

## **Competence development - Some background thoughts<sup>1</sup>**

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### **Introduction**

During the last decade the issue of competence development has again been receiving a great deal of attention. Many, particularly larger organisations (e.g. in agribusiness) are using competencies to manage and implement change in their organisations. But also in other contexts increasing use is being made of competencies. In short the competence concept is aimed at shifting attention from knowledge (especially declarative knowledge) to the application of skills.

In this article, the theme competence development, which forms the core of life-long learning and which from this perspective is of great importance for organisations in general and for the agricultural and market-gardening sector in particular, will be discussed. The main aim is to create structure in the enormous diversity of notions concerning the concept of competence, to outline its advantages and disadvantages and finally, to consider the consequences of using competencies in organisations in the agri-food system.

The structure of this article is as follows. First of all an outline is given of the contexts in which the concept of competence is used. It will then become evident that competence is used in many different contexts. Hence, the use of competence will be dealt with, creating an outline of the functions of the concept of competence in organisations. This is followed by a reflection on the background of the popularity of working with the concept of competence: core-competence. The strategic power of core-competence has been the decisive factor for renewed interest in competence development. Then attention will be paid to the fact that there is a myriad of definitions for the terms competence and competencies. Dimensions, which can be differentiated by these definitions, are presented.

On the basis of these definitions a working definition of the terms competence and competencies is introduced which can be used in the context of policy for organisations in the agri-food system, but also in education relevant for this system. Furthermore, the advantages of working with competencies in Human Resources Development (HRD) are presented along with critical comments with reference to working with competencies in the agri-food system. Finally, attention is paid to the practical use of competencies in the agri-food system.

### **1 Contexts in which the concept of competence is used**

The last few years has seen a great increase in interest for core-competence and competence management. At this moment, six practical contexts can be distinguished wherein the concept of competence plays a role.

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1. The *organisational strategy* context. Boards of directors and management teams often use the competence concept in the sense of core-competencies. These are the skills of a particular organisation, which when rightly chosen, contribute a large added value for the strategy of the organisation (De Vaan, Ten Have & Ten Have, 1996).
2. The *personnel management* context. Human Resource Management (HRM) staff have frequently established that different personnel instruments are not aligned and that some of their instruments have too static a character. Competence profiles can form the basis for selecting, placing, assessing and developing and when adequately articulated can add to more dynamic HRM practice (Thijssen, 2000).
3. The *training and development* context. Training and development (or rather: Human Resource Development – HRD) professionals have to deal with complaints about the effectiveness and strategic embedding of corporate training. Discrepancies between desired and existent competencies, established by competence-oriented assessments, provide a better basis for specific learning routes (Mulder, 1999a).
4. The *education and labour link* context. Employers, educational institutions and newly graduated students experience the problem of the connection between education and the labour market. Those involved in curriculum development in secondary and higher professional education as well as post-secondary professional education, try to bridge this gap with the aid of competence profiles. This allows them to precisely articulate demands for the contents of the training programmes and to adapt these accordingly (cf. Van Gent & Van der Zee, 1998; Hövels, Den Boer & Frietman, 1999; Buskermolen, De la Parra & Slotman, 1999; Schlusmans, Slotman, Nagtegaal & Kinkhorst, 1999; Kirschner, 2000).
5. The *professional development* context. Members of ever growing numbers of professional groups are confronted with national demands for registration, licensure or periodic extension of their recognition. Some professional associations have drawn up their own competence profiles for self-evaluation and self-development or as the basis for registration, licensure or competence assessment (McLagan, 1966; Rothwell, 1966).
6. The *sectorial training policy or economic structure policy* context. These are terms used by the National Council for Agricultural Research for the core-competencies of the agri-sector that can be used for directing macro policy in this sector (Verkaik, 2000).

Competence development in large organisations in the private and public sectors will be held as the point of departure in the rest of this article. In the last few years instrument development has been furthest advanced in these sectors; implementation has advanced and advantages and problem areas have become apparent. Moreover, I myself have carried out the most research in that field. Problems with competence development encountered by employees are, apparently, no different in practice than those of educational participants.

Although the contexts are very different, in both cases it is a matter of acquiring competencies, which are of importance for job practice and career opportunities.

## 2. Functions of working with competencies

What functions can working with competencies accomplish? On the basis of practical analysis in more than two hundred organisations carried out in a study for The Foundation of Management Studies, the following functions have been distinguished:

1. *Strategic*. The use of competencies makes it easier to guide organisations and persons in the required direction, because core-competencies and competence-profiles can better express what the desired direction of development is. In this respect, the concept of competence functions as a route planner. This function is also relevant for education, as there is a strong need for an instrument to direct the development of relevant skills for professional practice.
2. *Communicative*. Moreover, working with competencies functions as an instrument for communication. The competencies form the language through which goals and expectations are made explicit. This counts for the organisation as a whole as well as for functions and job families. It creates transparency for employees in companies concerning the policy of the organisation as well as the demands made from certain positions. People are then capable of steering their own development in a purposeful direction.
3. *Vertical alignment*. Working in a competence-oriented manner offers the possibility to better orchestrate, on the one hand, expectations of the company in terms of organisational policy and innovation strategy, and on the other hand, instruments for personnel policy. Core-competencies which are translated in concrete goals, can offer firm support for directing other processes in the areas of personnel policy and training or learning policies.
4. *Horizontal alignment*. Working in this competence-oriented manner also allows the possibility to attune personnel-policy instruments. If competence profiles have been determined for job families, policies concerning selection, position, remuneration, evaluation and development can be based on these profiles.
5. *Dynamic*. Competence-oriented personnel management stimulates employees' development. Technological innovation, innovation in labour organisation, innovations in production and production processes, etcetera, bring about the necessity of continual learning. Working with competence profiles and

evaluation makes the

implementation of personnel development easier than, for example, continuously thinking in terms of functions and function requirements. This manner of thinking can remain the same even with radical changes,

whereas the competencies for roles relevant to the positions can change considerably.

The evident

resistance towards job-specification change, which is understandable from the point of view of

consequences for the legal positioning and remuneration technicalities in various sections, does not have to

apply to competence development.

6. *Developmental*. The concept of competence stimulates various forms of personnel development; it even

implies a development imperative, for without development policy competence, profiling and evaluation

have little value as many organisations must also implement change with their current personnel.

7. *Employability*. Once competence profiles have been determined, competence assessment is implemented, and agreements are made about competence development during competence based employee appraisal. When subsequently learning projects are organised, this then contributes to the employability of employees.

Depending on the type of learning projects (are they, for example, more or less formal?) they are,

to a greater or lesser degree, oriented towards encouraging employability on the internal or external labour market.

8. *Performance improvement*. Competence-oriented personnel management facilitates discussions about the

development of desired behaviour in relation to desired performance, which was hitherto not possible in most cases.

### **3. Core competencies**

What is currently new about the term competence which has made it so popular? Let us first view the term *core* competence, as this has had a great influence on the concept of competence as a whole. To a large extent this has been influenced by Prahalad & Hamel's book on core competencies in organisations (1990). In their ground-breaking article 'The core competence of the corporation', they stress the importance of operating with core competencies in the sense of strong factors within the organisation and the circumstances in which they excel. According to these authors, the success of a company depends on its core competencies. They based their argument on good examples from practice in industry, and attributed turn-over growth to the strategic power of core competencies. The convincing power of the authors was strong and many organisations followed the example of the successful enterprises described.

Prahalad & Hamel forged a link between core competencies and learning which is important for educational sciences. They interpreted core competencies as a result of collective learning in organisations, especially with regard to the manner in which various productive skills were integrated and multiple streams of technology were co-ordinated. Core competencies could then be understood as important capabilities which organisations could acquire by improving and using their learning processes. This bears strong resemblance to Senge (1990), who has conceived strategic policy practices in organisations as learning processes. These processes of, for example, management and production teams, but also of individuals, should be optimally designed for maximum results for current and future functioning of the organisation. Without this learning, an organisation is doomed to failure. Recent research in a number of member states in the European Union has shown that there is a strong awareness of this line of thought (Ter Horst, Tjepkema, Mulder & Scheerens, 1999; Tjepkema, Ter Horst, Mulder & Scheerens; 2000).

The idea that core competencies can be used for strategy development and the subsequent management of various processes in organisations, has had its impact on HRM and HRD professionals. Because expectations regarding personnel policy could be more precisely articulated when using competencies, goals and instruments for both personnel management and development have been easier to align. Using competencies, management recruitment and selection, assessment and remuneration, as well as training and development, could all be placed in the same strategic framework even though they had frequently been separate entities in the past.

Meanwhile, there are various methods and techniques available for determining core competencies (Dekker & Dercksen, 1996; Weggeman, 1997), for developing competence profiles (Dubois, 1993), for outlining competence assessment and for implementing competence development.

#### **4. The term ‘competence’: a manifold definition**

Since the revival of the concept of competence, an enormous amount of literature has been written on the subject. An initial glance at this literature shows a huge variation of definitions. A few years ago, Van Overveld & Van Goudoever (1997) already contended there is no unequivocal definition of the term competence management; the same is true of the term competence. Prior to this Van Sluis & Kluytmans (1996) had made an attempt to order the vast amount of definitions. They quoted nine sources to illustrate how diverse the interpretations of the term competence are. Recently, Stoof, Martens & Van Merriënboer (2000) have given a summary of the many meanings of the term. Bron (1999) mentioned as many as twenty-one definitions in her research. This list can in fact be easily extended further with others. All these definitions can be classified into four groups:

- Competence as core competence, or competence of the organization (Prahalad & Hamel, 1990; Cobbenhagen, Den Hertog & Pennings, 1994; Hamel & Prahalad, 1994; Lado & Wilson, 1994; Weggeman, 1997; Den Hertog & Huizenga, 1998; Volz & Aalbers, 1998);

- Job or task oriented competence (Keen, 1992; Roos & Von Krogh, 1992; Nordhaug, 1993; Nordhaug & Grønhaug, 1994; Onstenk, 1997; Klarus, 1998; Visser, Mulder & Geelen, 1998);
- Competence as the capability of employees or learners (Olafson, 1973; Klemp, 1980; Boyatzis, 1982; Dubois, 1993; McClelland, 1973; Brugman, 1994; Marshall, 1996; Twisk, Singerling & Steenhorst, 1997; Bergenhenegouwen, Mooijman & Tillema, 1998; Bergshoeff, 1998; Dollevoet & Van der Wind, 1998; Lap, 1998; Mercer in: Sweerts, 1998; Pals & Mulder, 1998; Van den Heuvel & Kuipers, 1999; Hoekstra & Van Sluijs, 1999);
- Competence as an integral cluster of knowledge, skill and attitudinal aspects (McClelland, 1973; Dewulf, 1999; Parry, 1998; Van den Heuvel & Kuipers, 1999; Van Merriënboer, 1999; Thijssen, 2000).

A number of important dimensions is mentioned below, which gives an idea of the enormous variation of elements that different authors include in their definitions of competence. The various dimensions raise many questions, with which designers of competence profiles and users of these profiles are confronted. These questions must be answered before a coherent competence concept can be introduced and implemented in organisations.

Capability: Is capability an overarching concept for knowledge, skills and attitudes? In our opinion this is indeed the case.

Behaviour: Is behaviour part of competence or is competence a prerequisite for behaviour? We contend that competence is the capability of people that can be used when and where the need arises, and when the circumstances allow it . A person is competent when he or she has the capability to successfully use his or her clusters of knowledge, skills and attitudes in behaviour required to accomplish set of goals (to perform a task, solve a problem, take a responsible decision, etcetera). Considering that competence is mirrored in behaviour, it is possible to perceive certain forms of competence in peoples' behaviour. However, competence as such cannot be directly observed or measured.

Core competency: Does competence always belong to the core of capabilities of an individual or organisation, or can competence also have a more peripheral character? We think that both are possible and

where people are concerned, one can speak of their competencies (what are their capabilities?) and their core competencies (what are their specific capabilities?).

**Learnability:** Is competence something that can always be learned or not? In our opinion, there are capabilities that are more or less naturally given talents or which some people develop over a long period of time. Learnable competencies are, however, of special importance for education and training. Organisations select people according to competencies that are difficult or impossible to develop.

**The person this also be as carrier:** Is the carrier of competence always a person or group of persons or can something which is intrinsic to systems such as, for example, documentation or production systems, or to organisations such as the ability to deliver certain goods or services? We think that a distinction can be made between competencies associated with persons and those not associated with persons. The type associated with persons is of the utmost importance in education and training. For organisations, the wider concept of competence management is of importance, and the key question in this respect is the way in which production and service delivery processes can be designed. Together with this, the functions of systems that support these processes can be used; in this respect one can speak of the operational function as a non-person-associated type of competence. In those types of systems, knowledge can be stored and retrieved when effectuating the processes (be they computerised or not).

**Performance orientation:** Ought competence to always be related to the required performance or desired results not? In our opinion personal competence is used for performance or to achieve desired results by the tasks performed.

**Role:** Are competencies always conditional for playing roles, or are they also conditional for the carrying out of a job or task within this job? We think that operating with roles offers more flexibility than doing so with jobs. Jobs are accompanied by job descriptions. Although these offer people a firm foothold, their drawback is that they can also form a defence mechanism in case of necessary change. In addition to working with job specifications, role and role specifications are used for easier implementation of change. The reasoning is: what are the changes in mind, the desired work processes, which roles are relevant to them and what competencies are needed to execute these roles? In principal it is the same reasoning as: which activities must be performed, which jobs go with

them and

what are the requirements of the jobs?

Specificity: Are competencies always specific capabilities or more general capabilities?

In our opinion

competencies can be understood as both. However, it is preferable to consider them as general

capabilities. There is no end to the specifying of tasks and skills in the sense that there are more

and more detailed descriptions of what activities, subactivities and related competencies are. One

then arrives in the old-fashioned behaviouristically oriented competence profiles which have

resulted in too many fragmented educational programmes. But what are general

competencies? They can be described so broadly that they no longer discriminate between particular roles or jobs. Some kind of specification

therefore is

desirable. The extent to which this specification has to be implemented depends

on the function of the competence profile. In designing educational programmes in general more

has to be specified than originally seemed necessary. The challenge in this process and in

designing learning processes based on competencies is to retain sufficient coherency.

This can all be argued easily enough, but in practice, the meaning of the competence concept does not seem

to be as yet clearly defined. There has been too little consideration for what exactly differentiates the term competence from other terms denoting job requirements, knowledge, proficiency, experience, behaviour criteria, basic skills, qualifications and core problems.

Taking this into consideration, it would not be prudent to present a fixed definition of the terms competencies and competence, but rather to adopt a working definition from which to proceed. Hereby the following points of departure are of importance, which imply choices concerning the above mentioned dimensions:

1. Competencies are capabilities, capacities or potentials and can be understood as characteristics of persons, teams, work units or organisations which enable them to attain desired achievements: an example of an organisational competence is an airport, in this instance the KLM, to have the ability to 'turn' their planes as quickly as possible for the following departure after they land. This metaphor has had substantial added value for the co-ordination and integration of various branches of knowledge, departments and technologies; this manner of thinking in competencies offers those concerned a framework of objectives of a higher level, wherein interdependent organisational divisions should make an apparent contribution;

2. Competencies comprise of integrated meaningful clusters of knowledge, skills and attitudes;

3. They form a necessary condition for reaching an achievement (having leadership qualities and putting them into everyday practice are two different matters), for example, carrying out duties, even in an ill-structured and constantly changing environment; solving problems, executing a job, obtaining a certain result, making decisions and taking responsibility;
4. Competencies are neither explicitly nor externally obvious; they are abilities which become apparent by a certain achievement in a specific situation. Levels of competencies in an individual can, therefore, only be inferred by analysing achievement. Initiative, decisiveness and customer friendliness, for example, cannot be determined without observing a person putting them to use in practice or in simulated instances;
5. To a certain extent competencies are portable from one situation to another and are also transferable in that respect ;
6. Competencies are concerned with the results and achievements of organisations, work units or individual jobs, in areas, for example, of food safety, purchasing management, marketing management and accounts management;
7. They are apprehended at certain levels and in many cases can be further developed; levels of proficiency which can be differentiated are, for example, advanced starter, competent, proficient and expert (Dreyfus & Dreyfus, 1986);
8. Competencies can be present both in persons and systems, for example, the capabilities of persons and the knowledge that is installed in computer files.

## **5. Working Definition of Competence/Competencies**

The working definition for the term competence suggested here is the following:  
Competence is the capability of a person or an organisation to reach specific achievements.

Personal competencies comprise: integrated performance oriented capabilities, which consist of clusters of knowledge structures and also cognitive, interactive, affective and where necessary psychomotor capabilities, and attitudes and values, which are conditional for carrying out tasks, solving problems and more generally, effectively functioning in a certain profession, organisation, position or role.

## **6. Advantages of Working with Competencies in Human Resources Development**

Working with competencies, as has already been established, is of great importance in designing Human Resources Development in organisations. HRD can be defined as follows: HRD is the goal directed and policy oriented process for the development of transferable competencies of employees in companies, which is aimed towards providing the conditions for delivering labour achievements. These are important for fulfilling the aims of entrepreneurship, the organisation, the job or profession, by which the functioning of the employees is optimised and a contribution is made to their future employability and flexibility, which can be initiated and guided by both themselves and the organisation.

The core activities which take place in the context of Human Resources Development are shaped by formal and informal learning processes, which are supported by educational infrastructures and which can be aimed at accommodating the natural need in people to further their personal development, the optimising of individual and team performance, the career development of employees, and contributing to the innovation of the company. This educational infrastructure can vary in its degree of elaboration from an informal but positive learning climate carried by the leaders of a firm, for example, farmers and market-gardeners, where there are opportunities for learning and where agreements can be made about the manner by which employees can increase their knowledge and experience, for example, by a training course or by participation in informal learning routes, on the one hand, to a well-devised whole of organisational sections encumbered with signaling learning needs, developing or purchasing educational programmes, implementing and evaluating and then incorporate all this in policy management on the other hand.

What are the advantages of using competencies in Human Resources Development?

1. Competence-oriented training implies a strategic stronghold of Human Resources Development activities in an organisation, the vertical integration, which adds to the effectiveness of these activities.
2. A more positive learning and development climate exists through the collective efforts for competence development. Competence development implies that conditions have to be created for Human Resources Development activities. It also emanates from the idea that board and management consider it important that the organisation further develop itself and that therefore education is a necessity for everyone.
3. There is a better needs assessment by competence profiling and employee appraisal by which Human Resources Development activities are given more focus, become more relevant and are applied in a more direct manner.
4. Competence assessment makes individual learning processes possible, tailor-made as it were; this can result in better and more long-term profits.
5. Competence analysis offers a better basis for purchasing Human Resources Development services, including training. Specifications for these services are already defined before the suppliers are asked to meet them with a specific proposition. If this does not transpire, the supplier is in fact groping in the dark concerning his range of stock. With the aid of competence profiles or noted competence discrepancies, the supplier can orient what he has to offer much more precisely towards the necessary capabilities that have to be acquired.
6. Competence profiling increases transparency concerning the benefit of Human Resources Development services in the context of career development (horizontal integration). If training programmes are linked with specific competence profiles for certain jobs then it is clear to candidates which training they should follow to attain a particular position. Moreover, the training objectives of courses become more clear-cut.
7. In view of the continuous competence assessment (and adjustment of the profiles) there is increasing and more specific contact between participants and executives about participating in Human Resources Development activities. That is beneficial for putting into practice what has been learned.

8. The concept of competence effectuates more concern for the strength of non-formal training and learning processes (such as learning from colleagues and coaching). Such possibilities for learning have always existed but can now be used more explicitly in the framework of competence management, which originates from the simple questions: 'What has an employee to do? What does he or she need for that? How can he or she learn that in the quickest possible way?'. Participating in a training course is then often not so well-timed, as a possible registration may take too much time, the training may be too extensive, or the development of a tailor-made route may be too time consuming. Then there is more explicit attention for the learning potential in the actual labour situation itself (Ostenk, 1997).

9. Competence profiles offer a good basis for testing the effects of Human Resources Development activities.

## **7. Some Critical Remarks about Working with Competencies**

It must not be concluded from the above-mentioned that competence development has only advantages. There are also critical remarks which should be made about this concept.

1. There is resistance to the jargon used in competence management. However, it is possible to introduce competence management as a concept, without introducing all the terminology to the users.

2. Developing and maintaining competence profiles and introducing competence assessment is expensive. However, failing to develop and withholding competence assessment is also expensive, because in that case competence management cannot be fruitful.

3. Introducing competence management should not become a bureaucratic issue, with the annual completing of numerous forms, as it then misses its goal. The process of competence development is more important than applying a system of competence management in administrative terms.

4. Special attention needs to be paid to the reliability and validity of competence profiles and assessments. It must be realised that competence profiles have a normative character whereby, for example, the requirements are stated for profile holders and also that competence assessment must take place in dialogue with those concerned. The dialogue about the desired and actual competencies is of great value.

5. If the Human Resources Development process is distinguished in stages of preparation, implementation and evaluation, then competence oriented HRD has especially added value in the preparation stage during the selection of goals and topics for learning activities, and in harmonising plans with all concerned, as well as in the evaluation stage during the determination of results. It does not play a strong role in executing HRD activities. In executing these activities various questions arise that cannot be answered by the fact that competence profiles have been developed, competencies have been assessed and competence discrepancies have been established. These questions deal with the organisation of the learning routes, the choice of the way of working and the exercises, the media that have been used and so on. Where a training programme is concerned, the adaptation of ways of working to the learning styles of the participants and the choice of the trainer with his or her own

teaching style, are decisive factors. The role of the trainer is very important for the way people react to the training, and for their motivation to apply the issues of the training in practice. The concept of competence does not automatically lead to a change in the manner of thinking about these questions, but it stimulates this, provided it has had sufficient attention. Concerning the organisation of the learning activities, the concept of competence may give rise to the question of what is the most effective way to acquire specific competencies. Educational specialists may be of value then. They can offer alternatives for the mostly expensive and logistically ill-planned training courses. They ought to be able to judge what the most cost-effective learning process is for every form of competence for certain individuals in certain contexts: be it training, coaching, consulting colleagues, practical instruction, supervision, intervision, a specific learning project, learning from the WEB (intranet, internet), learning in a computer assisted network or not, reading of particular texts, studying particular manuals, consulting internal advisors or experts outside the organisation, using electronic aid functions in computer programmes, and so on.

6. The concept of competence also offers the possibility to turn from individual-objective learning to social-constructive learning (Simons, 1999a). However, this is not so easily done. The professionals that support the learning process have to make this change-over consciously.

7. The same applies for stimulating self-study and the development of learning competence. For this, competence-oriented HRD offers ample opportunities but one has to consciously exert oneself. In the case of an established competence discrepancy, it is in fact simple not only to indicate what content the learning process should be oriented towards to acquire the competence, but to organise this learning process to such an extent that in addition to acquiring the competence, the learning ability is extended as well. In the long run this offers more added value than a learning process that is oriented along narrower margins as it disposes of the discrepancy. A self-regulating learning capacity is of greater importance than the setting-up of new training projects in which merely new competencies are handed over. Desired learning processes operate much faster, whilst the disadvantage of many training courses is that they are often outdated.

## **8. Finally: Working with Competencies in the Agri-food System**

Until now most experience in the use of competencies has been in large organisations in the private and public sector. Regarding the agricultural sector, an interesting study has been published (Verkaik, 2000) in which the concept of competence is used for this sectors' structural policy. The author speaks in terms of the core competencies of the agricultural sector. These core competencies may be used in the context of strategic sectoral policy making for the further development of the sectors' innovation policy and for decision-making in implementing this policy in rural areas. This offers entrepreneurs in the agricultural sector a foothold in the subsectors within the agri-food domain, which the government wishes to strengthen in the long term. Agricultural and market-gardening businesses can benefit from this and take it into account in their future business planning.

Very little is known about the way in which competence development in the agri-food complex takes shape. One must differentiate between, for example, the primary production sector which consists mainly of small businesses run with family labour, suppliers, the energy sector, the transport sector, the food industry, commercial trade, banks, insurance companies

and the government. By and large, the main difference in competence use is between (very) large organisations and (very) small ones. In large organisations strategy building, personnel policy and developmental policy are to a large extent specialised. For these areas, separate services and staff are available. This is not the case in the smaller primary production businesses. Only larger farms can, at best, employ a small number of permanent staff and a variable number of employees on a temporary basis.

Enough has been said already about competence development in the larger organisations. The way in which competencies are used outside agriculture can be applied without much effort to numerous governmental services and to companies that support agricultural development. But what does competence development mean for the smaller farmers and market-gardeners?

Firstly, it can be said that management in small businesses is often more integrated than in many large organisations; however, much of it remains implicit. Competence development is also especially applicable to the entrepreneur him (or her) self. Reflection on developments in the environment, the market, consumer demands, governmental regulations and the future of the company is often not explicitly extended to the consequences for competence development. Nevertheless, this is important because as a result of the radical transformation process in the agricultural sector, farmers and market-gardeners' competencies may become obsolete. New competencies or competence levels are needed in which a distinction has to be made between continuous and discontinuous development. Continuous in the sense that farmers and market-gardeners continue to extend their knowledge and experience in accordance with their current business activities. This extension has affinity to their present knowledge and experience and usually results in deepening competence. Discontinuous competence involves the acquisition of new competencies, which are not connected with existing present activities. This is often the case when an entrepreneur starts a new business activity. From the perspective of the radical transformation process already mentioned it is obvious that discontinuous competence development is becoming an increasing issue.

Secondly, it is a matter of major importance for both small agricultural businesses and large organisations, that economic success increasingly depends on the speed with which competence development occurs. Agricultural companies must continuously adapt to changing consumer demands, stronger environmental regulations, new requirements for product quality, the implementation of integrated chain management, more thorough inspection regarding food safety, the role of sustainability, and so on. Companies able to cope with these developments in a clever way, have more chance at success than the rest. It is therefore of great importance for agricultural companies to reflect explicitly on the question of how their own competence development both in content and design as well as that of their staff can be improved. Running a business in a knowledge intensive market like agriculture and agri-business is, for the greater part, learning, and a conscious use of the learning potential of all workers may be very important for the quality of the production processes and consequently the further development of the company.

Taking into consideration that no extensive research has been done on the link between competence development and commercial success in the agri-food system, an attempt to get such research off the ground is recommended. Important questions to be confronted in this research ought to be the following: Which company activities have had appreciable added value for the economic success of the company in the last few years? To what extent was this success dependent on the competencies of the entrepreneur and his or her personnel? Which factors have had an influence on this success and what was the nature of the influence?

Moreover, it is also interesting to investigate to what extent farmers and market-gardeners are taking into account in their company policy, explicitly or implicitly, the implications for competence development. Here the following questions are of importance: Which company activities are to be expected in the short, medium and long term? What does this mean for the expertise of entrepreneurs and their staff? How can competence development be realised in the most efficient and effective way?

Further, it is important to conduct a restricted number of in-depth case studies, as the questions raised concern very complicated relationships, which cannot be easily dealt with in an extensive survey. Also, interventions (in a kind of field experiment) are not viable from a practical point of view as they may entail considerable damage risks with eventual liability problems.

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