training needs revealed in appraisal interviews with the staff and defining staff training plans.

Concerning individual career goals, it appears that promises of promotion after completing formal education is not any major inspiration source for employees enrolled in the engineering course. This has to do with the active training policy presently exercised by the enterprise. Hence, the learners are already benefiting from some favourable conditions: one learner was soon given more responsibilities than his formal work title says. The other has followed many (non-formal) training courses and was given a work title in line with the goal of his present training. A possible 'carrot' is however that when the academic title of Bachelor in engineering is awarded them, then this might have implications for their wage level.

E – Synthesis and suggestions - The significance of formal education within the Human Resources Management and Human Resources Development of the enterprise

The background of formal and non-formal training in XY Offshore is primarily marked by competition in providing technologically advanced services in an upward market, which entails a fast growth in the number of permanent and temporary work contracts.

As a technologically advanced supplier of Engineering, Production and Construction services, XY Offshore has to upskill the staff but is facing some constraints during a long-lasting upturn in the sector. Demanding customers and fierce competition within the offshore sector push XY Offshore to a continuous work on quality improvement and recertification of quality certificates. The local business climate as well as public and semi-public development agencies in the region, facilitate XY Offshore in handling these challenges.

The rapid increase in the number of employees puts pressure on the training policy of the firm as well as on the general dissemination of information and knowledge within the company. The work organisation (exemplified by internal rules and procedure) is therefore undergo-

ing a formalisation in order to cope with an increasingly multi-country and multicultural workforce. This is i.a. reflected in the importance given to Health, Environment and Safety within the overall HRD strategy.

The formalisation of rules and procedures is a challenge for the company's policy on Human Resources Management and Human Resources Development. This process appears as necessary in a fast growing company but could, in the long run, water down the competitive advantage of being a medium-sized enterprise that skilfully turns around the work organisation when needed. This situation places the quite recent HRD department in a central position. The ongoing work on simplified but thoroughly organised appraisal interviews, with an emphasis on skill needs and skill gaps, is about to strengthen the training policy of the enterprise.

The number of employees attending formal education is growing but still relatively low; partly because the staff has to handle an increasing number of contracts. The extent of formal education is also linked to the widespread non-formal training offered to the employees. By attending shorter training courses not leading to formal competencies, the workers acquire skills enabling them to handle immediate work tasks. Both management representatives and learners whom we interviewed stress the high relevance for the work organisation of such non-formal training. Our interviewees agree however that formal education is important for the long-term upskilling of the employees. The employees interviewed wish to sanction a long training period with recognised diploma. The attitude among management representatives is marked by an interest in demonstrating formal competencies endowed by the staff. Furthermore, the management pinpoints that diplomas are useful when assessing the skills of job applicants.

It seems that a favourable attitude to non-formal and formal training among line and middle managers has contributed to attracting more employees to training activities. This management layer is also an important information source for those enrolling in any form of training. Against this background, XY Offshore is about to strengthen its collaboration with a local university college both in terms of formal and non-formal training. This will primarily increase the number of workers at ISCED[11] level 5-6 but there is also a deliberate policy to support operators with craft certificates (ISCED 3) who want to enrol in tertiary vocational education (ISCED 4).

Our interviews reveal that it is quite demanding for employees in a full-time job to accomplish part-time studies. Employees who are willing to enrol in formal education get it for free and they are allocated a couple of days off before their exams. These costs are paid by the enterprise. The other part of the deal is that the learners have to invest their own spare time in studying.

The management representatives whom we interviewed, recognise that the present arrangements restrict the trajectory of formal education to highly motivated workers who are willing to sacrifice much of their spare time. There are no public schemes that could subsidise such training, e.g. by compensating the enterprise for the time employees spend on reading the syllabus instead of carrying out their daily work.

Whether the university college could do more in order to alleviate the burden for employees in formal education, remains an open question. Our interviews suggest that the main contribution from the university college would be to practically arrange the training in the most flexible manner. Another item to put on the agenda of the local university college could be

[11] International Standard Classification of Education.

the unequal practices for assessment of prior learning. Higher education institutions, such as university colleges, can exercise a certain liberty towards untraditional learners by regulating admittance rules based on prior learning ('realkompetanse'). Also, prior learning acquired at the work place and in other non-formal and informal contexts can be recognised as relevant and allow learners to shorten their study period. A favourable interpretation by the local university of its rules for assessing workers' prior learning might inspire more employees in XY Offshore, and in the whole sector, to consider starting up formal education.

Case study 4

The importance of 'the school of life' in maritime training XY Maritime Norway

A – General characteristics of the enterprise

A.1 Main activity and characteristics of the organization and its environment

The enterprise XY Maritime[12] was founded in 2006 and has 27 employees today. 3 of these are women, no employee is of foreign citizenship. In addition there are some temporary employed depending on the workload. Staff turnover has not occurred in this newly established enterprise. 14 are working in the production department and 13 in the administration.

The main activity of XY Maritime Norway is to provide engineering and technical services for maritime equipment. The enterprise belongs to NACE[13] 74.209; other technical consultant activities.

The enterprise is located in an area where the maritime industry is well established. In the municipality of 8000-9000 inhabitants, to which the enterprise belongs, the fishing industry is central. There is a larger city nearby, giving good transportation opportunities in the area.

XY Maritime Norway has a board of six persons but no work council ("bedriftsutvalg"). Four of them are employees (three of these are among the original founders working in the administration) and two are external. Accordingly the enterprise has a rather strong administration. The collaboration within the board seems to be well functioning. The board discusses everyday matters regarding production, budget and results. Education and training is seen more as an administrative matter, and is in general only approved by the board after the decisions are made by the management. "But off course, if I take a full-time study that affects my work, it needs to be clarified in advance" (C4-M-1, 54-55).

The enterprise is not a member of any employer's association, but a collective wage agreement is on its way. There is an appointed shop steward. In addition, the fact that many of the employees own a share of the enterprise, contributes to several strong voices and interests in the enterprise. According to the management, disagreements are quickly laid on the table and dealt with straight away, without necessarily going through the shop steward. The collaboration between the shop steward and the management is not yet systematised. There is no local trade union, even though the management supposes that a lot of the employees are unionised. The management thinks that there will be more effects of having a shop steward when the number of employees increases.

During the last two years, there has been a radical increase in sales turnover in XY Maritime and the management envisages further growth.

[12] This name is invented according to a standard procedure for the project LLL2010 to make information anonymous with a view to protect the interviewees and allow them to speak more freely.

[13] A statistical classification of economic activities.

"...the market is very good these days, it is unique...it is rarely as good as now. But it is important that we use the money we earn to further develop the enterprise" (C4-M-1, 112-114).

The enterprise was originally owned by the founders, but lately a part-ownership has been offered to a dozen of the employees. A further discussion of broadening this offer is in the pipeline. There have been a lot of organizational changes since the start, by establishing new positions and hiring people at all levels. There is a short geographical distance between the administration and the production site of the enterprise, where there is a works manager and a foreman with responsibilities for different positions.

We have two informants in XY Maritime. One is the manager of the enterprise. His educational background is vocational upper secondary education and two different craft certificates. He also has tertiary vocational education (ISCED 4), two engineer degrees from a college university, and also ISCED 5+6 education as a graduate engineer from a university in Norway. Since this informant embodies both the management's views and personal experiences with formal learning, his statements are used for both purposes.

The other informant is responsible for sales and marketing, and has been working in XY Maritime for two months. He has upper secondary education, is an engineer educated at two different tertiary vocational institutions and has studied one year at a university college. He has a broad working experience within the maritime trade. The interviewed employee now follows a management training program, which is highly appreciated by the industry and in the region. On a part-time basis, it lasts for about one year with six gatherings adding up to a week. The program is not approved as formal education but might be comparable to other management programs classified as formal training. When finishing the course, a certificate of attendance will be issued.

A.2 Business strategy

The mission of XY Maritime is to increase the efficiency of customers' transport operations, and the enterprise aims to be the first choice for innovative handling solutions. Innovation, flexibility and reliability are central values. Environment and safety requirements are also emphasized in the organization.

Their most important customers are seismology companies and different shipping companies. Optimal solutions for the customer are emphasized in a long term perspective, both with regard to perform1ance and budget. Having the customer in focus is seen as important.

Both freedom and responsibility are central attributes of the culture of the enterprise. Values such as commitment, human compassion, efficiency, and new-thinking are emphasised in their strategic documents. Important competitive advantages for XY Maritime Norway are delivery based on competencies, functionality, reputation, service and competitive pricing. Competences within maritime mechanical construction and knowledge of the working processes of the customers are also considered as an asset. Innovation is a central aspect of their business strategy, and the enterprise is engaged in national innovation programs for the maritime industry. This is an important way to establish a good network and reputation, and has proved to be a good entrance point to international markets.

"We are an enterprise in fast development, with a will for readjustment, learning, new thinking, further development etc." (C4-M-1, not transcribed)

Branding is an important competitive factor that the enterprise has been working on since they started up. It is important to differentiate from other competitors. Branding is seen as a more central competitive factor compared with fixing prices. "We have to develop our own unique products or services that make the customers come to us" (C4-M-1, 114-115).

A.3 Current challenges and initiatives to meet these challenges

According to the management there is "a need for more capacity in the whole store". Recruitment of employees within construction, combined with attracting engineers and travelling millwrights, is a challenge for the enterprise. This is a necessity for providing high capacity in all parts and sections. "Good, qualified workers whom you can send far away, who can solve anything, anywhere....they do not grow on trees" (C4-M-1, not transcribed). To meet such challenges the enterprise has e.g. invited an upper secondary school class to their administration and production site, informing them about the business and advising them regarding future educational and career choices.

Since XY Maritime is a rather young enterprise, marketing is crucial. Purchasing and establishing industrial alliances is also an important task for the newly established enterprise. This is handled by hiring a person who is responsible for marketing and sales, and there are plans for building up a sales division. It is also a challenge to enter a more international market in the future.

B – Human Resources Management (HRM), Human Resources Development (HRD) and training policy of the enterprise

Training and recruitment are central factors for the enterprise. 5 new positions were vacant by summer 2008. The number of employees will most likely increase to 32 by the end of 2008 and there will be 3-5 new positions next year. Since it is a challenge to recruit qualified personnel, internal training of the existing workforce is important. According to the management most workers are promoted to a higher position and get new tasks through a "learning by doing" strategy.

An important part of the HRD and training policy of the enterprise is a membership in a regional association for the maritime industry that offers comprehensive course activities, from truck training to HRD/HRM and management courses.

The management states that:

"...We want committed and enthusiastic fellow-workers, we shall work with added value as a foundation of existence, and we shall be companionable, public-minded and compassionate. We shall be effective while working, but the most important thing is that our customers are feeling treated in the best possible manner" (C4-M-1, 148-152)

The management emphasises that professional qualification, commitment and interest are important criteria for getting a job in XY Maritime. Important qualifications are to appear as public-minded, new-thinking, being reliable and focused on solutions. Such attitudes also affect the recruitment processes. The management enlarges on this:

"I would rather hire a person who is committed than a person who is highly educated and not committed or interested. If people are committed you can always learn them new things. People who are interested and enjoy their work acquire knowledge easily. We can add knowledge along the way" (C4-M-1, 154-152)

The enterprise has a high qualified work force, with experienced employees, in addition to younger "spearheads" who are important actors to 'bear the brunt'. Together they complement each other's strengths and weaknesses. Roughly speaking, around 60% of the work force is highly qualified, 30% medium qualified and 10% low qualified.

The work is organised as projects and temporary employees might be hired in at busy times, both on short and long-term basis. When the workload decreases the enterprise engages in travel-missions, service and maintenance work and offers their administration and production

services selling to other enterprises. Hence, there has been no lay off or dismissal of workers in quiet periods.

"Freedom under responsibility" is emphasised in the HRD policy, and there are arrangements of flexible working hours. If a worker for some days wants to work from other sites than the enterprise premises, this is allowed.

"I don't care that much about *when* people are at work...The most important thing for me or the enterprise is that the work is done (C4-M-1, 312-315).

There are also possibilities for rotating between different tasks as a part of personnel development. XY Maritime Norway has not yet started up appraisal interviews, but the management plans to attend a course on this, together with other employees in the administration. Such a course could contribute to a more solid foundation for the appraisal interviews. Accordingly, appraisal interviews will be held in the near future as part of the upcoming strategy for personnel development.

A competitive advantage mentioned by the management, especially with regard to recruiting employees, is the opportunity of shaping their own working day, compared with a larger corporation where you are a simple pawn in a larger game:

"Here, those who want to develop themselves, and be a part of something, to take a challenge, have the opportunity to do so...As we grow, people will climb higher in the system" (C4-M-1, 197-200).

The interviewed employee has not been in the enterprise for long and is not yet familiar with all aspects of XY Maritime, but he has the impression that there are good possibilities for learning new things. He also confirms the advantage regarding shaping one's own work day: "Earlier I've just entered a system, but here I'm involved in building something up from scratch" (C4-P-2, 36-37).

B.1 Organizations of responsibilities and core processes in Human Resources Management (HRM), Human Resources Development (HRD)

The manager has the main responsibility for personnel issues, HRD and HRM. There have e.g. been some cases of high workload that have demanded attention from the manager. In general, the structure of the small work organization is rather flat. As a consequence, it is supposed that information and feedback reach the manager without any hierarchical filtering. He is also responsible for hiring new people, but the decision is made in agreement with the employee who will have line-responsibility for the new colleague.

The manager gives his approval of sending people on short term and long term training. To send people on different courses is often done in times of free capacity. "We need a refill of competences in certain areas, and we have to fill in the gaps..." (C4-M-1, 269-270).

The enterprise is now introducing a new data system, where quality manuals and personnel policy will be implemented. As they are working more in the offshore market they will soon need to become ISO certified.

The communication between the management and the employees, including the shop steward, is seen as informal and easy going. The management emphasises an unbiased approach to personnel policy, rather than irrational and emotional handling of personnel issues. If there are problems with single persons, this is dealt with quietly under four eyes. "We are dealing with adult people, and I have faith in accomplishing things as a team" (C4-M-1, 288-289).

The interviewed employee feels that the enterprise supports his professional development. "If I need input, I get it. I often have to ask about it, but I get it" (C4-P-2, 64). He adds that: "It has to be relevant and I have to be interested in it" (C4-P-2, 71-73).

B.2 HRD objectives

Filling skill gaps in order to direct fellow workers has been an objective and the enterprise admits that there is still room for improvement in this regard. Accordingly, one employee is now attending a high quality management course that is well known and has a good reputation in the region. The management maintains that more employees will be sent on the same course, which is externally held.

B.3 HRD strategies and use of public support schemes for HRD/training

Customers might often challenge the enterprise to develop new things and pinpoint areas where more knowledge is needed.

"We might turn to others who have that knowledge; we have to be conscious of our own weaknesses and strengths, apply for assistance and buy knowledge" (C4-M-1, 295-297).

According to the management, specific training services have been bought from external providers. "If we need it only once a year – we buy it" (C4-M-1, 299-300). But if there are everyday needs, regarding activities they depend on at a daily basis, the enterprise might acquire the knowledge by themselves, e.g. through courses, updating, data programs etc. XY Maritime might buy equipment that makes it easier to carry out different tasks. "We are few people here, and we need to work smartly and effectively" (C4-M-1, 307-308). The motto is to avoid making things cumbersome and to work smarter than the competitors.

Information on potential training is mostly sent by mail from the management, as soon as new offers turn up. The newly hired employee whom we talked to is so far satisfied with the information channels. The rule is that potential courses need to be clarified with the manager.

Public support for HRD activities or training has not been considered as an option.

B.4 Significance of training activities

Until now training activities have been put into effect whenever there was a need – rather than applying a long-term approach. By now, there are no training plans or documents outlining future training, apart from the plan to include appraisal interviews in the HRD policy. The qualifications of the employees are mapped when they are hired. "The organisation is rather transparent, giving good insight into our strengths and what we need" (C4-M-1 363-364). Training activities are started up in accordance with this information. The need for training is also visible through the daily work. "We depend on people functioning and performing in their job, if there is a lack of competences, we deal with it" (C4-M-1, 370-371). The management claims that investing in courses and competence building is much more constructive and less expensive than dismissing people.

The enterprise has a yearly budget with an earmarked total sum of 300 000 NOK for courses and upskilling, but the management emphasises that they are flexible as to covering expenses if relevant courses requiring additional resources emerge.

The training activities of the enterprise are considered to have potential for improvement, but the level is considered as satisfactory at this stage, according to the management.

C – Formal education within HRM/HRD of the enterprise

C.1 Understanding of and awareness for formal education by enterprise

The division between formal and non-formal education is not a big issue for the management.

> "There are a lot of people that can reach far in the educational system, who can come out with a strong education, but without necessarily being good workers. While there are people who perhaps have reading and writing disabilities and who have never been in education, but who are clever speakers and socialise well with people – they can also reach far. So it doesn't necessarily matter whether the education is formal or non-formal" (C-M-1, 399-403)... "To go 'the school of life', the hard way, takes more time – but it is just as good" (C4-M-1, 408-409).

The personal characteristics of applicants and co-workers are seen as important according to the management. Documentation of qualifications and training is not emphasised when hiring people, but this depends on the job. Cross-checking with alternative references is a more common approach, e.g. if the management has some close relations to the prior enterprise of the applicant.

> "To dare and to want responsibility when there is a storm around you, and to be able to go home and go to sleep and to function as usual...not everybody can do that" (C4-M-1, 409-411).

The training activities of the enterprise are mostly internal (and accordingly non-formal), often through learning from qualified co-workers on a daily basis. In addition there are external courses and in some occasions people are rented for carrying out training. One example is a person hired in for three days to carry out training in the new data system. This might be a cheaper solution than sending a lot of people to external providers. Updating employees' knowledge of computer programs is a rather common topic of training in XY Maritime Norway.

C.2 Experiences with formal education in the enterprises

Today there are no employees, except from the manager himself, who have been in formal continuing education. There are no objections towards such courses, but until now there has been more need for internal and external non-formal courses.

Both our informants feel that they learn a lot through their everyday work. As the manager has had different tasks since he co-started the enterprise, both of our informants are in rather new positions. The enterprise has developed a lot and this necessitates readjustment. According to the manager, it is important to be updated, to have information about the market and the needs of the customers; this makes presence a crucial factor and it is difficult to be on full-time educational leave over longer periods.

One of the informants comments on a big difference in learning methods between university college and university studies. The ability to select from different sources of the curriculum literature was a more wide-spread practice at higher ISCED levels, and self-studies were more prominent. This was a transition from a more lined-up curriculum in the university college, giving clearer indications of what will be measured. Our informant believes in using project work as a learning method. This can break down heavier problem statements into more understandable units to be handled. The informant's satisfaction with the teaching staff is variable.

The program that the interviewed employee is enrolled in (even though not formal) has a predetermined pace and tasks to work with. The work process is seen as more important than the topic. The program is seen as relevant for his working tasks at XY Maritime, but because of the general nature of the program he is not dependent on prior experience within management to participate. Nevertheless he feels that his prior working experience has helped him during the classes. The learning methods are characterized by a combination of

teaching and practical exercises supervised by two regular and otherwise external lecturers and specialists. The hired lecturers are psychologists (both national and international) providing management training. Some self studying is also common. The employee is highly satisfied with these methods and the teaching personnel. Communication skills are seen as an important output of the program.

> "We learn how to behave when you meet new people, and I do a lot of travelling and present the enterprise...Strategies for how to attack different things..." (C4-P-2, 211-213).

C.3 Regulations on and support for formal education

There are no documented regulations or regular support mechanisms regarding formal education. Such matters are assessed by the management as needs emerge.

The employee in the management program started up the course before he was hired by XY Maritime, and was allowed to continue (despite of high costs) with the support from the enterprise. During the course weeks he gets his regular salary (and leave of absence). There is no agreement regarding increased salary, changed work tasks or a compulsory working period after finishing the course.

With regard to formal education it is also clearly signalled to the apprentices working in the enterprise, that they have the opportunity to proceed to entrepreneurship training, economically supported by XY Maritime; provided that they remain in the enterprise for a certain amount of time after finishing their education.

D – Participation in formal education, workplace learning and HRD policies of the enterprise

D.1 The relation between workplace, workplace learning and the chosen formal education

As mentioned above, internal and non-formal training is at this time a more common practice than formal education in XY Maritime.

Prior work experience is seen as very helpful before starting up education, and - according to our informants - it is also helpful when re-entering the labour market.

> "Most of the students in my class went straight from upper secondary education to five years of higher education. Then they had to go out and "feel" how the world is before moving forwards and upwards. I will claim to have a 3-5 years head-start compared with my fellow students, because of my work experience" (C4-M-1, 668-671).

The employee in the management program sees many advantages of the organisation of this program compared with other formal education and internal courses he has attended earlier.

> "Everybody is 100% motivated. When I was in the university college class the lecturers were not very preoccupied with good quality courses or people being motivated" (C4-P-2, 241-243).

Both workplace learning and external courses are seen as positive opportunities. According to the management it is interesting to meet other people within the same business, and to compare the progression of the enterprise with other competitors, as well as learning from other people who have reached far.

D.2 Decision on the formal education, processing of the decision and support/non-support by the enterprise

The decision on participating in education seems to be rather self-motivated from the side of our informants. Nevertheless the management has to make the final approval. E.g. the enterprise agreed to support and cover all expenses for the rest of the program of the interviewed employee. The management is also planning to send more employees on the same program. According to the employee, the management has been positive by approving different courses and training programs – provided that they are of relevance for the enterprise.

D.3 Formal education, individual career goals and the work-family-personal life balance

Combining education, work and private life is seen as a challenge by one of our informants, "it is easy to become a workaholic" and to renocence your closest. Having complicated family relations or taking care of family members is often a challenge to juggle beside ordinary work and training.

The employee in the non-formal management program sees no difficulties in combining private life, family and care responsibilities, training and work. He is participating on a part-time basis, and is separated from his work and family for only one week once in a while.

It should be mentioned that the enterprise has flexible arrangements for families with young children. If employees want to work from home during a few days, this is accepted as long as they are available.

D.4 Assessment of promoting and hindering factors for the use of formal education for supporting the daily work and for pursuing individual career goals

Learning and teaching methods are considered as having potential for motivation into education, and for better adjustment. E.g. having project work or practical experiences, where relevance can be drawn to the daily work or one's own enterprise, is seen as a promoting factor. This creates more interest.

The interviewed manager (who is also a learner) has several plans for future further and continuing education, e.g. within economy, trade and marketing. The hindering factor for accomplishing this is the lack of time. The employee has no more plans for training: "Not today, but maybe later. At this time I've got enough with a new job, and this course" (C4-P-2, 237).

In a stressful workday the lack of time might be a drawback for involving in further and continuing education. "We have the capital to do it, and the will also, but the ability might be a limitation" (C4-M-1, 496-497).

E – Synthesis - The significance of formal education within the HRM and HRD of the enterprise

XY Maritime is a newly established enterprise where readjustment, growth and innovation is central. Accordingly training and recruitment is seen as a good investment and an important part of HRM and HRD, which is mainly under the responsibility of the manager. There are not yet systematic approaches to personnel policy, and training initiatives are initiated whenever a need comes into existence. The case-study reveals that a more organized and planned HRD policy is on its way. Until now internal training and non-formal courses have been more common than formal education. But both "the school of life" and formal education is seen as valuable attributes:

"Both are good, both has positive and negative sides...I think both formal and non-formal have been and will be in the future...I have no problem recommending both" (C4-M-1, 770-772).

When hiring new people personal characteristics, motivation, interest and commitment is seen as more important than formal qualifications according to the manager.

"To learn quickly is the key to success..." (C4-M-1, 769-770)

To sum up; in the opinion of the management and the learners, formal education is just one of the ingredients in the approach to HRM and HRD of XY Maritime Norway. Both informants have positive experiences from participating in further and continuing education parallel to their work, even before they joined the enterprise. The employee reports on support and good communication regarding his possibilities and professional development. Whether the training is formal or not, is not a big issue.

The interviewed manager sees education as a platform for further learning in the working life. "The real learning starts the day you finish school, you learn every day. If an engineer is to be good...it is to learn new things all the time, no working day is the same" (C-M-1, 710-712).

Case study 5

Training to remain hi-tech with qualified staff apt for global operations
XY ToolSyst Norway

A.1 Main activity, characteristics of the organisation and its environment

XY ToolSyst[14] produces automatic tool systems and carries the NACE[15] code 29. The enterprise is situated at the north-western cost of Norway and forms part of a petro-industrial cluster, in which some companies also deliver products and services to the maritime cluster. However, the two clusters can be distinguished (cf. Reve, T.; Jakobsen E.W. , 2001) and XY ToolSyst is now more directed towards the offshore industry than the maritime industry. The sales turnover has soared during the last years and in 2007 the total operating expenses approached 150 million €.

The main site of XY ToolSyst had 330 employees by early 2008. Seven more sites are situated in Norway and the enterprise has recently expanded into two more continents. At the beginning of 2008, the entire group of companies counted 550 employees, which is up from 240 one year earlier. The share of women is on the increase but presently stands at 15%. Around 10% of the employees working in Norway are foreign citizens.

Four trade unions are recruiting members from the staff at XY ToolSyst but the company has not joined any employers' association. One example of external support and networking is its membership in a maritime association gathering most enterprises belonging to the maritime cluster on the north-western coast of Norway. This association endeavours to regulate the co-operation and competition between its corporate members, also with regard to staff recruitment and training, which from 2004 and onwards became a critical issue for XY ToolSyst and its competitors in the region. The regional maritime association in which XY ToolSyst is a member sets up training that may lead to craft certificates, exams from tertiary vocational schools or engineering education.

A historical retrospective on the Norwegian maritime cluster (or complex, as it is also called) concludes that its survival in a fierce international competition:

> "...depends heavily on its infrastructure of supporting institutions, which facilitates new ventures by making available technical, market, insurance and financial knowledge and contacts" (H. With Andersen 1997:500).

The maritime association referred to above can be labelled a 'supporting institution' and it has also been active in drawing on other institutions, such as the local labour market service during the downsizing period that preceded the present bonanza in the Norwegian maritime sector (cf. B.K. Teige 2007:195ff).

[14] This name is invented according to a standard procedure for the project LLL2010 to make information anonymous with a view to protect the interviewees and allow them to speak more freely.

[15] A statistical classification of economic activities.

The staff turnover is presently low in XY ToolSyst, thus indicating that competitors 'poaching' skilled workers do not represent any major problem for the enterprise. At a national scale, there is a persisting scarcity of skilled workers (including technicians and engineers) in the maritime and petro-industrial clusters.

A.2 Business strategy

This strategy attempts to cross-fertilise the company's activities in various market segments, above all offshore, subsea, naval and power. Alongside developing innovative solutions for customers across these segments, the company now builds up an international network for after sales and service. Its expansion abroad includes the setting-up of production facilities. While outsourcing the bulk of the labour intensive production, the company keeps control over assembly and testing. In addition, development and market orientation of the products is kept in-house. The overall strategy is to move from being a technology supplier into a provider of integrated solutions for customers.

A.3 Current challenges and initiatives to meet these challenges

The business strategy described above has engendered a streamlining of the organisation into global operations, sales and marketing in addition to after sales services. Moreover, the outsourced activities are largely managed through the Norwegian value chain, which is currently facing a lack of skilled personnel due to a tight labour market and a systemic underproduction of candidates with technical and engineering skills.

The rapid staff growth is coupled to the development of a common HRD system, which also will embrace overseas sites. In this context, managers at various production sites are being trained in the art of managing global operations in a company that is expanding both abroad and domestically. Another challenge is to maintain and develop existing interfaces with training providers at each site, including the public education system. The growth of the company has repercussions on the internal work on quality assurance. More attention is now paid to quality management in the whole organisation and this is underlined by the appointment of a manager in charge of quality, health and safety.

As to skills shortages, the company is presently poised to recruit more low-skilled workers who have to be trained. In addition, junior staff with a couple years of in-house work experiences is being upskilled. One practical example of the latter is provided by a middle manager:

> "Given that the growth has been so fast, we had to pick the most experienced people from our production lines in order to do service work on boats. They have to do all the jobs when they are on the boats because when you are there, everything is in a hurry. Out there, everything is expensive. Then you are left with the remaining junior staff working on the shop floor, while the senior staff who knows very much is a scarce resource. That is where the challenge now lies, on that level, to develop more competencies among the juniors who perhaps (only) have been here for two or three years (C5-M2-299-302).

XY ToolSyst has obtained certificates according to the ISO standards, including certificates for environmental impact. One consequence is that more employees have to attend courses ensuring safety requirements of products delivered by the enterprise. In general, the ISO certification contributes to defining the training policy of XY ToolSyst but mostly with regard non-formal training. (C5-M1-193ff). The trade unions represented at XY ToolSyst tend to be active in promoting courses related to health and safety requirements.

B – Human Resources Management (HRM), Human Resources Development (HRD) and training policies of the enterprise

B.1 Organizations of responsibilities and core processes in HRM and HRD

The training policy at all eight Norwegian sites belonging to the group of companies is co-ordinated from the main site. However, this co-ordination takes into account local training conditions, such as already established relations with nearby educational institutions.

At the main site there is a distinct department of Human Relations consisting of one personnel manager and another training manger in charge of organisational and training matters. Arrangements aiming at formal education are normally channelled through the training manager, while the line managers who control the budget, make the final decision. Training activities with an indirect contribution to formal competencies, like improvement of internal communication and teambuilding in each department, are normally handled directly by the line managers.

A management representative explains that the company now is in the middle of a process of human relations development in which skills analysis is one ingredient. He elaborates on this:

> "In this context, one measure is appraisal interviews and conversations for personal development of each employee. This can lead to further and continuing education, partly dependent on personal motivation. Then, our charting of competencies in each department will reveal what we have to handle at a joint level" (C5-M1-248-254).

He qualifies on this by underlining that the requirements for upskilling can vary substantially between each department of the enterprise. However, he is presently working out a common template to be applied in each department. Alongside appraisal interviews, this template resides on collection of data, which will point at concrete follow-up training, be it formal or non-formal.

A management representative informs that the overall system, amongst other things will lean on:

> ".....a training programme for (middle) managers starting up in September this year in the frame of a programme at Master level. One part is also devoted to key (technological) competencies that we need in our production and manufacturing..(....)..We are on our way towards an annual plan systemically based on our key competencies. This part of the plan is very systematic and gives rise to the rest, based on individual needs... " (C5-M1-280-285).

One middle manager interviewed confirms that the upcoming system of appraisal interviews and skills mapping has so far provided the various production sites with a sound overview of staff competencies (C5-M2-111-121).

Overall, the upcoming annual plan appears to centre on technological upskilling (for example in the field of hydraulics and Computer Numerical Control), management and co-ordination tasks (particularly for the middle management) as well as training based on personal needs.

B.2 Human Resources Development (HRD) objectives

A management representative formulates central HRD objectives in the following way:

"Our production and manufacturing is very expensive and time-consuming..(..)..We are involved in a lot of development and prototyping..(..)..We then try to hand over some heavy tasks to subcontractors. We are quite good at logistics and outsourcing..(..).. We shelter our key competencies..(..).. Our domestic production is therefore first and foremost the technology" (C5-M1-126-130).

These HRD objectives coincide with similar efforts by companies belonging to the maritime and petro-industrial clusters in terms of concentrating the domestic production on knowledge intensive activities. Such efforts use to go hand in hand with a transformation from a labour-intensive to a systematically project-based work organisation (cf. B.T. Teige 2007:205).

B.3 Human Resources Development (HRD) strategies and use of public support schemes for Human Resources Development and training

The rapid increase in the number of employees during the last years has led to a higher share of low and semi-qualified staff. The percentage of high-qualified workers is nowadays estimated to 80. A management representative comments on this by stating that:

"...we now have a larger share of low qualified than we wish to have. So there is a job to up-skill them internally;...(....) it is difficult to recruit a sufficient number of qualified people. But still, we have 80% high qualified" (C5-M1-147-150).

The intensive recruitment of new staff also puts pressure on the internal communication procedures and channels of XY ToolSyst. It is therefore pinpointed that professional development of the staff would benefit from more use of mentoring for example in order to disseminate the existing planning and processing tools in the company (C5-M2-136-139).

C – Formal education within Human Resources Management (HRM) and Human Resources Development (HRD) of the enterprise

C.1 Understanding of and awareness for formal education by enterprise

A management representative interviewed is well aware of the distinction between formal and non-formal training but does not regard this distinction as a pillar when the training policy of the firm is defined. He explains that, in practical terms, the distinction is handled as follows:

"As to non-formal training, a line manager wanting to upskill people in his department sets up this training by contacting an instructor, checking the quality of the training, evaluates the training delivered and then makes sure that a justification is added to the learning portfolio of the employees in question...(...)... Regarding formal training, we assess whether the company needs certain competencies. Presently, we cannot recruit enough experienced people; in spite of all efforts devoted to this. The more we can do on our own, the less we need to go out to the labour merry-go-round and search for experienced engineers and operators (fitters). If a person is motivated and provided that we need the skills s/he is interested in acquiring, then the answer is yes..(...)..Our current sales turnover and profits allow us to do that. (C5-M1-322-332).

Part of the picture is also that unionised workers are offered further education by their trade unions. This applies particularly to technicians and engineers who, by this manner, mostly attend non-formal training (C5-M1-53-56).

Present attempts to reinforce the work on quality assurance also mirror the distinction between formal and non-formal learning. One learner who has gone through certified training in quality management explains that the HRD system of XY ToolSyst is geared towards charting skills of employees occupying specific posts. He further explains the internal system in the following way:

> ".....In case of not meeting these requirements, we have to train the employees concerned; to let them attend more courses. But whether this training leads to a simple proof of attending the course or to a formal exam with a diploma, this is not specified in our arrangement for quality assurance..." (C5-P1-227-231).

Speaking for himself, the learner interviewed presents his own view on formal and non-formal education by pinpointing that the training he attended was paid by the company. He then adds:

> "...this is certainly something I do for (XY ToolSyst) and then the question of receiving a certificate for attendance is by no means a main concern for me. But it is always OK to have a course certificate so that we can document our competencies. From a quality assurance perspective, we will then be able to document the skills of every employee; ..(...)...a proof that you possess competencies" (C5-P1-218-222).

C.2 Experiences with formal education in the enterprises

The ongoing training activities are partly identified after systematic appraisal interviews arranged for identifying skills gaps. As this work is not yet systematised into an overall plan, the present training to a large degree still depends on initiatives from each employee. At the end of the ongoing systematisation of HRD, the training arrangements might be more collective but still with leeway for personal initiatives.

A number of shorter courses offered to employees at XY ToolSyst, for example in Computer Numerical Control, are delivered by recognised formal learning institutions but few of them lead to certificates issued within the formal education system.

By spring 2008, a training programme for middle managers was launched with a view to train them in global operations. This training will last for five weeks and is supported by a specific forum set up for this management layer.

As in other companies, formal training is reported to be demanding for those attending it, particularly for learners who have been away from teaching for some years. There are examples of candidates for passing craft examinations who withdrew but three apprentices from XY ToolSyst were passing their craft certificate in the spring of 2008. One employee is following training in project management (equivalent to 30 ECTS points[16]) and the learner being trained in quality management will receive an internationally recognised certificate. It is an open question if this certificate can be exchanged into ECTS points or whether it can lead to shortened studies for learners enrolling in formal education courses.

Concerning the training in project management, the learner attending it explains his trajectory in the following way:

> "...the study programme is organised by a university college close to here, while a supporting project forum is run from a place outside Oslo. They are also in charge of the course materials and are responsible for the teachers. Then I continued with the second part of

[16] European Credit Transfer System

project management (training), which (later) also might be offered by the university college close to here..." (C5-P2-30-36).

A number of master courses are presently running or are about to be set up. These are:

- In the autumn of 2008, two employees will enrol in a Master programme entitled 'design and development'.
- In 2009, employees at XY ToolSyst will be offered a tailor-made course in hydraulics on a part-time basis developed by a neighbouring university college.
- At the beginning of 2008, one of the learners interviewed started up a part-time Master programme in organisation and management, offered by a technical university.
- There are no general rules for how much financial support that the enterprise should allocate to each learner. The guiding principle is that the more the knowledge to be acquired is needed by the enterprise, the higher compensation rate to be paid to the learner. In general, all training costs (apart from course material) are covered by the enterprise.

Coupled to the arrangements for training subsidies, there is a clause in a standard training contract stating that the leaner has to stay in the enterprise as many years as the educational track lasts. Otherwise, (parts) of the training costs should be paid back to the enterprise.

C.3 Regulations on and support for formal education

XY ToolSyst puts emphasis on maintaining a close collaboration with upper secondary schools, vocational tertiary schools and higher education institutions. In this regard, a neighbouring university college is called upon to develop some tailor-made courses. One management representative explains how he perceives educational institutions:

> "...they have become more like sales organisations, so they are actively selling their training and school facilities. At least, we need to transmit our wishes to them. Then they can offer the right courses and the appropriate educational tracks to us" (C5-M1-108-111).

He qualifies, however, that university colleges are seldom used for providing highly specialised non-formal training courses. For this purpose, XY ToolSyst rather contacts larger enterprises, for example some of its customers, and then asks the contact persons what they expect in the future and what kind of equipment they need.

Given the present strategy of developing differentiated products and of marking a difference to competitors by manufacturing such products, it is difficult to identify lecturers who could assist them in realising this strategy. The possible external help in this regard would be to call upon specialists in business and manufacturing systems, in order words specialists who are good at general process knowledge (C5-M1-360-365).

D – Participation in formal education, workplace learning and Human Resources Development policies of the enterprise

D.1 The relation between workplace, workplace learning and the chosen formal education

One learner, who originally received a craft certificate and later continued with tertiary vocational education and a Bachelor in engineering, has recently completed two training courses in project management. He points out that his work experiences in the three enterprises that

financed his gradual educational track from a craft certificate to a Bachelor degree have been very useful for him:

> "...this has been a great advantage for me compared with those having less work experiences. One thing is that when you have started working, then it is a bit heavy to return to school; but if you pass that obstacle, then you get very much in return from your work experiences. You are better able to put things into a perspective and you have a better background for grasping the big picture behind the various subjects you are going through" (C5-P2-169-173).

The Master theses attended by employees of XY ToolSyst are based on concrete experiences and challenges encountered in the company. This applies to most training courses in which employees at XY ToolSyst are enrolled. In addition, employees undergoing training are sometimes allowed to spend part of their work time by elaborating on practical examples identified at the workplace (C5-P1-46-49).

D.3 Formal education, individual career goals and the work-family-personal life balance

The learners interviewed were very well assisted by their families during the training periods. Although they had to sacrifice much of their spare time, the balance between work, family and personal life was not turned completely upside-down. The learners tend to find it unrealistic that the enterprise should do even more to accommodate for this balance.

E – Synthesis and suggestions - The significance of formal education within the Human Resources Management and Human Resources Development of the enterprise

The *business strategy* of XY ToolSyst sets out to cross-fertilise the market segments of the company.

The strategy for *Human Resources Management* aims to outsource labour intensive production lines while keeping control of assembly and testing. It coincides with a move from technology supply to integrated solutions for customers. This engenders a streamlining of the production with the aim to support global operations. This HRM strategy has repercussions on the *Human Resource Development,* which partly centres on technological upskilling and draws on formal as well as non-formal learning. The *training policy* of XY ToolSyst falls in line with the strengthening of global operations (particularly among middle managers) and covers themes such as quality management and project management.

The preceding lines depict the following illustration of how the company strategies are met by various measures:

	Key measures		
Key strategies	Technological development	Training	Development of customer relations
Cross-fertilise market segments			
Control of assembly and testing by the main company site			
Integrated solutions			
Support of global operations			
Upskilling: project management,quality management, technology training etc.			

The distinction between formal and non-formal training is not a point of departure when the training policy of the enterprise is defined. However, the importance of formalising employees' skills into recognised certificates is acknowledged. Alongside the formal stamp on training issued by the Norwegian educational system, the certification ensured by international bodies, like a Project Management Institute and a quality assurance agency, is useful for XY ToolSyst in terms of demonstrating that the company adheres to the necessary standards. Unionised employees receive some training offered by or transmitted via their trade unions and actively promote training in the field of health and safety. This training is primarily non-formal.

Learners attending formal continuing training have to sacrifice much of their spare time. The coverage of costs for training of employees at XY ToolSyst depends on whether the training is deemed useful for the company. This compensation takes into account both the usefulness and the needs of the individual learners. The utility for the enterprise of the training investments is often ensured by learners writing their assignments and theses while building on the production process of XY ToolSyst. Very much of the formal education has so far been highly subsidised by the enterprise.

One of the learners interviewed commented that there is room for improving the networking between learners and experienced people in-house, who could be used for exchanging information and mentoring the learners. Such peer learning will probably run smoother if more employees of XY ToolSyst simultaneously follow the same training courses. There may however be reasons to keep an eye on the collective learning outcomes of training followed by the relatively few employees who enrol in long-lasting tracks of formal education. Systematic mentoring and peer learning will probably speed up processes of collective learning inside XY ToolSyst.

The extensive economic upturn implying a steady amount of orders, gears the entire work organisation into a mode of serving customers' immediate demands and delivering on time, thus putting pressure on long-term activities. Furthermore, formal continuing training often depends on initiatives from individual employees channelled to their line managers. The upcoming internal system for HRD and training aims to modify this by formalising more leeway for systematic and long-term upskilling of the staff. Among other things, this system consists of appraisal interviews, collection of data and subsequent arrangements for formal and non-formal training.

XY ToolSyst is growing very fast and faces problems with recruiting experienced staff. Consequently, low and semi-skilled workers are recruited and immediately trained. A high share of new employees puts pressure on internal communication procedures and mentoring when teaching those newly arrived. Given the general scarcity of qualified workers in the maritime and petro-industrial clusters, XY ToolSyst has to rely on mentoring and transmittance of knowledge from its own staff. External support for upskilling of the employees is for example offered by a neighbouring university college, which is an important supplier of tailor-made training. As part of the upcoming HRD system, every company site tries to forge ties with external training providers. The success of the regional maritime association cited above in its assistance to training arranged at the main site of XY ToolSyst, could serve as an example of how such relationships are developed.

References

Reve, T.; Jakobsen E.W. 2001: *Et verdiskapende Norge*. Oslo, Universitetsforlaget.

Teige, B. K. (2007)**:** *Development and implementation of the Norwegian Competence Reform Program*: *Rhetoric and Reality*. PhD dissertation, University of Leeds. January 2007.

H. With Andersen: *The Norwegian maritime cluster since 1850*, in 'C.F. Sabel, J. Zeitlin (ed.): "World of possibilities. Flexibility and mass production in western industrialization", Cambridge University Press 1997.

Case study 6

From downsizing to sudden skills deficit XY Shipbuilding Norway

A.1 Main activity, characteristics of the organisation and its environment

XY Shipbuilding[17] has a long history as shipyard and carries the NACE[18] code 35.111. The enterprise now specialises in constructing innovative tailor-made supply vessels, particularly for the oil supply industry. The enterprise is situated at the north-western cost of Norway and forms part of the "maritime industrial cluster", containing enterprises delivering to the offshore industry but which is distinct from "the petro-industrial cluster" (cf. Reve, T.; Jakobsen E.W., 2001).

XY Shipbuilding has presently 215 employees at the main site of which approximately 35 either hold a foreign passport or are first generation Norwegian citizens. The share of female employees is close to 10%. There are in addition around 180 workers at other sites that were merged into the company during a reconstruction a few years ago. The staff turnover is low, particularly in view of the temptation of companies to recruit experienced workers from competitors by offering higher wages (C6-M2-288-292). In the very tight labour market, the loss of every experienced worker renders XY Shipbuilding vulnerable (C6-M1-161-168). However, competing local employers recruit few employees from XY Shipbuilding and, in general, this loss is swiftly compensated by staff recruitment from its local competitors.

There is presently more staff hired in by XY Shipbuilding's subcontractors than there are workers on permanent contracts in the entire company, which traditionally has been very dependent on subcontractors; mainly those supplying electrical and electronic equipment as well as machinery.

Until recently these subcontractors came from the local or regional neighbourhood, while they now are increasingly located in the new EU member states. Those hired in count 600 but this number will drop, because a new business unit is about to employ workers who earlier would have been subcontracted. The employment conditions in the new business unit will become similar to the contracts held by the permanent work force. Most of those affected by this new unit are foreign workers holding a passport from the (most recent) EU member states.

The extensive use of subcontractors has also to do with the upswing in most parts of the shipbuilding industry. Moreover, the volume of orders seems to remain high in the immediate future. This favourable business climate emerging in 2004 has not clearly influenced the profit margins, which have experienced some ups and downs since then. The company was in break-even in 2005, had a surplus of more than 5 million € in 2006; but then went into the red with

[17] This name is invented according to a standard procedure for the project LLL2010 to make information anonymous with a view to protect the interviewees and allow them to speak more freely.

[18] A statistical classification of economic activities.

a deficit of 5 million € due to delays from subcontractors and problems with a new ship design. The sales turnover has experienced a steady increase and reached 120 million € in 2007.

Before the 2004 upswing, XY Shipbuilding had been through five meagre years during which the workforce was sliced down from 400 to around 100 workers. The local employment office (today called NAV) was then a central partner with regard to providing training during dismissals and preliminary lay-offs (B.K. Teige 2007:202). Our interviews confirmed that during this austere period the staff was consolidated i.a. by means of formal and non-formal training, partly financed by NAV. The management stresses that the workers by 2004 were well prepared and motivated to tackle a new demanding market.

During the five meagre years the enterprise was transformed from a *labour intensive* to a *project based* work organisation. As in similar ship yards in north-western Norway, the management strategy was to rely on flexibility, a small platform of high-skilled loyal local workers, more outsourcing of labour intensive work, more use of external contractors, and import of low-cost workers on short-term contracts from the new EU member states (B.K. Teige 2007:205). It should however be noted that the well-established practice of subcontracting made XY Shipbuilding recruiting foreign workers from EU member states as early as in the late 1990s; in other words long before low-cost EU workers became the panacea for the tight Norwegian labour market. Prior to the 1999 recession, the local employment office (NAV) assisted XY Shipbuilding in this recruitment (ibid.). Throughout shifting business cycles, the company has proven to be most innovative in terms of sudden organisational changes and modifications of production methods (C6-M1-433-436).

XY Shipbuilding is member of an employers' associations and three trade unions have concluded agreements with the enterprise; one mainly for operators, a second counting foremen and technicians as members and a third trade union for engineers. The communication between the management and trade unions is characterised as formalised when needed, supplemented with frequent informal contacts to sort out everyday issues.

Some trade unions have their own schemes for organising and financing training of their members. Employees of XY Shipbuilding attend such courses. One example is engineers being trained in new software utilised by the enterprise. This training is normally free of charge for XY Shipbuilding. The only sacrifice needed is that the company accepts that the employee takes a pause from the daily production. In times of bonanza this is however a burden for companies (C6-M2-247-256).

A.2 Business strategy

The business strategy is disseminated to the staff in a manual that is publically available. Departing from local ownership and adapted production at the main site, XY Shipbuilding aims to deliver high-technology supply ships to the oil industry as well as other specialised vessels. To fulfil this ambition, both human and fixed capital need to be further developed so that the enterprise is able to anticipate market developments and accordingly adjust production and working methods.

The enterprise aims to maintain a nucleus of highly competent employees who are able to manage, handle and produce advanced shipbuilding projects. Based on a practical and economic assessment reflecting business cycles as well as labour market developments, production sites and methods have to be adapted. In this context, the geographical location of sites is considered; while taking into account the co-operation with domestic as well as foreign suppliers and subcontractors.

According to the management, the competitive advantages of XY Shipbuilding are price, delivery on time and quality. Several sources add to this that one more competitive advantage is the company's relatively small permanent staff and its work organisation characterised by informal communication.

A.3 Current challenges and initiatives to meet these challenges

When XY Shipbuilding came out of the recession period, the workforce consisted of a core of 115 well-qualified workers. Afterwards, the HRD department recruited 100 new workers to the main company site, which has gradually faced problems in finding experienced job applicants. Hence, more and more newly recruited workers have to go through different sorts of training. This is a common challenge for companies belonging to the maritime- and petro-industrial clusters of the Norwegian economy.

In addition, XY Shipbuilding tries to recruit young people who are unemployed or have not completed compulsory education. This group makes up around 5% of the workforce and goes through a training programme. The local employment office (NAV) assists and subsidises this training scheme. Roughly speaking 20-30% of those recruited from this target group, are able to adapt to the daily work rhythm and are offered permanent contracts (C6-M1-103-113).

B – Human Resources Management (HRM), Human Resources Development (HRD) and training policies of the enterprise

B.1 Organization of responsibilities and core processes in HRM and HRD

The HRD department is responsible in matters of training as well as recruitment. This applies both to short-time courses that in most cases involves non-formal training and to more extensive courses leading to exams recognised by the formal education system. Operating units of XY Shipbuilding signal training needs to the HRD department and is involved in the practical arrangements.

When asked to identify the principal approach that is used for developing staff competencies, a management representative answered:

> "Throughout the last years this approach has consisted in good management of the daily work and in good follow-up of each worker at a departmental level" (C6-M1-188-190).

Our informant maintains that the enterprise is on its way back to a situation with more formalised and systematic training. Among other things, this implies that the HRD department can devote more time to planning and arrangements of training activities. With reference to the emergency state during the five-year recession, he explains the state-of-play for staff interviews as follows:

> "Systematic appraisal interviews were tried out some years ago but our situation then made us abandon them. We are now in a process of returning to that procedure and we try to work more systematically" (C6-M1-197-199).

To some extent, training was on the trade union agenda before the enterprises went into a recession in 1999. Throughout the period of downscaling the skills possessed by each employee counted among the criteria for who should stay or leave the enterprise. After having identified the key activity areas for the enterprise, the employees were positioned according

to the skills s/he possessed in each area (C6-M1-262-273). The trade unions took part in these difficult discussions.

Later, training and upskilling have not been subject to extensive discussions between the management and the unions. One of our informants who is heading a trade union represented at XY Shipbuilding, tells that the contractual conditions for employees undergoing training are not subject to negotiations with the enterprise. Instead, these contracts are concluded between each learner and the HRD department. Such contracts mainly regulate conditions for obtaining training leave, provided that the learner promises to stay in the enterprise for a certain period after completing the training (C6-M2-334-336).

A management representative explains how social partner co-operation took place during the five meagre years:

> "Both through the process of lay-offs and during discussions with the trade unions, we had in mind to consolidate the competencies. And by means of the training programmes put into place in that recession period, we extensively planned to face a new market situation with a sufficient amount of well-qualified workers" (C6-M1-215-219).

His general assessment is that the trade unions were very collaborative during the recession lasting until 2004 (C6-M1-56-60).

B.2 Human Resources Development (HRD) objectives

The staff manual states that the overriding HRD principle is to offer job tasks in line with the employees' interests and capabilities. Managers at all levels have a duty to accommodate for and further develop competencies of the work force, among other things by allocating job tasks that contribute to this development. The ambition is to organise systematic competence development.

B.3 Human Resources Development (HRD) strategies and use of public support schemes for Human Resources Development and training

At the moment of the interview, XY Shipbuilding did not benefit from any substantial public support schemes but is continuously co-operating with the local employment office (NAV) when it comes to hiring new employees, also young drop-outs from compulsory education. On earlier occasions, the enterprise has received extensive support from the local employment office (see above). Among external bodies supporting HRD and training in XY Shipbuilding our interviewees also identify the department for enterprise development in the county administration (C6-M1-221-228).

C – Formal education within Human Resources Management (HRM) and Human Resources Development (HRD) of the enterprise

C.1 Understanding of and awareness for formal education by enterprise

One management representative interviewed explains his view on the distinction between formal and non-formal learning in the following way:

> "The most important thing for us is that employees possess competencies enabling them to carry out their daily work, while allowing them to develop their skills and the products to the satisfaction of our customers. Whether this is shaped as formalised training, courses, exams or through practical work is not that important. Nevertheless, I need to signal that

our company would like to provide opportunities both for in-company training and for company-assisted training in schools, at courses…" (C6-M1-311-316).

One of the learners interviewed is now enrolled in Bachelor training and admits that a Master degree might have a role in his very distant professional horizon. When asked how important it is for him to receive a formal proof of competence after graduating, he says:

"For me that is very important because I consider the situation to require that…(..)… A formal paper is a must. Because then you do not have to accept whatever job, you are able to apply for a job that is interesting for you" (C6-P1-253-256).

One other learner interviewed also attaches importance to the diploma that he will receive after graduating. He underlines that particularly if he is accepted to enrol in Bachelor engineering education, a diploma at that level will be useful (C6-P2-259-262). When invited to assess the importance of a Bachelor in engineering compared with a Master degree, he argues in the following way:

"I believe that you as an engineer with some experiences can reach as far as a civil engineer. That is my impression. Project leaders can be either civil engineers or engineers. We even had one who had nothing formal of that sort, he had only attended lots of short courses and had experiences. In this enterprise, in any case, I think that practical experiences at the workplace also count…"

C.2 Experiences with formal education in the enterprises

When invited to present experiences with formal and informal education one management representative states that:

"….the feedback from employees in learning is that practical experiences are very useful for being able to absorb theoretical knowledge..(…)… Some employees were enrolled in tertiary vocational education but did not succeed in completing their training. This also reflects that when an employee is not able to allocate sufficient time for the studies, then the theoretical curriculum becomes too demanding" (C6-M1-376-382).

The same informant proceeds by explaining the importance of formal education when recruiting new staff:

"…we look for people with a good blend of theoretical background and (practical) experiences. The more recently an applicant has graduated, the closer we look into papers documenting formal competencies; and not the least whether the applicant has been conscientious and reliable in previous jobs" (C6-M1-386-393).

The management representative qualifies that the enterprise does not use any tools or instruments for charting or testing such capabilities. One learner who is in a process of formalising his liaison with the enterprise while graduating to a Bachelor degree, confirms that the recruitment procedures can be informal. His so far tacit agreement with the enterprise to work as much as he wants during weekends and holidays throughout his educational trajectory, was based on his supervisors' impressions of him during a few summer jobs.

He has only one year left of his formal education and has received clear signals from the HRD department that his Bachelor training in logistics is highly relevant for XY Shipbuilding. During his last year at a university college he expects to receive a formal offer, detailing what kind of job he could start on when joining the enterprise after his final exam. So far,

the work experiences he has collected are useful for his education career and his impression is that he will be allowed to try out different jobs during his remaining summer job and until he graduates in one year's time (C6-P1-90-97).

While attending full-time Bachelor training only interrupted by shorter work periods in XY Shipbuilding, the learner interviewed has to pay all the training expenses on his own. As he by XY Shipbuilding has only had an uninterrupted full-time job period of seven months, he does not expect the company to subsidise these expenses. When invited to assess the Bachelor training after having attended it for two years, he states:

> "When enrolling in a university college you are often surrounded by people with many years of work experiences, who started up education quite late; and you have those with fresh impulses almost straight from upper secondary school. It is always important to create a good balance between people with much work experience and young people, because there are different angles based on our distinct backgrounds" (C6-P1-233-241).

To the opinion of this learner, the way in which the students are distributed into working groups for learning purposes does not sufficiently take into account this variation of experiences.

A second learner whom we interviewed has worked in XY Shipbuilding for more than two years. On his own initiative, he asked for a training leave in order to undertake continuing education. He applied for attending vocational tertiary education (ISCED 4) or to start up engineering training at Bachelor level. He got a green light from his superiors and will start at one of these educational tracks in a few months. At the moment of the interview, it was not sorted out whether he would receive any financial support from the enterprise while attending the formal education.

Among the conditions that so far have been laid down is the opportunity to work in the enterprise during holidays, weekends and on other occasions. Also, the management has signalled that he will be allowed to work in different departments during his full-time study period, for instance dealing with machinery and pipelines. By this means, he might have the opportunity to relate educational subjects to experiences at the workplace. During his 2 ½ years work experience in XY Shipbuilding he has attended two shorter training courses; one in standard Microsoft software and the other a three days course on a software adapted to the enterprise. One motivating factor for undertaking continuing education is to encounter new challenges.

To render the picture of education and training more complete, one management representative tells us that apprentices are regularly recruited and trained in the enterprise.

C.3 Regulations on and support for formal education

As to external support, the enterprise was one of the founders of a regional maritime association gathering most enterprises belonging to the maritime cluster on the north-western coast of Norway. This association counts some of the competitors of XY Shipbuilding but it has found out how to serve its corporate members in a practical way, also with regard to staff recruitment and training. One example is that key staff is sent out to train other companies in a specific subject that does not reveal any protected business ideas. One management representative explains how the association is working:

> "...in one way, training was the issue that founded the association 35 years ago. All the ship yards that were members from the outset realised a need to organise training for the professional staff engaged in production, and subsequently decided to do that on a joint basis.. (...).. The motto has been to collaborate on what we can agree upon and to compete on

what we have to compete about. As an example, we can compete on obtaining contracts but once a company is allocated new projects, we can start collaborating on how to solve them (C6-M1-359-368)".

The maritime association sets up training that may lead to craft certificates, exams from tertiary vocational schools or engineering education. Instead of concluding separate agreements with educational institutions, XY Shipbuilding utilises the maritime association as an interface. The association also serves as a local 'training office' in a specific trade, thus partly fulfilling public functions.

D – Participation in formal education, workplace learning and Human Resources Development policies of the enterprise

D.1 The relation between workplace, workplace learning and the chosen formal education

XY Shipbuilding has obtained certificates according to ISO standards, but rather few orders require certificated skills among the workers in charge of delivering the orders. The management maintains that when there is a need to demonstrate certificated skills, and provided there is a skills gap, the employees concerned are immediately invited to go through the required training (C6-M1-23-26). The link between certification and training is strong in the field of welding and when upskilling is required, the internal 'Welding School' is mobilised to train employees in welding operations. An international certification and risk audit company supervises this training.

Alongside updating certificates in welding, the people in charge of Health, Safety and Environment in XY Shipbuilding keep an eye on the validity of certificates in the field of painting, scaffolding and all kind of lifting operations (C6-M2-136-150). When needed, the renewal of such certificates entails upskilling of specific groups of workers. This training is generally non-formal and is tightly linked to the production process. It normally takes place at the workplace and can be labelled workplace learning.

In average three times a year, the Norwegian Maritime Directorate invites companies to inform them and, when necessary also train them, in new rules and regulations for the maritime sector. On such occasions, a couple of employees from XY Shipbuilding use to attend those meetings. Later, they apply the new rules and transmit them to other colleagues affected by the regulations, which generally address safety and environmental matters (C6-M2-91-110). This training is typically non-formal, it hardly leads to any proof of attendance and is most comprehensive when a new model of vessels is being constructed.

There is a quality control department in XY Shipbuilding but no total quality system as such is applied. Systematic work on quality certainly instigates training of employees and can be added to the list of factors influencing HRD in the enterprise (C6-M1-422-425).

A management representative informs that the training policy currently concentrates on:

> ".....keeping the in-house competencies as well as upgrading and certifying competencies when needed, in addition to upskilling the administration and the management in electronically supported planning tools, such as a system for improving the data flow between in-house departments....(C6-M1-231-238)."

In the same vein, a logistics system (stretching from purchasing to design) has sparked off a range of training activities for those affected by its introduction.

Supervisors are one of the target groups that presently is benefiting from extensive formal and non-formal training. On an annual basis, approximately 25-30% of the supervisors are invited to start up training activities (C6-M1-295-299).

One learner interviewed explains parts of the internal learning culture in the following way:

> "...my impression is that people look for new opportunities by moving to a work position implying more responsibility, including responsibility for other people...(..) Most of the supervisors in each department have climbed the ladder....(C6-P2-90-99).

The learning culture is also marked by a non-hierarchical communication style, which is said to be less informal in neighbouring enterprises of the same size as XY Shipbuilding. The learner interviewed enlarges on this:

> "...there is a relatively flat profile. A worker can walk directly into the technical department and ask for assistance. He does not have to go through the supervisor... who then have to contact anyone else...in another department. The relations between colleagues are very good" (C6-P2-214-217).

D.3 Formal education, individual career goals and the work-family-personal life balance

One of our informants reports on a tendency that young workers are those who most frequently start up any form of training. He explains this by enumerating some factors but it should be noted that none of them relates to any deliberate discrimination from the side of the enterprise (C6-M2-250-341-404):

1. Young workers are more in need of upskilling than their experienced colleagues
2. Experienced workers have climbed the hierarchy and have less time to leave their commanding/co-ordinating positions to start up training
3. Workers aged -/+55 tend to ponder more on their pension and retirement than on further upskilling.

These observations made by one informant coincide with mechanisms of self-selection that can be found in all parts of the training and education system. One the one hand, this selection makes it more likely that the enterprise invests in training for those who are motivated enough to complete a demanding educational trajectory. The other side of the coin is that self-selection is probably not to the advantage of an enterprise in a long-time perspective. Whereas the Human Resources Development and training policy of XY Shipbuilding is now being strengthened, this could be an opportunity for paying some thought to this matter.

Turning then to the specific issue of formal education, one management representative sums up some experiences in the following way:

> "When we have accommodated for part-time studies, (.....) not the least for supervisors and those in similar positions, we have experienced that many of those enrolled in courses did not succeed because it was too demanding to combine school attendance with staying in full-time job and respecting domestic tasks. For some years we encouraged, among other things, employees to attend tertiary vocational training but we experienced a high drop-out rate" (C6-M1-318-324).

However, these experiences do not rule out future efforts to support employees undertaking formal education, also tertiary vocational training.

One of the learners interviewed explains his decision to enrol in full-time Bachelor education by a wish to concentrate on demanding theoretical issues during a normal workday. He qualifies this by stating that:

> "...after a tiring workday you may not have much energy left for (studying) various theoretical subjects loaded with professional terminology, mathematics and so on..."

Our informant then decided "to attend the education as a full-time job". In that respect, he rallied behind the majority of his fellow Bachelor students in logistics: Three out of four classes attending this training do it on full-time.

Another learner whom we interviewed will start up formal education in a few months. When asked if he had considered combining his future training with a full-time job, he answered:

> "I have thought about that;..... particularly if I do not start up the Bachelor training but enrol in a vocational technical school. But (until) now I have studied some subjects during evenings (to obtain 'formal study competence') ...(..)... I am tired of combining evening courses with working, so I ruled out that option (C6-P2-267-270)".

He thus confirms observations on reluctance to combine full-time work and part-time studies over a long period (see the synthesis of all case studies in the forthcoming Norwegian national report).

E – Synthesis and suggestions - The significance of formal education within the Human Resources Management and Human Resources Development of the enterprise

XY Shipbuilding is still recovering from a five-year recession during which HRD was in a kind of emergency state. Soon after entering a much more favourable business climate, the enterprise faced a sever scarcity of skilled employees. One remedy was to rely even more on subcontractors than it used to; and there are now more workers engaged by subcontractors than there are workers on permanent contracts. Under these extraordinary circumstances, it has taken some time to return to systematic work on HRD, for example to return to a system of appraisal interviews and to formalise contracts for employees on training leave. There seems to be a need to speed up the transition towards a more formalised and systematic training policy, while maintaining the informal communication pattern between all staff layers. This informality is appreciated by the staff and allows for fast transmission of knowledge between employees, which has been an asset enabling the enterprise to adapt quickly to fluctuations in business and labour markets. The flat hierarchical structure is more pronounced in XY Shipbuilding than in nearby enterprises of the same size and belonging to the same sector.

As in many other parts of the Norwegian industry, the trade unions represented in XY Shipbuilding do not extensively deal with staff training. XY Shipbuilding is situated in a tissue of external providers of different services, i.a. an association which co-ordinates training for its members and serves as an interface towards schools. The association also draws on key staff among its corporate members in order to arrange training.

The deliberate strategy to deliver high-technology supply ships and to maintain a 'nucleus' of high-skilled employees at the main site, has implications for the company's view on formal

education, which forms part of the HRD policy. The training policy, which has to be narrower than broader efforts on HRD, is to keep the in-house competencies while upgrading and certifying competences. One ingredient in this policy is certification to live up to quality certificates and ISO standards. This work calls on employees in charge of Health, Safety and Environment. When the new business unit, set up to employ workers who earlier were contracted on short-time contracts is up and running, it also needs a training policy which fits into the policy for upskilling the old 'nucleus' of high-skilled workers.

The management as well as workers undergoing training attach importance to formal education. Our interviewees stress however that in-company training and non-formal competencies definitely also count in the training policy. Practical experiences at the workplace enable the workers to absorb theoretical knowledge. To the satisfaction of learners undertaking formal education, they are allowed to gather experiences from different departments during shorter working periods while attending full-time education. The learners interviewed shared the widespread reluctance to combine full-time work and part-time studies. They have therefore decided to limit their work periods in XY Shipbuilding to holidays and weekends. There is a tendency that younger workers are those contacting the HRD department to discuss their plans for formal education. Such self-selection of young and often already qualified staff to undertake training is a very common phenomenon and could be addressed during the present strengthening of HRD and training policy in XY Shipbuilding.

References

Reve, T.; Jakobsen E.W. 2001: *Et verdiskapende Norge*. Oslo, Universitetsforlaget.

Teige, B. K. (2007)**:** *Development and implementation of the Norwegian Competence Reform Program*: *Rhetoric and Reality*. PhD dissertation, University of Leeds. January 2007.

Formal education in an informal Norwegian culture of enterprise training

There is an informal training culture in Norwegian small and medium-sized enterprises. This is the conclusion from case studies leaning on larger surveys of training patterns in Norwegian industries. The informality has something to do with relations of trust. Amidst the usual mix of collaboration and competition that is found in local industrial areas, there is notably a limited fear of competitors 'poaching' highly trained employees. We also found a more or less conscious strategy of seizing opportunities to fill skill gaps when learners are willing to start up training and when company budgets allow for unpredicted training expenditures. Formal education is financed without neatly assessing whether it strictly falls in line with company needs. The study therefore reobserved the nebulous borderline of training for the company vs. training for personal upskilling.

Fafo

P.O.Box 2947 Tøyen
N-0608 Oslo
www.fafo.no/english/

Fafo-paper 2010:21
ISSN 0804-5135