



Competence audit in industrial production companies

A handbook for the preparation, execution and usage
of competence management in production work
on the basis of the CM ProWork tool

Alexander Schletz¹, Andrea Koren², Dr. Elmar Witzgall³

¹Fraunhofer Institut für Arbeitswirtschaft und Organisation; ²Institut für Arbeitswirtschaft und Technologiemanagement der Universität Stuttgart;

³wissen-koennen.de

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1 The concept of competence development and competence management pursued by the tool

Basically, CM ProWork is an operative tool. It does not offer strategies or measures, but data that can be used as a basis for a strategic competence management in production and industrial companies.

This data in the first place applies to the individual skills and readiness of (semi-skilled, trained and specialized) workers in completing tasks and work processes. Collective skills must / can be derived from the individual data. Distinct leadership tasks of foremen or production leaders are captured only in part.

The competence development model of CM ProWork is – just like the tool – task and work process oriented. Competences and the respective competence values therefore develop depending on

- the range of tasks (number and nature of assigned responsible tasks)
- the complexity / difficulty of assigned tasks
- the respective responsibility profundity (partial assignment to full responsibility)
- the level of task proficiency
- the behaviour in a context of task related learning demands
- the behaviour in a context of process and company related cooperation and communication demands
- the behaviour in a context of different interests and needs in a cooperative working process.

These development dimensions correlate on the one hand with classic work organisation strategies: job enlargement, job enrichment and partly autonomous group work. As it explicitly incorporates enhancement processes and tasks on the one hand and learning demands with regard to changes on the other hand, the model can well be integrated into continuous improvement processes (CIP) and respectively oriented standard management systems.

Personnel development strategies that aim at general personality traits and especially on soft skills are in contrast almost not supported. Possibly problematic overlappings exist in the field of pay programmes. Conflicts can arise, if the task competence shows higher values than the (task oriented) evaluation of the workers suggests. These discrepancies are tool specific in so far as the task inventory used is much more differentiated than the one the pay programme is based on. This way it can become obvious which achievements are expected but not considered in payment.

The tool therefore is not suited for personnel assignment strategies that in the first place aim at keeping labour costs low and a flexible exchange of (cheap) production workers.

2 What and how does the tool measure?

The tool measures demand orientated. The competence constructs used apply to task oriented demands on the one hand, to working process oriented demands on the other hand. In both cases it was tried to establish a relationship with the competence dimensions Knowledge, Capability and Readiness. The way in which these demands were transformed into competence categories and how the respective values are created varies (see figure 1).

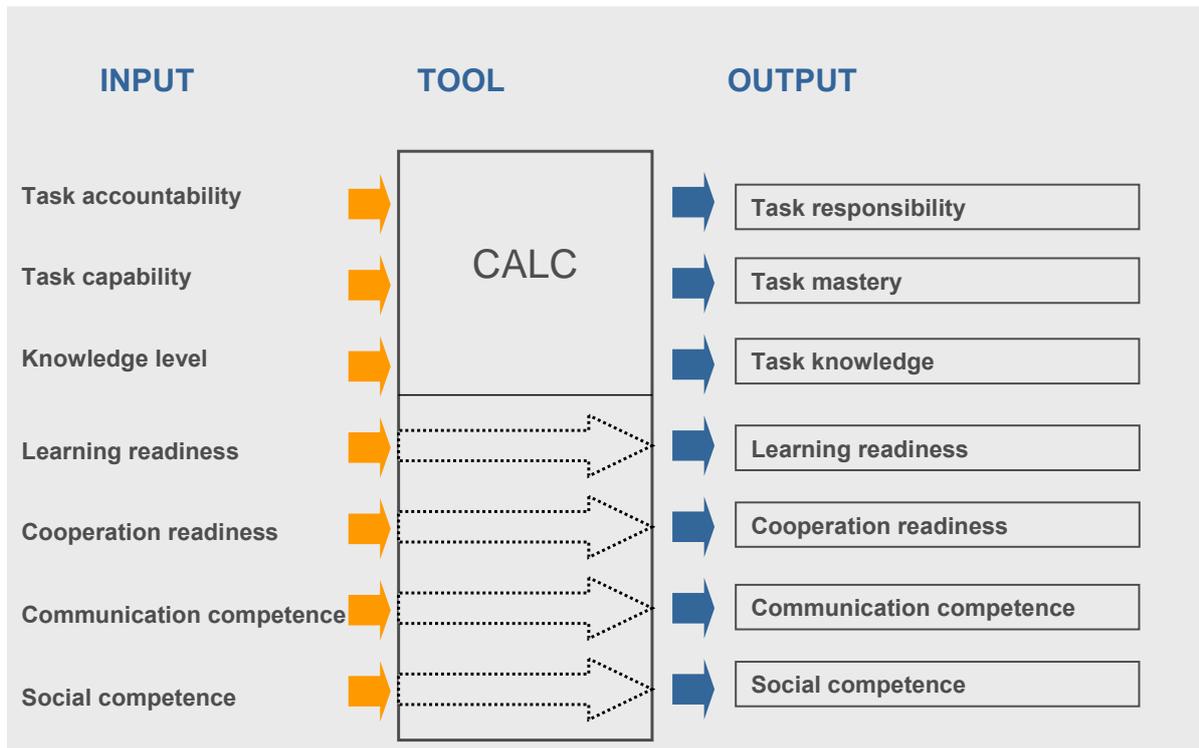


Figure 1: Input and output structure of the CM ProWork software tool

The so-called task-related competences are calculated by the tool. Basis for the calculations is input on objective task and assignment characteristics that themselves were derived from task analysis instruments. The theoretical basis is the work psychological activity regulation theory. The calculation takes place with respect to a standard task inventory that is included in the tool and which can be adjusted within certain limits. In the calculation mainly input on standard tasks or these tasks themselves are considered. Even through the input of relatively many self-defined tasks the user can only take little influence on the results.

The so-called process-related competences symbolize differently developed behaviours in the working process, of which learning readiness has the closest link to task competences regarding contents. The other process-related competences are also based for the most part on working psychological theories on collective action. The values of the process-related competences must be entered directly by the user of the tool (according to an interval, at least ordinal scale). Objective task characteristics

that could serve as basis for the calculation as in the case of task-related competences were not known during the development of the tool.

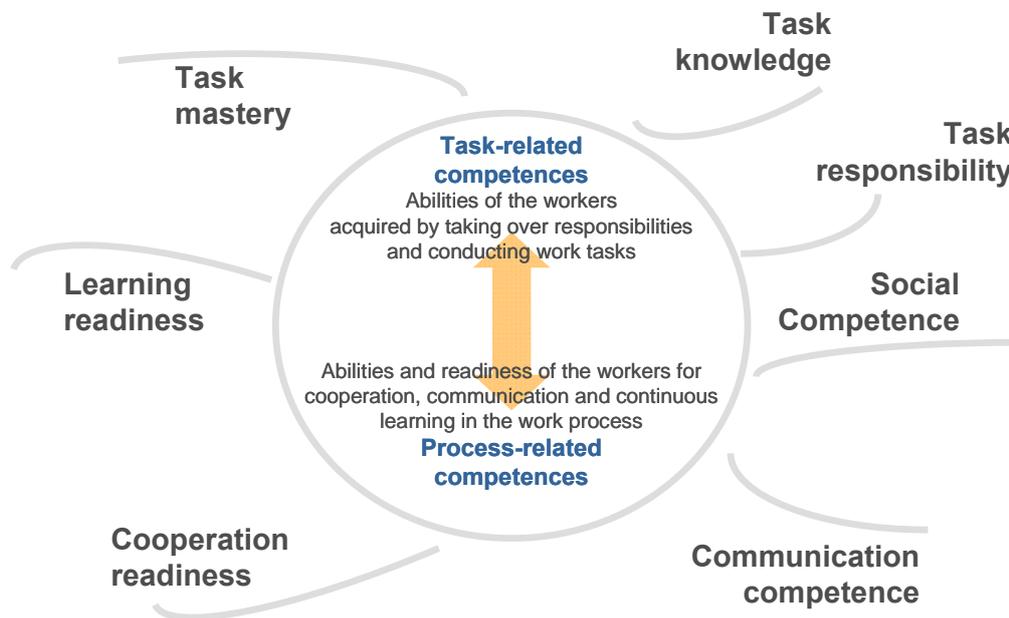


Figure 2: The CM ProWork competence model

The value differentiation in the output is the same in both cases and relatively rough (four levels without mean value and without interim values; minimum value 1 / maximum value 4). This rough gradation is volitional as the tool is thought to be used also by low qualified workers on the shop floor. Through the calculation procedure smaller evaluation mistakes in the task competencies (concerning assignment and task characteristics) are counterbalanced to a large extent.

The instrument was so tested mainly on face validity, although in some cases there were VERA-P measurement results available as external references. Moreover, the calculation model was stress and sensitivity tested and adjusted accordingly several times. It can be assumed that particularly the values of task-related competences highly correlate with each other. This can be regarded as no problem as long as certain realities in production – well-qualified people get a greater number and more difficult tasks and can develop better with them – are rendered sufficiently correct (which can be assumed so far). In addition, expert judgements from the production managers, HR managers and workers involved in pilot testing have been integrated to assess the instrument's validity. The values and reports generated by CM ProWork have been judged as plausible and comprehensible in almost every case with very few particular exceptions. This refers to the absolute values of the competence report and especially to the differentiation between workers displayed by the tool. Furthermore, it was shown that cross-links between EQF descriptors and competence dimensions of the CM ProWork tool are strong enough with regard to content

to conduct a plausible identification of empirical competence profiles with the EQF levels. Therefore, with the help of the CM ProWork tool a validation of results from non-formal and informal learning can be achieved.

The implementation cases so far show that high competence values are rather rare. Regarding task-related competences, it can be precluded that maximum values may well be reached in all three categories. This would mean that a highly capable worker is employed as utility man. Concerning process-related competences, very different value profiles can arise that correlate only weakly with the task-related competence values.

A competence value of 2 may be considered already a relatively good value for workers in working environments with low competence furtherance. According to the experiences so far, all values of 3 must be regarded as really good; values of 4 are reached only by very few workers.

It occurs that formally unqualified workers achieve similarly high values in certain categories as professionally qualified workers. Results of this kind are correct in the sense that not formal qualification but competences are measured and a competence development in the working process under advantageous conditions can lead very far. However, professional qualification is expected to affect the values of task capability, task knowledge and learning readiness.

In order to depict collective competences of work groups or work systems, the individual values of groups of workers can be used as a calculation basis (average values with standard deviations). The recognition of the emergence effect of collectives (the whole is more than the sum of its parts) is thereby not possible. In order to simplify the interpretation of group analyses, it is advisable to calculate and depict percentage value sums for task-related and process-related competences.

A special and simplified possibility of competence measurement offers the function of "position fitness" provided in the position report of the CM ProWork software tool. In order to assign positions (= lists of tasks) to adequately competent workers, the fitness of a worker to handle the task requirements of a certain position is calculated on a decimal scale. This calculation includes only the input on task capability and applies to positions that have been defined in advance only. The "position fitness" function has proven to be of particular interest for the practical use of the software tool by production managers.

According to the experiences so far, the tool is able to depict workers' competences with adequate validity and in a differentiated fashion. The measurement results can be well understood by executives in production. A comparably capable instrument for production is not known to date.

3 Which statements / evaluations / causality attributions are possible?

The causal structure “constructed” by the tool can be sketched as follows:

Task responsibility	←	quantity: many tasks quality: different tasks complexity: difficult tasks
Task mastery	←	learning qualification experience
Task knowledge	←	responsibility for difficult tasks and related learning / teaching activities
Learning readiness	←	individual learning motives and learning culture
Cooperation readiness	←	individual / collective abilities, motives, and working culture
Communication competence	←	individual / collective abilities, motives and working culture
Social competence	←	individual / collective abilities and motives / conflict culture

Figure 3: Factors assumed to influence the competences measured with CM ProWork

The sketch shows that inferences cannot only be drawn to the competence level but also to the organisation with its culture, change dynamics and history. Especially the following examination and interpretation lines (not exhaustive) appear worthwhile:

- Which competence profiles show the current state of which group of workers, which show one or more desired states?
- What effect does the job design concept pursued have on the “competence capital“, i. e. the collective competences of a work group or work system?
- Which development potentials does the “competence capital” offer for ambitious job design concepts?
- Where does the “competence capital“ (of groups / departments / companies) stand in comparison?

- Is there a culture of “organized irresponsibility”, or is there a strong asymmetry in task responsibility?
- Is there a culture of “organized learning reluctance”?
- Do qualification measures lead to measurable effects / do they reach their addressees?
- Do organisational measures lead to measurable effects / do they reach their addressees?
- What deficits in process-related competences can be identified among the professional personnel / among the semi-skilled workers?
- At which deficits can / should trainings on soft skills start?
Which flexibility reserves does the production staff offer?
- Is the process, quality and productivity management adequately anchored within the task profiles of the workers?
- Which learning and development potentials does the production staff offer?
- What statements can be used for agreement of objectives/performance appraisals; can the effect of agreement of objectives/performance appraisals be understood with the help of the tool?

Questions that must be posed within a competence audit in the narrower sense are excluded here.

4 Implementation methods; possibilities of linking up with standard management systems for quality, environmental protection, employment protection

CM ProWork is a stand-alone software application. Input and results are saved in an MS Access database. Many results can be exported to MS Excel and processed further there.

The databases can be saved and accessed de-centrally or centrally. As the tool is conceptualized as an everyday tool for de-centrally employed production managers (as foremen), it would be best if in every production manager office there is a version of the application installed and a strategically sensible system for database management implemented that is accepted throughout the company.

As the tool collects and saves employee-related data, implementation of CM ProWork in most cases requires the participation of the work council. The approval of the work council can more easily be achieved if

- it is made clear that no general employee related data is collected (in contrast to most other competence management systems)
- the workers are not only informed, but also able to participate actively in the data collection process
- applying CM ProWork includes a procedure to positively integrate the results of the tool into job references and other similar documents, so that these document not only formal qualifications but also an individual workers' achievements from learning on the job (cf. Witzgall 2009, S. 118 ff.)

Under certain circumstances, an anonymous data input can be thought about in the beginning.

A great number of basically important tasks for quality and productivity management have already been integrated into the task inventory of the tool. In course of the CM ProWork Transfer project, the task inventory for batch production settings was extended by tasks on occupational health and safety and environmental protection. These will later also be integrated into the inventory on discrete parts production. The possibility to adjust and extend the task inventory allows for an easy linkage to standard management systems. Furthermore, the adaptability of the task inventory also allows to depict the competences and assignments of specialists employed within the production process.

Using the functions on position and position fitness, explicit links can be drawn that for example show which workers have already excelled in the field of the respective task. Together with the results of process-related competences "cooperation and

communication readiness” fitting candidates for trainings and instructions can be found.

The facets of a competence audit with CM ProWork described here make up a flexible concept that allows for a standardized analysis for a number of interesting questions. It focuses on worker competences on an individual level and/or the level of collectives (work groups or work systems).

The audit might be used for the following exemplary scenarios:

- competence-based evaluation of production departments or companies
- benchmarking of the competence potential of production departments as a basis for continuous development processes
- competence potential of organisational units as information basis for the planning of technical, organisational or personnel interventions
- individual and group related analyses of strengths and weaknesses
- detailed planning basis for qualification and training measures in production
- evaluation of the effects of personnel related, organisational or technical interventions on worker competences

In addition to an analysis of the fulfilment level of current competence demands, the CM ProWork competence audit offers the possibility to align and evaluate the development of employee competences with medium and long-term company goals. This helps to avoid competence shortages which might possibly hinder successful implementation of department or company strategies. The comparison of current competence values with future competence demands leads to possible starting points for development measures that should be discussed and prioritized by production leaders and personnel department. The effects of these developmental measures can then be tracked with the competence audit embedded into a systematic and regularly executed competence management.

Standardized audit processes follow a more or less fixed process scheme. It not only purports the measurement criteria and procedures but also the evaluation procedures and the way in which measures are deduced. Nonetheless, competence audits can differ depending on the result expectancies and execution circumstances of the particular companies. Therefore it does not appear sensible to develop a detailed and closed process model a la ISO 9000. As a general scheme for a competence audit the so-called Deming cycle is suggested (cf. Figure 4). The Deming cycle contains planning, analytical, evaluating, changing and correcting partial processes arranged in a circular working scheme. Companies are generally familiar with this basic scheme:

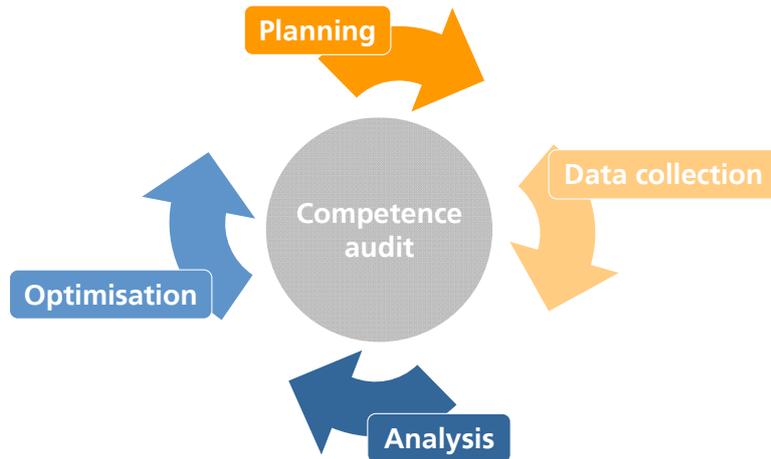


Figure 4: Competence Audit with CM ProWork visualized as Deming cycle

Employee competences determine the potential productivity and innovativeness of organisational units. Therefore it can be assumed that differences in the competence values go along with differences in company success. The interpretation of competence audits can therefore be related to pertinent index numbers as work productivity, scrap rate, processing time, accident rate, but also the number of suggestions for improvement, absenteeism, or employee job satisfaction. In many cases these numbers are already available and are implemented into the company controlling system in the form of key performance indicators cockpits.

5 Combination with other systems of competence illustration

In the following discussion of options two types of combination possibilities must be differentiated:

- (a) combination of methodologically contrastive procedures
- (b) combination of complementary procedures

Combinations of CM ProWork according to (a) can be critical; they should be very well considered. It is possible to generate incompatible or in rare cases opposing results that can no longer be explained by common sense but only by a methodological specialist. In a combination of CM ProWork with competence measurements aiming at general personality characteristics it should always be noted that the two procedures measure different things! Especially critical is the combination with procedures on the basis of competence catalogues, because in these cases very similar or identical terms can emerge that might be easily confused.

In contrast, combinations according to (b) are uncritical and in many cases appropriate. CM ProWork version 3.0 offers the possibility to emit individual related data and results. In comprehensive competence illustrations, these CM ProWork results should be complemented with information on educational training and professional background. Generally biographic competence illustrations serve well as amendments to CM ProWork as they provide exactly the information that does not become obvious in the tool (which only works result oriented).

For this reason, a combination with the EUROPASS CV is also very adequate. During the project it could be shown that cross-links regarding content between the EQF descriptors and the competence dimensions of the CM ProWork tool are strong enough to enable plausible classifications of competence profiles into EQF levels (Witzgall, 2010). With help of the CM ProWork tool a validation of results from non-formal and informal learning can therefore be conducted that is especially useful for workers without relevant professional qualification. Alternatively, special competence proofs can be designed which illustrate the result oriented as well as the biographical data in a consistent format (cf. chapter 9.5 in Witzgall 2009, S. 118 ff.). In this context, the CM ProFiler tool developed within the project must be mentioned, which by means of input on 20 competence values for workers allows for the creation of a standardised profile on professionally acquired competences which can also be used further in the EUROPASS CV. The CM ProFiler is available for free on www.cmprowork.eu.

6 Linkages to organisational and company development

Through its export functions to MS Excel, the tool possesses a universally applicable software interface. The databases themselves are manipulable in MS Access as well. This (unofficial) possibility is critical though, because it can lead to a bias in the results.

Regarding the “systematic-functional” interfaces, there is first of all the question of the whole purpose of competence audits in production. Wikipedia states on quality audits in general:

Quality audits are performed to verify conformance to standards through review of objective evidence. A system of quality audits may verify the effectiveness of a quality management system. This is part of certifications such as [ISO 9001](#). Quality audits are essential to verify the existence of objective evidence showing conformance to required processes, to assess how successfully processes have been implemented, for judging the effectiveness of achieving any defined target levels, providing evidence concerning reduction and elimination of problem areas and are a hands-on management tool for achieving continual improvement in an organization.

To benefit the organization, quality auditing should not only report non-conformances and corrective actions but also highlight areas of good practice and provide evidence of conformance. In this way, other departments may share information and amend their working practices as a result, also enhancing continual improvement.

Competence audits in this sense only make sense if, first, a decided interest in “production competence capital” exists and, second, the development of such a capital is goal oriented and can be evaluated according to these goals constantly.

Possible goals with reference to company development could be:

- comparing assertion of competence capital in production units as basis for continuous further development
- comparing assertion of competence capital as basis for planning of technical, organisational or personnel politic interventions
- comparing assertion of competence capital as basis for estimation of effects of technical, organisational, personnel politic interventions
- comparing assertion of competence capital with the purpose of evaluating production departments or companies (within a corporate group...)

With reference to organisation development:

- comparing different production concepts as basis for a standardisation of production concepts
- tracing effects of an implementation of standard management systems (quality and others)

- decreasing / increasing span of control
- implementing new payment and award systems
- increasing / decreasing the percentage of skilled workers
- planning of competence conducive resources
- planning of qualification and training measures in production
- enhancement of cooperation with Federal Employment Agency (recruiting, qualification of workers)

If the data is updated regularly (about once every six months), competence audits can start off from the following functions of CM ProWork (cf. Table 1):

- **Competence report** (including task and process competences). On this interpretation, a lot has already been said. One important issue is the development of target ideas, e. g. in the form of minimum or standard profiles; otherwise only weak spots can be interpreted that do not consider potentials (cf. Witzgall 2009, p. 91 ff. and 102 ff.).
- **Position report:** the measurement of position fitness is rougher but it allows for a setup of very precisely tuned analyses and evaluations concerning the company. A detailed description can be found in Witzgall 2009, p. 115 ff.
- **Learning relevance report:** in this report there are also several audit relevant measurement and interpretation possibilities. Changes in learning relevance of tasks can for example show the broad success of measures in competence encouragement; changes in person related learning needs are suited for micro analyses. On this, also cf. Witzgall 2009, S. 97 ff.

The basic problem that cannot be solved globally is the still possible incompatibility of competence structures and data produced in CM ProWork on the one hand and other procedures on the other hand. In competence audits this problem must at least be reflected and its potential effects should be contemplated.

	Comparisons of worker groups	Comparisons of work systems
With reference to competences / potentials	<ul style="list-style-type: none"> • In comparison: competences of all members of a group • Average and scatter of total values: for task and process competences • Name: COMPETENCE POTENTIAL OF A GROUP (2 values) • In comparison: competence in the knowledge and learning field • Average and scatter of total values for the competence dimensions of "task knowledge" and "learning readiness" • Name: DEVELOPMENT CAPACITY OF A GROUP (1 value) 	<p>As for worker groups but taking account of the values of all workers in the work system.</p> <ul style="list-style-type: none"> • Name: COMPETENCE POTENTIAL OF A WORK SYSTEM (2 values)
With reference to system attributes		<ul style="list-style-type: none"> • In comparison: competence in the knowledge and learning field • Average and scatter of total values for the dimensions of "task knowledge" and "learning readiness" • Name: DEVELOPMENT CAPACITY IN THE WORK SYSTEM (1 value) • In comparison: position fitness values for all workers in a work system • Average and scatter of position fitness for a (predefined) position • Name: DEPLOYMENT FLEXIBILITY IN THE WORK SYSTEM (1 value)
		<ul style="list-style-type: none"> • In comparison: values in the learning relevant report for all tasks and workers in a work system • Total value of all values in the learning relevance report • Name: DEPLOYMENT RELIABILITY IN THE WORK SYSTEM (1 value)

Table 1: Competence Audit with CM ProWork: possible use cases

7 Participation and Sustainability

The difficulty of employee participation was commented above already. Independently of this there is the question of how far it is possible and sensible to effectually and sustainably establish something like competence management (including competence audits) without a real participation of the persons concerned.

The employees and especially the directly assigned executives principally dispose of enough possibilities to avoid the application of the instrument and the use of a competence audit. Especially if the data input and the evaluation are fragmentary, not exact enough and without regular updates, the value of the reports is questionable. The executives here depend upon their input being to some degree consensually coordinated; otherwise the output can be questioned.

The interface worker/executive is therefore a highly critical point in a competence audit, and the participation of the employees in this case should be especially well planned, supported and observed.

A good proceeding could be to build teams of personnel developers, production managers and a number of workers that operate the implementation and usage processes. This way interface difficulties can be identified and probably solved more easily. The collaboration in these teams should of course be voluntary on the workers' level. Budding executives can exhibit their potential in such teams especially well.

In companies with a good cooperation and learning culture it is also possible to bestow the data input and maintenance directly upon the work groups – implying a good technical preparation and support of course. This proceeding offers the advantage of direct integration and validation. A possible disadvantage could be the varying good / objective evaluation results.

Competence development is a protracting and contradictory process not only on the individual but also on the collective and organisational level. Competence audits as parts of this process are out of place in companies that are short term oriented and just “keep on existing” in times of crisis. On the other side, the interest of companies and corporate management in such an instrument can be distinct.

8 Use for company practice

How competent are the employees of different production units in handling their working tasks and what potential do they have for coping with upcoming changes?

Are the competences of the employees, compared with other comparable companies rather low, average or highly distinctive?

Where are special strengths, where are needs for development?

What are the reasons for differences in the competence values between persons or organisational units, and where should competence development measures therefore start sensibly?

How effective were the development measures and what competence growth was achieved?

A CM ProWork competence audit supports companies in the systematic answering of this and similar questions. It enables companies to transparently illustrate, systematically analyze and professionalize the further development of competences needed and established in production work. It offers the chance to directly involve production units and the workers employed there in the competence development and thereby the strategic implementation of the whole company. The operative implementation of the approach described here is based on the use of the »CM ProWork« software solution that is described in more detail in part 4.

In contrast to other common competence management tools, CM ProWork focuses on worker groups that are often not primarily integrated into personnel development measures. The procedure permits the systematic collection and promotion of individual and group related competences and can therefore be used for person as well as organisation related competence development concepts. A systematic collecting and promotion of individual and group related competencies helps companies to keep their productivity, quality and flexibility competitive and to meet the innovation demands of the markets. In order to assure process stability and personnel assignment flexibility in everyday work, competence shortages must be avoided. Only with competent workers the chances of technological and organisational change can be optimally utilized.

Apart from statements on the competence values of individual workers, the CM ProWork competence audit also allows for aggregated interpretations on the competence potential of entire organisational units. A systematic, longitudinally designed competence management offers valuable information for production management, for operational personnel developers and human resources managers: it reveals strengths and learning needs, documents developments and thus enables a well-directed orientation of operational personnel and organisation development. The ad-

vantages of the competence audit in industrial production companies with CM ProWork at a glance:

- Integrating workers into operational competence management
- Comprehensive overview of current competences, strengths and learning needs of workers in production units
- Internal, corporate and international competence benchmarking – on individual and organisational level
- Demonstration of interfaces between competence development, organisation development and company development
- Efficient application of resources through concrete hints on learning needs

9 Application scenarios of a competence audit with CM ProWork from a company perspective

CM ProWork allows for interpretations on the level of individual workers or entire organisational units in cross-sectional and longitudinal manner.

Analysing individual competences and competence development

What are the individual task-related and process-related competences of a worker? What are his strengths, what his learning needs? How does he perform with his competences compared to his reference group? How have the competences of an employee developed over time? These are exemplary questions for a person related competence audit with CM ProWork. For this purpose, the individual competence values can be compared with the average value of a reference group in a profile comparison; for example, the group of workers with formally equivalent qualification within the examined organisation unit. For this, a profile for the reference group must be set up that includes the group's average value and the respective deviation of values within the group. In addition, the values for worker competences might be compared and analyzed in a longitudinal design.

This can be illustrated in the following example. The relative strengths of worker A, a professional worker in the final assembly of Muller GmbH, are among his task-related competences – all three task-related competences show values above average compared to the reference group of professional workers in final assembly. Potential development fields are however found in the field of cooperation readiness and social competence – here the values are significantly below average. If these development fields are addressed as such depends on in how far these comparably low values go along with actual losses in cooperative task coping or if employee and company aim for development goals that require a higher level of social competence and/or cooperation readiness. On the background of his high task-related competence, it could be considered to assign worker A as an internal tutor for the orientation of new employees or as a trainer for internal training measures in the future. These tasks however require a higher degree of social competence – among others – that worker A does not yet fully dispose of. Also a future activity of worker A as group speaker or coordinator would potentially ask for a further development of his social competence.

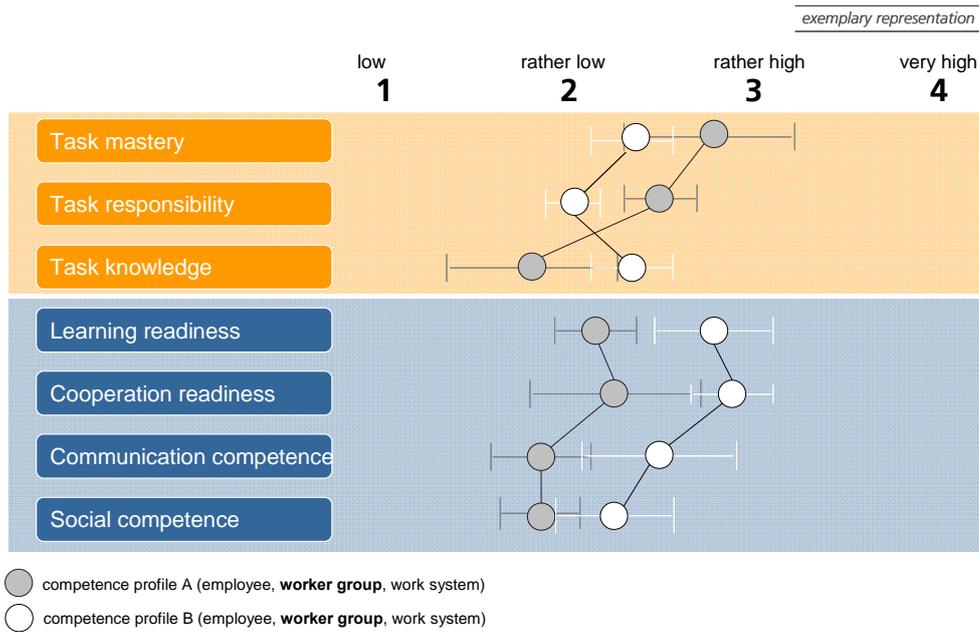


Figure 5: Exemplary illustration of a competence profile comparison

Analysing the competences and competence development of work groups and/or work systems

To what degree does a work group or work system dispose of the required employee competences to successfully cope with the current complex production demands? What is the potential to competently deal with changes in these demands as well? In which work groups or systems is a high competence potential available, where is the competence potential rather low and what are possible reasons for these differences? How have the competences developed in the course of time? In order to answer these and similar questions, the interpretations from a competence audit of work groups or work systems can be consulted. These are values on the task- and process-related competences of a work group or work system in the sense of a competence potential.

The task- and process-related competence potential of a work system or group is determined by the formation of an average value across the respective values of all associated workers. These average group values of task- and process-related competences can be drawn on for particular strength-and-weakness analyses, the comparison with other work groups or systems or a longitudinal development analysis. In this, information on the mean variation of competence values within the individual work groups or systems must be considered. This can also be illustrated in an example (cf. Figure 6).

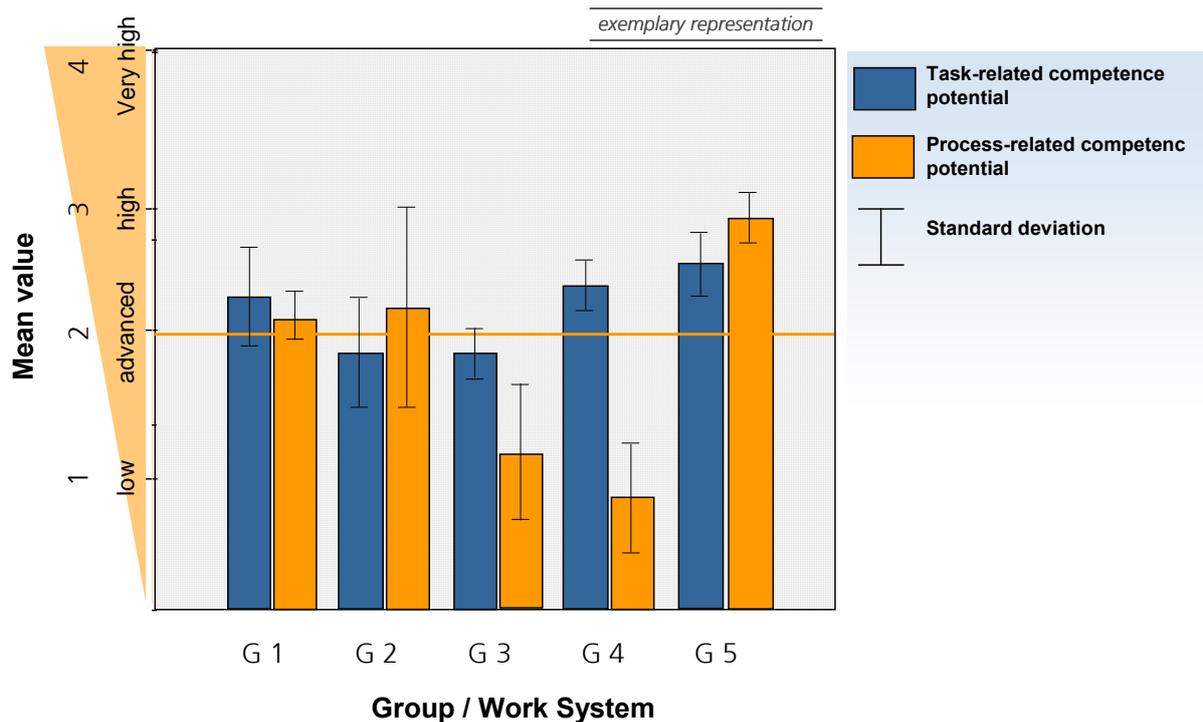


Figure 6: Exemplary illustration of a comparison of task- and process-related competences between work groups or work systems

In this example, the discrepancies in values of task- and process-related competences in work groups 3 and 4 as well as the overall low competence values compared to the other work groups (WG) are striking. Possible reasons for the low process competences should be identified here. For this purpose, among others a comparison with WG 5, where significantly higher average values of process-related competences are found (even at almost identical task-related competence as in WG 4), is recommended. Moreover, the mean variation in this WG is very low – the majority of workers there achieved values at the top of the scale, while the distribution especially of the process competences in WG 3 and WG 4 is very heterogeneous; it seems, there are rather workers with elevated competence values on the one hand and workers with basic values on the other hand there. Can these differences be traced back to the qualification level of the respective workers employed there or might they result from the way of process design in the sense of workers in WG 3 and WG 4 not (yet) having had the possibility to develop these competences to a higher degree due to a different work organisation? In part, the homogeneity of competence values in WG 5 hints at this. Possible reasons for differences in competence values as well as starting points for respective interventions become clearer only through further analyses though – the competence audit CM ProWork can offer an important and systematic information basis for this.

10 Competence audit with CM ProWork – Quo vadis?

CM ProWork is a tool that offers many and sensible data, but cannot make statements on possible or necessary measures on competence development “at the push of a button”. CM ProWork can therefore at best be a useful tool for an operational competence management. The ability of CM ProWork to provide valid cross-sectional and longitudinal data must be especially emphasized in this context.

Competence audits are basically “product audits”, as the “product” competence is registered in its respective value, evaluated and considered in its development. It is not a system or process audit in the sense of ISO 9000. There is a risk of term confusion here. Product audits can refer to individual objects or groups of objects. This can be applied to the “product” competence as well, although there are certain important differences in contrast to object products:

- Competences are psychic potentials and not final characteristics
- The competences of work groups or systems as collective competences are not the mere sum of individual competences but must rather be seen as social potentials
- Psychic as well as social potentials can principally be judged only in their development and with regard to their interaction with impact factors. Every cross-sectional comparison of competences is therefore of limited validity.

The trial to evaluate or compare the competences of collectives (work groups, work systems) is only legitimate if the respective collectives are comparable as well. Collectives suitable for a competence audit are:

- Natural, informal small groups
- Communities of Practice
- Formal teams and work groups
- The social entirety of all persons that pursue a common goal in an organisational system

Due to the efforts connected with the use and maintenance of the CM ProWork tool, its implementation only makes sense within a systematic and long-term scheduled competence management in production.

Audits can be very sensible procedural elements of such a “sustainable” management system. They make sense, especially if developments are observed and influenced. The challenge here is to develop meaningful and realistic goals suitable for the respective case of application. The heterogeneity of industrial production companies regarding labour organisation is too high to formulate general authoritative goals. Also, with respect to the analysis and the deduction of possible and suitable interventions, no generic advice in the sense of a schematic guideline of actions can be given. In contrast, these steps – just as the goal definition itself – require a deep-

ened knowledge and understanding of the relationship between designing production processes and competence development of employees in industrial production (cf. Figure 7). The question of how an adequate balance between demands of an individual case study and generally valid and action-guiding recommendations can be found could not yet be answered.

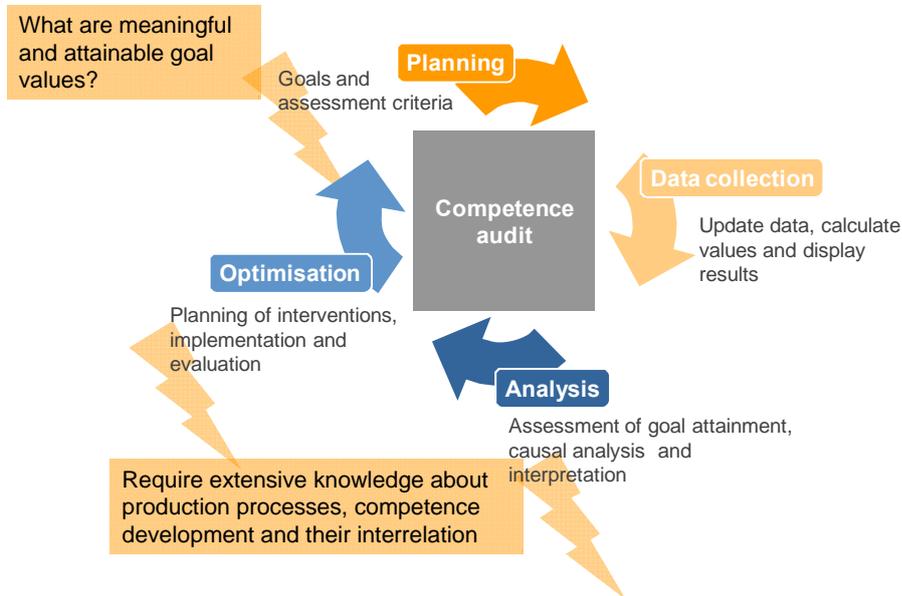


Figure 7: Conceptual and practical challenges to the CM ProWork competence audit concept

Approaches of linking the CM ProWork competence audit to existing management information systems could be thought of here as well. Employee competences determine the productive achievement potential of work groups and systems. Therefore it can be assumed that differences in competence values go along with differences in operational success. As shown above, collective competences could also be related to common key performance indicators as productivity, improvement suggestions, absenteeism or employee job satisfaction. This would allow to analyze the interrelation between employee competence development and more proximal company success factors and thereby economically exemplify the impact of employee competence on corporate success.

Literature

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