

Employability Management Needs Analysis for the ICT sector in Europe: The Case of Small and Medium-sized Enterprises

by

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Abstract

The purpose of this paper is to deal with the outcomes of a so-called “employability management needs analysis” that is meant to provide more insight into current employability management activities and its possible benefits for Information and Communication Technology (ICT) professionals working in Small- and Medium-sized enterprises (SMEs) throughout Europe. A considerable series of interviews (N=107) were conducted with managers in SMEs in seven European countries, including Germany, Greece, Italy, the Netherlands, Norway, Poland, and the UK. A semi-structured interview protocol was used during the interviews to cover three themes: employability (13 items), ageing (8 items), and future developments and requirements (13 items). Analysis of all final interview transcriptions was at a national level using an elaborate common coding scheme.

Although an interest in employability emerged, actual policy and action lagged behind. The recession in the ICT sector at the time of the investigation and the developmental stage of the sector in each participating country appeared connected. Ageing was not seen as a major issue in the ICT sector because managers considered ICT to be a relatively young sector. There appeared to be a serious lack of investment in the development of expertise of ICT professionals. Generalization of the results to large organizations in the ICT sector should be made with caution. The interview protocol developed is of value for further research and complements survey research undertaken within the employability field of study. It can be concluded that proactive HRM (Human Resource Management) policies and

strategies are essential, even in times of economic downturn. Employability management activities are especially important in the light of current career issues. The study advances knowledge regarding HRM practices adopted by SMEs in the ICT sector, especially as a gap in knowledge about career development issues in that particular sector.

Keywords: Employability management, Ageing, SMEs, ICT-sector.

Introduction

Despite the increasing importance of employability or career potential for governments, employers, and employees, scientific research about how employability can be acquired, developed, and sustained over the full cycle of a career is lacking. The concept of employability came into use in the 1950s (Versloot, Glaudé, & Thijssen, 1998). However, it is only since the late 1990s that employability has been studied empirically (cf. Fugate, Kinicki, & Ashforth, 2004; Rothwell & Arnold, 2007; Van der Heijde & Van der Heijden, 2006). In the present study, an attempt is made to address the gap by examining current employability management practices in information and communication technology (ICT) small- and medium-sized enterprises (SMEs) across European countries.

The nature of employment and work patterns has changed considerably in past decades. Careers increasingly are without boundaries, in the sense that, these days, during career progression, more boundaries are crossed, for example, occupational, departmental, and organizational, as compared to the past (DeFillippi & Arthur, 1996; Feldman & Ng, 2007; Gunz, Evans, & Jalland, 2000). When careers are less predictable, thorough diagnosis of the required competences and/or one's employability are crucial starting-points for all career policy activities.

Life cycles of occupations and functions have shortened tremendously, especially in knowledge-intensive industries. In addition, employment relations are becoming more discontinuous. Temporary contracts and increased subcontracting imply that employers are viewed increasingly as providers of career development activities aimed at building up the necessary knowledge and skills that enhance employability rather than secure employment (Arthur, Inkson, & Pringle, 1999; Capelli, 1999). Therefore, a key question is the following: Which role should employers and employees in continuously updating workers' professional expertise and guaranteeing their employability adopt?

In daily practice, employers generally do not assume full responsibility for the employability enhancement of their employees. Consequently, in many circumstances, employees ought to develop further their occupational expertise without the support of organizational systems (Anakwe, Hall, & Schor, 2000). Possibilities for the development of broader expertise are explored scarcely at all, and employees are not taught how to build up new knowledge and skills (Van der Heijden, 2002). In addition, beneficial working conditions in this respect are seriously lacking, and this while development in other areas is virtually the only way to avoid over-specialization and lop-sided knowledge development.

Especially in the ICT sector, the lack of stimulating working conditions has important implications because switching to another area might be necessary because of company-related circumstances, reorganizations, or market changes. That is to say, ICT professionals whose professional development is too narrow, with all their acquired specific expertise in a single area, will be sidelined (Schreinemakers & Peereboom, 1999; Scholarios et al., 2008). However, maintaining expertise is by no means an easy task. The potential of a given organization to perform optimally in global markets depends on employees' capabilities to develop, cultivate, and maintain critical knowledge and skills.

From the perspective of *ageing*, in other words, an increasingly older working population, it is essential to know that employability will be maintained throughout a career. In the field of ICT, the ageing of the workforce presents serious challenges to ensuring employment over the years. Technological innovations are a push factor leading to a decrease in labor participation by older employees because the knowledge and skill requirements are constantly changing. Often, older employees are not provided with the necessary education and training program adapted to their needs (cf. Armstrong-Stassen & Templer,

2005), yet find it necessary to remain employed. Even worse is the fact that technological innovations may lead to an increase in productivity, leading to an outflow of older employees in particular.

Although consideration of age-related issues in career development is relatively recent, a growing concern about guiding individuals' professional development throughout their working lives is apparent (cf. Boerlijst, Van der Heijden, & Van Assen, 1993; De Lange, et al, 2005; Kwakman, et al, 2002; Shultz & Adams, 2007; Van der Heijden, De Lange, Demerouti, & Van der Heijde, 2009). Scholars in the field build upon the assumption that in cases where functions are not becoming obsolete and older employees are able to adapt to changing requirements, employability can remain good during an entire working life (cf. Van Loo, De Grip, & De Steur, 2001).

The objective of this paper is to determine employability management practices within the ICT sector in Europe. It is essential to investigate to what extent companies are focusing upon the enhancement of occupational expertise in order to enable life-long career development of staff. Because a serious lack of empirical research about SMEs exists (Chanaron, 1998), we aim to contribute to closing this gap in the literature by concentrating on employability management strategies in this particular section of the labor market.

The Concept of Employability

Employability is studied from different angles and distinct levels, such as individual, organizational, and industry, across a wide range of academic disciplines, including business and management science, psychology, sociology, and education. However, few studies have tried to integrate the different perspectives (Thijssen & Van der Heijden, 2003). In addition, numerous related concepts are used in order to refer to employability, including mobility, flexibility, and transfer (Van der Schoot & Streumer, 2003). Definitions and synonyms for the concept at the employee level are abundant (De Grip, Van Loo, & Sanders, 2004; Forrier & Sels, 2003; Fugate et al., 2004; Harvey, 2001; Rothwell & Arnold, 2007; Thijssen & Van der Heijden, 2003; Van der Heijden & Thijssen, 2003; Van Lammeren, 1999). Each definition emphasizes a diversity of career aspects of actual and potential employees, but all refer to employment as an outcome (cf. Van der Heijde & Van der Heijden, 2006, for a more detailed overview).

In the current study, the employability framework proposed by Van der Heijde and Van der Heijden (2006) was adopted. *Employability* is defined as "the continuous fulfilling, acquiring or creating of work through the optimal use of competences" (p. 453). This so-called competence-based approach to employability is derived from an expansion of the resource-based view of a firm. Its conceptualization comprises five dimensions of employability, with the dimension of occupational expertise complemented with four competences that are more general: (a) anticipation and optimization, (b) personal flexibility, (c) corporate sense, and (d) balance. The proposed employability dimensions relate to both job-related matters and to aspects of a broader career development.

The first dimension, considered a prerequisite for positive career outcomes, is *occupational expertise*. It comprises knowledge and skills related to a particular domain as well as to the amount of social recognition by important key figures in one's professional area. Occupational expertise is seen as a significant human capital factor for the vitality of organizations whose importance, due to the intensification of knowledge, is only growing (Enders, 2002).

Anticipation, optimization, and personal flexibility focus on adaptation to changes and developments and refer to distinct types of adaptation, the former being a self-initiating pro-active variant and the latter a more passive and reactive variant. More specifically, *anticipation and optimization* is preparing for and adapting to future changes both personal and creative manner, and striving for the best possible results. *Personal flexibility* is the capacity to adapt easily to all kinds of changes in the internal and external labor market that do not pertain to one's immediate job domain. Both adaptation types coexist and function to enhance the employability of the professional worker.

Corporate sense is the participation and performance in different work groups, such as organizations, teams, occupational communities, and other networks; it involves sharing responsibilities, knowledge, experiences, feelings, credits, failures, goals, and so forth. This employability dimension also reflects the fact that the erosion of the traditional dichotomy between managers and support staff requires

employees to participate more as members of an integrated team, to identify with corporate goals, and to accept collective responsibility for decisions (Chapman & Martin, 1995).

The fifth employability dimension in Van der Heijde and Van der Heijden's (2006) operationalization; that is, *balance*, is defined as compromising between opposing employers' interests as well as one's own opposing work, career, and private interests as an employee, and between employers and employees' interests. Working life is characterized by strongly competing demands that are not easily balanced; hence, this dimension reflects the ability of the individual to accommodate all different types of demands.

Methodology

First, in order to decide on a sound sampling strategy, the nature of employment in the ICT sector in the seven participating European countries, namely, Germany, Greece, Italy, the Netherlands, Norway, Poland, and the UK, was examined in a thorough sector analysis using secondary data (cf. Scholarios et al., 2008 for specific outcomes). Next, a group of 107 individuals who were managing directors, CEOs, or senior managers in SMEs in the ICT sector was approached for semi-structured interviews. The participating companies were found to be representative of the population of ICT companies in the respective countries as identified in the sector analysis. Each country aimed for five companies, in each of the three distinguished SME size bands: (a) 10-49 employees, (b) 50-149 employees, and (c) 150-249 employees. Micro SMEs, that is, SMEs with less than 10 employees, were not included because some of the aspects of employability management that were of interest in the study included organizational culture and leadership style; the latter are aspects that cannot be validly dealt with in interviews with representatives of micro organizations.

Furthermore, a representative distribution by region, following the actual distribution of ICT SMEs in the participant countries, was targeted. Fifteen interviews were conducted in each country, apart from Poland ($N=18$) and the United Kingdom ($N=14$). The number of conducted interviews by company size in each country is shown in Table 1.

Table 1.
Number of Interviews Conducted in the Seven European Countries by SME Size

Country/SME size	10-49	50-149	150-249	Total
Germany	3	7	5	15
Greece	13	2	-	15
The Netherlands	10	2	3	15
Norway	5	5	5	15
Italy	10	3	2	15
Poland	6	6	6	18
United Kingdom	8	5	1	14
Total	55	30	22	107

A common semi-structured interview protocol that covered three themes was used: (a) employability (13 items); (b) ageing (8 items); and (c) future developments and requirements (13 items). Definitions of all relevant concepts were given to the participants by the researchers, in order to prepare participants for the specific interview questions. Appendix I includes a full depiction of all interview items.

Examples of interview items related to *employability* are the following: Does the management team in your company pay attention to employability management and in what sense? Has an employability management policy been formulated in your company? If so, can you give a clear formulation of its content? What kind of activities in the area of employability management is undertaken in your organization?

Item examples for the issue of *ageing* are the following: Is your company concerned about whether ageing and dejuvenization (i.e., a decrease of the birth rate so that the number of newcomers in the labor market diminishes) of the population will bring about problems for your own company with regard to the

employability of employees? Does a clear management view exist regarding age borders? At what point are essential changes to be expected regarding ICT professionals? What is the foundation of these views?

Examples of interview items that covered the topic of *future developments and requirements* are the following: Which future challenges are expected to come up in your company? Which personal characteristics, knowledge, expertise, skills, and so forth are necessary for the future of your company? Does your company make a prognosis regarding internal and external supply of competent ICT professionals in the future?

The interview questions were translated and back-translated (Hambleton, 1994) to the original list of questions that were formulated in Dutch, where the coordinator of the Indic@tor study was based, in order to ensure semantic invariance across languages. The interviews were conducted in the national language of the participating countries. Most interviews were conducted face-to-face (92.5%), a small number by telephone (6.5%), and one via e-mail. Table 2 presents a full outline on the interview methods used across countries. The interview duration varied between 30 and 90 minutes.

Table 2
Interview Methods for the Seven European Countries

Country/methods	Face-to-face	Telephone	E-mail	Protocol	Protocol in advance	Taped	Notes
Germany	15	0	0	Yes	No	No	Yes
Greece	15	0	0	Yes	No	No	Yes
The Netherlands	14	0	1	Yes	Yes	Yes	Yes
Norway	12	3	0	Yes	No	Yes	Yes
Italy	13	2	0	Yes	No	No	Yes
Poland	18	0	0	Yes	No	No	Yes
United Kingdom	12	2	0	Yes	No	Yes	Yes
Total	99	7	1	100%	1 Yes/6 No	3 Yes/4 No	100%

All final interview transcriptions were analyzed at a national level using a common coding scheme developed by the coordinator of the study. The scheme was constructed based on three Dutch interviews via an elaborate content analysis (Baarda, De Goede, & Teunissen, 1995). According to the method, data were divided into core labels (variable categories), dimensions within the core labels, and loadings. Three *core labels* were formulated: (a) employability, (b) ageing, and (c) future developments and requirements. An example of a *dimension* within the core label employability is “employability management.” *Loadings* represented a group of similar statements that were indicative of a certain dimension. For example, “... interest in employability management, however, ad hoc and unstructured, and one can speak of no real activity directed towards the employability of employees....” was a statement that was identified as a loading for the dimension employability management. Due to the high number of interviews and variables, loadings were identified in cases where at least five respondents reported a similar statement that was indicative of a certain dimension. For each national level, the coding scheme was filled out three times: (a) once for the SMEs with 10 to 49 employees, (b) once for the SMEs with 50 to 149 employees, and (c) once for the SMEs with 150 to 249 employees. The coding scheme functioned as a basic framework in which additional categories or dimensions for each core label could be added. In the cross-cultural analysis, comparable response patterns were aggregated via the same method of content analysis as described above in order to depict the results’ matrix. The full coding scheme is available upon request from the corresponding author.

Results

In this section, the outcomes of the study will be described. For sake of clarity and completeness, all interview questions are dealt with in the order given in Appendix A, followed by a concise summary of the main outcomes, categorized by theme, namely, employability, ageing, and future developments and requirements.

Employability Management

The first area of concern pertained to managements' current attention to employability management issues, its direction, and its content. Below are the findings.

Most managers indicate that they give attention to employability matters. However, in 20.6% of the cases, attention is *ad hoc* and unstructured, and one can speak of no real activity directed towards the employability of employees. In addition, 14% of managers declare that the market decides, especially in a situation of economic uncertainty. Overall, mainly small SMEs of size band 10-49 mention these difficulties. More specifically, most managers (32.7%) report holding conversations with employees in order to compose a development plan in which (in)formal training is significant, although such conversations are not mentioned by the Greek managers. In 26.2% of the cases, attention is directed toward assessments, but not among Greek managers and seldom among managers from Germany. In addition, 23.4% of the managers state that they pay attention to the employability of ICT professionals, and at the same time, further develop their organizational vision and strategy. Of the managers interviewed, 7.5% do not mention any area at all, the majority being managers of SMEs of size band 150-249. "Finding the right people" is mentioned by 5.6% of managers, mainly British managers. Finally, 4.7% of the British managers of SMEs of size band 50-149 indicate paying attention to (in) formal training.

More than half of the managers (59.8%), but to a lesser degree among those from Germany, mention that, in order to satisfy customers, high quality employees are required, and the size of an SME does not seem to matter in this respect. Customer satisfaction motivates managers' attention to employability. Of the managers interviewed, 26.2% find it important that employees stay with their employer; this is particularly true for British, Dutch, and German managers. German managers (18.7% of the respondents) say this is essential for making full use of competencies. Another group (13.1%) says that they react on demand because they have to be flexible and respond rapidly to events. Reacting on demand is especially the case for SMEs of size band 150-249 in Poland and SMEs of size band 10-49 in the Netherlands. Of the managers overall, except for managers in the Netherlands and Greece, 5.6% did not respond to these questions. Some managers (4.7%) from the UK, the Netherlands, and Italy, state that this was their company's core business.

Of the managers interviewed, 45.8%, mainly from SMEs of size band 10-49, say the company director is engaged with these matters, and 30.8% that the manager of the department concerned is responsible. Overall, others (23.4%), mainly in SMEs of size band 10-49 but none from Norway and Greece, mention the human resource manager. The management team or board is mentioned by 22.4%, but not by managers from Germany and Greece; the product manager by 13.1%, but not by managers from the UK and Greece; and the employees' own responsibility by 13.1% by mainly English and Dutch managers in SMEs of size band 10-49. Only 4.7% of the managers, excluding managers from the UK, the Netherlands, and Greece, declare that nobody is in charge of employability management. This is contradictory to the finding that managers from all countries state that not much attention is paid to employability in their organizations. Perhaps, the results indicate their interest in employability, rather than real efforts to contribute towards an employability policy.

An important group (34.6%), mainly from SMEs of size band 10-49, mentions that almost everything is *ad hoc*. "Things are too hectic in the current economic situation." Attention is paid mainly to personal development plans (34.6%), but there is no mention of this by Polish and Greek managers; and discussions about job functions (17.8%), but there is no mention of this by managers in Germany, Poland, and Greece. Managers from Greece (12.1%), mainly from SMEs of size band 10-49, say their organizations are too small for this; they are relatively new in the business and have not yet developed a policy. Of the managers, 10.3% from Norway, Germany, and Poland declared that they have no policy at all; SME-size seems insignificant with respect to those who had no policy. Other managers (10.3%), mainly British managers and some Norwegian and Dutch managers, mention training as a content area of policy. Some Polish managers (5.6%) report having an employability management policy, but claim that this is not of high importance.

The whole organization as the focus of attention is named in 57.9% of cases. In Greece, and particularly in SMEs of size band 10-49, no attention is paid to employability management at any level

of the organization. Mainly Polish managers (14% of the respondents) listed developers of applications, consultants, and managers. Others appear to draw attention to ICT teachers (4.7%), except for managers in Norway, Germany, and Greece.

Almost all respondents (83.2%) report having no gender-orientated employment policy, claiming that they treat men and women the same. Managers from the UK, the Netherlands, and Italy state that they find achieving a balance in male and female employees more important. Managers interviewed also describe some barriers for women in the ICT industry. Managers from the UK (9.3% of the respondents) explain that the ICT industry is generally male-dominated, which can be intimidating for women. British managers of SMEs of size band 10-49 (6.5% of the respondents) explain that the ICT sector is especially difficult for women because the work of ICT professionals is not a nine-to-five job, and many women have family obligations. Other UK managers report that women are more dedicated (6.5%), or more social and better coworkers.

More than two thirds of the managers interviewed (68.2%) report working on personal development plans. Almost a third of the managers (29.9%), but not managers from Poland and Greece, say they discuss and assess employee roles. Managers in SMEs of size band 10-49 feel it important to check employees' roles relative to career planning (22.4%), although Polish and Greek managers do not mention this. Managers from SMEs of size band 10-49 for all countries except Germany, Poland, and Greece report regular technical/didactical evaluations (16.8% of the respondents). Another activity reported is the provision of funds for education (15% of the respondents), with 81.3% of those managers being Greek and 18.7% Polish. Evaluations with employees and customers is mentioned by 13.1% of the managers from the UK, the Netherlands, and Italy, while 11.2%, mainly Polish, Norwegian, and British managers, report that evaluations are the responsibility of employees themselves. Only 9.3% of the managers answered that they undertake no activities in the area of employability management, none of whom are from Norway and Greece. This contradicts the earlier finding that, especially in Greek SMEs, relatively little attention is paid to the employability management of employees.

To summarize, in general, results from the interviews show that most ICT managers report an interest in employability matters with respect to the whole organization. However, attention is often *ad hoc* due to the influence of the market being of such high importance in the ICT sector, with supply and demand dictating the required competencies for ICT professionals. Flexibility is required in order to stay ahead of accreditations of software houses. Therefore, *ad hoc* strategies are developed to fit the current ICT sector conditions. Most attention in employability management is directed at assessments and developmental plans. Reasons for this include the need to keep ICT professionals up to date. Management also tries to enhance employees' commitment towards the organization, and to a lesser degree, optimize the full use and development of competencies. The director/management team, the human resource manager, or the manager of the department concerned, are mentioned most often as responsible for employability matters. Almost no organization has a gender-orientated employability policy, with most ICT managers claiming that men and women are treated the same.

Ageing

This part of the results section deals with the implications of the demographic developments upon the ICT SME companies that took part in the study.

The majority of managers (97.2%) do not expect ageing and dejuvenization of the population to bring about problems for their organizations. For most managers (44.9%), especially in the UK, Norway, the Netherlands, and Germany, ageing and dejuvenization is not a high priority, and they are not engaged with these issues. Either they do not care or they are unaware of its consequences. One third of the managers (35.5%), except for managers in Germany and hardly any in Norway and Greece, reported that they do not expect problems because mainly young people work in the ICT sector. Greek managers (12.1% of the respondents) report not having any problem related to ageing and dejuvenization because of the changing business model in the ICT sector. British, Norwegian, and German managers (9.3% of the respondents) point out the irrelevance of the topic, directing attention at the economic depression. Other managers (5.6%), none of whom is from Germany, Greece, and Italy, list the fact that although no problems exist in this respect, older employees are more inflexible.

Almost two thirds of the ICT managers, to a lesser degree those in the Netherlands and Italy, answered that nobody is engaged with these matters. In 26.2% of the cases, mainly SMEs of size band 10-49 with no managers from Germany and hardly any from Norway and Greece, the director/management team is engaged with this. Some managers (14%), but none from Greece and Poland and most from the Netherlands and Italy, list the human resource manager. Finally, in 6.5% of the cases, but not in the UK, Germany, and Greece, the manager of the department concerned is mentioned.

Most respondents (97.2%) do not expect ageing and dejuvenization of the organization to be a problem. A sizable group (43.9%), but nobody from Germany, does not see problems because the age structure of their organizations generally stayed young. Others (25.2% of the respondents), but none from Poland, declared that knowledge and experience are more important than age. For some (9.3%), mainly managers from SMEs of size band 10-49 who were not from Germany, Poland, and Italy, ageing and dejuvenization is not an issue because the age structure in their organizations has a pyramidal shape. British, Norwegian, Dutch, and German managers (5.6% of the respondents) mention the importance of a balanced age distribution. British managers in SMEs of size band 10-49 and Dutch managers in SMEs of size band 150-249 (5.6% of the respondents) report that older employees cost more and are more inflexible.

No problems are foreseen, for whichever job category, is mentioned by 70.1% of the ICT managers. Knowledge problems for developers and programmers are foreseen by 9.3% of the managers, but not from managers in Poland and Italy. The whole organization is mentioned by 7.5%, mainly Greek managers (62.5%), but this is not true for managers in the UK, Germany, and Poland. Others state that, if problems exist, the problems would happen in the area of maintenance. Only Dutch and Italian managers mentioned, "People think this is a kind of 'parking place,' but actually this is one of the most stressful functions" (5.6% of the respondents).

"Nothing is done to deal with these problems because this does not apply here" is the response of 61.7% of managers, although not Greek managers. Managers interviewed from the Netherlands, Germany, and Greece do not respond to this point (19.6% of the respondents), 71.4% of whom are Greek managers. Actively managing careers is mentioned by 9.3%, but not by managers from the UK and Poland.

More than half of the managers interviewed do not see the importance of a certain age distribution; some add that it is merely a reflection of a developmental stage (51.4%). Managers do not worry about the age distribution because many employees are still young (20.6%), although the Polish managers are worried about this, to some extent. A mix of ages is preferred by 10.3% of the managers in the UK, Norway, the Netherlands, and Italy, mainly from SMEs of size band 10-49 and 50-149. Polish and German managers (7.5% of the respondents) stated that older employees have more appropriate consultancy skills, while younger professionals are better in the areas of development and programming. Mainly British, but also Dutch, German, and Italian managers state that older employees are inflexible (6.5% of the respondents). British, Norwegian, and Dutch managers (5.6% of the respondents) prefer younger employees.

The most common reported motivation that lies behind the management view as regards a certain age distribution was that as the organization is young in terms of age profile, there should be no concern about the age distribution (35.5% of the respondents). Another answer is: "This does not apply here" (27.1% of cases), but this statement is not true for Polish and Greek managers. British and German managers (7.5% of the respondents) say young employees are attractive because they are flexible, while older employees have more experience. Of the Dutch, German, Polish, and Italian managers, 6.5%, 57.1% of which were German ICT managers mainly from SMEs of size band 10-49, declare a certain age distribution is not important at all. Others said: "The customer is King ... If the customer prefers young employees for their helpdesk functions, we have to deliver them" (6.5%); however, this statement is not true for managers from the UK and Greece. A mix is preferred by 5.6% of the managers from the UK (83.3%) and Norway. Norwegian, Dutch, and Italian managers (4.7% of the respondents), mainly from SMEs of size band 10-49 report that the need for a certain mix has more to do with competitiveness and the need to increase productivity than with age.

Of the managers interviewed, 62.6% state that, as far as they know, there are no age borders with respect to health. Some respondents (7.5%), but no managers from the UK, Germany, and Greece, note

that ageing causes an increase in illnesses. Dutch managers say that health is mostly optimal over 45. A majority state that there are no age borders with respect to family circumstances (59.8%). Between 28 and 40 years of age, family increased in importance, as did responsibilities (19.6%), but this concern is not mentioned by Norwegian and Greek managers. Of the managers interviewed, 11.2% state age is irrelevant, but not managers from Norway, Germany, and Poland. Last, it is mentioned that at around 28/29 years of age, women start to think about having children (10.3% of the respondents), mentioned by managers from the UK, Norway, the Netherlands, and Italy.

Of the managers interviewed, 40.2% mention that development possibilities depend upon the person and not upon age, except among German managers. Especially in Italy, Norway, Germany, and to a lesser degree in the UK (22.4% of the respondents), managers do not respond at all on this issue. Especially in Greece, but also in the UK, Norway, the Netherlands, and Italy, 17.8% of the managers, mainly from SMEs of size band 10-49, declare that ICT professionals of 40-45 years are more stable and less demanding. A sizable group (15% of the respondents), mainly managers from Germany, the Netherlands, Norway, and Italy, said that age is not important. Mainly managers from SMEs of size band 10-49 and to a higher degree in Greece than in the UK and the Netherlands, explain the significance of careers for professionals between 30 and 40 years of age (14% of the respondents). Others, mostly managers from the UK, Greece, the Netherlands, Italy, and Norway (11.2% of the respondents) from SMEs of size band 10-49 report that people under the age of 30 work hard in order to develop themselves. According to mainly Dutch, one British and one Polish manager (5.6% of the respondents), people over 40 years of age are more difficult as compared to younger employees.

Of the managers interviewed, 43% declare that mobility has nothing to do with age; rather, mobility depends on an individual's priorities. A sizable group of managers from Greece, the UK, Germany, and the Netherlands (43%) answer that professionals over 45 years of age are stable. According to 24.3% of the managers interviewed, except for Greek managers, there are no age borders to mobility. Except for German and Polish managers, 21.5% state that professionals under 30 of age are mobile in order to shape their careers. Five managers from the UK, Norway, Germany, and Poland (4.7% of the respondents) mention that people are mobile before settling and after raising their children.

Of the managers interviewed, 30.8%, but none from Poland, state that there are no rules about essential age borders with respect to the function/job. Of the managers, 28%, but no German and Polish managers, declare that knowledge, experience, and skill development are important especially until age 30. Three categories emerged, namely, junior (25-28 years), mid-level (28-33 years), and senior (>33 years), except in Greece (25.2% of the respondents). Especially in the UK and Greece and to a lesser extent in Norway, Italy, and the Netherlands (18.7% of the respondents), managers said that professionals over 35 years of age act more as mentors, managers, and/or consultants. Polish managers and one German manager (7.5% of the respondents) report that age is of no importance; it is more a matter of developmental stage.

More than half of the managers (53.3%) declare that age has nothing to do with performance. Of the managers interviewed, especially in the UK, Greece, and SME size band 10-49, but not mentioned by managers from Germany and Poland, 21.5% report that seniors are capable because they have learnt from experience. Managers from the UK, Norway, the Netherlands, and Italy, however, report that young professionals under the age of 25 are eager and capable of learning (15.9% of the respondents). Of the managers, 12.1% report having no idea of any relationship between age and performance, but this is not true of managers from Germany, Poland, and Greece. Especially Greek but also a Dutch and Italian manager (9.3% of the respondents) summarize it more or less as follows: the best age category is from 25 until 55; those under 25 have less experience, and those over 55 are not motivated any more. People under 30/31 are less serious according to five managers from the UK, Norway, the Netherlands, and Poland (4.7% of the respondents).

To summarize, ageing and dejuvenization of the population is not expected to cause a problem for SMEs. The ICT sector is mainly a young sector, and ICT professionals over age 30 are functioning mostly at a senior level; managers and directors of ICT SMEs are often around 35 years of age. Seniority is related more to competencies matching the requirements of the market than age borders. According to some ICT managers, young ICT professionals are more ambitious, mobile, and eager to learn than are ICT professionals over the age of 40. A connection between age borders and the performance of ICT professionals is not apparent.

Future Developments and Requirements

Finally, this subsection goes into the future challenges and the implications of the challenges for the function and functioning of ICT professionals. In addition, the requirements for ICT professionals in order 'to stay in the race' is addressed.

With respect to future challenges, it is important to mention that technologies are changing rapidly, with the internet and e-commerce becoming more important for the ICT market. This is described as a stimulating demand for highly trained and flexible ICT professionals (39.3% of the respondents), although no Greek managers mention the need for highly trained and flexible ICT professionals. Of the managers interviewed, 34.6% mention the economic crisis and survival as of utmost importance and as requiring creativity amongst ICT professionals. The relevance of different business markets, strategic thinking, and project management gains significance (26.2% of the managers) except among managers from Norway and Italy. For many managers except those from Italy (19.6% of managers), it is vital to be ahead of developments. Comments such as "the market decides" and "we have to act upon customer demand" are mentioned by 12.1% of the managers, but not by managers from the UK, Poland, and Greece.

The implications of the challenges are that more action in the area of employee competencies will be required in order to keep knowledge up to date, which is mentioned by 43.9% of the managers but not by Greek managers. Managers note that achieving a balance between specialization and communication/social skills will become more important (40.2% of the respondents). Therefore, ICT professionals need to be more flexible (27.1% of the respondents). Of the managers from Norway, Germany, Poland, and Greece, mainly from SMEs of size band 50-149 and 150-249, 10.3% noted no implications at all. Others, mainly the English, Dutch, and Polish managers, comment that, due to the economic depression, people are more likely to stay with their organizations (7.5%). Finally, it is clear that functions will become more generalist. British, Dutch, and one German manager (4.7% of the respondents) report that the number of support functions will increase.

With respect to personal characteristics, knowledge, expertise, skills, and so forth, it is found that flexibility and creativity rank highest on the skill list (44.9% of the respondents). Communication and social and consultancy skills are mentioned by 43% of the managers, as is technological knowledge (29.9% of the respondents), but not by Norwegian and Greek managers. In line with the abovementioned future challenges, all except Italian managers listed project skills as important (21.5%). Required personal characteristics are the following: commitment and loyalty (13.1%), mostly by managers in the UK, Poland, and Greece; curiosity and willingness to learn (12.2%), mostly by managers in Norway, the Netherlands, and Poland; and commercial skills (11.2%), mostly by managers from the UK, the Netherlands, Germany, and Italy. In general, one can say that people need to be educated and experienced (9.3%), as suggested by managers in the UK, Norway, the Netherlands, and Germany. Didactical skills are relevant for 6.5% of the managers in the UK, Norway, the Netherlands, and Italy.

The fact that ICT professionals are willing to develop themselves continually is not unimportant (77.6%). Mainly Polish managers and a Dutch and Italian manager (8.4% of the respondents), report that ICT professionals are equipped for the changes. In contrast, 7.5% of the managers from Norway, the Netherlands, Germany, and Italy from SMEs of size band 10-49, state that ICT professionals are not yet equipped for the changes. Much more needs to be learned to fill the gaps. Other managers from the Netherlands, Poland, and Italy and SMEs of size band 10-49 (4.7%) see more experience as the solution to overcoming current shortcomings.

Of the managers, but not Greek managers, 32.7% control the utility value of a function, which is the value the function/job has for the company or in a smaller sense for the department in which the ICT professional is working via training; one example given in 3.7% of the cases is job rotation. The planning of careers is mentioned by 23.4% of the managers, but not by managers from Germany and Greece. Of the managers interviewed, excluding English, Polish, and Italian managers, 16.8% had no answer or no idea. Another 15.9% of the managers in Germany and Poland stated that some attention is paid to utility value, but provide no elaboration. According to mainly British managers and some from the Netherlands and Poland (10.3% of the respondents), concern with utility value is ad hoc. Of the

managers, 9.3% described having no functions in their organizations concerned with utility value issue, except for managers from the UK. Only managers in the UK from SMEs of size band 10-49/50-149 report that utility value is up to the employee (9.3%).

According to 43.9% of the managers, but no German and Greek managers, continual training enhances the learning value of a function, or the value the function/job has as a nutrient for the development of new knowledge, skills, and expertise for the ICT professional him or herself. Of the managers interviewed, especially in Greece, and to a lesser extent those in Poland, Germany, the Netherlands, and Norway, 19.6% give no response to this question. Competence management turns out to be another way to guarantee the maintenance/ development of the learning value (15.9%), except in the case of managers in Norway and Greece. Polish and Greek managers along with one Italian manager (9.3%) declare that they pay attention to the maintenance/development of the learning value of a function without giving further clarification. Managers in the UK, the Netherlands, Germany, and Greece (7.5% of respondents) declare they did not have any function in their organizations for this purpose. Managers from the UK, Poland, and the Netherlands (7.5% of the respondents) report looking at the learning value of the job only when people enter the organization. Mainly managers from the UK, but also one manager from Norway and one from Poland (4.7% of the respondents), stated that maintenance/development of the learning value of the function is (partly) on the initiative of the employee. In 4.7% of the cases, but only amongst Polish managers, this is achieved by job rotation.

In 29% of the cases, but not at all in Italy, no attention to the maintenance/ development of ICT professionals' performance is paid because of small organizational size. For 27.1% of the managers, except those in Greece, the maintenance/development of the learning value of the function may arise during conversations with employees. According to 25.2% of the managers, but not for Polish and Greek managers, this works via the customers: customers decide how an ICT professional should function. More formally, some attention is paid to the management and development of performance during annual assessments, according to 21.5% of the respondents, but not Norwegians, German, and Greek managers. Of the managers, 10.3% report the initiative of the ICT professional for the maintenance/development of ICT professionals' performance as being essential, especially in the UK, and to a lesser extent in the Netherlands and Germany. Finally, 7.5% of the British, Dutch, and Polish managers list courses and training to keep functions at a high level.

No fewer than 42.1% of the managers, but no British and Italian managers, declare that gathering information on the utility value of the function is of no interest and/or relevance. Of the managers, 25.2%, but no managers from Greece, mention conversations about career management and planning and the functioning and evaluation of projects. According to 18.7% of the managers, especially those in the UK, the Netherlands, Poland, Norway, and Italy, gathering information on the utility value of the function happens in an *ad hoc* way. Of the managers interviewed, 11.2%, mainly Polish managers, execute systematic analyses.

Of the managers interviewed, 45.8%, none of which are from the UK and Italy, declare that gathering information on the learning value of the function is of no interest and/or relevance. In 26.2% of the cases, except in the case of Greece, portfolios are made based upon conversations about career management and planning, functioning, and evaluations of projects. Of the managers, 17.8%, but not those in Germany and Greece, gather information in an *ad hoc* fashion. Of the managers, 7.5% report making developmental plans, but this was especially true of Polish, Italian, and to a lesser extent, Dutch managers.

Norwegian, German, Greek, and Polish managers (31.8%) do not gather information on the functioning of ICT professionals. Of the managers, 29.9%, except for those in Greece, declare that they evaluate reports of customers, managers, and employees. According to 24.3% of the managers, but not those in Germany, Greece, and Italy, information is gathered via annual discussions about performance. In 15% of the cases, but not Greece, if managers gather information, it is gathered informally. Regular updating of curricula vitae to requirements of the market is reported by 14% of the British, Dutch, Italian, and Norwegian managers. The evaluation of ICT training courses is listed by 9.3% of the managers, mainly British, Dutch, and one Italian manager. Last, 5.6% of the Polish, German, and Norwegian managers report gathering information within their budget and/or project orientation.

In 34.6% of the cases, except for managers in the UK, information about the maintenance/development of the function is not collected from the outset. In contrast, according to 25.2% of the managers, but not mentioned by Greek managers, information about the maintenance/development of the function provides good indicators of, for example, career planning. Of the managers, except for Greek managers, 23.4% report that the gathered information can be used but is not essential. Of the British and Dutch managers, 15.9% state that professionals have to do it themselves in order to find out what is needed for the labor market of tomorrow. Of Dutch and German managers in SMEs of size band 10-49, 4.7% declare that they do not work with functions. Dutch, Italian, and Norwegian managers (4.7% of the respondents) mentioned that this information is not gathered because it does not provide insight into labor market developments. Networks, literature, conferences, and meetings are considered more appropriate for gathering information about the maintenance/development of the function.

Another 19.6% of the managers, but not German and Greek managers, declare that information on the maintenance/development of the functioning of ICT professionals can be used but is not essential for the maintenance or development of the functioning of ICT professionals. A good working information system is reported by 17.8% of the Dutch, Italian, British, and Norwegian managers. Finally, 12.1% of the managers, mainly from Poland but also in Germany, report that this kind of information gathering is under development.

Of the managers, 66.4% report regularly updating all curricula vitae in order to record knowledge, skills, and expertise of all employees, or person-bound information. Recording curricula vitae and certificates in personal files is reported by 16.8% of managers interviewed, these managers being from Poland, Germany, Italy, the Netherlands, and the UK. According to 14% of the managers, except those in Greece and mainly SMEs of band size 10-49, person-bound information is not recorded. Team leaders have some information, while finances are recorded in the finance department. Mainly UK managers, but also two Dutch and one Italian manager (14% of the respondents), said that they worked with assessments.

Of the managers, but not Greek managers, 39.3% stated they actively and continuously manage the careers of ICT professionals in order to prevent obsolescence. Of the managers interviewed, excluding those in the UK, 27.1% called obsolescence an irrelevant issue and undertook nothing. One reason given is that ICT business bores people sooner than they expect. Norwegians, Italians, and a Polish manager (6.5% of the respondents), mainly from SMEs of size band 10-49, explained that the market decides about obsolescence. Employees are expected to develop themselves. Along these lines, Dutch, German, Polish, and Italian managers (4.7% of the respondents) mentioned that they are unable to influence the prevention of obsolescence in any way.

According to 52.3% of the managers, measures to prevent obsolescence are not necessary because the issue is of no relevance. Mainly Polish, German, and Italian managers and one Dutch and one English manager (16.8%) declare that the usual personnel management activities are sufficient to prevent obsolescence. It becomes obvious that in some cases, too much effort has been put into preventing obsolescence according to 15% of the managers interviewed, but this is not the case for Poland and Greece. Of the managers interviewed, 9.3%, mainly from Norway and the Netherlands and one Polish and one Italian manager, suggested that in economic rough times 'fun' is not always important because situations become more like 'take it or leave it.' In 6.5% of the cases, mainly in the Netherlands, Poland, and Italy and for SMEs of size band 10-49 and 150-249, it is clear that measures need to be executed more regularly in the department if prevention of obsolescence is at stake.

Of the managers interviewed, 52.3% report that making a prognosis of the demand for ICT professionals is not a priority. First, managers feel the need to survive the economic crisis before looking again at the future. This is specified in business plans according to 28% of the managers, but not among managers in Greece. According to 20.6% of the managers, except for Norwegian and the Polish managers, only global estimations are made; these estimations tend to be *ad hoc*.

Of the managers interviewed, 52.3% state that internal and external evaluations of the supply of ICT professionals are not a priority because of the pressures for survival. Mainly English, Dutch, and Italian managers and two German managers (17.8%), make only global estimations *ad hoc*. In addition, in 17.8% of the cases, except in Germany and Greece, product groups and areas of expertise are defined

and then the number of required ICT professionals is calculated. Of the managers, 13.1%, but no managers in Norway and Greece, declare that the labor market can be predicted. Last, Norwegian and Dutch managers (4.7% of the respondents) feel that this prediction can be made via the board's vision.

To summarize, the economic depression runs through all current and expected developments reported by the group of ICT managers interviewed. Surviving, especially for SMEs, is a crucial theme. Already, some of the SMEs in which ICT managers were interviewed have gone bankrupt. Because of technological developments, updating of technical knowledge and expertise, and changes in communication and consultancy, competencies have become more significant, albeit the range of competencies is often unaffordable in times of crisis. Nevertheless, ICT professionals have to be generalists and flexible, often without the help of organizational structures to stimulate and maintain the utility and learning value of their functions and functioning. Gathering information on these did not seem to be of relevance to interviewees. Preventing obsolescence was not a priority in a situation of economic depression; nor was the prediction of future demand for ICT professionals.

Conclusions and Recommendations for Further Research

A major finding of this study was that, across countries, although senior managers had an interest in employability matters, policy and action lagged behind. Despite the diversity of ICT sectors, both in the well-developed markets of the UK and Germany, in the emerging Polish ICT sector, and in the tiny Greek market, SME managers gave similar answers, referring to their companies' survival in a turbulent business environment and the constraints the turbulence placed on managing employability (cf. Scholarios et al., 2008). We have found evidence for an instrumental approach to employability management, consistent with the increasingly temporary nature of employment relationships perceived in the volatile ICT market (Davidson, 2001).

Where SMEs undertake activities in the area of employability management, it is mainly in the domain of technical training and assessments. In this respect, the economic recession experienced by the sector at the time of the investigation and the developmental stage of the ICT sector in each participating country had an impact. The development of ICT professionals' employability was not seen as a top priority, but rather as a luxury item on which not much time and effort could be spent. Resources for investment in development of the (future) career potential of ICT professionals were lacking. Many senior managers seemed aware of the gap and considered that "the toll is going to be paid" in the near future. They noted that ICT professionals were not always equipped for future requirements. That ICT professionals are not always equipped for future requirements is the perception, especially with regard to soft skills such as communication, flexibility, team/project management, and consultancy competencies. Furthermore, continuously updating technical software or systems development skills were considered vital.

Despite acknowledgement of the above situation, most SMEs across all European countries opted for short-term strategies and regarded it as unaffordable to invest in developing their ICT professionals at a time of economic recession. Limited effort and resources were spent on meeting expected future needs via strategic action. ICT professionals were expected to be responsible for developing their skills.

The nature of the software industry provides some explanation for this approach to employee development. The need for rapid reaction times and high volume production or maintenance of systems involving lower-level skill sets may preclude managers from more strategic planning with respect to people management (Barrett, 2005); and for higher skill demands, they may be unwilling to enhance the employability of their employees if they are likely to take these new skills elsewhere. Shorter-term and less expensive options for meeting skill shortages in the industry have been to use outsourcing to non-EU countries with a highly qualified ICT labor force, particularly India (Scholarios et al., 2008, p. 1050).

However, by investing in the employability of their present personnel, companies assure flexible deployment within the organization. Moreover, such investment proves to have a binding force: employees prefer to stay with an organization in which they can continue learning and where their market value is maintained. Furthermore, investing in the current personnel means an investment in the recruiting power of the organization: the organization is more attractive for potential new employees, which is an important consideration, given the tightening labor market (Gaspersz & Ott, 1996).

Obviously, within the dynamic ICT sector, changes of career direction and required competencies will occur frequently. Therefore, ICT professionals who succeed in staying employable will stay competitive in business as well. For these reasons, it is recommended that SMEs develop HRM policies on employability management in order to keep highly qualified ICT professionals who are committed to their organizations. In these HRM policies, strategies on ageing should be included. Although ageing does not seem to be a major issue in the ICT sector, it is very likely that the ageing workforce of ICT professionals will profoundly challenge SMEs in the years to come. It is highly likely that companies will face times wherein career moves of ICT professionals over 40 are common practice. Management of the competencies of this group of employees should not be delayed because managers consider ICT professionals over 40 as less likely to possess adaptability in technical competencies and lacking the flexibility to react *ad hoc*.

This study contributes to the knowledge area on HRM practices for ICT sector SMEs about which not much is known. An important finding was that companies in both well-developed markets, namely, the UK, the Netherlands, and Germany, and emerging markets, like Poland, concentrate mainly on surviving when the economy is in recession. At the same time, the SMEs opt to attract, maintain, and develop qualified ICT professionals. Yet, they mainly apply management strategies that are *ad hoc*, informal, and short-term orientated. The most developed markets, like those in the UK, the Netherlands, and Germany, however, were more likely to report retention of skilled ICT professionals as a reason for employability management practices and adopted some longer-term strategies as well. The demand for ICT professionals was especially acute in the Netherlands, where, along with the UK and Germany, one-third of managers indicated some attempts to retain staff.

From the present study, it can be concluded that pro-active HRM policies and strategies are essential, even in times of economic downturn. Only after sound implementation will the growth conditions of the highly relevant ICT sector for Europe be met as skill shortages diminish. In other words, policies and strategies on proper training and development possibilities for ICT professionals will contribute towards an effective and competitive ICT workforce.

Further research aimed at understanding the effectiveness of HRM practices for ICT professionals, as well as for other professional groups, is required. In order to more safely conclude that employability management works, research requires improvement in methodological practices, such as longitudinal data that includes mediator variables in order to better justify causal inferences (cf. Wright and Gardner, 2003). Both cross-sectional and longitudinal approaches should be undertaken in order to create awareness of possible cohort effects (cf. Becker, 1995). As different generations experience different historical and cultural events, social orientations across generations may differ. It is critical to consider fluctuations in employment rates, views on retirement age, and the transition from a period in which lifetime employment was the norm to life-long employability as well as the current need for life-long learning efforts.

References

- Anakwe, U. P., Hall, J. C., & Schor, S. M. (2000). Knowledge-related skills and effective career management. *International Journal of Manpower*, 21(7), 566-579.
- Armstrong-Stassen, M., & Templer, A. (2005). Adapting training for older employees: The Canadian response to an aging workforce. *Journal of Management Development*, 24 (1), 57-67.
- Arthur, M. B., Inkson, K., & Pringle, J. K. (1999). *The new careers: Individual action and economic change*. London, UK: Sage.
- Baarda, D. B., De Goede, M. P. M., & Teunissen, J. (1995). *Basisboek kwalitatief onderzoek* [Fundamentals of qualitative research]. Houten, the Netherlands: Stenfert Kroese.
- Barrett, R. (2005). The reality of software developing. In R. Barrett, R. (Ed.), *Management, labour process and software development: Reality bytes* (196-207). London, UK: Routledge.
- Becker, H. (1995) Generations and value change. In R. De Moor (Ed.), *Values in Western societies*. Tilburg, the Netherlands: Tilburg University Press.
- Boerlijst, J. G., Van der Heijden, B. I. J. M., & Van Assen, A. (1993). *Veertig-plussers in de Onderneming* [Overforties in the organization]. Assen, the Netherlands: Van Gorcum/Stichting Management Studies.
- Capelli, P. (1999). *The new deal at work*. Boston, Territory: Harvard Business School Press.
- Chanaron, J. (1998), *Managing innovation in European small and medium-sized enterprises. Nijmegen lectures on innovation management*. Antwerpen, Belgium: Maklu.

- Chapman, G. M., & Martin, J. F. (1995). Computerized business games in engineering education. *Computers & Education*, 25(1/2), 67-73.
- Davidson, P. (2001). The changing nature of the psychological contract in the IT industry: 1997-2001. *Research Papers in Human Resource Management*. London, UK: Kingston University, Kingston Business School.
- DeFillippi, R. J., & Arthur, M. B. (1996). Boundaryless contexts and careers: A competency-based perspective. In M. B. Arthur and D. M. Rousseau (Eds.), *The boundaryless career: A new employment principle for a new organizational era* (pp. 116-131). New York: Oxford University Press.
- De Grip, A., Van Loo, J., & Sanders, J. (2004). The industry employability index: Taking account of supply and demand characteristics. *International Labour Review*, 143, 211-233.
- De Lange, A. H., Taris, T. W., Jansen, P. G. W., Kompier, M. A. J., & Houtman, I. (2005). Werk en motivatie om te leren: Zijn er verschillen tussen jongere en oudere werknemers? [Work and motivation to learn: Are there differences between younger and older workers?]. *Gedrag en Organisatie*, 18(6), 309-325.
- Enders, J. (2002). Governing the academic commons: About blurring boundaries, blistering organisations, and growing demands. *The CHEPS Inaugurals 2002* (pp. 69-105). Enschede, the Netherlands: University of Twente.
- Feldman, D. C., & Ng, T. W. H. (2007). Careers: Mobility, embeddedness, and success. *Journal of Management*, 33(3), 350-377.
- Forrier, A., & Sels, L. (2003). The concept employability: A complex mosaic. *International Journal of Human Resources Development and Management*, 3(2), 102-124.
- Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior*, 65, 14-38.
- Gasperz, J., & Ott, M. (1996). *Management van Employability. Nieuwe kansen in arbeidsrelaties* [Management of employability. New opportunities in labour relations]. Assen, the Netherlands: Van Gorcum/Stichting Management Studies.
- Gunz, H., Evans, M., & Jalland, M. (2000). Career boundaries in a "boundaryless world." In M. A. Peiperl, M. B. Arthur, R. Goffee, & T. Morris (Eds.), *Career frontiers: New conceptions of working lives* (pp. 24-53). Oxford, UK: Oxford University Press.
- Hambleton, R. K. (1994). Guidelines for adapting educational and psychological tests: A progress report. *European Journal of Psychological Assessment (Bulletin of the International Test Commission)*, 10, 229-244.
- Harvey, L. (2001). Defining and measuring employability. *Quality in Higher Education*, 7, 97-109.
- Kwakman, K., Van der Heijden, B. I. J. M., Streumer, J., Wognum, & Van Zolingen, S. (2002). Current HRD trends in the Netherlands: Conceptualisation and practices. *International Journal of Human Resource Development and Management*, 2(3/4), 358-378.
- Rothwell, A., & Arnold, J. (2007). Self-perceived employability: Development and validation of a scale. *Personnel Review*, 36(1), 23-41.
- Scholarios, D., Van der Heijden, B. I. J. M., Van der Schoot, E., Bozionelos, N., Epitropaki, O., & the Indica@tor Study Group. (2008). Employability and the psychological contract in European ICT sector SMEs. *International Journal of Human Resource Management*, 19(6), 1035-1055.
- Schreinemakers, J. F., & Peereboom, L. S. (1999). *Report skills gap research Microsoft Benelux*. Rotterdam, The Netherlands: ERASM Business Support Centre B.V.
- Shultz, K. S., & Adams, G. A. (2007). *Aging and work in the 21st century*. London, UK: Lawrence Erlbaum Associates Publishers.
- Thijssen, J. G. L., & Van der Heijden, B. I. J. M. (2003). Employability in the focus of attention. In M. J. Morley, P. Gunnigle, N. Heraty, J. Pearson, H. Shiekh, and S. Tiernan (Eds.), *Exploring the mosaic: Developing the discipline* (pp. 229-239). Dublin, Ireland: Interresource Group Limited.
- Van der Heijde, C. M., & Van der Heijden, B. I. J. M. (2006). A competence-based and multidimensional operationalization and measurement of employability. *Human Resource Management*, 45(3), 449-476.
- Van der Heijden, B. I. J. M. (2002). Prerequisites to guarantee life-long employability. *Personnel Review*, 31(1/2), 44-61.
- Van der Heijden, B. I. J. M., De Lange, A.H., Demerouti, E., & Van der Heijde, C. M. (2009). Employability and career success across the life-span. Age effects on the employability-career success relationship. *Journal of Vocational Behavior*, 74, 156-164.
- Van der Heijden, B. I. J. M., & Thijssen, J. G. L. (2003). Editorial: HRD and employability. *International Journal of Human Resources Development and Management*, 3, 99-101.
- Van der Schoot, E., & Streumer, J. N. (2003). The impact of the curriculum on the employability of nursing and healthcare graduates. *International Journal of Human Resources Development and Management*, 3(4), 296-307.
- Van Lammeren, C. (1999). De veranderende betekenis van employability [The changing meaning of employability]. *Gids voor de opleidingspraktijk*, 28, 1-23.
- Van Loo, A., De Grip, A., & De Steur, M. (2001). Skills obsolescence: Causes and cures. *International Journal of Manpower*, 22(1/2), 121-138.

- Versloot, A. M., Glaudé, M. T., & Thijssen, J. G. L. (1998). *Employability: Een pluriform arbeidsmarktfenomeen* [Employability: A multiform job market phenomenon]. Amsterdam, The Netherlands: Max Goote/Synopsis.
- Wright, P. M., & Gardner, T. M. (2003). The human resource-firm performance relationship: Methodological and theoretical challenges. In D. Holman, T. D. Wall, C. Clegg, P. Sparrow, and A. Howard (Eds.), *The new workplace: A guide to the human impact of modern working practices* (pp. 311-328). Chichester, UK: Wiley.

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Appendix I:

Company Needs Analysis Interview Protocol

Employability

Information for the researcher:

Please use the following definition of employability: Employability is the individual's career potential and is determined by the professional's knowledge and skills base, his/her adaptability to adjacent or new professional domains, and his/her ability to manage further career development and to convince his/her social community of his/her qualifications.

1. Does the management team in your company pay attention to employability management and in what sense?
2. What are the motives for this attention?
3. Which person(s) in your company is (are) engaged with employability management and at what level of the organization?
4. Has an employability management policy been formulated in your company? If so, can you give a clear formulation of its content?
5. Towards which part(s) of the company is the attention directed?
6. Is there a gender-orientated employability policy in your organization?
7. What kind of activities in the area of employability management is undertaken in your organization?

Ageing

Information for the researcher:

Please use the following definition of ageing: The working population growing older.

Please use the following definition of dejuvenization: Decrease of the birth rate so that the number of newcomers in the labor market diminishes.

8. Is your company engaged with the question whether the ageing and dejuvenization of the population will bring about problems for your own company with regard to the employability of employees?
9. Which person(s) in your company is (are) engaged with these matters?
10. Does the management team in your company foresee problems due to the ageing and dejuvenization of the company?
11. If so, for which job categories are problems due to ageing and dejuvenization foreseen?
12. If so, what is done to deal with these problems (i.e., analysis, approach, prevention, etc.)?
13. Does a clear management view with regard to a most desirable age distribution exist in your company? If so, is this view restricted to certain personnel categories?
14. What is the motivation that lies behind the management view regarding a most desirable age distribution?
15. Does a clear management view exist regarding age borders at which point essential changes are to be expected regarding the **a, b, c, d, e, and f** of employees? What is the foundation of these views?

Information for the researcher:

Read first...a)... and complete the question. Then start again at the beginning of this question and read, b) and so forth for c), d), e), and f.

- a) health
- b) family circumstances
- c) possibilities to further develop oneself
- d) mobility
- e) function/job
- f) functioning/performance

Future developments and requirements

- 16. Which future challenges are expected to arise in your company?
- 17. What are the implications of these future challenges for the function/job and the functioning/performance of employees?
- 18. Which personal characteristics, knowledge, expertise, skills, etc. are necessary in the future inside your company?
- 19. Do you think that the present employees are sufficiently equipped to cope with these changes?
- 20a. Does the personnel policy inside your company pay special attention to the maintenance and/or the development of the utility value of the function/job?

Information for the researcher:

Please use the following definition of utility value: The value the function/job has for the company or in a smaller sense, for the department in which the employee is working.

- 20b. Does the personnel policy inside your company pay special attention to the maintenance and/or the development of the learning value of the function/job?

Information for the researcher:

Please use the following definition of learning value: The value the function/job has as nutrient for the development of new knowledge, skills, and expertise for the employee him- or herself.

- 20c. Does the personnel policy inside your company pay special attention to the maintenance and/or development of the functioning/performance of the employees.
- 21a. Does the company systematically gather information about the utility value of the function/job of the employees? If so, which type of information is gathered?
- 21b. Does the company systematically gather information on the learning value of the function/job of the employees? If so, which type of information is gathered?
- 21c. Does the company systematically gather information on the functioning/performance of the employees? If so, which type of information is gathered?
- 22. Is the gathered information suitable or relevant for the maintenance and/or the development of the function/job of the employees?
- 23. Is the gathered information suitable or relevant for the maintenance and/or the development of the functioning/performance of employees in your company?
- 24. Is person-bound information on the presence of specific knowledge, skills, expertise, etc. of individual employees recorded in your company?

25. Does the personnel management in your company imply activities that are undertaken to combat or prevent 'obsolescence' of the functions/jobs and/or the functioning/performance of the employees? If so, what kind of activities? If so, at what period(s) in their careers?
26. Are the personnel management measures sufficient to combat or prevent 'obsolescence' of the functions/jobs and/or the functioning/performance of the employees?
27. Does your company make a prognosis with respect to the demand for employees in the future?
28. Does your company make a prognosis with respect to the internal (inside your company) and external (outside your company) supply of competent professionals in the future?