

4 An aging society

Until quite recently the attention for older individuals was rather limited in academia and in business. This is no surprise as the vast majority of organizational academic research did not show any significant important correlations between age and work-related outcomes. Moreover there was no economic necessity for academics or practitioners to pay attention to older individuals. In the last 5 years this has changed dramatically. Both scientists and businessmen realize the urgency of the coming age wave. This new found attention resulted in loads of new research and articles from universities, government organizations, corporations, nongovernmental organizations, consultancies, and the popular press. These days publishing on the effects of aging seems to be the latest fashion. To understand the impact of the age wave on employers, employees and freelancers, Chapter 4 gives demographic background information on the size, timing and impact of the so-called age wave.

4.1 Some numbers on the coming age wave

The coming age wave essentially replaces one generation (the baby boomers) with a new generation (generation Y). This generational shift has several effects on the composition of the workforce. Firstly, the new generation Y is smaller than the baby boom generation. This results in a shrinking workforce in most Western countries. Secondly, because the older generations in the labor force are bigger than the younger ones, the average employee age increases. To compensate for the shrinking workforce, organizations and governments are implementing measures that restrict early retirement and promote longer working. These measures increase the average employee age even further. Thirdly, as the new generations are culturally more diverse than the older generations, the generational shift results in increased cultural diversity. Fourthly, and last, the new generation tends to have other values and expectations of work than the older generation. Bontekoning (2007) and Zemke (2000) show that new generations tend to be more internationally oriented, and have clearer and more personal expectations of work and the employer-employee relationship. This new set of values will impact the way individuals and organizations work.

4.1.1 The age wave in Western economies

To get a feel for the impact of the age wave on organizations it is important that we gain some quantitative insights. As the age wave is a Western phenomenon, related to our common

demographic history since World War II, our narrow overview focuses on the United States and the European Union (EU). In the EU, the overall population is expected to grow from 455 million people in 2005 to 471 million people until 2027 (Carone, 2005), after which the population will slowly shrink again to 454 million people. There are however large differences within the EU. The Eastern European countries, such as: Poland (12% decline) and the Baltic States (18 percent decline) will experience considerable drops in population. In Ireland, the population will grow with 38%, in Sweden with 13%, and in France and The Netherlands both with 9%. In the United States the population is expected to grow with 32% reaching 394 million in 2050 (Toossi, 2006). The projected working age population (defined as between 15-64 years old) offers a first insight in the labor force development.

Table 7: Working age (15-64 years) population projections 2003-2050 (thousands)

Country	Peak Year	Peak	2050
<i>Netherlands</i>	2011	11,238	10,428
<i>Belgium</i>	2011	6,988	6,286
<i>Germany</i>	2003	55,682	44,975
<i>EU (25)</i>	2011	311,039	259,102
<i>US</i>	N.A.	N.A.	240,942

Source: Carone (2005), Toosi (2006)

In the EU, the working age population will fall with almost 17% from 311 million persons to 259 million in 2050 (Table 7). This decline is evident in most European countries, but it is most severe in the Eastern and Southern European nations. The EU working age population will not only change in size, but also in composition with a substantial decrease in younger ages and an increase in the older ages. Both the young (15-24) and the prime age group (24-55) will decrease substantially (24% and 17%). The old age group (55 to 64) is projected to increase with 21%. In the US the working age population will still increase with more than 26%.

Table 8: The percentage of older workers (above 55 years) in the labor force 2003-2050⁷

Country	2003	2025	2050
<i>Netherlands</i>	9.9%	15.4%	13.7%
<i>Belgium</i>	7.2%	13.8%	13.4%
<i>Germany</i>	11.3%	22.3%	20.0%
<i>EU (25)</i>	10.1%	17.4%	17.8%
<i>US</i>	14.6%	23.4%	22.9%

Source: Carone (2005), Toosi (2006)

⁷ The forecasts presented above are estimates. The realization of these numbers is dependent on the progress of labor market reforms, economic growth and the actions of employers and employees.

To cope with the challenges that a diminishing and older population creates, most countries are transforming their labor market policies. Anti-age discrimination measures are taken, retirement ages are increased (e.g. Germany) and attractive early retirement possibilities are restricted. These institutional measures are expected to lead to an increase of the overall employee participation rate (from 69% to 75%). The EU labor force is therefore expected to decrease with only 16 million people, much less than the reduction in the working age population (52 million). In the same period, the US labor force will increase with more than 45 million workers (a 30% increase).

One of the most obvious consequences of the age wave is the increase in the percentage of older workers (see Table 8). The percentage of older workers in the EU is expected to increase from 10.1% to 17.4% in the coming 20 years.⁸ In the US the percentage older workers will increase from 14.6% to 23.4% in this period. After 2020 the percentage of older workers will decrease in most countries due to the retirement of generation X. Ageing of the workforce is a phenomenon that by definition comes before the shrinking of the workforce, as an employee ages before he or she retires. This explains why the percentage of older workers peaks around 2020, well before their trough in the labor force around 2040. Regarding the size and timing of the age wave, three clusters can be distinguished within the group of Western economies. Firstly, the eastern and southern European countries as well as Germany are characterized by a declining labor force of 10 to 20% and a significant increase in the percentage of older workers (5 to 15 percentage points). Secondly, in the more Western European countries, such as: France, UK, The Netherlands, Belgium, Denmark and Sweden, the labor force will be roughly constant and this is combined with a moderate increase in the percentage of older workers (0 to 5 percentage points). The third group consists of the US, Australia and Ireland. Here the labor force will continue to expand until 2050 (with 20-30%) and this is combined with a significant increase in the percentage of older workers (5 to 10 percentage points).

4.1.2 The age wave in The Netherlands

The working age population in The Netherlands will decrease with 7% over a period of 45 years, or with less than 0.2% per year. Most organizations should be able to increase their productivity by much more than this decrease in labor force. However, there are plenty of organizations where labor shortages will become a challenge. A simple analysis shows that the vulnerability of an organization to the general labor shortages is determined by 4 factors: 1) the difficulty to fill new vacancies, 2) the expected employee outflow, 3) industry growth rate, and 4) potential

⁸ Here defined as employees above 55 years. In the literature there is no standard definition of an older worker. 45, 50 or 55 years of age are used as yardsticks (see Kooij, 2007).

productivity growth. This shows that both mature industries with aging workforces and young industries with high growth rates are hit hardest by the age wave. Examples of mature industries are the process industry (i.e. chemicals, pulp and paper), health care, education, and the public services. Compared to mature industries, young industries, such as: IT and professional services, are typically characterized by a young workforce. Their challenge is to find enough educated employees to fuel future revenue growth.

A major effect of the shrinking of the workforce is a “fight for talent” where young fast growing industries compete for talent with mature industries that need to replace their retirees. The losers in this battle are most likely those organizations that cannot compete in this war for talent; i.e. organizations in the public domain that find it hard to increase productivity and wages. These organizations have to find new and innovative ways to attract talent. The fight for talent in the next decades will continue to fuel the demand for freelancers, which will provide high-skilled freelancers with perceived job security, due to favorable macroeconomic market factors.

4.2 Ageing and individual performance

The research on aging in organization science has been somewhat dormant until recently. The relationship between employee age and organizational behavior seemed well researched by the beginning of the 1990s and new research did not seem required. Chronological age is easy to measure and has been used as a variable in organizational studies for many years. The most relevant and ubiquitous relationships between age and various organizational outcomes, such as: performance, job satisfaction and motivation seemed well established by the beginning of the nineties. Recently the imminent age wave has spurred renewed attention towards age in organization science. Governments realized that they needed to improve the participation rates to pay for the pension costs and organizations are starting to realize that older workers are an important source of human capital in an age with scarce supply. This chapter gives an overview of the relevant scientific research on aging employees⁹.

Before giving an overview of the relevant scientific literature on aging, it is wise to make some general remarks. Firstly, there is the potential problem of **selection bias**. As individuals age, a percentage will leave the workforce due to a variety of reasons. These employees can leave voluntarily (e.g. enough money, preference for leisure) or involuntarily (e.g. bad health, skill

⁹ In current research the older worker is often seen as a weak, vulnerable employee. This contrasts with most of the research in the sixties, seventies and eighties. Older workers were then seen as the powerhouses of organizations (e.g. ‘old boys’ network, insider-outsider theories).

obsolescence). This tends to leave a workforce that is willing and able to work, resulting in a positive bias towards older individuals in terms of earnings, capital endowments and productivity (i.e. these are the survivors). Secondly, older individuals **cannot be treated as a single group**. Within the group of older individuals there are large differences. Thirdly, it is hard to distinguish between **age and generation effects** (Portrait, 2003). All past research on aging is colored by our own history. This might not be correct as there are strong indicators that the impact of aging on humans is continuously changing. The older baby boomers that retire today behave completely different than the post-war generation retirees before them. This is caused by improvements in health and financial position. Bontekoning (2007) stresses the importance of generations¹⁰. Based on Becker's separation of generations (1992, 1997) he argues that every generation brings in new knowledge, new values, and new ways of working. Important in this respect is that the new generations are much more individualistic and calculating in their relation with employers. Interesting in this respect is the work of Smola and Sutton (2002). They designed a study to answer the question as to whether individual work values are influenced more by generational experiences (e.g. World War II, Flower Power) or whether they changed more due to age and maturity effects. They conclude that work values also change as workers grow older, but to a lesser degree than generational values.

4.2.1 Levinson's stages of adulthood

Yale psychologist Daniel Levinson developed a comprehensive theory of adult development (Figure 8). Through a series of intensive interviews with men (1978) and women (1996), Levinson proposed a theory based on a series of stages that adults go through as they develop. Based on his research Levinson concluded that women go through the same type of cycles that men do. At the centre of his theory is the life structure, the underlying pattern of an individual's life at any particular time. An individual's life structure is shaped by the social and physical environment. Many individuals' life structures, primarily involve family and work, although other variables, such as: religion, race, and economic status, are often important as well. Levinson's four "seasonal cycles" include pre-adulthood, early adulthood, middle adulthood, and late adulthood.

¹⁰ See *Fortune*, June 4, 2007, "Manage Us? Puh-Leeze...Today's twentysomethings have their own rules. You just don't understand them"

Figure 8: Levinson's stages of Adulthood

<i>"The seasons of a mans life"</i>							
<i>Leaving the elderly home and start your own way</i>	<i>First choices in love, profession, friendship values and life style</i>	<i>A change in life structure and sometimes crisis</i>	<i>Creation of a own place in society. Progress in family and career</i>	<i>Less satisfaction and focus on the forgotten self (talents, needs, dreams)</i>	<i>New choices and commitment to the new choices</i>	<i>Productivity and continuous tension between values and realization</i>	<i>Mortality on the agenda and increased attention to family and grand children</i>
17-22	22-28	28-33	33-40	40-45	45-50	50-65	65-80
Child	Early Adulthood			Middle Adulthood		Late Adult.	

In our early adulthood, the major milestones are defining ourselves as adults (ages 17-22 years) and making initial, yet mature choices in values, friendship, love, occupation, and life style (ages 22-28). With the next stage comes a transition to more stable commitments in occupation and love (ages 28-33), and establishing a niche in society (ages 33-40). During middle adulthood, men deal with their particular individuality and work toward cultivating their skills and assets. Then another transition occurs at about age forty, as men realize some of their ambitions will not be met. The mid-life transition in adulthood (at ages 40-45) signals a major life-review, often accompanied by adjustments in priorities and aspirations before age 50. Between ages 50 to 60, there is further questioning and modification to address desires that have gone unexpressed. For example, men who have focused heavily upon their careers may shift emphasis toward their children. Finally, the transition to late adulthood (at age 60-80) is a time to reflect upon successes and failures and enjoy the rest of life, and making peace with oneself and others, including God (age 80+).

During middle adulthood people experience not only individual psychological and cognitive changes, but also quite dramatic social changes. During middle adulthood marriages tend to become less conflictual and child rearing becomes less stressful (adult children). But during this period it is often the older generation that tends to require more care and the financial needs of both the older and the younger generations tend to increase. Many workers begin to balance their work-life with other concerns during middle adulthood (Becker and Moen, 1999). People often engage in scaling back; deliberately putting less than full effort into employment. Examples of joint decisions protecting work and family from unreasonable demands are: putting limits on work (hours, traveling, et cetera), part-time work, and the fact that 'one has a job, the other a career'. Kleiber (1999) argues that many people experience a shift of priorities (life-changing catalyst) during middle adulthood. This catalyst (e.g. a denied or given promotion) pushes them to rethink their priorities and reassess their work-life balance. Kleiber claims that free time and

financial security are needed conditions for more self-expression and are important issues when reassessing their work-life balance.

There is a lot of debate on the validity of Levinson's model in this day and age. For instance today's over 50's – dressed in their jeans, trainers, and baseball caps – no longer view themselves as old. This age group welcomes early retirement as a means of gaining control over their lives. Middle age is no longer the beginning of the end, but rather the beginning of a thirty-year period of personal employment and self-indulgence. Also marrying and getting children is increasingly postponed into the mid-thirties and the borders between paid labor, education and retirement are more and more blurred.

Ester, Muffels and Schippers (2006) researched the relationship between the human life-cycle and trends in the labor market. They argue that the life-cycles of humans are becoming more diverse. The standard pattern of Levinson is not appropriate anymore. Increasingly so, persons will have multiple transitions going back and forward between periods in which they will combine labor, school, free time and caring. This new human life-cycle implies necessary changes in the labor market. The labor market should facilitate two-way transitions between 1) jobs, 2) unemployment and paid labor, 3) education and paid labor, 4) care and paid labor, and 5) retirement and paid labor. Organizational arrangements, labor regulations and laws should pro-actively support these transitions.

4.2.2 Physiological, psychological, and cognitive changes

Physiological changes

In the period between early and late adulthood physiological changes are not determined by age, but by social context and individual choices (Stassen-Berger, 2001). The latter two forces are the most powerful influences on middle age vitality. Age itself does not impact health during adulthood. However, workers with physically demanding jobs will experience a decrease in healthiness because of injuries or attrition (e.g. dancers, sportsmen, and various types of construction work). These workers may experience a decrease in health that impacts their abilities later in life.

Psychological changes

The psychological changes during adulthood are limited (Schaie 1996, 2000). By the age of 30 the Big Five personality traits become quite stable and remain so during the rest of the life span (McCrea and Costa, 1987). All genes have manifested themselves by age 30 and most people have

settled in an ecological niche where they feel comfortable. Life experiences shape personality and personality shapes life experiences. Extreme transformation is still possible in individual cases due to specific life events, but for the age group as a whole personality has become quite stable. Nonetheless, there is still some degree of personality change. Neuroticism and openness to experience decline with age. Agreeableness and conscientiousness seem to increase with age (Kanfer and Ackerman, 2004). Table 9 gives an overview of the Big Five personality traits and the changes corresponding with age (Srivastava, 2003). In addition to these limited changes in the Big Five personality traits, Carstensen (1998) argues that the purpose of social interaction changes over the life span: a shift in time orientation from *'life lived from birth'* to *'life left until death'*. This leads to different emotion-regulation strategies later in life, such as: avoiding conflict. Carstensen, Mayr, Pasupathi and Nesselroade (2000) show that negative emotions decline with age until the age of 60, at which point the decline ceases. In addition, periods of highly positive emotional experience are more likely to endure among older people and periods of highly negative emotional experience are less stable. Several studies (e.g. Morse, 1993) have found higher intra- and inter-individual variability in mental abilities in late adulthood compared to younger age. In other words, people develop different skills at different points in life and become more and more different with age.

Table 9: Big five personality traits and the impact of aging

Personality trait	Clarification	Impact of age
<i>Extraversion</i>	Outgoing, assertive and active	No impact
<i>Neuroticism</i>	Anxious, moody and self-punishing	Decreases
<i>Openness</i>	Imaginative, curious, artistic, open to new experience	Decreases
<i>Agreeableness</i>	Kind, helpful and easygoing	Increases
<i>Conscientiousness</i>	Organized, deliberate and conforming	Increases

Source: Srivastava (2003)

Gibson and Barron (2003) explored the impact of role models on older individuals. The study finds that role models are also important development agents for older individuals. One of the most interesting papers on older individuals and role models is a recent one written by Gibson (2003). In this paper Gibson shows that, across the life span, the tendency to observe role models does not change, but the emphasis on different dimensions of role models does change. Early-stage respondents were more likely to construe their role models as positive, close and sources of a range of attributes. Middle and late-stage respondents are more likely to see their role models as sources of specific, and often negative, attributes. The study suggests that these observed patterns are related to individuals' increasing confidence in their professional self-concept.

Cognitive changes

During adulthood, there are a number of important cognitive changes in individuals (Schaie, 1996, 2000). Two forms of cognitive capabilities are distinguished: Fluid Intellect (G_f) and Crystallized Intellect (G_c). Fluid Intellect includes cognitive capabilities that are associated with working memory, abstract reasoning, processing new information, open to and dealing with new experiences, and multi-tasking. Crystallized Intellect includes cognitive capabilities as verbal abilities and vocabulary, general facts, and professional knowledge. From age 25 onwards human beings are confronted with a gradual decrease in Fluid Intellect capabilities with about 1 percent per year. In contrast with Fluid Intellect, Crystallized Intellect shows levels of increasing performance well into the ages 60 to 70 before it gradually decreases (Beier and Ackerman, 2001). This explains that in a typical G_f job, such as an air traffic controller, employees show decreasing rates of performance with age. This stands out against typical G_c jobs, such as a lawyer or accountant where employee performance improves with age. It should be noted that age is not the only or even the most important factor that determines the level of cognitive performance. Generational differences play an important role and individual variations are much more important than age alone.

4.2.3 Individual learning abilities

Individual lifelong learning is in theory one of the key answers to the problem of an aging workforce in an ever faster changing world. To keep the knowledge of workers up-to-date and productive, there is a consensus that we have to invest in lifelong learning. However, this contradicts with the public opinion that learning becomes more difficult with age. Lahn (2002, 2003) describes the learning abilities of older employees. Based on a review of existing research he concludes that most studies have focused on learning new (cognitive) skills, whereas the acquisition of social competence is less well understood. Laboratory studies that compare learning outcomes for younger and older subjects conclude that the former are the most productive (see Kausler, 1994). The differences are largest in the initial learning of new material, which is consistent with research pointing to a decline in intentional learning and metacognitive processing (awareness of problem-solving strategies) with age. These general observations are confirmed in a number of studies that focus on the acquisition of IT skills (see e.g. Morris and Venkatesh, 2000). As pointed out by Warr (1998), younger and older workers are often given the same amount of training in the use of IT, which places the latter in a disadvantageous position, since they often lack basic skills. Armstrong-Stassen and Templer (2005) found that less than 10% of Canadian organizations were likely to accommodate the training needs of an older workforce (access to training, customizing training methods and age awareness training). Reed,

Doty and May (2005) show that self-efficacy is a crucial variable in lifelong learning. They conclude that self-efficacy declines with age and that improving self-efficacy might increase learning abilities.

4.2.4 Individual achievement

One of the oldest topics in psychological life span research is the relationship between age and achievement. Although some research started already in the nineteenth century, the research did not attain notable proportions until Harvey C. Lehman (1953) published his book *'Age and Achievement'*. He showed that there is a tendency for achievement, no matter what the endeavor, to be a single peak function of age. In his research Lehman (and most of his followers) focused on real-life achievements and not on psychometric measures. He and his followers (e.g. Dennis, 1966; Simonton, 1988, 1997 and 2000) focused on individual accomplishments in endeavors such as science, philosophy, literature, music, visual arts, and leadership. The research that has been published in this area consistently shows that if one plots creative output as a function of age, productivity tends to rise fairly rapidly to a definitive peak and thereafter decline gradually until output is about half the rate of the peak. The location of the peak in the curve and the decline of the peak tend to vary depending on the domain of creative achievement. Some fields are characterized by early peaks around the late 20s and early 30s with steep descents thereafter. This pattern holds for such diverse undertakings as lyric poetry, pure mathematics and theoretical physics. Other fields are characterized by late peaks (late 40s and early 50s) and minimal drop-offs afterward. This more elongated curve holds for domains as novel writing, history, philosophy, medicine and general scholarship. These interdisciplinary contrasts are invariant across different cultures, and historical periods.¹¹ Some of the empirical studies have not concentrated on productivity or creativity, but on leadership. However, the research into this area has been inconclusive. Lehman (1953) made extensive comparisons between new versus established churches focusing on the issue as to when the leaders assumed high office or position and he found some support for Granville Stanley Hall's (1922) assertion that "men in their prime conceived great religions, the old made them prevail".

Individual differences in lifetime output are substantial. Generally the top 10% of the most prolific elite account for more than 50% of all contributions. If one looks into this high productivity, one discovers that those individuals who are precocious (start early) also tend to display longevity (stop late); and both precocity and longevity tend to be positively correlated

¹¹ The empirical results on the relationship between creativity, productivity and age seem to be in line with the theoretical decline of G_f intellect from the age of 25 and the increase of G_c intellect till the age of 60.

with high average output rates (per year). It should be noted that the research shows that performance-related differences are greater within an age group, than between age groups, and that education, mental, and physical training and other individual factors are of far greater significance than age. This is again emphasized by Thijssen (2006), who argues that despite the fact that the deficit hypothesis of Lehman is refuted by science, as individual factors are of far greater significance than age, the broader society still accepts the deficit hypothesis of Lehman. The belief that performance decreases with age is a broad-based belief in current day Western society.

4.3 Aging individuals and the labor market

Although labor markets in various Western countries differ enormously, the position of the older employee in these markets is very much alike. On the positive side, older employees earn higher wages, have lower unemployment rates, and have a lower probability of job displacement. On the negative side, the duration of unemployment is much higher for older employees and they have the lowest re-employment possibilities (e.g. Taylor and Walker, 1998). When older employees do secure a new position, they face the largest wage losses. A good indication of the difficulties of older employees in the labor market is the fact that older persons are over-represented among the long-term unemployed. This pattern is remarkably consistent in all Western countries. Hirsch, McPherson and Hardy (2000) have performed extensive research into the position of older employees in the US labor market. They show that older employees face substantial barriers to entry into the labor markets, especially in jobs with steep wage profiles, high pension benefits, and substantial computer usage. Older employees experience more segregation across occupations and opportunities for older employees are concentrated in certain jobs and specific industries. Older female workers are only hired in jobs where flex, part-time, and day-shift work is common. In general, older employees in the US find that career opportunities are in short supply and that the top end of the salary range is reached early. Mirza (2003) suggests that ageing employees are increasingly discouraged by a perceived lack of job and advancement opportunities. Wayne, Liden, Kraimer and Graf (1999) find a negative relationship between organizational tenure and career outcomes. They conclude that tenure only positive relates to career success up to a point; after this point tenure becomes a detriment. Many managers have plateaued and have less access to promotional opportunities. In addition they show that career success is determined largely by supervisor sponsorship and much less by human capital or motivation. A study by the Economic and Social Research Council in Britain (Taylor, 2002) shows that older employees are increasingly less satisfied with their jobs. In 2002 49% of older

employees were satisfied with their jobs, compared with 61% in 1992. The older employees did not feel they were rewarded or treated fairly for their experience and willingness to work hard. This could be explained by the downsizing trend in the nineties. Older employees tend to have more (negative) experiences with downsizing efforts in organizations than younger employees. The reorganization trend has therefore had a more negative effect on the motivation of older employees.

Tijdens and van Klaveren (2003) show that in The Netherlands there are substantial differences between younger and older employees with respect to their labor market position and expectations:

1. Older employees have significantly less career perspectives and career ambitions.
2. Older employees have general jobs that are more routine and less challenging.
3. Older employees receive the top of the salary band and have no expectation of pay increases or bonuses.
4. Older employees tend to work for large companies with little grow potential.

Nelson (2004) argues that ageism received relatively scant attention compared to sexism and racism. He argues that this is partly because ageism is the only form of discrimination in which people currently out of the group will grow in this group, if they are lucky. Age discrimination can be a big problem when you are over 45. Examples of unfair, discriminatory practices towards older employees include: cut-off ages for recruitment purposes, neglecting to promote workers over certain age, limiting training opportunities for older employees and selecting older employees first for early retirement. There is ample evidence of discrimination of older employees in all Western countries (Gullette, 2004). To counteract the discrimination of older employees, most Western countries have been adopting anti-discrimination policies. The United States have such an anti discrimination act (ADEA) already in practice since 1967 (with amendments in 1986 and 1991), but most European countries including UK, Germany, Belgium and The Netherlands have adopted such anti age discrimination laws only relatively recently (between 2001 and 2006).¹² Mirza (2003) warns HR professionals to be increasingly aware with the law because of the high cost of non-compliance.

Cuddy and Fiske (2004) argue that there are two core dimensions of any stereotype in all forms of discrimination; competence vs. warmth. Using this model, the out-groups are found in one of

¹² Bessy and Ananda (1991) evaluated the ADEA act and concluded that it at least made employers aware of litigation acts and the importance of selecting on ability instead of age.

three clusters: 1) warm-incompetent, 2) cold-competent or 3) cold-incompetent. Elderly people often fall in the warm-incompetent cluster, as they are often seen as less competent in their job-related tasks. These and other stereotypes still fuel age discrimination and popular opinions on older employees. This image is remarkably constant in Western culture. For instance Brooke (2003) shows that, although the labor costs of older workers are quite low in the US, the next four common myths still prevail:

1. Older employees are more expensive than younger employees. This has some truth in itself because there are companies and industries where the wages of senior employees are higher. But very few employers realize that the recruitment and training costs of older employees are significantly lower due to reduced turnover rates.
2. Older employees miss a lot of work as a result of absenteeism. This is not true, because older employees have excellent attendance records compared to younger employees.
3. Older employees use a huge amount of medical benefits. This is not true. Parents with young children are the most frequent users of medical health care.
4. Older employees cannot learn new techniques. There are mixed reports from scientific research on this subject, but the large number of senior citizens going back to university tell another story. It seems that learning is possible for older employees when they are taught right and the subject has their attention and interest.

Table 10: Employers images of older workers (the Netherlands)

Attribute	Older employees much lower	Older employees lower	No difference	Older employees higher	Older employees much higher
Labor cost	---	3%	12%	44%	41%
Loyalty	1%	2%	26%	55%	17%
Trustworthiness	---	---	50%	42%	8%
Capable of know. transfer	2%	10%	31%	51%	7%
Social skills	---	7%	42%	45%	6%
Precise	1%	4%	48%	41%	6%
Absence (health problems)	3%	20%	43%	30%	4%
Able to cope with stress	6%	27%	47%	19%	2%
Productivity	3%	42%	41%	12%	---
Able to cope with change	17%	60%	19%	5%	---
Willing to follow training	20%	56%	23%	2%	---

Source: Adams et al. (2005)

Adams, Arents, Pat and Versantvoort (2005) investigated the image that Dutch employers have of older employees (see Table 10). On the positive side, older employees are thought to be more loyal, trustworthy and feature high knowledge transfer capabilities, great social skill, and precision. On the negative side, older employees are thought to have more health problems,

higher labor costs, lower productivity, to be unable to cope with stress and change, and not prepared to follow education. Yearta and Warr (1995) demonstrated that many opinions on the performance of older individuals are not based on factual, measurable performance, but on the perspective of their accomplishments. In their study HR professionals were convinced that the younger sales employees sold more than the older sales employees. But age and sales performance were in reality not at all related (older employees sold even somewhat more).

4.4 Aging employees in organizations

This section gives a brief overview of our current understanding of the impact of employee age on organizational behavior and performance.

4.4.1 Age, productivity and wages

The first qualitative review of studies, investigating age-related differences in overall employee performance, was conducted more than 20 years ago by Rhodes (1983). She found 8 studies reporting a positive and 9 studies reporting a negative relationship between age and job performance. In addition, 8 studies yielded an inverted U-shaped relationship and in 9 studies the correlation was not significant. One of the largest literature surveys on the relationship between performance and employee age was recently published by Skirbekk (2003). He examined an extensive collection of studies on the relation between employee performance and age. Based on this widespread compilation, Skirbekk concludes that individual job performance decreases from age 50 on. Productivity reductions are particularly strong for work tasks where problem solving, learning, and speed are needed, while in jobs where experience and verbal abilities are important, older individuals maintain a high productivity level. He argues that this decrease in performance contrasts the almost life-long increase in wages and concludes that the removal of seniority-wage systems may be a condition required to allow the political attempts to increase the retirement age to be successful. But it should also be noted that some literature surveys show no clear link between age and individual productivity (e.g. Dorhout, van den Brink and Groot, 2002).

There are a number of individual empirical studies that are worth mentioning. Interesting is the work of Feyrer (2007), who concludes that: *“workforce demographics are strongly correlated with productivity and output”* (page 108). In line with his findings, Hellerstein and Neumark (2004) also conclude that employees over 55 years of age receive an income that is 25 to 35 percent more than can be expected based on their productivity. Their results are based on a database with over 20,000 companies with detailed information about corporate productivity, educational levels, and

demographic characteristics. In an almost ancient study of firms undergoing rapid technological change, Dalton and Thompson (1971) investigated performance evaluations from supervisors and employees. Their data (based on performance evaluations) suggested that productivity falls as the engineers move into their 40s and beyond. A recent study in The Netherlands by Gelderblom, de Koning and Kroes (2004) confirmed these results. Productivity increases until a certain age (around 50), after which a strong decrease in productivity is visible. In another interesting study Daveri and Maliranta (2006) looked at age-productivity and age-earnings profiles for a sample of plants in three manufacturing industries in Finland and Italy. They find that exposure to rapid technological and managerial changes does influence the age-productivity profile, less so for age-earnings profiles. They therefore conclude that workforce aging is a burden for firms in high-tech industries and less so in other industries.

4.4.2 Heterogeneity in age and team performance

Peterson and Spyker (2005) stress the added social value of older employees, an aspect that is not included in most studies on employee performance. If this is true, one should expect a positive influence of older workers on group performance. Organizational demography research, where one studies the distribution of organizational members along any set of demographic traits and its impact on organizational outcomes, is at the core of our interests here. Since Pfeffer's (1983) argument, many researchers have examined the consequences of demographic distributions within organizations on various organizational results. Much of this research has been focused on the tenure or length of service (LOS) distribution with an impressive set of findings as a result. LOS distribution of groups proved to be related to turnover, diversification, innovation, and adaptability (Harrison and Carroll, 2006). The focus of this research has shifted over time from entire organizations to top management teams. Several studies have focused on the influence of age heterogeneity. These studies in general find a positive relationship between heterogeneity in age and team turnover.

A number of researchers have also tried to link age diversity in teams with team performance (Gellert and Kuipers, 2007). However, the results are often contradictory and thus inconclusive. Age diversity seems as likely to hinder, as it is to improve team performance. The group fault line theory (Lau and Murnighan, 1998) might explain the lack of a strong relationship between age diversity and team performance. This theory emphasizes the pattern of distribution among group members along multiple relevant dimensions of attributes. For example, when working on a project, an engineer and a marketing specialist may disagree over different task-related issues due to the existing differences in their functional backgrounds, and hence they may experience task

conflict. However, if they have been with the company for the same period of time, it would allow them to learn and understand their differences, thereby mitigating the potential conflict arising from functional differences. Thus, differences in some characteristics can be offset by similarities in others.

4.4.3 Managing aging employees

There is plenty of anecdotal evidence that managers find it more difficult to manage older employees than younger ones. When older managers are asked about their experiences with older employees, they often say that it is *'hard to learn an old dog new tricks'* and they find it difficult to manage older employees. Although some research is done on the relationship between older employees and management, it is not abundant. Nevertheless the results of the existing research are unmistakable. One of the first research papers, of Judge and Ferris (1993), found that differences in supervisor-subordinate age, negatively influenced supervisors' liking and subsequent rating of the subordinate's performance. Boerlijst and van der Heijden (1993) concluded that a large majority of managers strongly preferred a pyramidal demographic build-up of their own unit with a lot of younger employees, some middle aged employees and only a few older employees. Shore, Goldberg and Cleveland (2003) show that employees who are older than their managers receive less support, less training and development and more negative evaluations than workers who are similar in age or younger than their managers. Perry, Kuklik and Zhou (1999) show that subordinates, who are older than their supervisors, are more frequently engaged in negatively motivated work change behaviors (they leave the organization or find a different role). Somech (2003) has looked into the relationship between age dissimilarity and leadership style. He concludes that a participative leadership style and participate decision making is more unlikely when there are large age differences between supervisor and subordinate. However, this negative relationship is much stronger in short-term relationships than in long-term relationships. These results propose that as time passes by dissimilarity becomes less important.

4.4.4 Satisfaction and motivation of aging employees

The literature on job satisfaction of older individuals focuses on explaining the much observed positive relationship between age and job satisfaction. A rich history of research shows a positive linear or U-shaped relationship between age and job satisfaction. Good examples of such studies are Yeararta and Warr (1996), Eskildsen and Kristensen (2004), and Houtman (2004). This strong positive empirical relationship can be explained by various phenomena:

1. Older generations expect less from jobs than younger generations.
2. Older employees have better jobs with better pay and more autonomy and skill.

3. Older employees tend to give more socially acceptable answers and justify their work by giving higher scores on satisfaction.
4. When employees age, the percentage of employees that has to work in order to provide family income declines and the percentage that does voluntary work, increases. By definition, employees who work voluntarily are more motivated than employees that need to work (selection bias).
5. Higher levels of congruence and resulting higher job satisfaction is associated with increased tenure in a specific position/organization (congruence theory).¹³

Clark, Oswald and Warr (1996) have done extensive research into this phenomenon and they conclude that despite the inclusion of 80 control variables in their research, a significant coefficient persisted for age variables. This suggests that the U-shaped relationship between age and job satisfaction is significantly caused by non-job factors of life-stage and personal circumstances. Armstrong-Stassen and Camaron (2005) looked at job satisfaction of two groups of older female employees: i.e. managerial and professional older women. For both groups the perceived organizational support was positively related to job satisfaction and job content plateauing was negatively related to job satisfaction. The other factors explaining satisfaction are different suggesting that these two groups are distinct. Armstrong-Stassen (2005) also studied the relation of human resource practices and the retention of older registered nurses. The most important practices related to the decision to stay were: compensation, recognition and respect, pre- and post-retirement options, job design, performance evaluation, flexible working options, and training and development.

Kooij, Jansen, de Lange and Dikkers (2007) have completed an extensive overview of research on the relationship between age and employee motivation. They state (p. 1): *“current research on age and motivation is limited and conceptually ambiguous”*. Based on existing research the evidence on the relationship between employee age and employee motivation is inconclusive. Although current research suggests that most age-related factors have a negative impact on work motivation, earlier research has also found a positive relation between age and work motivation. Here three interesting papers on age and motivation are shortly discussed: Kanfer and Ackermann (2004), Eichar, Norland, Brady and Fortinsky (1991) and Lord (2002). Kanfer and Ackermann model the effects of aging on work motivation based on Kanfer’s (1987) motivational framework. Kanfer

¹³ According to Holland’s (1985) theory, the principal predictor of job satisfaction is interest congruence, which is the degree of match between the individual’s vocational interest and aspects of their work environment. From Holland’s perspective, job satisfaction is the result of similarity between an individual’s interest and the demands of the work environment.

and Ackermann propose that the growth in Crystallized Intellect (G_c) and decline in Fluid Intellect (G_f) during adulthood, affect the effort-performance function. Employees in jobs requiring high Fluid Intellect (e.g. air traffic controller, physical science, mathematicians) will show diminished performance with age and employees in jobs requiring high Crystallized Intellect (e.g. notaries, lawyers) will show high performance with age even in absence of effort.

The Kanfer-Ackermann model predicts numerous work behaviors for employees depending on the type of job and employee age. For instance increased effort is expected to become the 'first-use' strategy for older employees to sustain performance in jobs that place high demands on fluid intellects. As employees age, compensatory motivational strategies to sustain performance by increasing effort in high Fluid Intellect tasks, will be undermined by negative effects on psychological factors, such as: self-efficacy that support motivation. Employees engaged in jobs with high demands on Crystallized Intellect and experience, are expected to maintain their performance without increased effort. Motivational interventions to increase effort among these employees are expected to improve performance as a result of the positive consequences of performance on other variables, such as self-concept. Managers seeking to improve performance (above current levels) among individuals engaged in high Crystallized Intellect jobs, will need to provide stronger performance incentives to spur the effort of older employees compared to younger employees. An interesting prediction of the model is that in the absence of changes (e.g. in work role or compensation scheme), the attractiveness of higher levels of effort and job performance is expected to decline with age (in Crystallized Intellect jobs).

Eichar, Norland, Brady and Fortinsky (1991) is one of the rare research papers that focus on motivation within a group of older employees. In a study of 198 people over 50, they show that older employees are more motivated by intrinsic factors than extrinsic factors. This result is confirmed by Lord (2002). He sees motivation of older engineers (between 55 and 70 years of age), as the key to retention and productivity of older engineers in an era of severe shortage of knowledge workers. He concludes that engineers past the age of 55 appear to be fairly secure financially and are mostly motivated by social needs and self-esteem (level 3 and 4 of Maslov's hierarchy of needs).

4.4.5 Commitment and contracting of aging employees

Although there are no studies that directly investigate the relationship between employee age and organizational commitment, there is plenty of indirect evidence. Meyer, Stanley, Herscovitsch and Topolnytsky (2002) performed a meta-analysis of commitment, using Meyer and Allen's model of

commitment (1991). This model distinguishes between affective commitment (emotional attachment to, identification with and involvement in the organization), continuance commitment (perceived costs associated with leaving the organization), and normative commitment (perceived obligation to remain in the organization). In their meta-analysis, both age and tenure (both organizational and job) correlated positively, albeit weakly, with all three components of commitment. Finegold, Mohrman and Spreitzer (2002) concluded that satisfaction with job security is strongly related to commitment of older workers and desire to stay with the company. For younger workers, satisfaction with work-life balance, opportunities to develop skills and pay linked to individual performance, were more important for commitment and desire to stay with the company.

The psychological contract refers to the promises an employee believes they have made to their organization and what the employee believes the organization has promised in return. The psychological contract is a notion, first conceptualized by Rousseau (1989). The breach or fulfillment of psychological contracts has been shown to predict various measures, such as: job satisfaction, organizational commitment, intention to quit, employee turnover, organizational citizenship and individual performance. Age potentially impacts all aspects of the psychological contract, i.e. content, balance, and breach. There are some theoretical grounds that would indicate a significant impact of employee age on the psychological contract. Firstly, the work-life balance changes with age. Older employees often have to take care of both the older and the younger generation. Secondly, the position on the labor market changes with age. Interesting is that Robinson and Morrison (2000) find that employees who have few other job options are less inclined to detect contract breach, as they are powerless to do anything in terms of seeking alternative employment. Third, time itself impacts the psychological contract as new experiences lead to adapted psychological contracts and changes the value attracted to benefits and promises. Bal, de Lange, Jansen and van der Velde (2007) have performed a meta-study into the relationship between age and the psychological contract. In their analysis of 94 studies, no direct relation between aging, tenure and the psychological contract was found. However, their results revealed that aging moderated the relations between psychological contract breach and commitment, indicating stronger reactions on contract breach among young employees compared to older employees.

Conclusions of Chapter 4:

1. The age wave in Western economies increases the share of older individuals in the labor force. Moreover due to the fact that the large baby boomers are replaced by the smaller generation Y, the labor force is slowly shrinking in most Western economies. With the replacement of the older generation, the younger generation will also bring in new work values, such as: a more formal contractual relationship between employer and employee.
2. The shrinking of the labor force will result in a long struggle for high-skilled talent. This fight is positive for skilled freelancers as it reduces overall market risk.
3. Performance is more determined by individual factors than age related factors. However there are indicators that Fluid Intellect (abstract reasoning, multi-tasking, new information) decreases with age. However, Crystallized Intellect (verbal and factual knowledge) may improve well into the age of 70. Empirical evidence is found for this effect, as productivity reductions for older individuals are particularly strong for jobs where problem solving, learning and speed are needed, while in jobs where experience and verbal abilities are important, older individuals maintain a high productivity level.
4. In almost all Western economies older employees earn higher wages, have lower unemployment rates, and have a lower probability of job displacement. But the duration of unemployment is much higher for older employees and they have the lowest re-employment possibilities. This dualistic labor market position of older employees might be explained by the almost life-long increase in employee wages. The removal of seniority-wage systems may therefore be a condition required to increase labor participation of older employees. As freelancers have no seniority wages, it is more likely that they remain active contributors to society until a very high age.
5. Age discrimination and stereotyping is a problem for all older individuals. Older individuals are thought to be more precise, loyal, and trustworthy, as well as possessing greater social skill. But older persons are also thought to have more health problems, lower productivity, and are less innovative. Although these stereotypes are not based on fact, they influence the way people perceive and interact with older individuals.
6. A strong U-shaped relation between age and various satisfaction measures (e.g. job satisfaction) is often found. This seems to be primarily caused by life-stage factors.