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Master's thesis

Demography meets Strategic Planning: Features of a Demographic Risk Indicator Tailored for Companies

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I would like to thank Dr Hans Groth for giving me the opportunity to write this thesis within this field of research and for his support and guidance throughout the period of my work.

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Abstract

The purpose of this thesis is to examine the feasibility and the potential of a demographic risk indicator tailored for companies, conceived as a new management tool with the objective to support organisations in proactively dealing with the effects of demographic change. Focusing on ageing population in Switzerland, this study intends to gain insights into possible design solutions with respect to the indicator's themes and components.

The phenomena of demographic change, ageing population and the deriving implications for companies are presented based on a literature study; in combination with desk research covering indicators, strategic planning, and the integration of mega-trends into firms' strategy, a theoretical rationale for the development of the indicator is proposed.

Based on empirical research from interviews and a survey, this study provides empirical results of the perception of Swiss executives about this topic, with particular attention to availability and access to information, organisations' preparedness and risk assessment, and methods and level of integration into firms' strategies.

The study suggests that the inclusion of demographic variables into companies' long-range planning is still below potential, indicating a promising ground for the development of a new management tool in this segment.

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List of abbreviations

CATI	Computer-Assisted Telephone Interviews
e.g.	Exempli gratia (for example)
et al.	et alii (and others)
DRI	Demographic Risk Indicator
DRM	Demographic Risk Map
DFI	Demographic Fitness Index
FSO	Swiss Federal Statistical Office
HRM	Human Resources Management
i.e.	id est (that is to say)
OECD	Organisation for Economic Co-operation and Development
p./pp.	page number/page numbers
RDLR	Regional Demographic Location Risk
RDC	Regional Demographic Change Index
R&D	Research and Development
SIM	Strategic Issue Management
SME	Small and Medium Enterprises
TFR	Total Fertility Rate
WAI	Work Ability Index

1. Introduction

"Fundamental changes in human affairs come both as unpredictable discontinuities and as gradually unfolding trends" (Smil, 2006, p.605).

Changes in the composition and age structure of national populations around the world are part of a pervasive mega-trend with the potential to strongly influence the global socio-economic environment of the upcoming decades.

Among different global mega-trends, an ageing population is probably one the most striking phenomena for its fast pace, reach and dimension. The implications are numerous and complex: while the characteristics of the population "determine the demand for goods and services and, thus, the survival of the organisations producing them"(Halachmi, Hardy, & Rhoades, 1993, p.159), changes in the population structure also have an effect on aggregate labour supply and aggregate saving, with consequent effect on prices, allocation and availability of labour and capital (Krueger & Ludwing, 2006, p.3). As consumption patterns and labour supply change, companies will face the challenge of adapting to this new, unfolding environment. In this context the management of demographic information becomes extremely relevant for companies' long-term strategy definition by "help[ing] the decision makers to identify and take advantage of the changes in population size, growth, and composition" (Retnakumar, 2009, p.7).

1.1 Aim of the thesis and research questions

This Master thesis develops around a project for the potential construction of a Demographic Risk Indicator (DRI), with industry-level of aggregation and company-level of measurement. The indicator will be developed with the objective of serving as a practical tool to measure and assess the competitiveness and risk exposure of companies and industries with respect to demographic variables.

While an indicator appears to be a suitable tool to capture, in a simplified and processed form, the complexity of demographic trends, the absence of similar experiments besides the discontinued "Demographic Fitness Indicator" by the company Adecco (Adecco Institute, 2008) constitutes a clear research gap. Moreover, the lack of exhaustive literature covering the use of comparable indicators in the decision-making processes at company level serves as additional motivation for this research.

The aim of this thesis is therefore to investigate, at a company-level of study, the feasibility of such composite indicators and to gain insights into possible design solutions with respect to an indicator's themes and components. The scope of the analysis will be limited to the topic of ageing population, with a geographical focus on Switzerland.
In particular, this thesis is designed to seek information about:

- The interest and awareness of the population ageing mega-trend at company level,
- The perceived need for a demographic indicator at company level,
- The macro areas potentially addressed by a DRI perceived as the most important by companies,
- The DRI potential components that are perceived as the most important, and

- The acceptability and usage potential of the DRI at company level.

The project is intended to be a practical project with descriptive purposes, with the objective of establishing a business case for the feasibility of the DRI. The results of this research should serve as a guideline for the potential development and eventual commercialization of a DRI by the World Demographic and Ageing Forum (WDA Forum). The purpose of this thesis is therefore not to contribute to existing theories in the field of demographics and strategic planning.

This Master thesis, which focuses on the gathering of information at company level, is part of a larger project with two other Master theses currently being written by University of St. Gallen students, with a focus on industry and government level respectively.

1.2 Research approach

This Master thesis follows a research approach based on desk research, combined with empirical findings form qualitative research and quantitative research.

The desk research, which constitutes the theoretical part of the project, follows an interdisciplinary approach, drawing information form the field of strategic management, demographics, economics and organisation theory.

The aim of the theoretical chapters is not to cover the entire literature available on the topics analysed, due to the complexity and broadness of these subjects. The main purpose is to create a solid framework for the rationale behind the need for a Demographic Risk Indicator at company level, and to verify the most relevant assumptions empirically.

The practical part of the thesis follows an exploratory research approach, in the form of a mixed method study that combines quantitative and qualitative research. Preliminary qualitative research, in the form of four interviews with experts from the academic field and the consulting industry, has the objective of supplementing theoretical findings and providing guidance for the design of the quantitative strand.

A quantitative survey, in the form of a self-administered questionnaire targeting relevant Swiss companies, tests the hypothesis generated from the combination of desk research and interviews. The findings provide useful insight into the feasibility of the DRI, its composition and the potential for is use and acceptance.

1.3 Organisation of the Thesis

This Master's thesis is organised as follows:

- Chapter 2 explains the dynamics of demographic change, population ageing demographic forecasting.
- Chapter 3 reviews the literature on strategy process and strategic planning, the role of the external environment for firm's long-term sustainability, and the integration of mega-trends into strategies through strategic foresight and strategic issue management processes.
- Chapter 4 introduces the concept of indicators, their key characteristics and success factors, followed by a selection of operative examples.
- Chapter 5 summarises and combines the insights gained from previous sections to build the rationale behind the need for a DRI at company level.

- Chapter 6 reviews the literature on the effect of population ageing at company level and the possible strategic responses available to organisations.
- Chapter 7 presents the methodological issues, the execution and the findings of the empirical research conducted to investigate the feasibility of the DRI and its possible form.
- Chapter 8 proposes conclusions, limitations and future outlook of this study.

2. Demographic change

"Demographic change is one of the most crucial issues of our time. Owing to its importance for companies, this topic has made it onto decision-makers' agendas in recent years" (Boehm, Kunisch, & Boppel, 2011, p.3).

This chapter serves as an introduction to the key themes of demographic change and ageing population. The first section proposes an overview of the main concept necessary to understand the dynamics of global demographic evolution. In the second part, the theme of the global ageing population is explored in more detail, analysing some of its macro-dynamics and underlying causes, while the final section reflects on the reliability and challenges of demographic forecasting.

2.1 Drivers and forces of demographic change and the demographic transition

Current and future demographic landscapes are shaped by changes in fertility, mortality and international migration flows (May, 2012), the first two commonly referred as natural factors (Road, 2010, p.2). Their interaction and the current age structure of a region explains how societies change in population size as well as age composition (Boehm, Kunisch, et al., 2011; Tivig, Frosch, & Kühntopf, 2008).

The first pillar of demographic change is *fertility*, the determinant of the number of births in a given population. The most relevant indicator used is the total fertility rate (TFR), a standardized measure defined as "the mean number of children who would be born to a woman during her lifetime, if she were to spend her childbearing years conforming to the age-specific fertility rates, that have been measured in a given year" (Eurostat, 2013).

The total absolute number of new-borns is also influenced by the size of cohorts of women of childbearing age (Road, 2010, p.2). Replacement level fertility is set at 2.1 children per woman in most developed countries, a number that would theoretically provide a constant population size and composition in the long run (Hamm, Seitz, & Werding, 2008; May, 2012).

Whereas high fertility is considered the main driver of population growth, low fertility levels, such as below replacement level, are connected to population contraction (May, 2012).

The second driver of demographic change is *mortality*, expressed by the development of the average life expectancy at birth.

Migration dynamics is the third key driver of societies' demographic development, with substantial impacts on growth and age structure (Tivig et al., 2008, p.10), where net migration rate indicates the difference between immigrants and emigrants in a region over time.

The sets of relationships between drivers of demographic change and their underlying courses are complex: "Ultimately, Individuals and families are the ones who determine future demographic outcomes. […] Decisions are influenced by a number of variables including education, gender imbalance, culture, religion, poverty and inequality. Population

policies, or the lack of such policies, play a key role in influencing individual behaviour and therefore shaping demographic trends " (May, 2012, p.1).

The demographic transition

The current and future world demographic landscape is the result of a process referred as Demographic Transition, "a long-term phenomenon that can be observed on a global scale" (Thun, Größler, & Switbert, 2007, p.8). It is defined as "the change from a traditional demographic regime with a high quasi-equilibrium (i.e. high mortality and high fertility) to a modern demographic regime with a low quasi-equilibrium (i.e. low mortality and low fertility)" (May, 2012, p.20).

The demographic transition commonly brings important socio-economic transformation, especially though modifications in the composition and size of the labour force, a shift from a rural to a urban lifestyle, and changes in the scope of business activities driven by an evolving age-sex distribution (Retnakumar, 2009; May, 2012).

A population can be divided into two separate groups: economically active persons who are part of the labour force and contribute to the production of the region aggregate income; and dependent persons (Henseke, 2011; Weil, 1999).

During the transition, economies chances are usually for the better because "as the fertility rate falls, the number of working-age adults creeps up relatively to the rest of the population, laying the foundations for the so called *demographic dividend*" (The Economist, 2012, p.1). Increases in the proportion of employed persons may translate the average productivity of labour of a given economy into income per capita and, consequently, boost total economic output (Henseke, 2011, pp. 32-33; Kelly & Schimdt, 2005). Moreover, figures suggesting fewer children per family imply a greater amount of resources that parents can invest in their education, thus increasing human capital. Additionally, people save more for retirement and investment and the entrance of woman into the job market increase the size of the available workforce (The Economist, 2012) .

"The large majority of the world's population is engaged in a process of demographic convergence. There is good reason to view the fertility transition as a truly global process, with no evidence of significant reversals and only a few countries still to embark upon it" (Wilson, 2011, p.385).

2.2 The mega-trend of population ageing

The world is living an unprecedented demographic transition: as the result of gradual falls in fertility rates towards and below replacement levels, the shape of population distribution of counties is moving from the initial triangular pyramid to pillars (May, 2012; Boehm et al., 2011). Most industrialized regions due to long-term decrease in fertility combined with rising life expectancy are experiencing a major demographic shift towards an ageing, and therefore sometimes shrinking, population (Krueger & Ludwing, 2006; Hamm et al., 2008; Perlitz, Schulze, & Wilke, 2010).

"In the face of the observed trends in developed countries demographic ageing currently seems to be the last stage in human demographic development" (Hamm et al., 2008, p.10).

At an individual level, longevity increases associated with years spent in good health are the evidence of a "remarkable and desirable progress of civilization" (Hamm et al., 2008, p.10). According to European Commission 2008 Demography report (2009) "one of the most impressive socio-economic achievements of developed societies has been the marked reduction in mortality or, in other words, the large increase in life expectancy" (p. 53). However, these improvement are resulting in unprecedented longevity for large segments of society, in turn exacerbating the problem of seniority: an expanding group of older citizens will have to rely on fewer active individuals to support their increasing living standards (Reinmoeller, 2011, p.160).

The implications for society, economy and welfare are numerous, complex and often hard to quantify (Krueger & Ludwing, 2006). Global population ageing will influence economic growth, savings, investment, consumption, labour markets, pensions, taxation and intergenerational transfers (United Nations, 2009). For instance, the reduction of the fraction of the population in working age over time poses questions regarding the sustainability of public pensions, healthcare systems and social services (Hou, 2011, p.70). This thesis focuses only on the implications for businesses at the company level, as demographic changes matter for firms given the strong influence on labour supply and demand patterns (see Ch. 6).

Globally, the dimensions of this mega-trend are impressive: according to the United Nations Population Ageing and Development Report (2012), if in the world there were about 810 million people aged 60 or over in 2012, the number is projected to reach 2 billion by 2050, when one every 5 person is expected to be in this age group. Moreover, the elderly population is itself ageing, with 20 per cent of the 60+ populations expected to be over 80 years old by 2050, something that is unprecedented in history. This mega-trend seems permanent; as fertility levels are unlikely to rise again to the high levels experienced in the past, population ageing is irreversible (United Nations, 2009, p.25).

2.2.1 Geographical differences

If population ageing is a pervasive mega-trend, affecting nearly all the countries of the world thanks to a virtually universal decline in fertility (United Nations, 2009, 2012b), the extent and timing of the process differs substantially across regions (Krueger & Ludwing, 2006).

It's reasonable to interpret the global demographic changes of the past half-century as "falling along a *main sequence* of demographic transition. The principal differences between the regions of the developing world lie in when they enter this main sequence and how rapidly they move along it" (Wilson, 2011, p.384). Developed countries, characterized by a larger proportion of current and projected older populations (United Nations, 2009, 2012b), went through a process of gradual ageing over a long period of time, thus enabling societies to adapt accordingly (May, 2012). "Western Europe and North America […] undergo changes that countries in South East Asia will have to face in 10-20 years time" (Thun et al., 2007, p.2). In most developing countries the pace of population ageing is currently faster, due to the sharp reduction of fertility experienced since the 1960s, which made ageing a relatively more recent but more rapid trend (May, 2012; United Nations, 2009). Thus, these regions

will have less time to adjust to the consequences of the mega-trend, a challenge made harder by the fact that population ageing is taking place at lower levels of socio-economic development (United Nations, 2009).

Current and projected old age support ratios[1] also vary dramatically across geographies: European countries are positioned at the lower end of support ratios, with countries like Italy, Germany and Sweden having an average of 3 working-age individuals per elderly; some countries such as Bahrain, Qatar and UAE have 30+ persons per older individual, but most regions presents intermediate values between 5 and 20 persons in working-age per senior (United Nations, 2012a). The expected reduction in support ratios due to the demographic transition will therefore have different implications across regions, with more or less severe impact on, for example, the sustainability of certain social security schemes (i.e. pay- as-you-go pension systems) (United Nations, 2009).

2.2.2 Population ageing in Switzerland

With a population of 7.9 million permanent residents and 1.4 million persons 65 year-old or older in 2011 (Swiss Federal Statistical Office (FSO), 2012), Switzerland is a country already quite advanced in the ageing process.

During the last century fertility has declined to 1.5 children per woman (TFR 2009) (FSO, 2012), well below replacement levels, while life expectancy continued to rise, passing from 48 in 1900, to 62 in 1950 (Boehm, Kunisch, et al., 2011) and reaching 80.3 for men and 84.7 for woman in 2011, currently one of the highest in the world (FSO, 2012).

While population is expected to stabilize, or even increase slightly regardless of the below-replacement-level fertility thanks to high net migration rates[2] (Boehm et al., 2011), Switzerland is likely to experience an unprecedented development in the county's age composition, as the share of 65+ year-old generation is constantly growing compared to those who are economically active (Huber & Groth, 2013).

The ageing population has continued to rise year by year, with an increase in the number of 65+ resident of 17.2 per cent in 2011 alone (FSO, 2012). According to the United Nations Population Ageing and Development report (2012) the Swiss elderly population is expected to soar to 2.9 million by 2050, moving from 23 per cent to 37 per cent of the total population. An even sharper increase is projected for the population of seniors 80 years of older, which should pass from the current 21 per cent share of the 60+ population to 35 per cent by 2050. Old age support ratio is also expected to drop from current 4 active individuals per elderly to only 2 working-age persons every senior citizen by 2050 (United Nations, 2012).

The ageing population trend is already having a visible effect on the economically active population in Switzerland: In 2010, 18 out of 100 workers were aged 55 or over and their share is likely reach 21.2 per cent in 2060 (Swiss Federal Statistical Office, 2012b).

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[1] Number of dependent people aged 65+ per working adult (people aged between 15 and 64) (United Nations, 2012a)

[2] Net Migration rate of 8.3 per 1000 persons in 2009 (SFO, 2012)

2.3 Reliability of demographic forecasting

The quality and reliability of demographic forecasts can be investigated considering three different perspectives.

The first aspect refers to the quality of the forecasting methodology used: population projections are in fact "mathematical *what if* exercises, given assumptions about (for example) the future trends in fertility, mortality and migration" (Glavac, Hastings, & Childs, 2003, p.10). There are several methods for projecting population counts and its components, and the most appropriate should be chosen and correctly applied to produce the best estimate for a given circumstance (Glavac et al., 2003) . "Although relatively simple mathematical methods have traditionally been used to assess demographic trends […], the use of modern statistical methods offer significant advantages" (Alho & Spencer, 2008, p.8). Second, the quality of input data clearly influences the reliability of forecasts: validity, timeliness, and level of detail are important aspects of data quality that are not always achievable at the desired levels for every given region of the world (Alho & Spencer, 2008).

Third, assumptions about future trends play a crucial role in shaping each demographic projection. "Demographic forecasting is historical activity […]: to forecast forward and predict the accuracy of our forecast we look backward" (Alho & Spencer, 2008, p.226). However, extrapolating trends from past irregularities poses high levels of uncertainties, and often turning points and discontinuities play the most influential function in demographic developments (Bras, 2008, p.20).

When looking at the three main drivers of demographic change, it is possible to observe that forecasting deaths can be done with relative accuracy, especially for people that have already been born in a given population: life expectancy is moving reasonably steady, unless some catastrophic event should happen (Bras, 2008; May, 2012; Hamm et al. 2008). Projecting births is slightly more challenging: although fertility has been generally decreasing without big fluctuations, radical declines in certain regions have been particularly surprising (Smil, 2006; May, 2012). Migration can be a very significant but unpredictable component of demographic shifts: it is highly influenced by various political, economical and cultural factors in both sending and receiving countries, making it difficult to predict and model.

In conclusion, as the previous paragraph points out, it is hardly possible to make demographic projections independent of any economic and political forecast, fact that questions how far into the future projections can be made with acceptable accuracy (Bras, 2008; Glavac et al., 2003). "A long-term population forecast assumes implicitly that no event will occur" (Bras, 2008, p.38).

3. The environment, mega-trends and company's long-range planning

This chapter presents an overview of selected literature in the scope of trends, mega-trends and strategic planning. These concepts, in combination with the ones regarding demographic change and indicators covered in chapters 2 and 4 respectively, constitute the theoretical justification for the development of DRI at company level as a potentially valuable management tool (see chapter 5).

The chapter combines contributions from the field of strategic management and organisational theory. It starts with an overview of the notion of strategy formation and strategic planning, followed by a section dedicated to the role of the external environment for an organisation's long-term sustainability as proposed by the theory of organisations as open systems. The section continues with the conceptualization of trends and mega-trends, and their importance for corporate strategic planning. The chapter concludes introducing the concepts of Strategic Issue Management and Strategic Foresight, here proposed as important approaches to proactively anticipate and react to long-term changes in the external environment.

3.1 Strategy formation and strategic planning

"What separates lasting organisations from others is the quality of their strategic decisions" (Kim, 2012, p.45). Kim highlights how much the definition of strategies should represent a core activity for organisations. Academics have argued over decades of strategic management research about the phenomena, its role, the impact of strategy and strategic making processes in companies and on their performance.

Nag, Hambrick, & Chen, (2007) define strategic management as the field that deals with the management's initiatives involving utilization of resources, aimed at increasing a firm's performance in their external environments (p.943).

Strategy research is a vast topic where two macro areas of interest can be identified: strategy-content and strategy-process research (Huff & Reger, 1987; Lechner, 2005). The first attempts to "generate knowledge on the content of strategies" (Kürschner & Günther, 2012, p.6) by looking at the decisions that shape the company's general direction, such as product differentiation, market entry strategies or M&A activities. The second focuses on describing "how strategies of a firm are formed over time" (Lechner & Müller-Stewens, 1999, p.2).

Within the scope of strategy process research, the macro area of interest when discussing the integration of trends into companies' long-term strategies, "the proliferation of concepts and frameworks fosters a complexity in which it seems easy to get lost" (Hutzschenreuter & Kleindienst, 2006, p.674). Mintzberg and Lampel (1999) have classified the best known approaches into ten groups, distinguishing between prescriptive and descriptive schools, where perspective models are built relying on formal decision theory, while descriptive models aim to explain the unconscious and progressive unfolding of strategies (Kürschner & Günther, 2012). Comprehensive frameworks based on extensive

literature reviews to synthetize past research have been proposed by Chakravarthy, Müller-Stewens, Lorange, and Lechner (2003) and by Hutzschenreuter & Kleindienst, (2006). These models approach strategy formation in an holistic way and integrate in a single framewok multiple perspectives, such as organisational context, environment, and organisational characteristics and performance, by identifying the interrelationship linking them together.

Strategic planning

Within the process of strategy formulation, limiting the attention to intended strategies and ignoring *emerged* strategies (the ones that develop as the product of many different decisions taken individually (Mintzberg, 1994, p.113)) the formal process by which strategies are produced can be defined as strategic planning (Grünig & Kühn, 2011, p.8). Historically the concept of strategic planning was introduced in the 1960s, when initially corporate leaders approached it as the "one best way" to enhance performance (Mintzberg, 1994). However, through 50 years of academic research, the definition and concept of strategic planning has become extremely disunited due to increased specialization of academics and practitioners (Hambrick &Fredrickson, 2005), and the lack of a coherent identity of the field of strategic management itself (Nag et al., 2007, p.935).

According to Grünig & Kühn, (2011) strategic planning, the process by which strategies are produced, has six core characterisitcs: i) it's systematic, ii) it has a long-term orientation, iii) it involves the organisation as a whole or some of its core parts, iv) its main driver is the organisation's future success potential, v) it calls for the involvement of the management, and vi) its objective is to contribute to the long-term accomplishment of the organisation's purpose (p.8). Accordingly, strategic planning can be intended as a process that provides direction, preliminary to other managerial activities, intended to determine the firm's future course of action in response to threats, opportunities, risks and uncertainties arising from a changing environment (Patnaik, 2012, p.2).

As the attention in this thesis is focused on long-term threats and opportunities arising from environmental trends, the concept of strategic planning is thus utilized with the intention of indicating the set of processes and activities that "visualize or anticipate or project the future and act accordingly, keeping in sync the organisational resources and objectives" (Patnaik, 2012, p.27)

Research on strategic planning has mainly focused on two areas of interest: the impact of strategic planning on companies' performance and the role of strategic planning in strategic decision-making (Grant, 2003, p.492).

The empirical studies on performance have often lead to ambiguous findings (Andersen, 2004, p.1273), and despite the supposed positive influence of strategic planning activities on companies' performance, the relationship is often unclear (Boyd, 1991, p.353). A more recent study by Kürschner and Günther (2012) investigating the impact of different design parameters of the strategy-planning process on organisational performance, however, shows that formal strategic planning, a rational planning process and an intensive planning process are in fact positively correlated with organisational performance (Kürschner & Günther, 2012, p.33). Investigating the role of strategic planning in the strategic decision-making process, both *rational design* and *emergent process* literature on strategy

formulation provide a range of different models to describe the strategic planning processes of organisation. However, there is limited empirical evidence on how companies actually plan, and the characteristics of planning practices have often changed in practice from what's known in literature (Grant, 2003, p.291).

While an in depth analysis of the prominent strategic planning process models is beyond the scope of this work, this thesis adopts the model for strategic management proposed by Grünig & Kühn, (2011). At a general level of conceptualization, the authors recognize that most of the strategic planning processes share three key components or phases: i) formulation and planning, ii) implementation and iii) control (Falshaw, Glaister, & Tatoglu, 2006; Grünig & Kühn, 2011).

According to Grünig and Kühn, (2011) the three actions can be understood as stages of a single process, with the planning phase setting the long-term direction for implementation, and the control part serving both as feedback on realization of strategies and as a check for the underlying assumptions that determined the definition of the strategy in the first place.

The same authors observe that it is often difficult to distinguish sharply between strategic management and everyday business planning activities: "Strategic planning is perceived as a process which is run independently of daily business but which determines it, while the other two tasks, strategy implementation and control, are part of the on-going day-to-day management process" (p.19). Moreover, the phase of strategic control can comprise three separate elements: i) strategic realization check, which has the objective to assure that strategic measures are realized; ii) strategic monitoring, which acts through the construction of early warning systems based on indicators for observing key premises and iii) strategic scanning, which involves the observation of the environment to identify and address unexpected developments (Grünig & Kühn, 2011, pp.18-20).

3.2 The importance of the environment: organisations as open systems

"Coping with the company's changing internal and external environments is one of the major challenges of strategic management" (Müller & Smith, 1984, p. 88). With increasing complexity brought by globalisation as well as progressively intense competition among firms, the role of the environment has become a crucial factor in strategic planning for companies across industries (Brews & Hunt 1999, p.889).

The theory that better portrays the relationship of inevitable interdependence between companies and their external environment is an organisational theory that interprets organisations as open systems. The open-system perspective is built around three key pillars: i) the emphasis on the role of the environment, as firms "should always organise with the environment in mind" (Morgan, 2006, p.39); ii) the concept of organisations as a sets of interrelated subsystems; and iii) the constant need of alignment between all the parts of the system and its external environment, while paying attention to both human and technical requirements (Morgan, 2006).

In line with the open system theory, Bourgeois (1980) points out how "strategic decision making is at the heart of the organisation-environment co-alignment process" (p.1). According to Barton and Selsky, (2000) (citing Emery, 1969) in fact, "the goal or purpose of

an organisation can be understood only as special forms of interdependence between an enterprise and its environment" (p. 713), where the management's activities are driven by the need to match actual and potential resources with the requirements arising from the external changing contexts (Barton & Selsky, 2000). The same authors observe that especially in unstable, rapidly changing environments, adaptive approaches are crucial for corporate survival (Barton & Selsky, 2000, p.708). "The organization has to find and obtain needed resources, interpret and act on environmental changes, dispose of outputs, and control and coordinate internal activities in the face of environmental disturbances and uncertainty. Every system that must interact with the environment is an open system" (Daft, 2004, p.14).

Different aspects of the relationship between external environment and organisations have been the objects of strategic management research. A research stream has investigated how environmental contingencies have an impact on the effectiveness of different strategic decision-making processes (Andersen, 2004, p.1273). Some studies, such as Brews and Hunt's, (1999) argue in favour of the positive effect on performance of formal strategic planning in the presence of unstable and dynamic environments. However, in a more recent study Grant (2003) observes that increased volatility in the business environment amplifies the difficulty of strategic planning; the author notes that in rapidly changing environment, strategic planning processes tend to become more decentralized and less formal. Similar findings are proposed by Andersen, (2004) whose research shows "that both decentralized decision structure and planning activities are associated with higher performance in dynamic environments" (p.1271).

Another research stream has looked at the characteristics of the environment and the implications for organisational theory. Bourgeois, (1980) analysed the issue of objective versus perceived environment, and concluded that "the objective external environment and its variability are the source of the firm's opportunities and risks and as such must be accounted for when strategies are made and executed, whereas managers' perceptions of the environment are part of the strategy-making process" (p.36).

Three conclusions can be inferred from the literature contribution presented: first, the environment's influence on organisation translates into a need for information and a need for resources. Second, environmental conditions may require different approaches to strategic planning and decision-making processes. Third, in the interpretation of the external environment, the human component of the organisations may play a moderating role. For the purpose of this thesis, the first point is particularly relevant. Companies must deal with long-term socio-economical changes in their environment, the demographic transition being one of them: "the environmental conditions of complexity and change create a greater need to gather information and to respond based on that information" (Daft, 2004, p. 140).

3.3 A changing environment: trends and mega-trends

The talent of an organisation to make decisions and allocate resources in anticipation of possible changes in the external environment is closely linked to the firm's performance and competitive advantage (Eisenhardt & Martin, 2000, p.1106). Trends are commonly associated with environmental discontinuities which, if not correcly interpreted, may lead to

strategic surprises (Liebl & Schwarz, 2010, p.313). Liebl & Schwarz (2010) and Saritas & Smith (2011) observe that the strategic management literature lacks a consistent definition of trends, resolving into the absence of an established framework to conceptualize and analyse them. Liebl & Schwarz (2010) argue that the term "trend," widely used in the field of marketing and general management literature, can be associated with two main conceptualizations: one without a deeper scientific connotation, where the term is mainly used to define an "intuitive feeling that something is of importance," and a second one (this thesis), where the concept of trends "help managers implement environmental scanning and strategic issue management in their organisations" (Liebl & Schwarz, 2010, p.314).

A topic often associated with the idea of trends is the concept of weak signal, defined by Ansoff (1982) as ''warnings (external or internal), events and developments which are still too incomplete to permit an accurate estimation of their impact and/or to determine their full-fledged responses'' (p.3). Trends can be interpreted as "weak signals of change, which are likely to influence the future of an organisation and its environment"(Liebl & Schwarz, 2010, p.313). This thesis adopts the more complete definition proposed by Saritas & Smith (2011):

> "Trends are those change factors that arise from broadly generalizable change and innovation. They are experienced by everyone and often in more or less the same contexts insofar as they create broad parameters for shifts in attitudes, policies and business focus over periods of several years that usually have global reach. What is interesting about trends is that normally most players, organisations or even nations cannot do much to change them – they are larger than the power of individual organisations and often nation states as well" (p. 294)

One of the important characteristics that emerge from this definition is the pervasiveness of trends: they involve complex and broad forces, affecting diverse actors and stakeholders, who are powerless alone to influence the impact or the direction of the change (Saritas & Smith, 2011).

The concept of the "mega-trend," derived the Greek word *mega,* was first introduced by Naisbitt, who defined the term simply as a "big" trend (Naisbitt, 1982, p.12). This thesis adopts again Saritas & Smith's definition (2011): "A mega-trend extends over many generations, and in cases of climate, mega-trends can cover periods prior to human existence. They describe complex interactions between many factors" (p.293).

Mega-trends represent important environmental factors that organisations should carefully consider to defend their long-term prosperity. According to Boehm et al. (2011), demographic change is one of the unfolding global mega-trends with the potential for a profound impact on companies. The authors propose an integrated framework for investigating the challenges and opportunities arising from mega-trends from a company perspective, highlighting the effect of changes in the external environment on both internal and external shareholders (Figure 1).

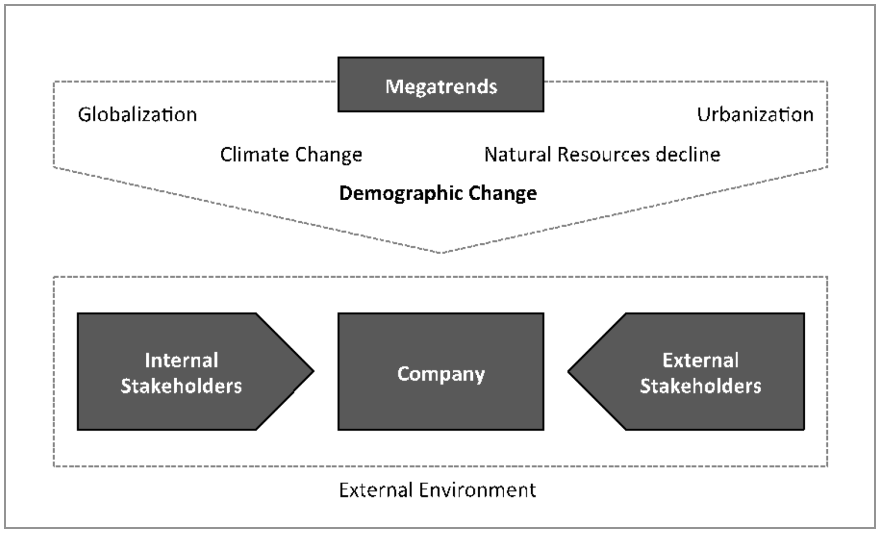


Figure 1: Framework for investigating the challenges and opportunities of demographic change from a company perspective (Boehm et al., 2011, p.13)

The consistent ability to identify trends can represent a source's competitive advantage (Liebl & Schwarz, 2010, p.313): for this reason "Organisations must develop processing mechanisms capable of detecting trends" (Daft & Weick, 1984, p.285). If trends are not correclty interpreted, organisations risk implementing inadequate strategies due to disinformation (Liebl & Schwarz, 2010).

''An executive's ability to read trends accurately in a rapidly changing business environment can make all the difference between riding the currents of opportunity and paddling upstream against them'' (Becker & Freeman, 2006. p.1).

3.4 Incorporating information from mega-trends into strategies

Exploiting information coming from changes in the external environment is a crucial activity. According to Choo (1995):

> The dynamics of competition and organisational growth will become increasingly based on the effective management of information and knowledge. Information is not just another factor of production (such as land, labour and capital), but the enabling factor that determines how the other factors of production ought to be combined and utilized in order to maximize organisational performance. (p. 213)

The concept of scanning the external environment to capture information from weak signals or trends is not new to strategic management literature:

> Management tools and systems labelled as *environmental scanning*, *strategic issue management*, *trend monitoring*, and *early warning* were introduced—later followed by *foresight* in the late 1980s which ended up as *strategic (corporate/organisational) foresight* in a management context in the late 1990s. (Liebl & Schwarz, 2010, p.313)

This chapter fist looks at the act of scanning the environment as a way to acquire useful information for decision makers. Secondly, it analyses the issue of interpreting information from weak signals through the theory of organisation as interpretative systems. Finally, the attention moves to analysing the processes through which companies incorporate the

information gathered from the external environment in their strategies. As there is not a single conceptualization for this purpose, the analysis is limited to the concept of Strategic Issue Management, a theoretical framework that fits the focus on mega-trends and their long-term implications of this thesis. The chapter concludes with the introduction of the concept of strategic foresight, intended as a broaden application of strategic issue management.

3.4.1 Scanning the environment

Grünig and Kühn (2011) mention Strategic Scanning as a key aspect of strategic control, defined as the "global intuitive observation of the environment" (p. 20) (Chapter 3.1), but little has been explained so far about the dynamics of this process. Day and Schoemaker (2005), argue that although managers are accustomed and trained to use data that are presented before them, they should also be able to recognize when part of the picture is missing (p.135). To do so, "Organisations scan the environment in order to understand external forces of change so that they may develop effective responses that secure or improve their position in the future" (Choo, 2013, p.1).

Aguilar (1967) is on of the first authors describing the active scanning of the environment as a key activity for generating the required knowledge to assist top management in corporate planning. The author argues that scanning approaches should be undertaken based on the type of information and management's purpose. Four different modes are identified: undirected viewing, conditioned viewing, informal search, and formal search. The choice of scanning mode should be based on scanning rules, which should remain unchanged as long as the desired information has been acquired (Aguilar 1967).

According to Heugens, (2001) scanning activities are influenced by individual and personal perceptions, thus two different types of scanning can occur, namely prospective and passive scanning. In the first mode, issues are identified still in their preliminary stage, while in the passive mode issues come to the organisation's attention when already manifest.

The term environmental scanning is commonly used to define a specific input method for the gathering of relevant information for the organisation's foresight needs (Slaughter, 2002, p.5). Choo (2013) defines environmental scanning as "the acquisition and use of information about events, trends and relationships in an organisation's external environment, the knowledge of which would assist management in planning the organisation's future course of action" (p.1). Environmental scanning activities are usually conducted with respect to the political, socio-economical, demographical and technological environment (Patnaik, 2012, p.32), and comprises the activity of both searching for and spotting relevant information, as well as viewing and analysing information (Choo, 2013, p.1). Often considered one the most effective data-input technique available to organisations (Slaughter, 2002, p.5), environmental scanning is strongly linked to the quality of company's strategic planning processes and strategy implementation (Albright, 2004; Patnaik, 2012). Continuous scanning should be conducted systematically in order to adequately sense and monitor external forces that might affect the organisation's strategy

(Albright, 2004), focusing not only on the firm's immediate information needs but also on peripheral vision and a long range perspectives (Choo, 2013).

Peripheral vision

The concept of peripheral vision refers to the company's ability to grasp insights in an area that it is not focusing on (G. Day & Schoemaker, 2004; Winter, 2004). Day and Schoemaker (2004) highlight the importance of recognising that "the periphery is a byproduct of our focus on what we deem important as the periphery reflects our area of focus" (p.119): because companies' and managers' focal areas create blind spots in different directions, developing peripheral vision abilities becomes crucial in order to succeed in a dynamic environment (Day & Schoemaker, 2004).

Winter, (2004) propose a comparison between organisations and living organisms to illustrate how peripheral vision can benefit organisations: the author argues that much like organisms, firms develop sensors through a selection-adaptation-learning process to spot threats and opportunities in the environment. The *evolutionary* process that selects successful firms, however, is efficient in designing sensors, but it is always focused on the problems of the past. "As organizations become more successful, they tend to reinforce the sensing systems that made them successful" (Winter, 2004, p.165). Developing peripheral vision can help even successful organisations anticipate unexpected changes and overcome the weaknesses of the blind spots that they necessarily have. Peripheral vision is especially required in the context of product development: "by mining the periphery for new product ideas, [firms] can identify concepts with strong potential for the future" (Huston, 2004, p.1). Day and Schoemaker, (2005) suggest that an organisation can rely on the "maverick and outlier" (p.140) within the company to bring information from ignored weak signals to the attention of the management.

3.4.2 Interpreting information

Daft and Wick (1984) argue that "building interpretations about the environment is a basic requirement of individual and organization" (p.284). Interpretation is a fundamental step in integrating the input from the environment into corporate strategy. While defining interpretation at company level is the act of translating data into shared understanding (p.286), Daft & Weick, (1984) propose a model of organisations as interpretation systems. According to the authors, the process comprises three phases: 1) scanning and data collection; 2) interpretation; and 3) action and learning (Figure 2). The model rests on the assumption that organisations, intended as social systems, process the relevant information for the firm's strategy by means of individual interpretation reserved to a limited number of managers and executives.

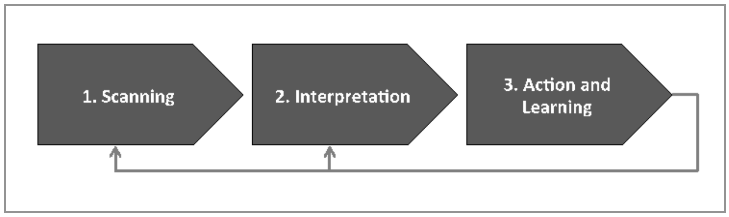


Figure 2: Relationship between organisational scanning, interpretation and learning (Daft & Weick, 1984)

Differences in interpretation of similar signals can arise from the management's ability and their beliefs regarding the ability to analyse the business context, or from their degree of penetration into the environment (Hiltunen, 2008). The role of individual perception therefore has an impact on organisational interpretation. Heugens (2001), for example, argues that management's perception can influence organisational interpretation through the selection of the inputs coming from the environment: only issues considered as relevant will receive the decision maker's limited attention. Accordingly, Day & Schoemaker (2005) observe that "in assessing the current environment, managers must separate signals from noise. It is not practical for them to assess each weak signal, and there is no simple formula for sharpening intuition" (p.138).

The importance of the subjective component in understanding the environment is also emphasized in Hiltunen's model that evaluates weak signals or trends (Figure 3). Hiltunen (2008) proposes a "triadic model of future signs": the framework describes the weak signal through three separate dimensions: 1) the signal (e.g. number and visibility of signals); 2) the issue (ex. the number of events); and 3) the interpretation. According to Hiltunen's model, the overal "value" of a weak signal for an organisation is influenced by interpretation, the "receiver's understanding of the future sign's meaning" (p.250). A weak signal does not exist without the receiver and its interpretation, which inevitably add subjectivity to the event even if the information is thought to be objective (Moijanen, 2003).

Effective interpretation of signs from the environment should also consider the context component (Hiltunen, 2008; Liebl & Schwarz, 2010): "contexts influence human perception, structure expectations, and evoke new forms of interpretation and new ways of using things" (Liebl & Schwarz, 2010, p.318).

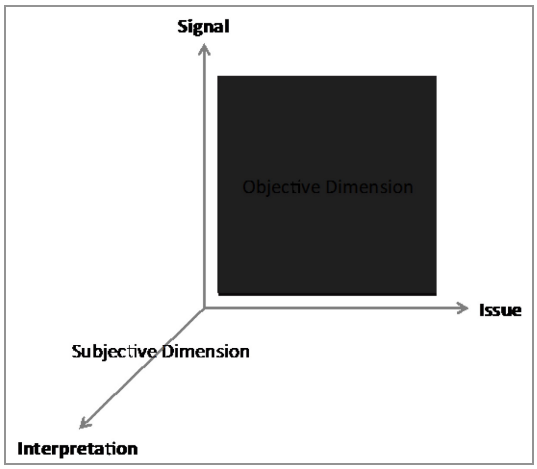


Figure 3: Triadic model of future signs evaluation (Hiltunen, 2008)

3.4.3 Strategic issue management and strategic foresight

The concept of strategic issue management was first introduced by Ansoff (1980), who defines it as "a systematic procedure for early identification and fast response to important trends and events both inside and outside an enterprise" (p. 134).

The notion of Strategic Issue Management (SIM) can be adopted to identify the processes and the resources that the organisation must deploy in response to threats and opportunities arising from changes in the external environment (Ansoff, 1980; Dutton & Ottensmeyer, 1987). The emphasis is put not solely on scanning the environment and interpreting weak signal, but also on taking strategic actions and monitoring implementation. "SIM is a management action (and not only a planning) system" (Ansoff, 1980, p.134).

According to Ansoff (1980), organisations should first focus on setting in place periodic checks of strategic issue *lists* supported by continuous surveillance systems, both outside and inside the organisation; this would ensure early identification of strategic issues. Second, they should secure fast response capabilities though effective assignment of responsibility and authority along the firm's hierarchy, and by avoiding strong separation between planning and implementation.

Because "organizations use strategic issue management systems to enhance their capacity to adapt" (Dutton & Ottensmeyer, 1987, p.355), SIM systems stress the need for timely response. Liebl (2003) introduced a model of issue life cycle, and reveals how the number of opportunities that an organisation has available to react upon a certain strategic issue, tend to decrease over time: as the issue matures, freedom of action is likely to decrease while the cost of influencing the event increases.

Strategic foresight

While strategic issue management focuses on the search for specific strategic issues, and is thus characterized by relatively narrow perspective, the concept of strategic foresight is broader in scope, as its objective is to give organisations a more open visualization of the future (Müller-Stewens, Mueller, & Lüders, 2012, p.65).

Strategic foresight expands the mere research of information by integrating methods and processes that allow for the networking of information gathering activities, analysis and interpretation, together with tools that support the decision making processes and implementation (Cuhls, 2003). "Compared to strategic planning, strategic foresight is oriented towards longer-term time horizon and puts emphasis on using diverse perspectives of different knowledge areas and different actors and stakeholders" (Kim, 2012, p.47).

The literature provides a wide array of definitions and frameworks for strategic foresight. Liebl & Schwarz (2010) argue that foresight processes refer to all the activities that support the organisation in making sense and interpreting weak signals of change in the business environment. Rohrbeck (2008), after an extensive literature review, concludes that strategic foresight involves "methods and techniques to gather, assess, and interpret relevant information and to support decision-making […]; it does not predict the future, but prepares to meet future requirements and opportunities by anticipating a range of

alternative developments" (p. 3). According to Slaughter (2002) "Strategic foresight is the ability to create and maintain a high-quality, coherent and functional forward view and to use the insights arising in organisationally useful way. […] It represents a fusion of future methods with those of strategic management" (p.1).

A comprehensive definition for strategic foresight has been proposed by Müller-Stewens et al. (2012): A "participatory process with the objective of supporting strategic decision-making through the anticipation, analysis, and interpretation of long-term trends in and scenarios of a company's socio-economic environment" (p.4).

Rohrbeck (2008) suggests that a difference should be made between strategic foresight and operational foresight, the latter dealing with threats and opportunities already known to the organisation, and for this reason more similar to the notion of forecasting (p.3).

Looking at strategic foresight from a process point of view, Müller-Stewens et al. (2012) identify three prominent types of process emerging from the literature. The first sees strategic foresight as a process focused on the analysis of the environment to prepare organisations for probable future discontinuities. In the second, the emphasis is placed on the learning process of organisations from evaluating different scenarios. The third type focuses on the creation of a shared vision of the future and the corresponding alignment of organisation's objectives (pp.66-67).

Strategic foresight methods

Several methodological approaches and tools have been developed to support strategic foresight systems, with no *one-best-way* being identified (Kim, 2012; Müller-Stewens et al., 2012). Methods from different disciplines, usually developed in areas where long-term forecasts of high impact events are needed, are usually combined following mostly pragmatic approaches (Aaltonen and Sanders, 2005; Kim, 2012).

Conventional methods include—but are not limited to—trend extrapolation, scenario planning, the Delphi method, cross-impact analyses, decision analysis/models, econometric models, mind mapping, statistical modeling, gaming/simulations, focus group interviews, dynamic modeling, wild cards, and road mapping (Kim, 2012; Müller-Stewens et al., 2012; Slaughter, 2002). The decision about which methodology to deploy should be based on the specific needs of the organisation combined with the prerogatives of the decision maker (Slaughter, 2002, p.5). One challanging aspect of implementing strategic foresight systems effectively is the necessity to combine the different methods together and in the right organisational context (Müller-Stewens et al., 2012; Slaughter, 2002)

Importance of strategic foresight for organisations

"The underlying rationale for strategic foresight is that the world is changing rapidly. The forward view is not an abstraction. Rather, it tells us that there are a number of very real dangers to avoid and an equally impressive number of opportunities to be taken up and developed" (Slaughter, 2002, p.1).

Strategic foresight activities have the potential to represent a source of sustainable competitive advantage for organisations (Kim, 2012, p.45), and to improve a firm's capacity to react to external changes (Day & Schoemaker, 2005; Rohrbeck, 2008). Strategic foresight helps organisations to get of the *big picture* of the sustainability of their business. For

example, “good environmental scanning can alert an organisation to signals in its operating environment that herald challenges to its business” (Slaughter, 2002, p.1).

“Firm-wide, strategic-foresight activities support strategic decision- making, with a main focus either on innovation and exploration or on planning and exploitation” (Müller-Stewens et al., 2012, p.75). In a global survey of senior managers, Day & Schoemaker (2005) found that 81 per cent of interviewees recognized greater need for peripheral vision in the future, as two-thirds “had been surprised by as many as three high-impact competitive events in the past five years” (Day & Schoemaker, 2005, p.136). The same authors, however, argue that the need for foresight does not necessarily mean that every company should “boost its surveillance of the periphery” (p.136): each organisation should pay attention to their actual capabilities and need, which highly depend on the volatility of their business environment (Day & Schoemaker, 2005).

4. Indicators

This chapter introduces the topic of indicators, with intention of identifying the relevant theoretical concepts that should be taken into consideration for the development of a demographic risk index. The chapter combines contributions for academic literature, with notions from existing examples of publicly available indicators in the field of demographic change. The first section of this chapter deals with the relevant characteristics of indicators at a general, conceptual level. The following part discusses the role of indicators in the decision making processes, while the third section aims at presenting the key factors that determine an indicator's success. The final section proposes a selection of existing indicators measuring different aspects and issues related to demographic change at company level.

4.1 Definition and characteristics

4.1.1 Relevant definitions for this project

There is not a universal definition for the word *indicator*, as the term can be utilised in a variety of contexts, and a wide range of tools falling within this denomination are available. According to Merry (2011), a defining aspect of indicators are their use of statistical measures to consolidate complex sets of data into a simplified, meaningful form. Similarly, Hák & Janoušková (2012) argue that indicators are tools whose purpose is to "simplify phenomena of interest to people and help them understand complex realities" (p.29). A comprehensive definition that suits the objectives of this Master thesis is proposed by Davis, Kingsbury, and Merry (2012):

> "An indicator is a named collection of rank-ordered data that purports to represent the past or projected performance of different units. The data are generated through a process that simplifies raw data about a complex social phenomenon. The data, in this simplified and processed form, are capable of being used to compare particular units of analysis (such as countries, institutions, or corporations), synchronically or over time, and to evaluate their performance by reference to one or more standards". (p. 73-74).

An increasingly broad range of indicators are presently in use with different levels of interest and coverage (e.g. international, national, local), with different domains (e.g. environmental, social, economic), and targeted towards different type of audiences (e.g. policy makers, general public, experts) (Hák & Janoušková, 2012, p.10). Providing a complete analysis of this topic is beyond the purpose of this Master thesis; the attention is limited the subset of indicators describing socio-economic phenomena comparable to demographic change.

4.1.1 Defining characteristics of indicators

Drawing from the works of Davis et al., (2012), Merry, (2011) and Hák & Janoušková, (2012), it is possible to identify five core characteristics that define socio-economic indicators: a) denomination, b) ordinal structure, c) simplification d) evaluative purpose and e) proposed objectivity.

a. Denomination

"One of the critical ways an indicator produces knowledge is by announcing what it measures" (Merry, 2012, p.84). Labelling the indicator is an essential step in its creation, and strictly linked the proposed descriptive and representative power that the indicator ought to possess. Davis et al. (2012) observe that naming the indicator, an activity that marks the moment it is officially brought into existence, itself represents a simplified process of what the instrument purports to measure. In fact frequently the object(s) measured are not self-evident, but they become apparent only once an organisation, by interpreting the meaning of specific figures and data, labels the corresponding indicator (Merry, 2011).

b. Ordinal structure

Indicators, through their numerical abstraction and standardization process, typically allow for the comparison and/or ranking between different units, cases or cluster of cases (Davis et al., 2012; Merry, 2011; Stevanović Tošović, 2011).

c. Simplification

"An indicator simplifies phenomena of interest to people and helps them understand complex realities" (Hák & Janoušková, 2012, p.29). A defining characteristic of an indicator is its capacity to take raw data from complex phenomena and to present them into a simplified, unambiguous and understandable form (Davis et al., 2012; Merry, 2011). The simplification process can involve aggregation, filtering, weighting or elaboration of quantitative and qualitative data from single or multiple sources, using a wide range of analytical techniques (Davis et al., 2012; Kaufmann & Kraay, 2007). Indicators "represent a technology of producing readily accessible and standardized forms of knowledge" (Merry, 2011, p.84).

d. Evaluative purpose

Davis et al., (2012) argue that a defining function of indicators is to set standards against which performance can be measured, and for this reason they embody an implicit theoretical claim about the most appropriate standard to evaluate a certain aspect the world.

e. Proposed objectivity

Indicators' attractiveness in decision-making processes comes from their aligned functions as both a scientific and objective base for evaluation (Davis et al., 2012). "Indicators replace judgments on the basis of values or politics with apparently more rational decision making on the basis of statistical information" (Merry, 2011, p.85).

4.2 Indicators' role in decision making processes

The use of an indicator is common in a broad variety of decision-making processes in organisations and institutions, at a local, national and international level. Indicators can be used for the evaluation and promotion of global governance policies, measuring phenomena as diverse as economic development or the effectiveness of legal systems, to cite two examples. Indicators are also used at a much confined organisational level, where they can be used for monitoring the implementation or effectiveness of various corporate activities such as CSR initiatives (Merry, 2011). Though their applications and shapes are

heterogeneous, it is possible to identify four basic functions of indicators in decision-making processes.

a. Efficient use of information

Given their intrinsic simplification function, the use of indicators in decision-making processes can reduce the burden of processing otherwise complex and disperse information (Davis et al., 2012). In turn, "reliance on indicators should reduce the time, money, expertise, and other resources required to make decisions" (Davis et al., 2012, p.84).

b. Data-driven decision making

Indicators are attractive to decision makers because processes that are backed by indicators can be presented as scientific and objective (Davis et al., 2012). Indicators infuse a measure of objectivity in the decision processes also by providing "a valuable check on possibly out-dated assumptions" embodied in the existing decision-making processes (Van der Eerden & Saelens, 1991, p.25).

c. Benchmarking

Indicators allow decision makers to compare variables and assess relative competitiveness and risk with regard to the selected topics (Stevanović Tošović, 2011). They permit decision makers to monitor the evolution of other actor's achievements over time and to benchmark performance measures (van der Eerden & Saelens, 1991).

d. Link decision makers across different level of influence

Indicators can serve as a link between different groups of interest and influence: Hák and Janoušková (2012), for example, argue that if indicators are effectively embedded in policy making processes, they can represent a valid transmission mechanism to connect research and policy. Similarly, Iasiello (2008) observes that the use of indicators at a local level can initiate change at a higher level of the decision-making hierarchies, by bringing more actors together, starting as early as the development stage of the indicator itself.

4.3 Key requirement for successful indicators

Before identifying the underlying determinants of indicators' success, it is important to clarify the meaning of *success* in this context. In line with Iasiello (2008), it is reasonable to assume that the purpose of an indicator is to be useful; therefore its success can be defined as the degree of constructive and appropriate use by its target audience.

Based on the review of the available literature on socio-economic indicators, the following six factors can be identified as the major determinants of an indicator's success.

a. Transparency

Davis et al. (2012) and Porter (1995) highlight the critical role of transparency in ensuring an indicators' objectivity, and argue that an effort should be made to give third parties access to information regarding the data used and the methodologies applied. The Organisation for Economic Co-operation and Development (OECD) stands as one of the best examples in transparency for the economic indicators it publishes. The organisation strives to guaranty data quality under a number of dimension "including accuracy, timeliness, relevance, accessibility and in the international context, comparability" (OECD, 2000, p.7). To ensure the understanding and transparency of the indexes published, the organisation provides extensive methodological information, which is easily available to internal and external

users, covering data sources, classifications, series brakes, definitions, collection methodologies and calculations (OECD, 2000).

b. Audience fit

Hák and Janoušková (2012) argue that given its inherent communication purpose, it is "the capacity of the indicator to reach its target audience that determines its use and potential success" (p. 34). The authors identify three typical groups of users, namely technical users, professional users and public users. The three groups present decreasing expectations regarding the level of detail and complexity of data conveyed, moving from public to technical users, with professional users in between (Scrivens & Lasiello, 2010, p.9). Encouraging the participation of the target audience during the developing phase of an indicator can increase the chance of matching its interests and developing an attractive tool (Hák & Janoušková, 2012). Moreover, as a successful indicator should invite a user's action, a sponsoring organisation should be very realistic about what an indicator can achieve (Iasiello, 2008).

c. Relevance

An indicator should be relevant to a specific target audience's decision making processes (Hák & Janoušková, 2012; Cash et al., 2002). Indicators are deemed successful when they measure something that the decision makers believe they can directly or indirectly influence, and when the event, issue or process reproduced by the indicator is considered important and pressing (Hák & Janoušková, 2012).

d. Understandability

Merry (2011) highlights the importance of producing indicators that are simple in their conception and easy to be interpreted, therefore adapted to be readily understood by the target audience. Hák and Janoušková (2012) observed from empirical research on media coverage of different indicators that their success benefits from delivering meaningful concepts in a simple, understandable and easily communicable way (Hák & Janoušková, 2012).

e. Consistency

The importance of consistency applies from both an internal as well as an external perspective. On one hand, and indicator gains from providing unequivocal data over a relevant time interval, always in accordance with defined, consistent methodologies (Davis et al., 2012; Hák & Janoušková, 2012). On the other hand, the value of an indicator is strengthened if its outcomes are comparable and consistent with the results coming from other indicators or other data sources covering similar areas of interest, issues or activities (Stevanović Tošović, 2011; Hák & Janoušková, 2012).

f. Credibility and legitimacy

Credibility is determined by the perception of technical adequacy and scientific soundness of the tool (Cash et al., 2002). Davis et al. (2012) observe that the positive judgment and eventual endorsement of a scientific community with adequate authority in a relevant field can be a powerful source of legitimacy for an indicator. Legitimacy concerns the environment's perceptions regarding the indicator's sponsoring organisation and the quality of its production process (Cash et al., 2002). Besides the requirement of high quality data based on sound statistics, an aspect that is partially fulfilled by meeting the transparency

requirements, legitimacy can be achieved thanks to the neutrality and impartiality of the indicator promoter (Davis et al., 2012; Hák & Janoušková, 2012). Iasiello (2008) further notes that including the target users and technical experts in the indicator's production from its early stages can help in building trust in the legitimacy of the tool.

4.4 Selection of existing demographic indicators

This section proposes an overview of the main characteristics and construction methodologies of selected indicators within the scope of demographic change, designed for use at company level to assess and monitor demographic related risks and opportunities. For each of the cases analysed, Appendix A offers a schematic evaluation of the indicators in light of the core function in decision making processes (chapter 4.2) and the key success factors identified in chapter 4.3.

4.4.1 Work Ability Index

The Work Ability Index (WAI) is a tool designed for companies to assess the ability of their employees to work and complete tasks in relation to their age. The index is not part of a publication effort by a sponsoring organisation, but rather a standardized evaluation method to provide comparable results, stemming from a Finnish academic research program. Its objective is to identify and call attention to the latent risks arising from health conditions and the retirement schedule of employees within an organisation. The main advantage of the indicator lays in its early warning function, as it gives organisations the chance to spot potential risks in their early stage, when there is still time to initiate proper strategic counteractions. Companies have access to a range of suggested initiatives, corresponding to each specific issue identified by the index, in the accompanying WAI *guidelines booklet*, together with indications on follow-up and monitoring activities (Tuomi, Ilmarinen, Jahkola, Katajarinne & Tulkki, 1998).

According to the Finnish Institute of Occupational Health (2011) "The index is determined on the basis of the answers to a series of questions which take into consideration the demands of work, the worker's health status and resources. The worker completes the questionnaire before the interview with an occupational health professional who rates the responses according to the instructions." The focus of the questionnaire is not the evaluation of organisational human resource (HR) policies, but on the self assessment of employees' perceived working ability (Morschhäuser & Sochert, 2006, p.34).

The WAI is a summary measure of seven items, including illnesses and absence days, sickness-related decrease in job performance, and mental abilities, which results in a score ranging between 7 and 49 (Ageing at Work, 2008). WAI scores can be calculated for individual employees, groups of workers, departments or entire companies, and repeated measurements permit tracking of progress in the implementation of health promotion initiatives. Averages are available for different occupational groups and age classes, allowing for benchmarking between single company and target reference group(s) (Morschhäuser & Sochert, 2006, p.39). There are currently initiatives being promoted to expand the reach of the index: at the Federal Institute for Occupational Safety and Health in Germany has started the construction of a *WAI network*. The objective of the institute is to become a reference

platform for WAI measurements and create a large database to permit the production of meaningful statistics.

4.4.2 Demographic risk map

The Demographic Risk Map (DRM) is the result of a collaboration initiated in 2007 between the Laboratory Demographic Change managed by the companies BASF, Evonik, SAP, Econsense, the Forum for Sustainable Development of German Businesses, and the Ageing Labour Force-Research Unit of the Rostock Centre for the study of Demographic Change, an academic research institute.

The Demographic Risk Map is a tool "conceived to help companies integrate demographic change into their strategic planning. It informs, separately, about Regional Demographic Change and Regional Demographic Location Risk" (Laboratory Demographic Change, 2007). The indicator comprises two separate instruments: the Regional Demographic Change Index (RDC), and a composite measure of Regional Demographic Location Risk (RDLR) (Tivig et al., 2008).

The RDC index measures the extent to which demographic change is happening in a given region, factoring both population ageing (measured as change in mean age over time) and population shrinking (measured through negative percentage change in population densities).

The RDLR provide a score for 260 European regions obtained by evaluating the expected impact for companies of regional demographic change dynamics, basing the evaluation on four separate perspectives: Labour Supply, Human Capital, Labour Productivity and Research & Development.

According to the Demographic Risk Map's sponsoring organisations, "demographic change is a two-dimensional concept that cannot be captured by a single indicator. We therefore construct measures that account for both population ageing and the perspective of population shrinking. The scope is to provide firms with aggregated, comparable information about the extent, timing and pattern of demographic change in the European Union" (Tivig et al., 2008, p.11). The indicator does not provide industry-specific or company-specific measurement or data, but rather focuses on measuring and forecasting regional demographic developments over time, while highlighting geographical differences. According to its creators, the RDLR "is based on the conviction that demographic change is not a location factor by itself but that demographic developments entail specific risks and opportunities for certain location factors" (Tivig et al., 2008, p.33).

4.4.3 Adecco demographic fitness index

The Adecco Demographic Fitness Index (DFI) is a survey-based research project conducted between 2006 and 2008 by the Adecco Research Institute to assess the state of preparedness by the European corporate landscape with regards to the mega-trend of population ageing.

"The 2007 survey is based upon a sample of at least 500 interviews per country – a total of 2506 interviews with companies of all sizes in the five major European economies (Germany, France, the UK, Italy, and Spain), making it Europe's biggest survey on demographics in the business world" (Adecco Institute, 2008, p.2).

Adecco collected data through computer-assisted telephone interviews (CATI) from a sample of large and medium size companies (revenues respectively above 50 million euros, and between 10 and 50 million euros), from the industrial, services and trade sector.
The interviews were designed to assign scores to companies in five different areas analysed: Career Management, Lifelong Learning, Knowledge Management, Health Management, and Diversity Management. These topics were chosen because according to the institution they represented the critical strategic areas at the base of companies' ability to deal with and leverage on ageing workforce trends.

Firms were evaluated based on the their self-reported level of implementation of different activities, generating a *demographic fitness score* between 100 to 400 points. The index should serve as a tool to measure "the extent to which European companies are preparing for the realities of an increasingly ageing workforce" (Adecco Institute, 2008, p.5).
Scores are also compounded to produce country and regional averages, setting the basis for creating time series thanks to periodical measurements. These scores are useful in evaluating how Europe is preparing for and reacting to demographic change over time.

5. Rationale for the development of a demographic risk indicator at company level

The objective of this chapter is to build on the concepts presented in the previous sections, to first justify the need for a demographic risk indicator at company level, and second to identify a set of possible alternative themes or variables that could be measured by the instrument.

5.1 DRI rationale

The rationale can be based on a series of observations on the characteristics on demographic phenomena, the integration of mega-trends into companies' strategic planning and the characteristics of indicators in general.

First, the form of an indicator shows that it is a good fit as a tool to convey demographic information. Demographic dynamics are complex: chapter 2.1 showed that demographic movements are the result of the interrelation of multiple factors, whose development over time is influenced by multiple underlying causes and trends. Chapter 2.2 showed that although an ageing population is a pervasive mega-trend, there are noticeable geographical differences and irregularities (chapter 2.2.1), while chapter 2.3 gave a glance at the complexities behind demographic forecasts.

By definition, an indicator, as presented in chapter 4.1, has the characteristic of simplification: it shows that perfect structures do capture the complexity of different demographic phenomena and presents them in an objective, accessible, comparable and quantifiable way. The aforementioned uncertainties and difficulties linked to demographic forecasting can be overcome in a valid demographic indicator by meeting all the key requirements of success presented in chapter 4. In particular, ensuring credibility, legitimacy and transparency should represent a priority for the sponsoring organisation.

Chapter 3 discussed the importance of the environment and its mega-trends for companies' long-term sustainability, and the necessity of adopting strategic foresight methods to integrate trends into corporate strategic planning. Ageing population is a relevant mega-trend that, given its irreversibility, has a potential impact on advancement (chapter 2.2), and thus needs to be taken into consideration by businesses.

First, companies would benefit from a demographic risk indicator because it would facilitate the scanning of the environment and identification of potential issues (chapter 3.4.1), by giving clear visibility to the topic and its implication for businesses. Second, a DRI would aid companies in the interpretation step (chapter 3.4.2) of signals deriving from demographic trends; it could convey information efficiently, avoiding information overload and facilitating interpretation of data particularly in organisations where no demographic experts are available. Third, the existence of a demographic risk indicator would facilitate the strategic foresight processes (chapter 3.4.3) by fostering objective, data based decision-making when assessing and responding to threats and opportunities of demographic trends. Figure 4 summarises the logic behind the function of the indicator and its input role in organisation's foresight processes.

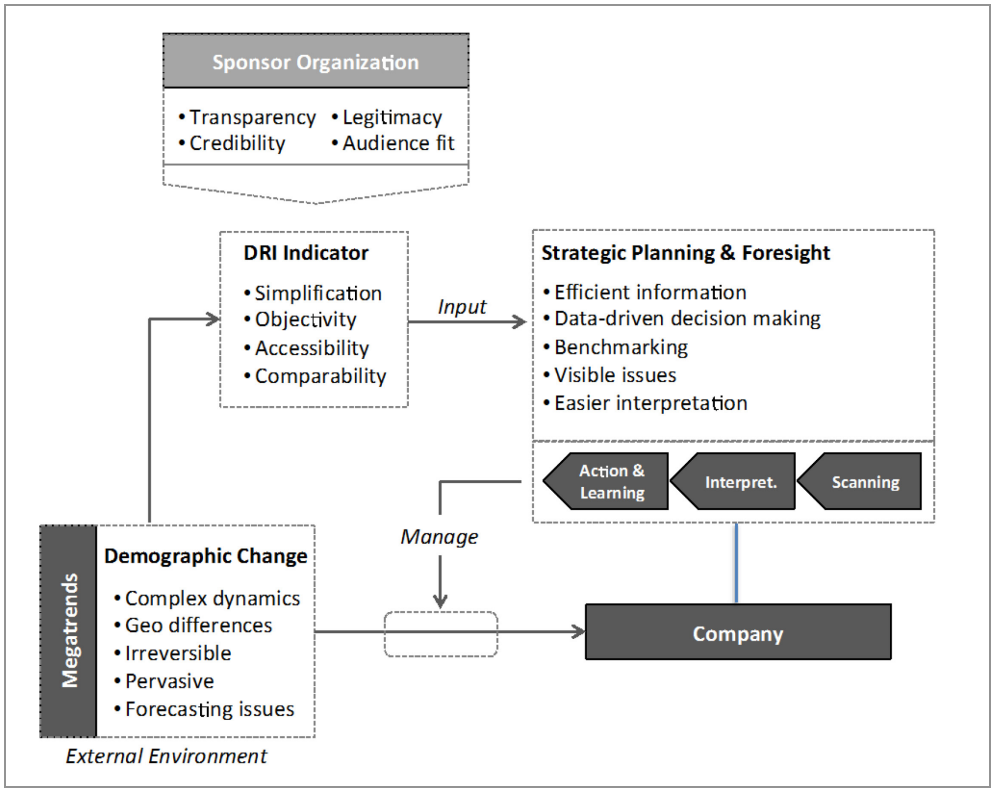


Figure 4: Rationale for DRI at company level

5.2 DRI potential themes

Drawing from the previous section, and in particular from the existing demographic indicator experiences presented in chapter 4.4, four possible *content themes* for the DRI were identified. These choices were made keeping in mind the focus on population ageing in this thesis, using Switzerland as a reference market.

1. The DRI could focus on age structures of industries and companies, and develop projections using appropriate methodologies to forecast the expected development over the years. Different levels of sophistication are possible such as identifying geographical peculiarities and industry-specific modelling techniques.
2. The indicator could focus on workforce availability and characteristics, highlighting factors such as geographical differences, industry specific requirements and specific job figures.
3. The indicator could simply focus on the providing demographic projections for the target market and customers of a specific industry.
4. The DRI could monitor and report the state of implementation of different initiatives aimed at managing demographic change within an industry, with benchmarking and risk assessment purposes.

To further expand on the potential content of a demographic risk indicator, the next chapter proposes a deep-dive into the implication of population ageing at company level, and discusses remedies and strategic action available to organisation.

6. Ageing population and strategic planning: effects of the demographic transition at company level

Technological, social, political and economic trends that influence the business environment in the modern, globalised economy are extremely complex phenomena, often too complex to be used as the primary driver for strategy development. However, one area of trend analysis stands out for its level of predictability: "population demographics, whose characteristics may be predicted to a high level of certainty as the young and middle-aged of today become the old-aged citizens of tomorrow" (Tempest, Barnatt, & Coupland, 2002, p.475).

The phenomenon of ageing population is inevitable, and compared to other global mega-trends cannot be simply legislated against: companies are thus asked to increasingly pay attention to the implications, either the challenges or the opportunities (Kunisch, Boehm, & Boppel, 2011, p.11). Firms will have to face "the challenge of long-range strategy development for surviving and thriving in the 'grey economy' of tomorrow, […] no longer something that any businesses may sensibly ignore" (Tempest, 2002, p.476). If companies want to effectively manage demographic changes, they must understand thoroughly how the transition towards an older society will impact their businesses (Kunisch et al., 2011), and the successful management of this trend will mostly depend on executives' leadership capabilities (Kunze, Boehm, & Bruch, 2011, p.87).

The broad set of implications for businesses of the global ageing population trend, can be classified under three major perspectives: i) the economic and social perspective (the political and social environment); ii) the human resources and leadership perspective (labour side of the equation); and iii) the innovation and marketing perspective (demand side of the equation)(Boehm et al., 2011, p.14).

This chapter focuses solely on the last two aspects, as they are the most directly linked to the company dimension. The chapter proposes an overview of the literature contribution in this field, summarised in Appendices B and C.

6.1 The labour side of the equation

Effects on labour supply and changes in labour force characteristics are probably the less surprising outcomes of the ageing population trend. Until recently only a "few employers have adopted demographic techniques to project their future labour force and indicate the need for policy shifts to achieve the optimal size and age structure of their labour force" (Clark & Ghent, 2010, p.66). A key aspect of long term strategic planning for any company is, in fact, the efficient alignment of labour inputs with the desired level of output. Firms' attentions are not merely confined to the determination of the optimal number of workers, but other consideration such as productivity, age structure of the workforce and costs associated with various cohorts of employees become of central relevance (Clark & Ghent, 2010).

The challenges and opportunities that companies face in managing a progressively ageing actual and potential workforce are diverse. At a conceptual level, it is possible to

distinguish between quantitative and qualitative effects on labour supply, where qualitative characteristic of workforce composition may be the underlying determinant different secondary components such as health, safety, and lifelong learning (Road, 2010, pp.7-8).

Alternative frameworks exist to group and classify the set of issues that companies will face. Kuebler, Mertens, Russell, and Tevis (2009) identify five major challenges for employers, namely: i) innovation; ii) older worker retention; iii) adaptation to older worker's need; iv) control of associated costs; and v) other issues. Mertens, Russell, and Steinke (2011) suggest a division of demographic issues into three categories: i) potential knowledge drain from workers retirement; ii) accommodations for older workers; and iii) strategies for operational survival with fewer workers.

This thesis proposes a more comprehensive classification, achieved by combining the framework proposed by Boehm et al. (2011, pp.11-12) with contributions from Huber and Groth (2013). An ageing population will bring six primary challenges to organisations: i) shrinking labour supply; ii) ageing workforce; iii) increasingly age-diverse workforce; iv) retirement and knowledge retention; v) feminization of workforce; and vi) international migration of workforce.

The next sections analyses each aspect separately, identifying key components and explaining its impact dynamics in order to outline suggested remedies and corresponding strategic actions.

6.1.1 Shrinking labour supply

Despite a growing global population, employers are confronted with the challenge of recruiting from a shrinking workforce due to population ageing: for the first time in the European labour market the number workers retiring outnumbered the ones who joined the workforce in 2012 (Ernst&Young, 2013).

A study for the European Commission observes that even before 2012, a shortage has been experienced in some regions of both low-skilled and high-level-qualification workers, driven by a shift in demand towards workers with higher educational levels on one hand, and by the upcoming mass retirement of low-skilled workers from the *baby boom generation*[3] on the other (Road, 2010). The availability of a skilled workforce is contracting not only in advanced economies but also in emerging markets (Ernst&Young, 2013). One observable consequence of a shrinking workforce pool is the so called *war for talent*, a term that first appeared in a 1997 McKinsey publication, and is now widely in used to indicate the environment of increasing competition for recruiting and retaining talented personnel (Michaels, Helen, & Axelrod, 2001). The 2013 Talent Shortage Survey from Manpower reports that 38 per cent of the over the 38.000 employers surveyed worldwide are experiencing difficulties filling positions because of talent shortages in their market (Manpowergroup, 2013). Competition over skilled workers is expected to become increasingly intense in the sector where high skill levels and extensive education are required (Ernst&Young, 2013) due to the necessary time lag occurring between the demand for skills coming from the corporate world and the capacity of the educational system to provide them (Dychtwald, Erickson, & Morison, 2004).

[3] People born between 1946 and 1964 according to the U.S. Census Bureau (Werner, 2011)

Kunze et al. (2011) observe that, given the progression of the war for talent, any company will eventually have to rely on at least some older employees in order to remain competitive. Perlitz et al. (2010) observe that the war for talent eventually develops into a "war for employees" as the availability of workers progressively shrinks (p.164). In this case the risk of being crowded out from the top-skilled labour market segment could be particularly high for Small and Medium Enterprises (SME), which often "cannot afford attracting employees by paying high salaries or offering expensive benefits" (Perlitz et al., 2010, p.164).

Given the contracting number of active workers, employee bargaining power is also expected to grow, with workforce's priorities and preferences playing an increasingly important role in shaping the characteristics of the future work place (Ernst&Young, 2013). Lower loyalty to the employers could also result from a changed labour market environment, with employees starting to consider periodic job changes as a means of obtaining pay raises and promotions (Kiriazov, Sullivan & Tu, 2000).

Strategic actions and remedies

According to Nyce and Schieberg (2005), in order to solve the problem of projected labour shortfalls, there are two areas where companies can intervene: the first is productivity and the second is labour force participation. Huber & Groth, (2013) further develop the analysis separating workforce participation between participation of older workers and participation of women, and observing that international migration also represents another crucial lever.

With respect to older worker participation, Maestas et al. (2010) observe that the actual impact of population ageing in the future will largely depend on how long people choose to work before they retire from the labour force. According to Sanders and McCready (2010), tapping into the pool of older workers by attracting them back into the labour force or by incentivizing them to postpone their retirement, could help mitigate the effect of the talent shortage (as cited in Huber & Groth, 2013, p.4)

Purcell (2007) identifies in management tools, such as defined contribution pension plans and phased retirement, the most effective means to encourage employees to continue to work when they reach retirement ages. Alternative solutions include the implementation age of management initiatives: companies can start strategies to retain workers belonging to different age groups while maintaining a motivated and productive workforce (Kunisch et al., 2011). Specific actions comprise the "abandon [of the] oftentimes prevalent youth-centric HRM practices in favour of age-neutral HRM that is inclusive of the entire workforce, regardless of age" (Schroder et al., 2011, p.101).

6.1.2 Ageing workforce

Although the effect of the shortfall in skilled labour will not be felt heavily until ten or twenty years later, the phenomenon of an ageing workforce is already evident in most economies, and the process is destined to accelerate further (InitiatiInitiative Neue Qualität der Arbeit (INQA), 2004; Thun et al., 2007).

According to the definition of the OECD, "older workers" are the employees 50 year or older (Martin & Durand, 2006). As the average workforce age is increasing in most job

markets (Kunisch et al., 2011), the share of old workers in companies is expected to increase, consequently driving up a firm's median age significantly (Perlitz et al., 2010). The transition from a relatively young workforce towards an older one is a process that is endogenous to each firm, and despite being driven by the underlying mega-trends of an ageing population, companies' transition rates are likely to be more volatile than those for national populations, as other factors such as turnover and firm-specific age structures come into play (Clark & Ghent, 2010, pp.66-67).This process can lead companies into a potential demographic trap: "If a company has an unbalanced workforce in terms of age at present, it might be caught by a demographic burden in the future" (Thun et al., 2007, p.2).

Skills and abilities of individuals change over time along with age, thus workers from different age groups tend to contribute differently in the production and organisational process: each firm will have an optimal, desired age distribution structure to meet its specific requirement (Clark & Ghent, 2010). The mega-trend of ageing populations will likely derail the organisation's age structure from today's desired or optimal level . Whether this long-term shift will be followed by a drop in performance depends on how a firm will manage the transition.

The ageing worker

Negative attitudes towards older workers are still widespread in most developed economies, which reflect prejudiced HRM practices that tend to privilege a younger labour force (Martin & Durand, 2006, p.2). Older workers are commonly perceived as lower performing with regard to new techniques and skills, new technologies and an inability to adapt; it is a biased attitude that can turn into self-fulfilling prophecy if older workers mentally and emotionally disengage from the workforce (Tempest et al., 2011). "While age itself is not a disability, nor is it defined as such [...] there are disabilities which disproportionately affect older workers." (Ellis et al., 1999, p. 104)

Welford (1977), introducing a model of *decremental performance of individuals* based on empirical research findings, argues that as people grow older they become increasingly disadvantaged due to physiological and psychological processes. Through these natural processes, workers experience a decline in speed as well as some physical and mental capabilities (INQA, 2004). From a psychological point of view, examples of commonly recognized effects associated with older age in the working context include reduced resilience under stressful working conditions, lower risk propensity, minor perception faculty, and longer time to process information (Thun et al., 2007). Meanwhile, some other mental abilities, often stemming from experience, increase or even start emerging only as age progresses. Examples include the ability to resolve complex tasks, flexibility on working hours (no children), objectivity, and decision-making capabilities (INQA, 2004).

From a physical standpoint, age is usually linked to an increased level of morbidity, as older workers tend to call in sick for longer periods, and in general have to work more intensively to maintain the same level of output (Loch, Sting, Bauer, & Mauermann, 2010; Karlsson & Klohn, 2011). Karlsson and Klohn (2011) however observe that age alones is not a reliable predictor of morbidity and associated care costs. Rather, the concept of *time to death* should be considered: as life expectancy increases, the period in which elderly need

assistance is simply postponed, making age alone not a reliable indicator of an individual health risk.

The link to organisational performance

While the effects of the ageing process on individuals are well documented, the relationship between an ageing workforce and a company's performance is complex and not necessarily negative. According to Martins, Gonand, Antolin, Maisonneuve and Yoo (2005) despite labour productivity being affected by an ageing workforce through the changes in an individual's physical and mental abilities, the actual impact on individual productivity is controversial. Backes-Gellner and Veen (2009), in measuring productivity at the firm level, have observed that individual ageing is less important than ageing considered at organisational level.

Older workers are often stigmatized for their inferior performance potential, especially with respect to productivity and motivation (Becker, Bobrichtchev & Henseler 2004), according to Thun et al. (2007) "The results of studies concerning the relation between age and performance can be summarised in a way that no simple linear decreasing effect exists and a variety of mediating factors come into play" (p.4). Indeed, older workers can perform as effectively as younger colleagues, especially if the task requires experience and expertise, particularly if the environmental context is such that the workers can enjoy flexibility, retain motivation, and receive support and appropriate training (Hedge/Borman/Lammlein 2006). Thun et al., (2007) in an empirical study on the German manufacturing industry, compared the perceived importance of different worker's characteristics to complete selected tasks, with the relative performance of older workers as perceived by the respondents. The results showed that with regard to practical knowledge and experience, older workers appear to outclass younger ones, while factors such as creativity, physical resistance and fine motor skills are not considered to be a critical driver of individual performance by the average respondent. Older workforces seem particularly suited to support quality-focused manufacturing strategies (Thun et al., 2007). Ageing economies could turn their ageing workforce into an asset if they could set up the appropriate structures for leveraging their valuable accumulated knowledge and work experience (Wolf, 2011, p.82).

Strategic actions and remedies

Traditional attempts to manage the issues of an ageing workforce have focused on actively lowering the organisation's internal age structure through the use of different levers. Undesirable changes in the age distribution have been addressed by employment policies such as the firing of older workers, early retirement programs, mandatory retirement or changes in recruiting policies (Loch et al., 2010; Clark & Ghent, 2010). A similar approach consists of moving older workers to less demanding activities, a viable option only if enough younger workers are available to replace them (Loch et al., 2010). Relying on models of decreasing performance of ageing workers is still a common practice in many organisational decision-making processes, leading to an *a priori* preference towards younger workers solely on the basis of assumptions about their productivity (Thun et al., 2007)

A research by Manpower (2013) on a global talent shortage indicates that among employers that turn to talent sourcing remedies to close skill gaps, only 2 per cent are

recruiting from the *older worker* talent pool globally. An earlier study showed that in the German market, less than 20 per cent of German companies systematically recruit or retain people aged 50 or above, in an effort to pursue strategies of rejuvenating the workforce (Manpower Inc., 2007).

With a global marketplace becoming more *senior*, more proactive approaches to address the ageing workforce phenomenon are required.

One common suggested strategic action requires organisations to adapt their processes to take into account the different needs and skills of older employees (INQA, 2004). Eckardstein (2004) argues that companies' working environments should be redesigned to reduce both the physical and mental strain of older workers, including the promotion of a healthier working environment through the implementation of an ergonomic workplace and optimized work processes (INQA, 2004). Schroder et al. (2011) take a broader and more radical approach, and suggest that companies should adopt old-age-suitable health management systems and age-neutral HRM. Old-age appropriate health management should include arrangements for scheduling of appropriately timed breaks, reduction of work demands and pressures according to age requirements, and health promotion activities (Schroder et al., 2011, p.108)

Age-neutral HRM practices should "promote the avoidance of de-qualification through life-long learning; systematic change in positions through job rotation, and job enrichment; flexible working hours; and age-mixed teams" (Flynn & McNair, 2007 as cited in Schroder et al., 2011, p.103). In the scope of HRM practices, the importance of training for all age groups has been often regarded as a critical factor in maximizing the potential of an ageing workforce. A recommended strategy is to foster intergenerational learning through the systematic and continuous use of mixed-age teams or through dedicated training for older employees (INQA, 2004, pp.5-6). To effectively support and monitor the implementation of all the older-worker-specific initiatives, Thun et al. (2007) suggest that improvement in the age-specific performance assessment should also represent a priority.

6.1.3 Increasingly age-diverse workforce

"Triggered by demographic change, age diversity in the workplace is increasing more strongly than other diversity dimensions such as gender and nationality" (Boehm, Baumgaertner, Dwertmann, & Kunze, 2011, p.123). It's now more common than in the past to find individuals from three or four generations working side-by-side in the same organisation: this tendency is expected to strengthen in the future and the implications of this discontinuity are mostly unclear (Kunisch et al., 2011)

The term generation or cohort refers to portions of the population that share common historical and social life experiences, such as world events, politics, culture and economic circumstances (Jurkiewicz and Brown, 1998; Smith & Clurman, 1988).

Kunze et al. (2011), in a study focused on the German workforce, identify and categorize five different generation groups currently active within German companies, namely the "Post-War Generation" (born 1935-1945), "The Economic-Boom Generation" (1946-1955), "The Baby-Boom Generation" (1956-1965), "The Golf Generation" (1966-1980), "The Internet Generation" (1981 onwards) (p.87). The knowledge concerning the implications and

impact of increasing age diversity lacks consistency (Boehm, Baumgaertner, et al., 2011, p.121); the authors observe that within the scope of age diversity research, three different perspectives can be identified: the relationship with performance, the impact on turnover, and the implications for conflicts.

Empirical findings on the impact of age diversity on performance are not consistent, and there is no strong evidence for any measurable effects of age diversity on performance (Williams & O'Reilly 1998). Wagner, Pfeffer, and O'Reilly (1984) investigate the diversity-turnover relationship and conclude that diversity appears to directly influence turnover, as employees who differ the most from the rest of the workforce have greater chances of leaving the organisation. According to Wolf (2011) multigenerational workplaces represent a potential challenge for companies because the different work values and beliefs shared by different age groups would lead to a higher probability of conflicts. "Differing goals and values in work and life increase the chance that one generation will have difficulties understanding the other. This conflict potential is exacerbated because many of these assumptions are not explicitly articulated but implicitly guide our behaviour" (Wolf, 2011, p.79). Empirical studies confirm, in fact, the academic suggestion that age may influence work values: different generations tend to assign unequal importance to factors such as status, autonomy, working conditions, security, and compensation (Hansen & Leuty, 2012). However, Boehm et al., (2011) make the important observation that empirical studies show inconsistent links with conflicts: other contextual factors, such as culture, cooperation, teamwork, task complexity, leadership and fault lines may play important moderating roles in the diversity-conflict relationship (pp.131-133). In investigating the impact of age diversity on organisations, Kunze et al. (2011) note that given the need to align leadership behaviour to employees' requirements, age diversity poses a new challenges for companies because individual leadership preferences are strongly influenced by generational imprinting (p.89).

Strategic actions and remedies

Companies need to promote diversity and inclusiveness in order to cope with expected increasing age-diverse workforces (Ernst&Young, 2013). Wolf (2011) suggests that organisations should rely on specific diversity functions or departments to identify emerging issues and manage age diversity in the workplace effectively (p.81). Boehm et al. (2011) propose a practical framework to identify the appropriate strategic action to be pursued in order to cope with increasing age diversity within organisations. The author differentiates between actions to be taken at organisational and at management level. Organisational-level interventions consist of: i) deliberate composition of a team to actively manage and control age diversity; and ii) diversity training to raise awareness among the workforce (pp.134-136). Team dynamics are particularly relevant because, as observed by Bruch, Kunze, and Boehm (2010), appropriate team composition can determine whether age diversity has a positive or negative effect on the organisation. Training initiatives should be implemented because frequently, the members of the organisation are unaware of both opportunities and risks arising from age diversity (Kunze et al. 2010).

Management-level interventions call for i) the adoption of transformational leadership and ii) the enhancement of interaction between age diverse groups. According to Kunze et

al. (2011) organisations should adopt a generational leadership behaviour: leadership capabilities should be adjusted to suit all five generations composing the workforce in order to "create a work environment that enables the sustainable commitment, satisfaction and productive engagement of all five generations in the workforce" (p. 95). The activities designed to increase interaction between workers from different generations serve to support the formation of a shared identity within the organisation (Boehm et al., 2011, p.136).

6.1.4 Retiring age group and knowledge retention

In coming years, a wave of retirement affecting workers belonging to the baby boom generation will place significant pressure on organisations in term of retention of knowledge (Kunisch et al., 2011). Due to dominant recruiting policies and contextual economic factors, in the last decade older workers have been disproportionally affected by job cuts, while unfavourable economic circumstances allowed relatively few young workers to enter the workforce, leaving the middle-aged baby boomer generation particularly well-represented in most companies' age structures (INQA, 2004, p.7). In the United States, for example, 76 million baby boomers are expected to leave the workforce while only 46 million workers of the previous generation are currently available to take their roles (Houlihan, 2009, p.8). As this age group approaches retirement, "the potential loss of knowledge and expertise that could occur when baby boomers retire could be catastrophic" (Trugman-Nikol, 2011, p.55).

In many organisations, the baby boomer generation may account for up to half of the overall workforce (INQA, 2004), and has been primarily responsible for the increase in productivity and innovation of the last decades (Voelpel et al., 2007). Companies that hired a relatively large group of young workers from this generation may soon face the sudden loss of many senior employees with vast institutional knowledge, experience, and customer contacts (Clark & Ghent, 2010; Kunisch et al., 2011). According to Ashworth (2006), the workforce ageing process will cause above average levels of turnover within industries: changing internal age structures should represent a primary HR concern due to the potential loss of knowledge caused by retirement-driven turnover (p.1159). "Turnover due to sustained high rates of retirement in work groups is associated with high rates of knowledge depreciation" (Ashworth, 2006, p.1678). Companies are particularly vulnerable with regard to *tacit knowledge*, because the age group retiring is the one most strongly associated with leadership and customer-facing positions (Dychtwald et al., 2004, p.50). Moreover, knowledge loss can amplify other effects arising from an ageing labour market, such as talent shortage, by complicating the learning process of the newly hired employees, or making it impossible in cases of entirely lost tacit knowledge (Ashworth, 2006, p.1676).

Strategic actions and remedies

"Throughout the supply chain, aging of human talent and retirement requires firms to anticipate and prevent the negative effects of losing knowledge and skills" (Reinmoeller, 2011, p.157). To impede the brain drain arising from the retirement of experienced personnel, companies must capture the business-related knowledge of the employees approaching retirement ages before they leave the organisation, through the implementation of knowledge transfer strategies and knowledge management programs

(Trugman-Nikol, 2011; Houlihan, 2009; Tempest et al., 2011). According to Houlihan (2009), companies should develop a clear knowledge transfer strategy, where mentoring programs should constitute a central activity, whose implementation should be supported by sound internal demographic data describing the actual age structure of the company and future retirement projections.

Ashworth (2006) observes that knowledge transfer does not happen automatically, but is contextual to appropriate supportive conditions, the most important being the possibility to interact with experienced employees (pp.1674-75). The systematic formation of mixed-age teams should permit the consistent transfer of expertise to younger employees (INQA, 2004), while training and rewarding schemes for managers should be tailored to incentivize measurable progress in intergenerational interaction (Mertens et al., 2011, p.361). The adoption of knowledge-management and training software and tools has shown to support the intergenerational knowledge transfer process (Mertens et al., 2011, p.361-2).

Concurrently with knowledge preservation activities, companies could initiate the implementation of policies to retain older workers beyond the expected retirement date, for example on a part-time basis or as external consultant (Houlihan, 2009). Tempest et al. (2011) points out that some model organisations (i.e. IMB, Bosch and NASA) have already developed programs aimed at reengaging retirees on specific projects to encourage intergenerational learning (p.205). In fact, according to Dychtwald et al. (2004), the concept of retirement as traditionally understood is out-dated: many elderly employees do want to keep working, though usually in a less time-intensive and demanding manner. “Companies can retain the skills of employees well past the traditional age of retirement by moving from a rigid model where work ceases at a certain age to a more flexible one where employees can become lifelong contributors” (Dychtwald et al., 2004, p.51).

6.1.5 Feminization of workforce and international migration

Feminization of the workforce and growing numbers of migrant worker are two additional trends that will shape future labour supply in developed countries. Because these trends are only partially the direct result of the population ageing mega-trend, and often regarded more as a social response to demographic change, they will not be analysed in all their complexity.

On one hand, the increase in female worker participation is the outcome of long-term socioeconomic changes in Western societies: “The increased participation in higher education and thus the better qualifications held by women has, in combination with the general trend to emancipation of women, led to a stronger labour market orientation and higher participation rates” (Road, 2010, p.10). Population ageing might speed up the process by “force[ing] Western economies to fully exploit the potential available workforce” (Wolf, 2011, p.79).

Migration is another factor that has been often regarded as a short to mid-term solution to cope with the negative labour market effects of demographic change (Road, 2011, p.12). However, as previously explained in chapter 2.3, the forecast of international migration flows is highly complex and not completely under control of receiving countries.

Both international migration and higher female participation in the workforce are only temporarily solutions to the demographic transition, and the average age of workers is eventually destined to rise (Mertens, Russell, & Steinke, 2011, p.355-6).

6.2 The demand side of the equation

With profound demographic changes across almost all developed markets, where population is quickly ageing, companies will be faced with the challenge of addressing the needs of a customer base whose age structures are transforming (Chatterjee, Küpper, Mariager, & Patrick Moore, 2010).“Most of the goods and services are age-sensitive and business firms must be able to assess the changes in the age-structure of the population” (Retnakumar, 2009, p.10), given the potential large impact of demographic change on consumption patterns and in turn on companies’ profits (Chatterjee et al., 2010). The *silver market*, also known as the *grey market*, is a term used to define the consumer population over 50 years of age (Kohlbacher & Herstatt 2011), and is a customer segment that is growing in importance in all major Western economies. The silver market represents a clear opportunity not only because it’s growing in size, but because of the purchasing power that it represents. The baby boomer generation will become the most financially powerful group of older consumers: in the United States, this generation controls about 7 trillion dollars in wealth, 70 per cent of the total (Dychtwald et al., 2004), and in Germany almost half of the total purchasing power (GfK GeoMarketing GmbH, 2008). With disposable income up 40 per cent compared to previous generations, this retiring age group will be the richest in the history of Europe, the United States and Japan (Reinmoeller, 2011, p.160). In the United States, for example, the customer segment over 50 is already responsible for nearly half of the revenues of housing, food, transportation and the health markets (Tempest et al., 2011, p.207).

Not every company is actively exploiting the silver market’s potential: often firms either lack responsiveness in identifying older customer’s needs (Tempest et al., 2011), or they “fail to appreciate the sensitiveness of delivering appropriate products and services” (Carrigan, 1999, p.253). “Companies that are capitalizing on grey market opportunities are also proving highly successful“ (Tempest et al., 2011, p. 208), but in order to do so organisations need to recognize the needs of this expanding customer segment, and develop products that can meet them successfully (Kunisch et al., 2011).

6.2.1 Innovation and product development

Despite many companies recognizing the importance of the rapid development of the silver market, only a few have introduced appropriate strategies in their product planning and development strategies to align product offerings with the new demographic realities of their target markets (Gassmann & Reepmeyer, 2011). Chatterjee et al. (2010), in a McKinsey&Company report on the consumer goods industry, observe that “companies will need to find innovative ways to meet the needs of aging consumers” (p.12), and today’s successful players have already anticipated the demographic trend with congruous strategies and investment decisions. Companies who want to exploit this opportunity need to make changes in their innovation process, including product development and design, service, and delivery (Kohlbacher, Herstatt, & Schweisfurth, 2011).

With regards to innovation, Rogers (2007) points out that there's no direct link between technology adoption and age, and that early adopters don't seem to be consistently younger or older than late adopters. However, a potential obstacle for companies is represented by "the assessment and understanding of the needs of the silver market" (Kohlbacher et al., 2011, p. 3). Arguing that age does not itself represent a valid segmentation criterion and that other variables should be used, Kohlbacher et al. (2011) suggest considering autonomy as one of the central measures to guide firm's R&D processes, a factor which is dependent on individual characteristics and not simply on age. In their view, the need for autonomy-enhancing solutions could become a key driver of product development in the future.

According to Östlund (2011), firms should involve the elderly in the design process of new product to "reveal the sources of innovations behind their expressed problems and lifelong habits" (p. 15). The authors argue that the different needs of the *silver customer* can be categorized into visible, hidden and latent; the existence of latent and hidden needs calls for the necessity to apply a structured discovery process that could lead to the development of new products and the discovery of new markets. A similar concept is proposed by Cox and Blake (1991): They note that one of the best responses to changing customer requirements is the replication of the customer's demographic patterns in terms of the labour force's composition.

Reinmoeller, (2011) argues that most of today's products, designed with young segments of society in mind, are not adapted to satisfy the needs of the silver market. According to the author, the most efficient way to adjust the existing product offering to the new silver market's requirements is through business model innovation, which should encompass the innovation of its service component. According Reinmoeller (2011), "In silver markets the importance of services is exacerbated because service innovation has the potential to create value and meet the requirements of sophisticated and wealthy customer[s]" (p.161).

Gassmann & Reepmeyer, (2011) recognize that a major obstacle in developing products for an older audience comes from the fact that product developers, usually young engineers, have never experienced the special physical and mental challenges of their target customers (p.34). The authors argue that companies should embrace a Universal Design approach for their products in order overcome this issue.

According to the definition proposed by the Center for Universal Design, the objective of universal design is to make a product accessible and usable to people of all ages and abilities. Seven principles should guide the design process, namely equitable use; flexibility in use; simple and intuitive use; perceptible information; tolerance for error; low physical effort; and size and space for approach and use (Center for Universal Design, 1997). Gassmann & Reepmeyer (2011) observe that companies could implement universal design by either customizing and adapting existing products to fit customers' age needs, or by developing new products from scratch, with the second strategy posing higher development risks (pp.131-2).

In a similar context, Helminen (2011) discusses strategies for the implementation of user-centred design processes for the development of new products in organisations. From a study on mobile phone manufacturing, the author concludes that users with physical

disabilities can be regarded as *lead users* when developing new products; in fact, the needs of ordinary users in particular situations (i.e. low light environments) overlaps with the general needs of disabled users. Mertens et al. (2011) conclude that the concept of universal design finds applications in the B2B industry segment as well, where the market potential for products to assist companies in coping with an ageing society lays out three main areas of intervention: i) prevention of knowledge loss; ii) adaptations for older workers; and iii) operating with a contracting workforce.

6.2.2 Marketing and distribution

The growing importance of the silver market calls for modification in the marketing strategies of companies that want to fully exploit its potential. According to Perlitz et al. (2010), in comparison with younger customers, the silver consumers are more heterogeneous as a group, and differ from the younger generations in many respects, including price sensitivity, attention to quality, brand loyalty, satisfaction and convenience orientation (pp. 169-70). For this reason, applying to the silver market the same marketing strategy used for other customer groups is not the preferred option. One of the key drivers of success in reaching older customers effectively is segmentation: Kohlbacher et al. (2011) correctly observe that "serving the silver market as a whole seems to be economically infeasible" (p.4). According to Carrigan (1999), the propensity to see the silver market as homogeneous, leading to oversimplified segmentation strategies, is a common marketing mistake among organisations; age alone is a poor indicator of attitudes, interests and capabilities (Tempest et al., 2011). Companies should first segment the silver market using different variables, then recognize the most promising opportunities based on sound data, and finally develop a coherent, specific strategy (Kohlbacher et al., 2011). "The failure to recognize that older consumers buy products to fulfil needs rather than in terms of age has meant inappropriate product and promotional development" (Carrigan, 1999, p.254).

Tempest et al., (2011) suggest segmenting the silver market using a *wealth/health matrix*: according to this approach, older customers seek and can afford very different types of products and services depending on their financial situation, which in turn determines their necessity to work, as well as their health condition, which influences their autonomy and primary objectives (p.205).

An additional aspect that companies should take into account is the fact that most silver consumers do not consider themselves to be old (Carrigan, 1999), and therefore the strict division of target population between *young* and *old* customers should be avoided (Gassmann & Reepmeyer, 2011); discriminant pricing strategies for example (i.e. senior discounts) should not be over-emphasized (Moschis, 1993).

McCann and Reibstein (1985) argue that as people age, potential changes in social variables should also be taken into consideration, the first being shifts in social and reference groups. In line with this perspective, Tempest et al. (2011) state that "companies need to develop an understanding of individual older customers and their broader social contexts in terms of both their varying immediate household compositions, and their intergenerational relationships" (p.211). Gassmann & Reepmeyer's (2011) analysis shows that at a conceptual level, two different silver-costumer-specific marketing notions can be

recognized: the *integration marketing* model and the *modern senior marketing* model. An integrated marketing approach would target younger and older customers without distinction, while at the same time taking into consideration the silver customers' needs. The modern senior marketing approach, on the other hand, would target older consumers exclusively, through a dedicated and tailored marketing strategy. The authors observe that in the case of universal design products, both approaches are equally valid. Retnakumar (2009) highlights an additional opportunity for companies: as longevity increases, there is a greater potential to acquire a large number of long-term customers of a specific brand (p.13). However, in order to gain older customer's long-term loyalty, firms need to offer a high level of customization, together with experienced sales and customer support teams (Gassmann & Reepmeyer, 2011).

7. Empirical research

This chapter illustrates the practical part of the thesis: empirical research aimed at understanding the feasibility and potential format of a DRI tailored for Swiss companies. The first section thoroughly describes the research design used in this project. Chapter 7.2 is dedicated to outlining the qualitative strand of the research, while the third section is dedicated to the quantitative part.

7.1 Research design

This thesis follows a mixed research method design, defined as "the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (Johnson & Onwuegbuzie, 2004, p.17). Before the growing popularity of such research design among a variety of disciplines (Cameron, 2011), different arguments have been raised against mixed method research, mainly focusing around two areas of thought: i) the idea that quantitative and qualitative research tools are separate paradigms, which are irreconcilable due to different built-in epistemological and ontological assumptions (Bryman & Bell, 2007 p. 443; Davies, 2003); and ii) the lack of clear guidance for an appropriate combination of qualitative and quantitative research (Srnka & Koeszegi, 2007).

This project embraces the more recognized idea that mixed method research can combine the strength of both qualitative and quantitative approaches, referred to by Bryman & Bell as the *technical version* about the nature of qualitative and quantitative research tools, which implies that both methods are compatible and their combination desirable (Bryman & Bell, 2007 p. 443). The two approaches in combination can provide "a better understanding of research problems that either approach alone" (Creswell & Plano Clark, 2007, p. 5).

Approach followed for this study

Among the several approaches identified in the literature for blending quantitative and qualitative research techniques, following Creswell & Plano Clark's classification, this Master's thesis adopts an *Exploratory Sequential Design* (Creswell & Plano Clark, 2011, p.69-70), starting first with the qualitative part followed by the quantitative section. Greater emphasis is placed on quantitative methods (priority decision – Morgan, 1998), which represents the core part of the study. It's a two-study design, where the collection and analysis of qualitative and quantitative data occurs in two separate, sequential studies[4] (Srnka & Koeszegi, 2007, p.33).

First, the qualitative part of the research data is collected using the Expert interviews method. The scope of the qualitative strands facilitates quantitative research by providing a hypothesis and acting as an aiding measurement for the design of the quantitative section (Bryman & Bell 2007, p.648).

[4] As opposed to integrated designs, which combine qualitative and quantitative phases of analysis within one single study (Srnka & Koeszegi, 2007)

Second, the quantitative part where the self-administered questionnaire method is adopted, builds on the results of interviews combined with desk research, and tests different hypotheses as well as providing further exploratory insight on the research questions.

Clearly, the point of interface between qualitative and quantitative strands occurs through a *connecting strategy*, where the result from the qualitative strands builds up to the collection of the quantitative data, implying direct interaction[5] between the two strands of the study (Creswell & Plano Clark, 2011, p.66). The approach chosen can be classified as a *Fixed Mixed Method*, because the use of both sources of data is predetermined and planned (Creswell & Plano Clark, 2011, p.54).

Justification for using a mixed research method

This research approach was chosen as the most appropriate to meet the research objectives of this Master's thesis. The rationale behind the selection of this mixed method can be summarised by seven reasons proposed by Bryman (2006) and summarised by Creswell & Plano Clark (2007), among the sixteen identified by the authors as the possible grounds for the application of this research design. These rationale include: *Enhancement, Context, Confirm and Discover, Triangulation, Instrument Development* and *Completeness* (Bryman, 2006 p.105-7).

Enhancement refers to the possibility of building one type of data, in this case qualitative interviews, on another (Cameron, 2011, p.254). *Instrument Development* refers to the use of qualitative research tools to develop questionnaire items. *Completeness* highlights the possibility to cover the research topics in a more comprehensive way by bringing together qualitative and quantitative research methodologies (Bryman, 2006). *Context* refers to the opportunity to provide contextual understanding through qualitative research, coupled with externally valid findings uncovered through a quantitative survey (Bryman, 2006). *Triangulation* seeks "corroboration and correspondence of results from the different methods" (Creswell & Plano Clark, 2011 p.62).

The adoption of expert interviews as first step in the empirical research allows for the collection of important contextual information that not only integrates the findings of desk research, but also allows for a better focus on the area of relevant investigation issues With regard to specific parts of the research questions, where the explorative component is predominant, a qualitative interview-based approach provides a better understanding of the underlying issues than other quantitative methods could have offered. At the same time, the use of quantitative tools allowed for greater generalization potential and external validity of descriptive insights.

Moreover, integrating the result of the preliminary interview phase in the quantitative self-administered questionnaire clearly represents an advantage, as opposed to the use of a single method: a questionnaire developed solely from literature would not have addressed the full scale of issues analysed in the study, and missed important contextual elements in the generation of a hypothesis. Finally, the possibility to triangulate findings from different

[5] The interaction between the two strands of the study is direct when the conduct and design of one strand depends on the result from the previous part of the study (Creswell & Plano Clark, 2011).

sources is particularly important when tackling such a broad topic, with rather vast and disperse literature.

7.2 Qualitative section

7.2.1 Methods, sampling and data collection

According to Srnka & Koeszegi (2007), "In new or underdeveloped areas, it is common to apply qualitative methods in a preliminary stage, thus enabling the researcher to develop a conceptual framework, to generate hypotheses, or to establish the necessary tools (particularly instruments for measurement) for the quantitative study"(p.33).

For the qualitative part of this empirical research, interviews were conducted with experts in the field of demographic change, ageing population and strategic planning.

The term *expert* refers to individuals who, given their role in organisations and their professional experience, are particularly knowledgeable in a specific field of activities or with regard to a specific target group (Flick, 2009). More precisely, Experts "have technical process oriented and interpretative knowledge referring to their specific professional sphere of activity that […] has the character of practical knowledge in big parts" (Bogner, Littig & Menz, 2009 p.46).

In accordance with Flick (2009) and Bogner, Litting and Menz, (2009) the purpose of the interviews is to get orientated with the field studied, to generate hypotheses, to fill the gaps in the knowledge produced through desk research and to support the developing of the main instrument (i.e. the qualitative questionnaire).

Four interviews were conducted, of length between 30 and 40 minutes, between 15 and 30 July 2013. The chosen method involved semi-structured and open-ended interviews, performed using an appropriately crafted interview guideline for support. The interview guide, an informal document not available to the interviewed person (Appendix D), was developed mainly for directive functions, to exclude unproductive topics and to efficiently manage the time available (Flick, 2009). Following the best practices proposed by Kvale (2007) for conducting semi-structured interviews, the interview guide was divided between a thematic part with thematic research questions, and a dynamic part with the actual questions to be posed. This layout allowed for greater flexibility in changing the sequence of the questions in order to better follow the specific answers of the interviewees. In developing specific questions, an effort was made to write easy-to-understand, short sentences, avoiding over reflective questions and using academic language when appropriate (Kvale, 2007). The interview guide was partially modified after each interview to correct the phrasing of selected sentences and to add questions that stemmed from the discussion with the first experts. The first two minutes of the interviews were always dedicated to revealing the purpose of the study (already shared with the contact person via email when they were first approached) and to agree on confidentiality and disclosure arrangements.

The selection of the interviewees was based on a purposive sampling, the most appropriate approach for the expert interviews method (Flick, 2009).

Twenty experts were contacted via e-mail during the first and second week of July 2013. They were chosen from reputable academic institutions, consulting companies and research

institutions that presented strong connections to the topic of demographic change and strategic planning, inferred from recent publications and relevant works. Roughly 60 per cent of the persons contacted replied to the solicitation, and four professionals were deemed suitable for an interview covering the relevant topics and agreed to schedule a meeting. Figure 5 presents an overview of the persons contacted, their expertise and their organisation of reference. The interviews were conducted via phone or Skype and they were recorded and partially transcribed in their key passages.

Interviewee	Position	Organisation	Organisation Description
Dr Marc Gössi	Partner, Head of Management Consulting	KPMG, Zurich Office www.kpmg.com	**Consulting firm** Global Advisory and Management Consulting.
Non disclosed	Non disclosed position - Demographic Change Expert	Econsense, Berlin www.econsense.de	**Research Institute – Think Tank** Forum for Sustainable Development of German Businesses. The largest business-driven Forum on sustainability in Germany[6]
Prof David Coleman	Professor of Demography & Research Associate of the Oxford Institute of Population Ageing	Oxford Institute of Population Ageing http://www.ageing.ox.ac.uk/	**Academic Institution – Research Institute** UK's first population centre on the demography and economics of ageing populations. Active in research into the implications of population change through a multi-disciplinary approach[7].
Prof Dr Stephan A. Böhm	Director, Assistant Professor Centre for Disability and Integration (CDI)	University of St. Gallen Institute for Leadership and Human Resource Management (IFPM)	**Academic Institution** CDI-HSG is an interdisciplinary research centre, that contributes to the integration of people with disabilities[8]

Figure 5: Expert interviews – sample overview

7.2.2 Data analysis

The interview data was analysed using the methodology of qualitative content analysis, "an approach […] that emphasises the role of the investigator in the construction of the meaning of and in texts. There is an emphasis on allowing categories to emerge out of data and on recognizing the significance of understanding the meaning of the context" (Bryman, 2004, p.542). As suggested by Mayring (2000), the analysis was structured following a three step sequential model: i) summary, ii) explication, and iii) structuring (Mayring, 2000; Kohlbacher, 2006). First, the interviews were summarised in an attempt to reduce the material to a manageable size, while preserving its essential content (Kohlbacher, 2006); the recording of the interviews were paraphrased (Flick, 2009) and translated into bullet points and short summaries of key passages. Second, annotations were made to expand and integrate specific topics with findings from desk research. Third, an attempt was made to "filter out a particular structure from the material" (Kohlbacher, 2006, p.12) in order to

[6] Source: www.econsense.de
[7] Source: www.ageing.ox.ac.uk
[8] Source: www.cdi.unisg.ch

establish relevant links between the expert's contribution in the different themes tackled and the theories and frameworks encountered during desk research.

All the four phone interviews were analysed for the first time shortly after the interview was concluded to maximize accuracy (Flick, 2009), and subsequently re-heard and scrutinized following an iterative process. The interviews were partially transcribed starting, when possible, during the actual interview and continuing during the subsequent hearing. Due to this modality of data collection and transcription, it is not possible to make a clear distinction between collection and data analysis given their partial overlap. However, according to Eisenhardt (1989), "overlapping data analysis with data collection not only gives the researcher a head start in analysis, but more importantly, allows researchers to take advantage of flexible data collection" (pp. 538-539).

7.2.3 Results and hypothesis generation

The insights gained through the expert interviews were consistent with the concepts proposed by the literature to a large extent. The central conclusion can be inferred from the expert's answers in each of the thematic areas analysed, and that will serve as a hypothesis to be corroborated with the subsequent questionnaire survey. This can be summarised as follows:

a. Awareness

Demographic change appears to be a "big topic" within companies and most of the organisations are aware of this issue, at east at a general level, without any relevant difference between companies of different size or industry.

However, demographic change in the majority of cases is not perceived as the main driver for sustainability if compared to other global mega-trends, although it still contributes to the other topics by shaping corporate strategies and business models in the long term considered from an opportunity perspective. "Companies need to discuss the needs of ageing clients that might be completely different [from other customers]. It's a complete distinct segment—they need to develop a different strategy and different products" (Dr Marc Gössi).

b. Relevance and time horizon assessment

The topic is considered as very relevant across industries; companies have already been working actively on some issues. However relevance can depend on geographic location and company specific characteristics.

Current age structure is generally the main determinant of urgency and relevance with regard to HR implications. Companies are on time in addressing demographic change issues, as in specific cases there are organisations that are already facing visible problems (such as a decrease in performance due to an ageing workforce) and are "forced" to do something.

c. Risk and impact assessment

The way companies recognize potential risks and emerging problems vary, and there are three typical situations: i) the company observes a decrease in performance; ii) companies hear about demographic-change-related issues from media, press, industry publications or forums; or iii) a consulting firm points out risks to the organisation.

Companies tend to give priority and concentrate their efforts around HR issues compared to others, although the imbalance is not extreme. Labour supply, ageing workforce and knowledge retention are the three topics considered the most crucial.

There is a possible underestimation of the effects of certain issues, particularly age diversity. “Age diversity has to be managed, and that is something that organisations have not fully understood” (Prof Dr Stephan A. Böhm).

Holistic approaches towards addressing demographic change exist but are rare.

> “What I have seen is that most companies do not really have a coherent, big concept on demographic change. More or less they start with individual initiatives and they organise them as projects. However there are some cases of companies that have a more holistic concept” (Prof Dr Stephan A. Böhm).

d. Reactions and monitoring

The Strategic actions that companies can implement, identified in literature and presented in chapter 5, can be reduced to a set of 11 Management tools, divided between *core HR functions*, *non HR functions* and *support functions* (Figure 6).

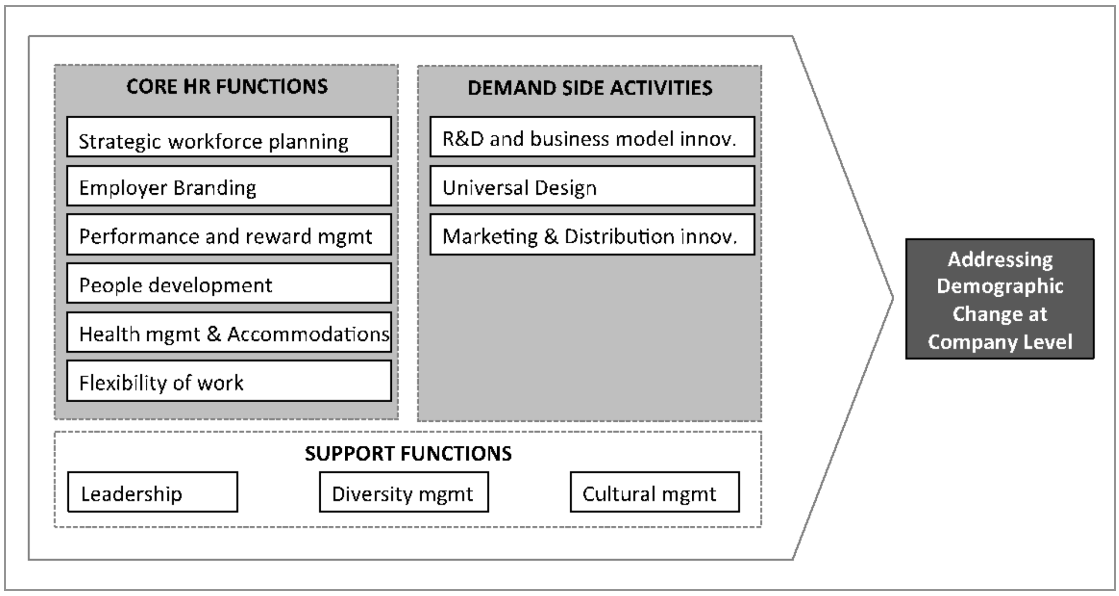


Figure 6: Management tools available to address demographic change

Monitoring the implementation of different initiatives and evaluating of their effectiveness is important for companies, but often challenging.

> “Monitoring is always the worst part, the most difficult part. It would be great to have more tools to monitor the success of these management tools. It’s also difficult to develop these monitoring tools because [of the presence of] many indicators that are all relevant to a certain issue” (Econsense Expert).

The use of reference KPIs during implementation is not an established practice: “There are some cases of companies […] where they are really defining clear goals on demographic change and implementing them on SAP; some companies do that really effectively but it’s still rare in my opinion” (Prof Dr Stephan A. Böhm).

e. DRI: interest and potential

The idea to construct an indicator to convey demographic-related information to companies caused interest especially as there seems to be little availability and/or awareness of demographic-related data aggregated at industry level. Examples of existing demographic risk indicators assumed, in specific cases, a crucial role in companies' HR strategy (ex. demographic risk map).

7.3 Quantitative section

7.3.1 Methods, sampling and data collection

Based on the review of desk research and the insights gained from expert interviews, an online self-administered questionnaire was developed in order to better answer the research questions of this thesis (Appendix E).

The questionnaire is divided into five sections. Section one is dedicated to the perception of Demographic Change in the context of mega-trends in general and section two focuses on awareness, relevance and time horizon assessment of demographic change, including a dedicated part for assessing the need of information on the issue of the current sources. Section three covers impact assessment and strategic reactions implemented by organisations; it was built following the areas of impact identified in chapter 6 (see Appendices B and C) and the management tools identified through the combination of desk research and interviews (see Figure 6 and Chapter 6). The fourth section covers monitoring and implementation of initiatives, while the final section is designed to assess potential interest for a DRI, as well as its possible shape and monetization potential.

The questionnaire was created using the online professional tools *surveymonkey.com*. "Questionnaire design poses one of the biggest challenges for survey researchers because how respondents are asked questions can have a great effect on results" (Sato, 2009). Effective wording of the questions was in fact possible, secured by following existing pre-tested questionnaires in the field of mega-trends and strategic planning (Becker & Freeman, 2006; Chatterjee et al., 2010; Roland Berger & University of St. Gallen, 2012; Saritas & Smith, 2011), and in the field of ageing workforce and productivity (Thun, Größler, & Switbert, 2007, original questionnaire translated from German). Each question was developed keeping the wording precise and simple, limiting negations, and avoiding mixing up different topics in the same sentence.

The questionnaire adopts predominantly evaluative questions measured through *likert scales,* ranging from 1 to 5, with occasional use of multiple-choice boxes.

The order of the questions was chosen to maximize fluidity of compilation experience and minimize biases. For example, the purpose of the study is revealed later in the questionnaire, following a funnel-shaped approach (Kvale, 2007, pp. 51-52), to avoid biased responses in the awareness section where demographic change is compared with other mega-trends. To avoid *question order* biases, (i.e. responses influenced by a question's position), the order of each set of responses is permutated randomly for each respondent, while filler items such as pictures and page breaks are inserted in critical passages with the objective of avoiding excessive interconnection between questions.

The questionnaire was administered to a cross-industry sample of Swiss Executives. The sample was selected through a stratified sampling approach, followed by a selection based on convenience. First, a set of target industries was identified. The inclusion criteria for the selection was an advanced state of ageing of the workforce (Swiss Federal Statistical Office, 2012, p.4), a sufficient component of B2C activities, therefore ensuring reasonable attention to the demand side of demographic transition, and indications from interviews with experts. Second, a group of target executives in companies belonging to those industries was individuated, based on the contacts available though alumni networks and personal resources. The key inclusion criterion was the contact's position: management personnel with sufficient knowledge of their company's overall long-term strategy (i.e. C-Level management; top-management; board members; middle management only if involved in corporate strategy).

Fifty management figures were contacted and 20 took part to the online survey between 23 September and 7 October (40 per cent response rate); 13 of the questionnaires filled out were suitable for analysis (i.e. incomplete questionnaires were excluded from analysis). The respondents worked in either the industry or service sector (Appendix F).

7.3.2 Data analysis and results

The questionnaire answers were analysed using predominately descriptive statistic tools, with the main purpose of summarising and describing key results (Weiers, 2007). The results from the survey were organised by the thematic question groups, following a structure that mirrors the one used for qualitative interviews. To better illustrate the relationships between the results of the questionnaire and the topics that emerged during the interviews, graphical representations for each thematic question were generated. The results of the survey are presented in Appendix G, which provides an overview of the average question ratings for every item of the questionnaire.

7.4 Key findings and discussion: relationships between literature, expert opinions and surveys

Demographic change represents a major topic on the strategic agenda of Swiss executives who operate in potentially exposed economic sectors on both the demand and labour side: in partial contradiction to what emerged from the literature and from expert opinions, demographic change is often perceived as the key driver of long-term sustainability of Swiss businesses, outclassing other mega-trends such as climate change and globalisation in importance (Appendix G, question 4). Companies tend to recognize the importance of demographic phenomena and are generally aware of their complexity: more than 60 per cent of the executives surveyed answered that demographic change will play an important role for their firm in the future to a great extent or to a very great extent (Appendix G, question 5). This finding confirms what emerged in the interview section, where experts suggested that the topic is already a "big issue" among most of Swiss firms and that awareness is to be considered significant. The survey however showed a remarkable difference in executives' perception of the issue, compared to what has been discussed so far: when asked if demographic change would threaten their firm's business

model or would represent a potential opportunity, the average answers were clearly in favour of the latter (Appendix G, question 5). Although this finding goes against most of the literature analysed, which suggests that firms are inclined to ignore the favourable aspects of demographic shifts, other survey answers indicates that although the managers might see ageing population more as an opportunity than a threat, the active integration of demographic change into their firms' strategic planning is still below potential. About 50 per cent of the respondents said that demographic change is part of their strategy to no extent or to a very low extent (Appendix G, question 5).

In accordance with experts' opinions and literature, the survey shows that Swiss companies are correctly estimating the impact time horizon, with none of the respondents saying that the issue is for certain still too far into the future.

With regard to risk and impact assessment at company level, the survey confirms that companies are considering population ageing from both a demand and a human resources perspective; a slight imbalance towards HR concerns is suggested by expert interviews, corroborated with the answers to question 9 (Appendix G) which shows that respondents' top three strategic priorities are performance and reward management, people development and employer branding. However, when asked what are the strategic issues that are most important for firm's long-term sustainability, the executives surveyed tend to give high importance also to changes in demand and consumption patterns (Appendix G, question 8).

In accordance with insights from literature and interviews, a changing labour supply resulting from population ageing scores high in terms of relevance for firms' profitability and sustainability (Appendix G, question 8).

Despite the insights on impact assessment being vulnerable to generalization efforts due to the large degree of variation on firm-specific needs and situations in a given point in time, there is one factor that was very prominent in the interviews and was confirmed by the survey. Organisations tend to give relatively lower importance to possible diversity issues (age diversity and feminization of the workforce) resulting from demographic change, a fact confirmed by low scores in terms of perceived priority with regard to the implementation of management tools designed to address these issues (i.e. age-sensitive leadership; diversity management) (Appendix G, question 8, 9; Figure 6).

Moreover, mass retirement of the older worker cohort and the associated potential loss of knowledge ranks last in terms of relevance among the proposed strategic issues in the survey. This result, in potential contradiction with both literature and interviews, might suggest that either these companies ignore this threat, or that executives have already proceeded in addressing this issues through implementation of effective knowledge management systems. What can be inferred from these last considerations is that a complete, holistic approach to addressing population ageing in not common among organisations, as previously proposed by expert opinions and emerged from desk research.
Finally, monitoring implementation of strategic initiatives in response to demographic change appears to be a factor of particular importance for organisations, with monitoring of HR-related initiatives proving more challenging that demand-related actions (Appendix G, question 10).

8. Conclusions

8.1 Implications for development of DRI

Feasibility and interest

The results of this study allow for a series of considerations on the development potential of a Demographic Risk Indicator at the company level with industry-level aggregation.

First, the empirical findings indicate a growing interest in the topic of population ageing in Switzerland among executives: companies are currently attentive and receptive to this topic, a fact that emerged not only from interviews and surveys, but was confirmed by the high response rate among the people contacted for this study during data collection. This fact, in conjunction with the emerged untapped potential for integration of demographic change into organisational long-term strategy, indicates a good potential for the development of a new tool in this segment, at least with regard to timing and to the expected receptivity of the target audience.

Second, a satisfactory potential interest among Swiss companies for a demographic risk indicator can be inferred from the latent need for demographic-related information that emerged from the survey. Most executives scored low in terms of perceived availability of information under the three aspects investigated: i) availability of information to plan strategic initiatives; ii) assessment of the impact on the business; and iii) measurement of an organisation's preparedness to demographic change. It's important to note that none of the respondents picked the maximum agreement score in any of the three questions (Appendix G, question 6).

Third, according to the survey, industry publications represent the first source of demographic information. The development of a DRI with industry level aggregation could then benefit from the divulgation through an "established" channel for this type of information, and from the possibility to set in place collaborative arrangements with existing providers.

The findings of this research indicate that companies do not have a standardized, quantitative approach when tackling demographic change as a relevant long-term strategic issue. Both interviews with experts and surveys (Appendix G, question 10) suggest that structured, data based decision-making and implementation is rare in this area. The definition of KPIs and targets, the monitoring and planning with support of quantitative demographic-related data are not established practices (Appendix G, question 10; chapter 7.2.3). This finding could indicate that although organisations do perceive demographic shifts as a potential opportunity, they do not fully incorporate it into their strategy like they do with other *market* opportunities arising from mega-trends (i.e. projections of financial impact/growth potential; data-based forecasts; modelling etc.). Concerning the DRI feasibility, on one hand this could represent an obstacle for the future development of the instrument because of the potentially different and unexpressed needs of organisations that are not currently using similar tools. On the other hand, the opportunity and potential to

establish a *standard* tool supporting decision-making within a specific set of activities is greater.

The optimistic view exposed so far is partially confirmed by the results of the last section of the survey: when executives were asked if they would allocate resources to have an industry-specific DRI, and if their firm would participate in periodic surveys to collect data for the creation of the indicator, 46 per cent and 38 per cent, respectively, of respondents answered positively (Appendix G, question 12, 13).

Components and themes

In respect to the potential shape of the DRI indicator, the empirical research provides indications that two areas of interest emerged as the most promising objects of measurement and communication. First, the manifest interest of executives in opportunities arising from population ageing in conjunction with a poor integration into strategic planning through quantitative tools, suggests high potential for the development of an indicator providing demographic forecasts for the industry target market(s) and customers (see chapter 5.2). This author, however, realizes that it would be difficult to capture an industry DRI focused on demand for the full range of requirements and need of an industry composed by very different companies in terms of target customers and product offering. Moreover, chapter 6.2 touched on the issue that age alone might not be regarded as a good indicator of a customer's needs and orientation, as well as a poor base for market segmentation (see chapter 6.2.2).

The empirical findings indicate that another promising solution is represented by the development of an indicator aimed at company and industry risk assessment, with a focus on labour supply and ageing workforce (see Appendix G, question 11).

First, the sample surveyed recognizes that firms rarely have the amount of information that they need in order to measure how prepared the organisation is for the realities of an ageing population (Appendix G, question 6). The DRI could assess industry and company-specific risk by collecting data at company level with periodic surveys concerning age structure and state of implementation of different strategic initiatives, and condense them into industry measures (i.e. similar to the Adecco Fitness Index presented in chapter 4, with an industry focus). The empirical research indicates that roughly two out of five firms interviewed would be willing to participate in similar activities. A so-called designed instrument not only would serve as a valuable benchmarking tool to support decision making, but it would also give firms the impetus to start analysing age structure of their workforce or improve the analysis, and to monitor critically the level of implementation of relevant strategic initiatives.

The DRI should include projections of future labour supply and its characteristics, with a focus on the details that could be relevant for a specific industry (e.g. geographical differences; availability of specific job figures). This study showed that future changes in labour availability and age structure are among the biggest challenges for Swiss firms: companies seem to demonstrate a greater willingness to address demographic change in this scope, and would therefore be receptive to an indicator covering these issues (confirmed by the success of Demographic Risk Map index presented in chapter 4.4.2).

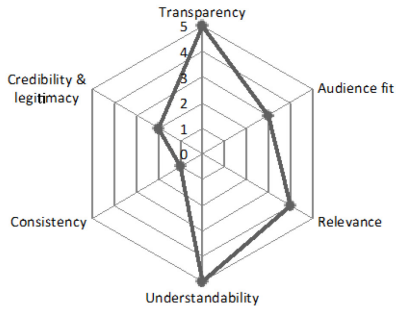
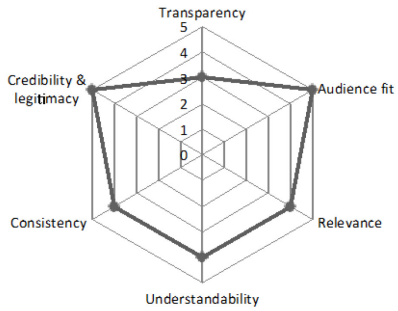
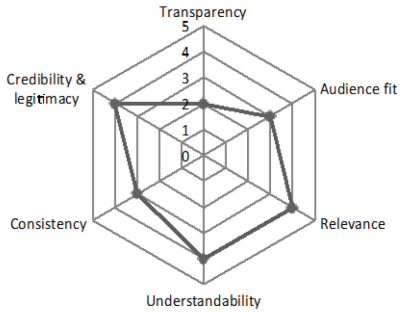
8.2 Limitations of the study

The findings of this study must be interpreted as acknowledging their limitations in terms of validity, reliability and generalizability. The empirical research, by design, only assesses subjective viewpoints of experts and executives, and is conceived as a way to make a business case for the development of a demographic risk indicator, and not contribute to existing literature. The principal limitation of this research is the modest sample size of executives surveyed in the quantitative strand of the study. The dimension of the sample was constrained by the limited resources and contacts available, necessary to reach qualified management figures in Switzerland.

8.3 Recommendations for future research

The broadness of the implication of demographic change at firm level is such that this project leaves space for further expansion, both in terms of desk research as well as empirical discovery. Suggestions for further research development include measuring age structure of the companies surveyed in order to look for possible correlations with other variables. A second opportunity lies in measuring firms' dedication to strategic foresight activities (e.g. through the "need for peripheral vision" questionnaire proposed by Day & Schoemaker (2005)). This could expand the knowledge of the relationship between strategy process, foresight activities and effective preparedness to demographic change at company level. Moreover, a contextual analysis of the product offering and product lifecycle of the companies interviewed could disclose possible relationships between exposure to age-sensitive demand and inclusion of demographic change into strategic planning processes. Finally, the analysis of a larger sample size could allow for comparisons between industries, geographical regions and companies of different sizes.

Appendix A: Demographic indicators examples evaluation

Work Ability Index 	Core Functions: • Data-driven decision making • Benchmarking
Demographic Risk Map 	Core Functions: • Data-driven decision making • Efficient use of information
Demographic Fitness Index 	Core Functions: • Benchmarking • Link decision makers across different level of influence

Source: Author's evaluation based on review of the indicators' informative material

Appendix B: Impact of population ageing at company level – summary of literature for labour side of the equation

Issue	Consequences at company level	Reference
Shrinking Labor supply	Shortage of skilled workers	• Road, (2010) • Dychtwald et al., (2004)
	Shortage of low-skilled workers	• Road, (2010)
	Increasing competition/cost to attract talents	• Micheals et al., (2001) • Kunisch et al., (2011) • Perlitz et al., 2010
	Growing bargaining power/lower loyalty of employees	• Ernst&Young, (2013) • Kiriazov, Sullivan & Tu, (2000)
	No choice but to rely on older workers to remain competitive	• Kunze et al., (2011
Aging Workforce	Rate of workforce ageing is firm specific/can be more volatile than countries'	• Clark & Ghent, (2010) • Thun et al., (2007)
	Average and median age of workforce will have to increase/ deviation from current optimal age structure	• Thun, Größler, & Switbert, (2007) • Clark & Ghent, (2010) • Perlitz et al. (2010)
	Decreasing individual mental performance of ageing workforce (ex. adaptation, learning, new technologies, resilience to stress	• Welford, (1977) • INQA, (2004) • Thun et al., (2007) • Tempest et al., (2011)
	Decreasing individual physical performance of ageing workforce (ex. speed, physical resilience, morbidity)	• Welford, (1977) • INQA, (2004) • Loch et al., (2010) • Karlsson & Klohn, (2011)
	Increasing individual performance of ageing workforce (ex. experience-related tasks)	• INQA, (2004)
	Ageing workforce may have an impact (positive or negative) on organizational performance	• Martins et al., (2005) • Backes-Gellner & Veen, (2009) • Becker et al., (2004) • Thun et al., (2007)
Increasing age diversity	Ageing diversity may have an impact (positive or negative) on organizational performance	• Williams & O'Reilly, (1998)
	Age diversity may increase turnover	• Wagner et al., (1984)
	Age diversity may produce conflicts	• Wolf, (2011) • Boehm et al., (2011)
	Age diversity may impact current leadership effectiveness	• Kunze et al., (2011)
	Baby boomers retirement can cause loss of knowledge and expertise	• Kunisch et al., (2011) • Trugman-Nikol, (2011) • Dychtwald et al., (2004)
Retirement & Knowledge loss	Risk of knowledge loss is firm specific/ based on previous hiring policies	• Clark & Ghent, (2010); • Kunisch et al., (2011)
	Baby boomers retirement will Increased turnover	• Ashworth, (2006)
	Retirement of senior experienced employees may slow down learning process of new hires	• Ashworth, (2006)

Appendix C: Impact of population ageing at company level – summary of literature for demand side of the equation

Theme	Consequences at company level	Reference
Product Development & Innovation	Products can be age sensitive	• Retnakumar, (2009)
	Purchasing power concentrated in the hands of retiring generation	• Dychtwald et al., (2004) • Reinmoeller, (2011) • Tempest et al., (2011)
	Different needs, consumption patterns, limitation, habits of older customer	• Gassmann & Reepmeyer, (2011) • Chatterjee et al., (2010) • Kohlbacher et al., (2011) • Kunisch et al., (2011) • Perlitz et al., (2010)
Marketing & Distribution	Different needs, consumption patterns, limitation, habits of older customer	
	Heterogeneous consumer group	• Perlitz et al., (2010) • Carrigan, (1999)
	Age a weak variable for segmentation/identify needs, interests, capabilities	• Tempest et al., (2011) • Carrigan, (1999)
	Most older customers don't want to be considered "old"	• Carrigan, (1999) • Moschis (2003)

Appendix D: Interview guide for Expert interviews

THEME	SPECIFIC QUESTIONS	NOTES
Awareness	1. Are companies aware of the potential effects of ageing population trend on their businesses?	
	2. Where would ageing population rank in term of importance/priority, compared to other mega-trends (ex. globalisation, climate change, urbanization)?	
	3. Did you perceive a change over time in terms of the relevance of this topic?	
	4. Did you observe any relevant difference between SMEs and large companies in dealing with this trend?	
Relevance and time horizon assessment	1. Do company perceive the issue as urgent?	*Ask for examples (ex. successful vs. unsuccessful).*
	2. Are companies, on average, on time in addressing this future issue?	
	3. Do companies correctly estimate the time horizon of the impact of ageing population on their business?	
Risk and impact assessment	1. Where do companies think they will be affected the most (e.g. HR side vs. demand side)? Where will they be affected the most in your opinion?	*Useful to outline the series of effects and their classification from desk research.*
	2. Is there, in your opinion, an underestimation/overestimation of risk in certain areas (ex. imbalance between labour side and demand side)?	
	- Ask for examples from professional experience	
	3. Are companies able to quantify/measure the potential impact of the trend on their business?	
	3.1 What aspects are measurable/easy to measure and which one is not?	
	3.2 Do companies use quantitative instruments? What type?	
Reactions and monitoring	1. How do companies, in your opinion, incorporate the ageing population trend in their long-term strategy / strategic planning processes?	*Useful to outline the strategic actions and their classification from desk research.*
	2. Are companies aware of the type of actions needed to respond to demographic changes in the various areas of impact (ex. ageing workforce – retiring workforce – diversity etc.)? Any particular aspect that is controversial?	
	3. Do companies monitor the progress made in the implementation of different activities? (e.g. against industry; against competitors) Do they monitor their effectiveness/impact over time and how?	
	3.1 Do they use/look at specific KPIs?	
	3.2 Do they use specific tools (ex indicators, reports, scenarios)?	
	3.3How do they monitor/would prefer to monitor the progresses (ex. against competitors; industry standard; national averages; international standards etc.?	
	4. How do they monitor the effectiveness of specific initiatives? Is it possible?	
	5. What are the strategic actions that are perceived as the most crucial/urgent in response to ageing population?	
	6. What initiatives would companies really want/need to keep monitored in their progress?	
	7. Do you see a particular need for monitoring/evaluation in a specific area? (e.g. knowledge retention initiatives vs. health management etc.)	
	8. What are the activities which are the most difficult to monitor?	

THEME	SPECIFIC QUESTIONS	NOTES
DRI: interest and potential	1. Would companies use an indicator at industry level that shows their risk with regard to specific demographic variables?	*Ask for examples of similar instruments. Useful to illustrate existing tools similar to DRI (from Ch. 5 – ex. demographic risk map; Adecco index etc.).*
	-Any relevant difference between small and larger companies	
	2. Would an indicator be a good way for conveying ageing population related information with an industry focus, rather than other tools (ex. publications)?	
	3. Do companies need an indicator with specific characteristics? Do they have specific requirements?	
	4. Where do you see a concrete applicability for such an indicator?	

Appendix E: Online Self-administered Questionnaire

1.

Thank you for taking the time to complete this Master Thesis survey – Master in Strategy and International Management – University of St. Gallen

This survey should only take about 10 to 15 minutes of your time.

Your answers can be modified during the survey, before final submission.

Your individual answers will be completely anonymous. Please try to respond to all the questions.

If you have any questions about the survey or about your responses, please contact me at francesco.bonafini@student.unisg.ch.

In order to progress through this survey, please use the following navigation buttons:
- Click the Next button to continue to the next page.
- Click the Previous button to return to the previous page.
- Click the Submit button to submit your survey

2.

Please take 1 minute to enter some details about you

	Company Size	Your Position in the Company
Your Company		

Your specific position (Optional)

What is the principal industry of your organization?

Name of your organization (optional)

3.

Please rank the following Megatrends according to their importance for Swiss Businesses in the next 5 to 10 years:
(1 = negligible „5 = very important)

	1	2	3	4	5
Climate change	○	○	○	○	○
Urbanisation	○	○	○	○	○
Globalisation	○	○	○	○	○
Natural resources decline	○	○	○	○	○
Demographic change	○	○	○	○	○

4.

The world is living an unprecedented demographic change: most industrialised regions, including Switzerland, due to long-term decrease in fertility combined with rising life expectancy are experiencing a major demographic shift towards an ageing population.

Please indicate the extent to which you agree with the following statements regarding Demographic Change as part of your firm's strategy process:
(1= to no extent ;5= to a very great extent)

	1	2	3	4	5
Demographic Change is highly complex and has multiple influence on our firm	◯	◯	◯	◯	◯
Demographic Change is fully integrated in our firm's strategic planning process	◯	◯	◯	◯	◯
Demographic Change offers new opportunities for our firm	◯	◯	◯	◯	◯
Demographic Change will play an important role for our firm in the future	◯	◯	◯	◯	◯
Demographic Change is still far in the future and not yet a strategic issue for our firm	◯	◯	◯	◯	◯
Our firm does actively identify issues and investigate implications of Demographic Change	◯	◯	◯	◯	◯
Demographic Change threatens our firm's strategic business model	◯	◯	◯	◯	◯

*

Please indicate the extent to which you agree with the following statements concerning the impact of Demographic Change on your business:
(1= to no extent ;5= to a very great extent)

	1	2	3	4	5
Our firm has sufficient information to measure how prepared the organisation is for the realities of an ageing population	◯	◯	◯	◯	◯
Our firm has sufficient information to assess the potential impact on our business	◯	◯	◯	◯	◯
Our firm has sufficient information to plan the strategic initiatives that can be implemented to address the issue	◯	◯	◯	◯	◯

Please indicate which of the following are the 3 main sources of information on demographic change for your business

- ☐ Industry publications
- ☐ Academic institutions
- ☐ Demographic Indicators & reports
- ☐ Forums & Events
- ☐ Consulting companies
- ☐ Other companies
- ☐ General Media
- ☐ Think tank & research institutes
- ☐ Government agencies

Altro (specificare)

[ ]

* Source: adaptation from Roland Berger & University of St. Gallen, 2012

5.

Please indicate the extent to which the following topics represent a relevant strategic issue for the long-term profitability and sustainability of your business:
(1 = not relevant „5 = very relevant)

	1	2	3	4	5
Different purchasing and consumption patterns of senior customers	○	○	○	○	○
Changing needs and products demand in an ageing society	○	○	○	○	○
Shrinking labor supply and talent shortage	○	○	○	○	○
Increasing age diversity of labor force	○	○	○	○	○
Mass retirement of baby boomers generation and potential knowledge loss	○	○	○	○	○
International migration of workers	○	○	○	○	○
Ageing workforce	○	○	○	○	○
Increasing female participation to labor force	○	○	○	○	○

Please indicate the extent to which the implementation (current or planned) of the following management tools represents a strategic priority in responding to demographic change:
(1 = low priority „5 = high priority)

	1	2	3	4	5
R&D and business model innovations	○	○	○	○	○
Marketing and distribution innovations	○	○	○	○	○
Performance and reward management	○	○	○	○	○
Diversity management	○	○	○	○	○
Age-sensitive leadership	○	○	○	○	○
Flexibility of work arrangements	○	○	○	○	○
Cultural management	○	○	○	○	○
People development & lifelong learning	○	○	○	○	○
Health management & workplace accomodations	○	○	○	○	○
Employer branding	○	○	○	○	○
Strategic workforce planning	○	○	○	○	○

6.

Please indicate the extent to which you agree with the following statements regarding the implementation of strategic initiatives in response to demographic change:
(1= to no extent „5= to a very great extent)

	1	2	3	4	5
Monitoring implementation/impact of HR initiatives is difficult	◯	◯	◯	◯	◯
Monitoring implementation/impact of demand-related initiative is difficult	◯	◯	◯	◯	◯
Our firm always defines specific KPIs to implement these initiatives	◯	◯	◯	◯	◯
Our firm always sets clear goals and targets for these initiatives	◯	◯	◯	◯	◯
Our firm relies on demographic data/indicators in the strategic planning of these initiatives	◯	◯	◯	◯	◯
Our firm relies on demographic data/indicators to monitor these initiatives	◯	◯	◯	◯	◯
Our firm always relies on quantitative tools (ex. scenarios„ simulations„ modelling techniques) in the planning process of these initiatives	◯	◯	◯	◯	◯

7.

Please indicate the extent to which your firm would benefit from an industry-specific indicator conveying the following information:
(1 = no additional benefit „5 = highly useful)

	1	2	3	4	5
Labor supply availability and projections	◯	◯	◯	◯	◯
Company & industry risk assessment	◯	◯	◯	◯	◯
Age structure of the industry and expected developements	◯	◯	◯	◯	◯
Demographic forecasts for target markets/customers	◯	◯	◯	◯	◯
State of implementation of relevant initiatives	◯	◯	◯	◯	◯

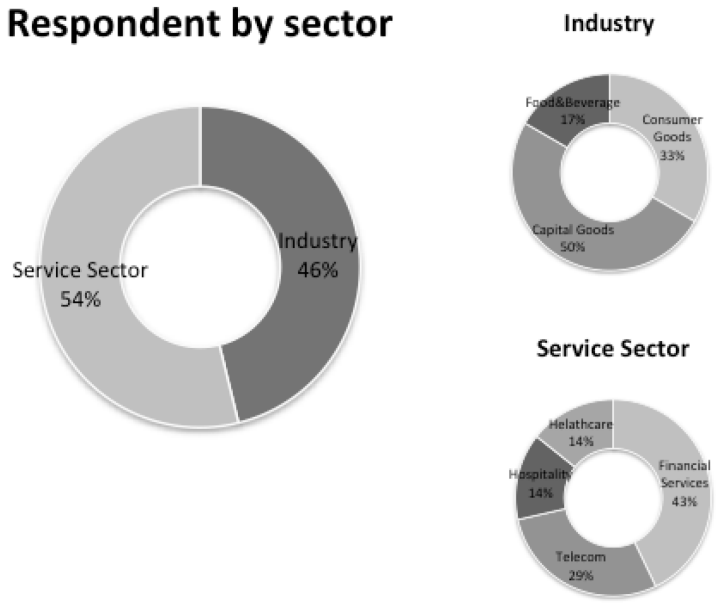
Would your company allocate resources to have an industry-specific demographic risk indicator?

◯ Yes
◯ No

Would your company be available to participate in periodic surveys to collect data for the creation of an industry demographic risk indicator?

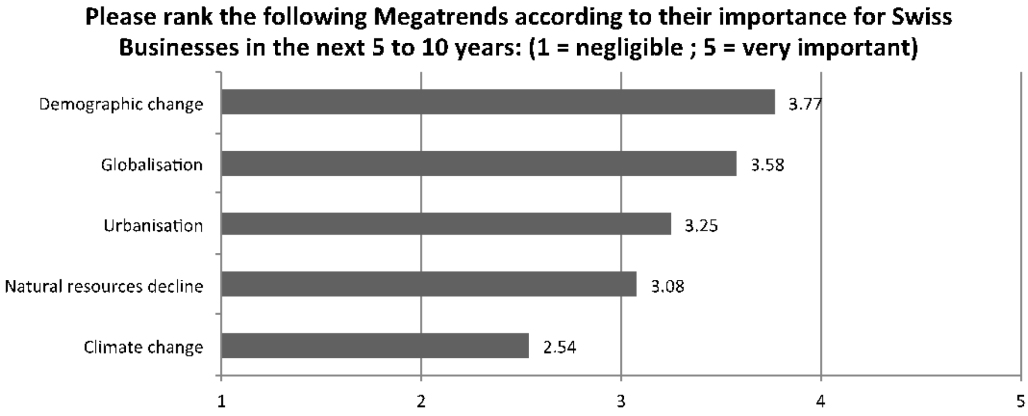
◯ Yes
◯ No

Appendix F: survey respondents

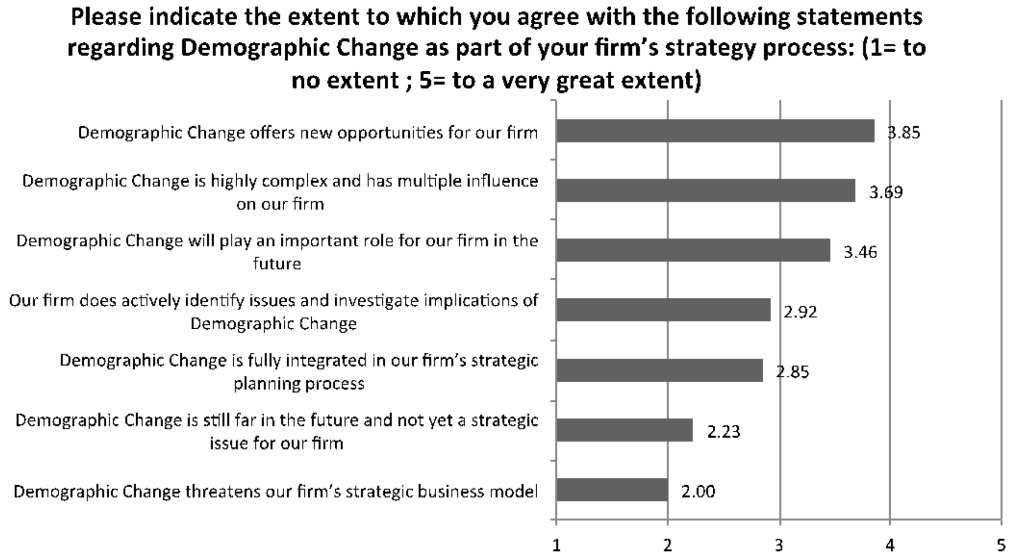


Appendix G: Survey results – rating averages

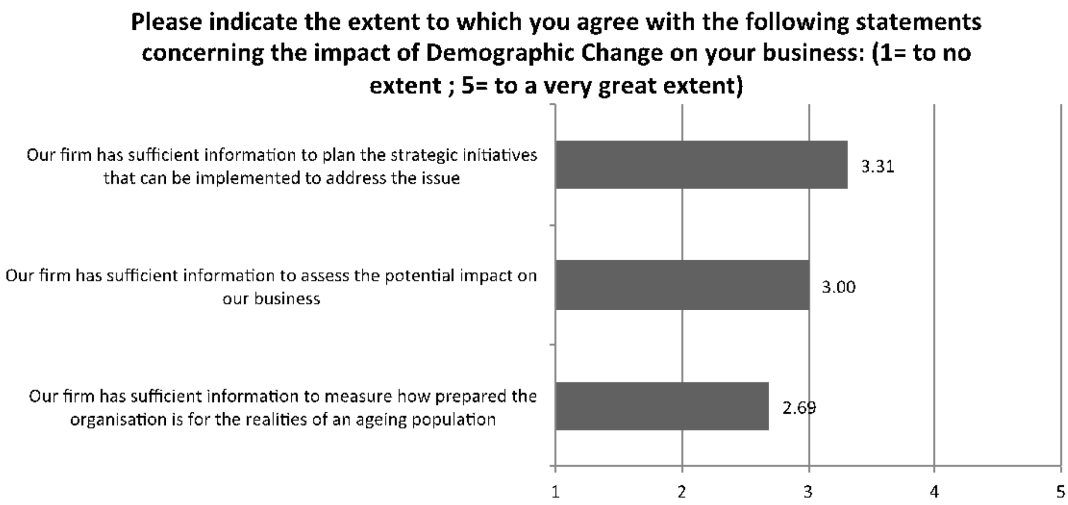
Question 4



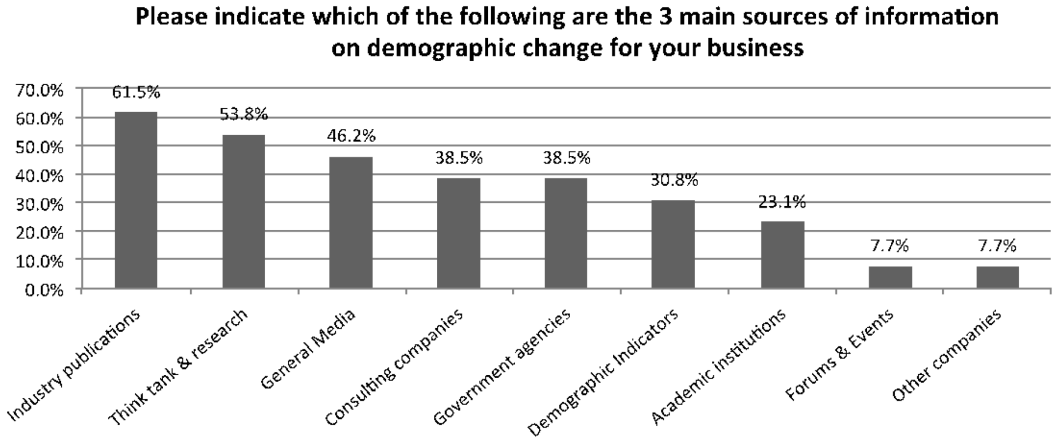
Question 5



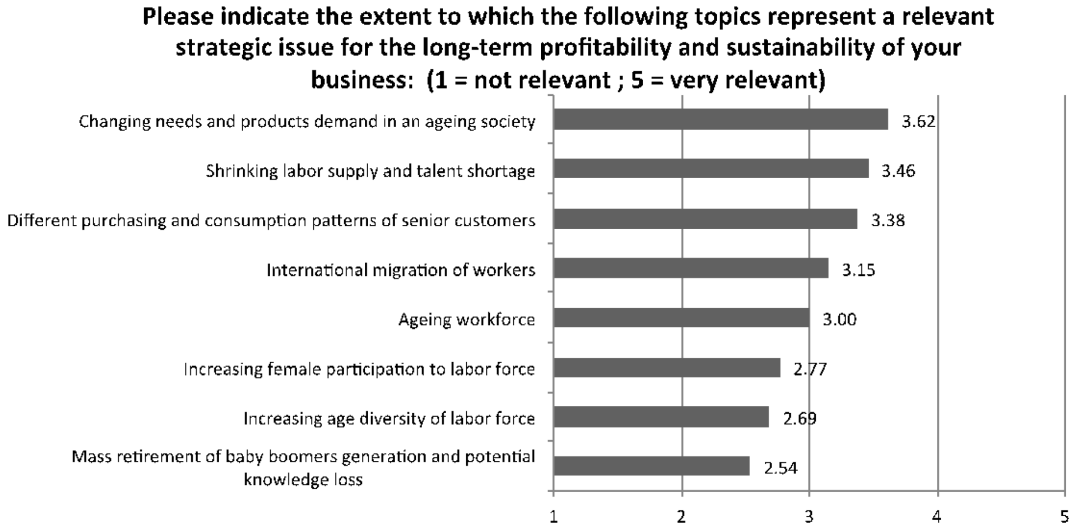
Question 6



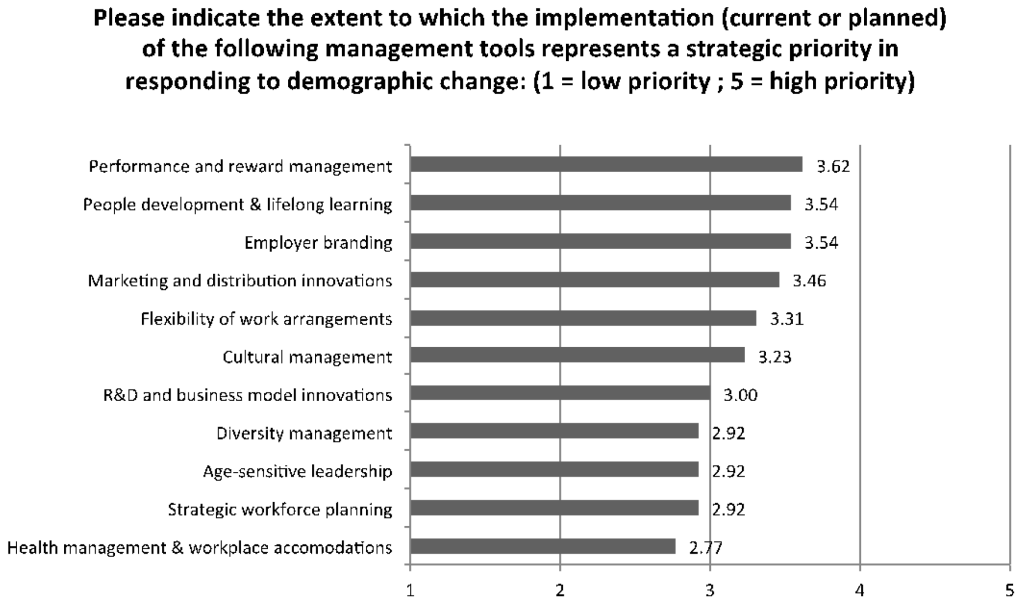
Question 7



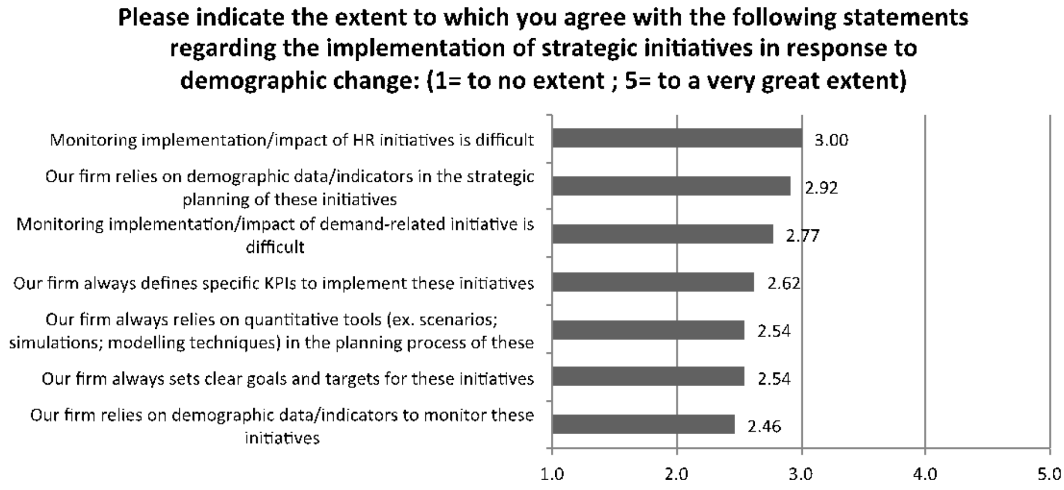
Question 8



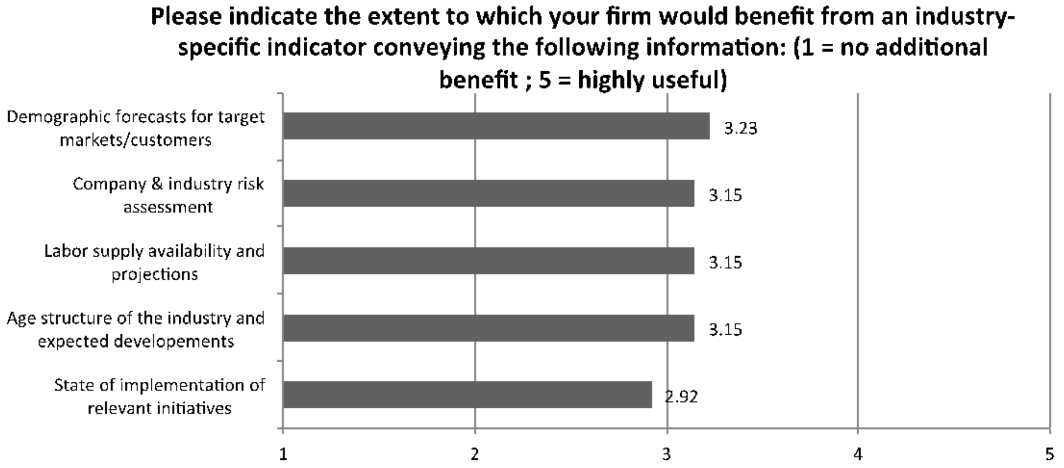
Question 9



Question 10



Question 11



Question 12 & 13

Would your company allocate resources to have an industry-specific demographic risk indicator?		
Answer Options	Response Percent	Response Count
Yes	46.2%	6
No	53.8%	7

Would your company be available to participate in periodic surveys to collect data for the creation of an industry demographic risk indicator?		
Answer Options	Response Percent	Response Count
Yes	38.5%	5
No	61.5%	8

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