

MEADOW Guidelines

**A roadmap for developing a research infrastructure
for measuring the dynamics of organisations an work**

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Introduction: Objectives and scope of the Meadow Guidelines

There is a growing consensus among policy makers all over the world that knowledge has become of great importance for wealth creation and that innovation is an important driver of economic growth. The reasons for this are varied, including the perception that the rapid diffusion of ICT has increased the knowledge intensity of production and the view that processes of globalisation have resulted in a more rapid pace of innovation requiring a more continuous renewal of the knowledge base.

The knowledge-based perspective is now widely accepted as providing a broad framework for the design of economic policies and has been adopted by the European Commission and by such international organisations as the OECD. Knowledge policies have traditionally recognised the key role of research and development (R&D) and skilled scientists and engineers in successful knowledge development and international benchmarking exercises comparing the performance of Europe with the economies of the United States and Japan have typically focussed on lags in terms of these science and technology indicators. A similar focus on science and technology development can be seen in such rapidly developing nations as China, Korea and India where policies are being put in place to promote an indigenous innovation capacity.

Alongside the traditional emphasis on research and development and investments in third-level science and technology education, within the European arena knowledge policies have been cast in a broader social framework giving recognition both to the importance of developing skills at all levels of the enterprise and to the impact of knowledge development and use on social cohesion and inequality. This broader social perspective was the starting point for the 2000 Lisbon agenda which set the goal for Europe *'to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion'* (Lisbon European Council Conclusions, March 2000).

The goal of combining economic and social objectives was further reinforced in the 2005 revised Lisbon strategy incorporating the Integrated Guidelines for Growth and Jobs (2005–2008) which place emphasis on “tapping synergies” between the economic, social and environmental objectives of the Lisbon strategy. Policy guidelines and targets in the areas of R&D, innovation and ICT are formulated in an explicitly transversal manner with respect to objectives in the areas of labour markets, work organisation, the quality of jobs, and education and training. Lifelong learning is seen as integral to a wide range of economic and social objectives and in particular it is a cornerstone of the revised Lisbon’s strategy on achieving ‘flexicurity’ where the goals of flexible and adaptable enterprises and employees are combined with those of employment security and reduced labour market segmentation.

Knowledge-based policies depend critically on having the information to construct relevant indicators as a basis for analysis and for monitoring nations’ progress in achieving specific objectives. Within the European area, where many key areas of policy fall under the competence of individual Member States, jointly established measuring instruments play a crucial role in coordinating national policies around common European goals in a manner that respects the principle of subsidiarity. The European ‘open-method of coordination’ depends on having harmonised data and indicators as a basis for comparing Member States progress in translating European guidelines into national and regional policies that take into account national and regional differences. This underlies the considerable investments made by the EU in infrastructure for the development of harmonised data and measures over a wide range of policy fields including labour markets, living conditions and welfare, information society statistics, and science and technology.

The present Guidelines takes as its starting point the need for guidelines for collecting and interpreting data on organisations and organisational change that are complementary to the standards of existing harmonised surveys that provide relevant information on the characteristics of organisations. At present, however, there exist no harmonised survey instruments specifically designed to collect information on organisations and organisational change. Our knowledge, especially from a comparative perspective, about the internal organisation of firms and organisations is fragmentary and incomplete and at present we lack the information needed to deepen our

understanding of the impact of the use of different organisational practices or processes of change on enterprise performance and employee outcomes. Reliable harmonised statistics on organisations and organisational change could contribute directly to the quality of EU policy initiatives aiming at increasing the flexibility and adaptability of enterprises and employees while simultaneously improving the quality of jobs.

Organisational states and organisational change

The Meadow project sets out guidelines for collecting and interpreting information on both organisational states and organisational change. The Meadow Guidelines is concerned with collecting data at the establishment or workplace level and it does not cover processes of diffusion of new organisational practices or other changes at the sector or national levels. In practice, by aggregating individual data, it will be possible to construct relevant sector or national-level indicators of states and change.

The objective of providing information both on organisational states and on processes of change is dictated by the information needs of both policy makers and analysts. A central issue in organisational design theory is the relation between the internal organisation of the enterprise or workplace and its economic performance. Classic questions include the relative merits of more or less decentralised organisational structures in different environmental settings. As discussed in more detail in Chapter 1, there is an important literature focussing on the performance impacts of adopting 'new' organisational practices. Here the interest, implicitly or explicitly, on assessing whether the adoption of certain organisational forms corresponding to well identified organisational typologies in the literature (e.g. 'taylorist' vs. 'learning organisation') can be associated with different performance outcomes. The Meadow Guidelines provides relevant definitions and recommendations for capturing general characteristics of organisations such as task design the degree of hierarchy. It also provides relevant definitions of new business practices designed to increase employee commitment and involvement.

Knowledge-based theories emphasize the way changes in the economic and institutional context require firms to be more adaptable and innovative than in the past. Globalisation, deregulation and intensified competition require firms to innovate new products and processes more continuously and they require firms to adapt to changes in the geographical location of markets. Such dynamic or adaptive capabilities at the levels of technology, product development and markets often require complementary change in organisation practices and methods and for this reason there is great theoretical interest in the extent and nature of organisational changes. Here the objectives of the Meadow Guidelines overlap with those of the 3rd version of the Oslo Manual in providing definitions of organisational change in relation to organisational innovation. The Meadow Guidelines consider the advantages and drawbacks of retrospective questions versus panel surveys as methods for measuring change and make recommendations for combining these approaches. It also provides recommendations for identifying resources for change and obstacles to change.

Capturing organisational states is of paramount importance for policy-makers and particularly with the context of EU policy it can be argued that measures of organisational change are of limited interest when they are not linked to measures of initial states. Information about rates of change unconnected to initial states can give misleading impressions of organisational stagnation or inertia in cases where the relevant changes were implemented prior to the reference period. Policy-makers are often interested in defining best-practice or a set of best practices as a basis for setting targets and for judging the progress of nations and regions in achieving them. Such targets can be quite general and can serve as basis for national or regional specific policies that take into account particular features of the local context. Achieving greater flexibility or adaptability of enterprises and employees is a general target of this nature and the Meadow Guidelines provide definitions as a basis for constructing indicators.

Linked employer/employee surveys

The Meadow Guidelines set out recommendations for the design and implementation of surveys that link interviews directed to an employer with interviews directed to his or her employees. As discussed in more detail in Chapter 2, while linked employer/employee surveys add to the complexity of data collection they also add considerably to the richness of the information collected on organisations and organisational change. Some aspects, such as the way existing organisational

arrangements or processes of change are experienced and felt by employees, can only be captured with accuracy by directly interviewing the employees concerned. Other aspects including general information about enterprise strategy in the areas of markets, product development or human resources development are best measured at the employer-level.

Linked surveys can provide different and complementary information on the same organisational characteristics or processes. For example, at the theoretical level there is great interest in the type of mechanisms used by enterprises to coordinate decision-making in distributed tasks. As discussed in Chapter 1 typologies of organisational forms are often based on differences in the type of coordinating mechanisms used. At the employer level it is very difficult to measure the use of different coordinating mechanism directly, though indirectly one can learn much by collecting information on the extent to which the enterprise makes use of formal or ad hoc meetings and discussions within and across services, as well as by collecting information on the degree of delegation of decision-making authority in different areas. At the employee level it is possible to collect information directly on the use of different types of coordinating mechanism, notably by asking employees to indicate whether their work pace is directly determined by such factors as their boss or supervisor, the need to respect quantitative production norms, or the automatic movement of machinery and materials. The Meadow Guidelines provide recommendations that fully capture the potential benefits of linked employer/employee surveys while at the same time making recommendations for reducing the costs associated with the increased complexity of data collection.

Matched employer/employee surveys also provide a means of collecting different and complementary information on the outcomes associated with different organisational states and processes of organisational change. At the policy level the *performance effects* of adopting specific organisational forms and practices is of central concern and as discussed in Chapter 1 there is an important theoretical and empirical literature on organisational complementarities focusing on the *performance effects* of combining set of organisational and human resource practices. A wide range of performance related outcomes are of interest including financial performance, productivity growth, growth in sales and employment and innovative performance. Indicators of performance can be collected through organisational surveys both by means of quantitative and qualitative information. General data pertaining to turnover, employment and operating margins and their change over the reference period can be collected at the employer-level and innovation data on the development of new products and processes can similarly be collected for the reference period at the employer-level. Productivity measures may require the use of other sources such as matched register data.

Organisational surveys are clearly well-placed to collect information on outcomes at the level of employment structure, wage structure, and *employee outcomes* including the *quality of work*. The quality of work is a multi-dimensional concept and the Meadow Guidelines do not address these outcomes exhaustively. Guidelines are developed with respect to collecting information on job satisfaction and employee well-being, the physical and cognitive demands of work, job security and careers and selected human resources outcomes including the use of different payments systems. The Meadow Guidelines do not provide guidance for collecting data on working time, occupation health and safety and issues of work/life balance.

While the employer-level is suitable for collecting information on overall company or enterprise policies affecting various dimensions of the quality of jobs in many cases detailed information on these outcomes will come from interviews addressed to employees. The European Survey on Working Conditions (ESWC) organised by the European Foundation for the Improvement of Living and Working Conditions provides standards for collecting information on the quality of jobs and where possible the Meadow Guidelines work with concepts and definitions based on the practices of the ESWC.

The revised Lisbon strategy places emphasis on realising potential synergies between economic and social policy objectives and a central question raised at the level of both policy and theory is whether organisational practices and methods that are beneficial in terms of enterprise performance may also prove beneficial in terms of employee satisfaction and well-being. Knowledge-based economies thrive on the capacity of firms and employees to learn and adapt to changes in technology, products and markets. As discussed in Chapter 1 in more detail, the empirical literature focusing on issues of extrinsic and intrinsic motivation of employees provides evidence that work settings combining high learning and problem-solving with high levels of employee autonomy are perceived as intrinsically rewarding. Karasek's (1979) job demand and control model comes up with a related conclusion in arguing that high cognitive demands at work tend to be stress producing when they are not combined with high levels of employee control. This points to a complex set of interactions, where

under certain circumstances enterprise performance and good outcomes for employees prove mutually reinforcing. To identify such patterns is of crucial importance for the realisation of the Lisbon strategy where emphasis is given to both growth and social cohesion. Matched employer/employee surveys are well suited to collect data on these issues and thus respond to the information needs of policy makers and researchers.

Organisational context and drivers of change

Organisations operate in particular economic and institutional contexts and one of the principal conclusions of organisational design theory is that good practice is conditioned by context. A common view is that current changes associated with globalisation, intensified competition and the diffusion of new information technology drive organisational change in the direction of more flexible organisational arrangements designed to promote competence building and innovation. These micro-responses in turn contribute to more volatility in markets and greater diversification of products. While organisational surveys provide the means for collecting information on how firms are responding to changes in markets and technology they cannot measure macro or sector-level changes except as they are experienced by the respondents.

Work on national innovation systems and on the varieties of capitalism points to the way common changes at the global level are mediated by nationally specific institutions and arrangements resulting in considerable diversity in firm behaviours. This resonates with the emphasis on subsidiarity and local diversity in the Lisbon programme and the 'open method of coordination.' National differences in education systems, labour markets, industrial relations, financial institutions and the networks can result in different capacities for adapting to change and lead to a preferences for particular organisational solutions. These context conditions are of central importance for correctly interpreting observed differences in the adoption of different business practices across nations. Although an organisational survey cannot measure these context conditions directly it can collect information on how they are perceived by respondents. The Meadow Guidelines provides recommendations for collecting information on the characteristics markets, the legal environment, and relations and partnership between firms and organisations.

The public sector

There is a growing focus on how to reform organisations so that they become more market oriented, assuming that this leads to more efficiency in terms of serving the needs of citizens, customers and clients at low costs. This raises the question of the extent of diffusion of management practices originating in the private sector and organisational surveys can provide useful information in this respect. At the same organisations in the public sector are exposed to a transformation pressure emanating from the political system as well as from citizens, clients and customers and these differences in context and the drivers of will give public sector organisations distinct characteristics. The Meadow Guidelines provide recommendations for collecting information on some of the distinctive traits of public organisations. These guidelines could be applied in a separate survey module.

The gender dimension

The gender dimension is important at both the formal and informal levels of organisational processes and structures. Changes in work practices and interactions can lead to gender division, hierarchical gender order as well as construction of boundaries between what is seen as male and female. Organisational surveys can provide information on these processes and effects. Employer-level questionnaires can collect information on formal policies pertaining to gender, while employee-level questionnaires can collect information on discrimination and inequalities as they are perceived and experienced at the individual level.

A more indirect way that organisational surveys can provide relevant information on the gender dimension is by collecting data to show differences in the frequency of use of different practices or policies according to the gender composition of the organisation. Employee-level surveys can provide data for identifying difference in employee outcomes and the quality of work according to the gender of the respondent. This is the approach adopted by the Meadow Guidelines

Chapter I: From theories to analytical framework and basic concepts

Revised Chapter

January 2009

CIT5-CT-2006-028336

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I. Introduction

Organisations should be organised in ways that underpin their organisational goals and contribute to socioeconomic goals. In a dynamic, societal context based on the dual, integrated goals of social welfare and competitive economies, as defined in the Lisbon Agenda, organisations should therefore be efficient, flexible, innovative and offer quality of work (see e.g. European Commission, 2005). Pursuing a knowledge-based approach towards these goals calls for knowledge that can enlighten how organisational characteristics and changes are related to different levels of the economic system, such as: How do organisation and organisational changes contribute to economic growth, quality of work and social goals at the socioeconomic level; How do organisational design and changes support efficiency, sustained competitiveness and other goals at the organisational level, and; How are these designs and changes herein related to maintaining employment, decent wages and good working conditions for individual employees.

The aim of this chapter is to examine theories and practices of organisation and organisational change that can inform data gathering, measurement and the design of policy. The Meadow project has produced an overview of the approaches, the Multilevel Theoretical Framework report¹. Based on these theoretical foundations, the chapter sets up an analytical framework and defines basic concepts as a foundation for data collection. Empirical analysis of such data will further add to our understanding of organisations and organisational change, as well as to policy evaluation and formulation of new policy initiatives for underpinning economic efficiency, growth and social goals in accordance with the Lisbon Agenda.

Having addressed theories and practices on these issues in section II, section III will establish an integrated, theory-based analytical framework that can function as an important point of orientation for surveying and measuring dimensions of organisations and organisational change and section IV will address areas for investigation in a statistical survey instrument.

¹ Nielsen et alii (2008), MEADOW Background document N°1.

II. Theories on organisations and organisational change

Our current understanding of organisations and organisational change draws on research from many disciplines, including economics, industrial sociology, psychology, organisation studies, management science and labour studies. Similarly, our knowledge is also based on different paradigmatic approaches for gaining knowledge (see e.g. Ackroyd, Batt, Thompson, & Tolbert, 2005). Acknowledging that different approaches have contributed with significant insights, this chapter of the MEADOW Guideline manual will present theoretical perspectives that can be seen as complementary, and which will lead up to an analytical framework that can inform survey data collection and policy understanding. The goal of this chapter is thus to ensure that the design of surveys on organisational characteristics and change result in obtaining data that are relevant for both theory and policy.²

The theories and theoretical approaches addressed include the following levels and dimensions of organisation and organisational change:

- Organisational context and socioeconomic drivers of change
- Firm policies and management practices
- Work system and work organisation
- Organisational performance: Economic and social

Organisational context and socioeconomic drivers of change

There are many theoretical contributions arguing that the environmental context and external drivers of change are crucially important to organisations. *Contingency theory*, *open system theory* and *organisational design theory*, for example, suggest that structural aspects of organisations are related to the environmental context of organisations (March, 1976; Nystrom & Starbuck, 1981; Scott & Davis, 2007). There is no universal best way of organising, instead successful organisation is contingent on, and should be in compliance with the external environment (Lawrence and Lorsch, 1967; Hofer, 1975; Pennings, 1992). In keeping with this view, changes in contingent environmental factors such as competition, resources and technology call for organisational changes and adjustments, and it has been suggested that organisations in rapidly changing environments do organise so that they are adaptive to their changing environment (Burns & Stalker, 1961).

Building on prior theoretical contributions such as the *behavioural theory of the firm* (March & Simon, 1958; Cyert & March, 1963) and *Schumpeterian economics* (Schumpeter, 1934), *evolutionary economics* has a strong focus on the environmental context of organisations. Here competition constitutes the major selection mechanism that selects some firms and deselects other firms (Nelson & Winter, 1982), and the competition context shapes organisational forms and changes in these forms. This competitive pressure on organisations is arguably reinforced in a globalising and technologically developing economic setting, and more recently evolutionary economics has been an important building block in the *literature on dynamic capabilities*. Central in this literature is that organisations must develop dynamic capabilities to create, extend and modify the ways in which they operate if they are to survive and prosper in a dynamic and competitive context (Helfat et al., 2007). In fact, a dialectic interaction can be seen to exist between organisations and their environment. Organisations are not only shaped by their environment, they also affect the socioeconomic environment, especially when they move at the competitive edge thanks to dynamic capabilities, practices of continuous learning and adaptation (Armbruster et al., 2006).

² The specific selection of theories discussed in this chapter reflects the intention to create a basis for public policy through efforts to measure through survey instruments organisational characteristics and organisational change. This is reflected in a certain bias in favour of theories that assume that organisations can be planned and managed in order to realise goals and objectives. Little weight has been given to theories describing organisations as social-psychological phenomena, cultures, shared meanings, arenas for sense-making, processes in terms of mise-en-scene etc.

The competitive context is, however, merely one dimension of the institutional environment surrounding and shaping organisations. *Institutional approaches* establish that other dimensions of the institutional context of organisations are also important for organisation and organisational change. First, competition and economic development are not abstract phenomena constituting an abstract, universal context of organisation. It has been stated that *social systems of production* (Hollingworth & Boyer, 1997; Gjerding, 2008) and *varieties of capitalism* (Hall & Soskice, 2001) can explain national differences in social and economic structures, performances and policies. This is related to the fact that competitive forces are embedded in different types of welfare states, including social welfare systems; national educational and learning systems; systems of labour and industrial relations; and national governments imposing rules on and interacting with their national economic systems and businesses. With a focus on innovation and economic development, Lundvall (1992), Nelson (1993) and others have argued that we have *national innovation systems* in which institutional setups are critically important for innovation and economic development among firms and other organisations.

The circumstance that competitive forces are embedded in welfare states and affected by political systems raises another important issue related to organisations and organisational changes. A large fraction of today's organisations are public organisations serving public goals and political decisions, so they should be analysed and understood within this institutional context frame. For example, the essence of work in many public organisations is related to other human beings such as patients, students and clients. This particular property shared by the professional work of e.g. nurses, physicians, teachers and social workers has provided the basis for a theory on *Human Service Organisations* that allocates an important focus on moral foundations of work and social welfare implications (Hasenfeld, 1983; Sarri & Hasenfeld, 1978). Such social values and welfare perspectives on human service organisations counterbalance a pure focus on organisational efficiency in the public sector, and they also counterbalance current *New Public Management* transformation pressures and reforms introducing market orientation and efficiency based schemes in the public sector (Hood, 1991, 2004).

To sum up, the organisational context and socioeconomic drivers of change are arguably important for studying organisations and organisational change. Theoretical perspectives dealt with in this section calls for investigating how competitive pressures on organisations affect their organisation and changes herein, as well as they call for a similar investigation of how other institutional dimensions and political decisions affect businesses' organisation. Finally, it has been pointed out that organisations differ, and that public sector organisations in some respects should be studied on their own merits.

Firm policies and management practices

Confronted with external pressure organisations may take a more or less active stance in accord with their policies. The policies of an organisation are defined as main lines of the general strategy in terms of goals and means, set up by the management to fulfil the identified needs and ambitions of the organisation. Research results point to the importance of a flexible and adaptable management strategy defining new external possibilities and the development of a corresponding internal organisational structures securing communication and learning processes backed by positive employees and the development of their competences and resources. As mentioned in the previous section, this does not mean that there is only one successful way of managing organisations, but it does mean that *given* internal and external circumstances some ways of organising produce better results. Similarly the strategy may at times win by securing a steady state, whereas change is necessary under other circumstances. What produces better results changes from time to time? In the following, important dimensions for the improved understanding and further analysis of the organisational conditions for success are to be treated with the aim to underpin the collection of survey data.

Organisational structure

Organisational structure refers to the groupings of people, tasks and objects into sub-units and business functions, and the systems to ensure coordination and control both horizontally and vertically within boundaries of the organisation and outside these boundaries, with suppliers, customers and other business partners.

From a strategic perspective the organisation's fitted relationships with the suppliers, customers/clients and knowledge institutions are of paramount importance. Total Quality Management and lean production strategy, are among several approaches that underline inter alia value chain orientation and customer focus (Womack and Jones 2003) (see below).

Regarding the internal structure the key features comprise the division of labour, coordination mechanisms, authority relationships and control. They are central to how the management governs and changes the organisation and how the employees experience their working conditions and possibilities for personal development. Research presents various ways in which the key features have been combined and characterised different types of management and related outcomes. The history of the change from bureaucratic and/or authoritarian types to more organic and human oriented organisations has often been told, but the more exact content of the changes and their implications still present puzzles that demand more investigations. In the following, major types of modern management are highlighted with the aim of crystallising important structures and the related processes and human factors of value for future studies.

Management techniques and practices

Management techniques are models to organise activities that are used by managers to rationalise actions they take in organisations. A management technique generates a management practice when it contributes to shaping rules and methods of work. The research on techniques and practices has deepened our understanding of the impact of different organisational practices or processes of change on enterprise performance and employee outcomes.

In *High Performance Work Systems* (HPWS) the management focuses upon extensive employee involvement in operational decision making as a means to harness the potential of people and improve the performance of the organisation. Employees in a HPWS are expected to experience greater autonomy over their job tasks and methods of work and have more control of communication about work matters with other employees, functional specialists, managers, and in some instances with vendors and/or customers. In addition human resource practices are also important (Appelbaum et al., 2000). Employees in a HPWS require more skills to do their job successfully and many of these are firm-specific. In sum effective HPWS require three basic components: opportunity for substantive participation in decisions, appropriate incentives and training and selection policies that guarantee an appropriately skilled workforce.

In the *Socio-technical systems design* (STSD) (De Sitter 1982) attention shifts from working groups to the organisation as a whole. STSD thereby formulates a set of design rules for a structure of division of labour that have a positive effect on the performance of the organisation as well as the quality of working life. In modern STSD coping with the complexity of the organisation occupies an important position. A central design principle building upon system theory (Ashby 1969) holds that organisations must create a number of variation options, equal to those present in its environment. The more complex the environment, the more complex must be the organisation.

The practice of *Lean Production and Administration* has made its headway in many countries since the 1990s. The aim has been improved performance measured by profits and/or new product development. Lean may be defined as applying a number of principles or seen as taking a series of practical steps. There is a close connection between the HPWS literature and the literature on lean production. Drawing upon Womack and Jones who initiated the Lean wave, the Lean principles can be condensed to "precisely specify *value* by specific product, identify the *value stream* for each product, make value *flow* without interruptions, let the customer *pull* value from the producer, and pursue *perfection*" (Womack & Jones 2003: 10). The practical use of Lean strategies comprises as different issues as cost reductions, employee empowerment, value chain orientation, customer focus and product innovation.

Total Quality Management (TQM) covers a broad field of management practices. Important aspects include underlying values of the nature of quality and limits to quality, focus upon customer – supplier relationships and structures and processes securing the chosen quality level. A TQM strategy is expected to revise, improve and optimise each of the internal procedures and processes of an enterprise. Quality is assumed to arise from optimal process design. There is an emphasis on the importance of everyone in the organisation being involved as every step or job process is seen as an opportunity to eliminate error or waste, and to improve the output of the organisation (Morgan &

Murgatroyd, 1994). Thus, the management concept of continuous improvement processes (CIP) is often seen as an essential part of the implementation of a quality management system (ISO 9001). The aim of CIP as a management concept is to improve the quality of both the products and the technical and organisational processes of an enterprise in small yet continuous steps. It is understood as an organisation-wide, ongoing learning process of focused and sustained incremental innovation (Bessant and Caffyn 1997, Bessant et al. 2001).

As a management practice *Human Resource Management* (HRM) is an older concept than the previous ones. In contrast to these practices which underline the strategic importance of direct coping with the environment, the HRM regards the human factor as the most important element in creating competitiveness, efficiency and quality. This is done with reference to psychological, social psychological and organisational theories and methods developed over more than fifty years, and concentrated around the relationship between the individual and the organisation. Important dimensions of HRM comprise employee commitment, development of human resources and 'restructuring and job redesign to allow devolved responsibility and empowerment'. It is part of the theory that the management has to involve itself and that there is a need to 'manage the managers'. From the start both 'hard' and 'soft' models have been developed. The 'hard' models emphasise the strategic and rational approach to managing resources, while the 'soft' models emphasise the utilisation and development of humans, based on consensus and commitment (Storey 1992). The effects of adopting a wider set of complementary HRM practices including compensation systems, training and careers on performance have been analytically in focus during the last decade. However, there are different views on what practices should be included (Lorenz, Michie & Wilkinson 2004).

The management of organisations is fundamentally a question of managing the interrelationships between the actors inside the organisation as well as between insiders and outsiders. From this perspective processes of information and knowledge, communication, and mutual learning come to the fore. These processes are central to *Organisational Learning Theory* and the *Learning Organisation*. While organisational learning theory focus on the informal situated and collective learning processes based on experience in the so called 'communities of practice' (Lave & Wenger 1991), the theory of learning organisation identifies structural and cultural traits promoting learning and establishing relations between individual, group and organisational level, without a cohesive conceptualisation of the learning process (Elkjær B. 2000). Both these concepts include some general traits possible to capture through survey instruments, which have in common that they speed up both adaptation and innovation. The first trait is a limited number of levels in the vertical hierarchy. The second is vertical and horizontal communication supported by interdivisional teams and/or by job rotation across division borders. The third related trait is the delegation of responsibility and situated learning. A fourth trait relates to external interaction and a network positioning balancing bonding (long term relationships) and bridging (repositioning and fluid relationships).

In this connection the making use of modern Information and Communication Technologies (ICT) is an important choice as underlined by the Kok report (2004). ICTs are tools (equipment and software) that are used to produce, process, transmit and store information. The use of ICT implies the gathering and storing of huge quantities of data and the diffusion of the content of information and knowledge of importance for production and services as well as innovation and learning. An important prerequisite for an effective use of ICT is social acceptance of exchange and a proactive behaviour among the organisation's actors.

Knowledge Management tackles the problems of data accumulation, diffusion, and implementation. The fundamental problem in knowledge management is to transfer and transform knowledge between the different types of knowledge and between different levels from individual level to collective level in the organisation.

Changes in management techniques and practices and the attached structures and processes signal *organisational innovations* to the extent they are used for the first time by the organisation and express significant changes. *Obstacles* to both innovative and non-innovative changes are found in the actors' attitudes and behaviour, the lack of human resources or financial resources and time pressure. In an organisational context, individuals may display inertial behaviour because organisational changes can disrupt the "organisational truce" (Nelson and Winter 1982) on the one hand, and reduce the discretionary power they obtained within the organisation, on the other. Another barrier is difficulties of learning new ways of work and 'unlearn' old ones (Lazaric 2007). Finally time and budget restrictions and lack of slack are well known obstacles.

Organisational flexibility

A major policy or strategy to secure adaptability relative to the context of instability and choice of transformation is found in the diverse characteristics of *organisational flexibility* (Fellenz 2000). Different studies have established the distinction between two basic kinds of organisational flexibility of firms – functional and numerical. *Functional flexibility* is supposed to increase the possibilities to redeploy employees between activities and tasks by empowering workers with greater decision-making responsibility and assigning them a greater scope of different activities. This form of flexibility is generally associated with team work, autonomous work teams and flat hierarchies (Chadwick and Cappelli, 2002). Firms aiming at achieving a high degree of functional flexibility, however, need to offer incentives to the employees to mobilise their tacit knowledge. Thus, functionally flexible firms often employ financial incentives based on group performance (Macduffie, 1995). A number of empirical studies have found that functionally flexible firms are both more productive (Black and Lynch, 2004; Zwick, 2004) and more innovative (Hujer and Radic, 2003). *Numerical flexibility*, concerns quantitative regulation of labour by means of 1) hiring and firing and use of instruments such as temporary contracts (external numerical flexibility) 2) regulating working hours among the workforce (internal numerical flexibility). Numerical flexibility is aiming at a reduction of fixed costs e.g. by contracting out jobs (Gramm and Schnell, 2001).

Both use of numeric and functional flexibility are important in relation to the more general discussion of '*flexicurity*'. A leading idea of flexicurity is that there is not necessarily a trade off between flexibility and security. A balanced interaction between flexibility and security may create a win-win situation for employers and employees. Preece (1986) has proposed the concept of *structural flexibility*, which is concerned with the extent to which the structure of an organisation enables or hinders responsiveness of members of the organisation to change. This change could be initiated from within the organisation itself or it could be a reactive change in response to changes in the environment of the organisation (Sethi, 1990).

A strategic use of combinations of flexibility measures gives the possibility of continuous organisational adjustment in relation to changes in the environment. Especially the use of functional flexibility must be expected to enhance learning and firm specific competencies among the involved employees.

To sum up, the treatment of the firm policies and management practices has shown the importance of a flexible management strategy as part of its policy. Moreover such strategic action must be embedded in various organised activities implying more or less change of the organisational structure and work tasks. Taking notice of drivers of competition etc these activities and structural changes have materialised in a number of management techniques and practices to cope with the challenges. Common features of these practices have been an increasing importance of knowledge, learning and innovation mirrored by flatter hierarchies and intensified communication and task coordination. Such changes have been founded on management's initiatives towards employees' involvement by delegation of responsibility. Moreover ICT has got a more and more central place. At the same time that change is acknowledged as an important feature in today's management practices it is also important to remember that research has shown a number of obstacles to change.

Work system and work organisation

The work system is the meeting place of employers and employees. The employers set the system's policies and strategies in more or less consultation with the employees. In the previous section the management practices of the employers were in the centre of interest, now the focus is directed towards conditions affecting the employees in the work organisation. This concept refers to how work is actually divided into tasks, the building of tasks into jobs and assignments and the skills required, the interdependencies between workers in performing the job, the job demands, the degree of control over the work done and the support possibilities. As treated by industrial sociology, labour studies and related disciplines within psychology and economics these arrangements must be seen as the result of management's decisions and employees' participation in the decision making within the constraints of certain national and international regulations regarding health and safety etc. The previous mentioned drivers of organisational change set more or less clear imprints upon the

activities of the work system and its economic and social performance. Change initiatives actualise the choices of new forms of work organisation, employees' participation, the intended and non-intended consequences of job demands and competence development as well as problems of work intensification, motivation and how to organise the reward system.

New forms of work organisation

One avenue of change has centred upon changing individual tasks by introducing job enrichment, to the benefit of job satisfaction, learning and economic performance, but often such a change has been connected with various *forms of group work*. Group work is also an important element in decisions of decentralisation of organisation structure. Both to researchers and practitioners group work has raised many questions of how to organise group work and what to expect as outcome. Labels such as autonomous groups, semi-autonomous groups, quality circles, project groups, task forces and teams have flourished. There has been no definitive definition of any of these labels used within manufacturing and services and at higher and lower levels in the hierarchy. Also the social and economic effects have been under studied. Nevertheless one finds many examples of group work in practice and it is an important task to pin down significant forms of group work. Among central elements that differentiate between groups are found selection of leader and group members, training, autonomy and task complexity. Among negative results are found destructive group pressure and short cycled production (Fröhlich and Pekruhl 1996).

Employee participation in organisational development

According to EU regulations worker information and consultation is mandatory for most forms of work organisations. In this connection employee representatives play an important role in the social dialogue between employer and the employee level besides the direct participation of the employees in the management's decision making (EPOC 1997).

Nielsen (2004) shows that a 'co-operation regime' combining direct and indirect participation measures is most effective concerning development of the learning organisation and that it promotes innovation. Especially in case of potential conflict the indirect methods show their importance. It is also of interest to underline research results showing different impacts of different extent of employee discretion and so different work organisations and related learning situations. This is done by Arundel, Lorenz, Lundvall and Valeyre (2007) who show that there are systemic links between the way work is organised and learning takes place on the one hand and innovative performance on the other hand. Increasing weight upon learning in the firms and institutions means priority for creativeness, quality consciousness and social competences and a number of other individual and collective qualities. In such a milieu some people thrive whereas others meet difficulties in mastering the work situation e.g. unskilled or semi-skilled workers (Lundvall and Nielsen 1999). Schienstock (2001) discusses this problem in learning organisations in relation to the concept of social exclusion. In an industrial relations perspective potential negative effects of the learning organisation comprise structural unemployment, peripheral attachment to the labour market and outright exclusion from the labour market.

At the firm level this development raises new issues for both employers and employee representatives. An example of a proactive stance taken on the trade union side is the Swedish union movement's reports on good work and work for development in the late 1980s and the follow up of this initiative by unions in other countries. Major ingredients comprise safety and job security, democratisation, work autonomy and task variety but also adjusted individual needs, future orientation, social considerations and possibilities regarding work - non work sphere, and influence upon the product (Bottrup 1992, von Otter/Sandberg 1998).

Job quality

Among the developments at the employee level due to technological changes and related choices by management much interest has been directed towards the effects of job design and job quality. On the one hand tasks have been specialised and made as repetitive as possible and on the other hand jobs have been 'enlarged' and part of longer work cycles. In both cases productivity may have benefitted whereas employee satisfaction or well-being usually has only increased in the second case. Other aspects of job quality concern monetary and non-monetary rewards, skills utilisation and job security to be treated in the next paragraphs.

In general it is a complex task to link developments in organisational structure and processes to the collective and individual outcome for employees. A traditional approach has been to look for indicators in relation to health and well-being. Subjective indicators may refer to workers' degree of satisfaction in their work situation. Objective indicators may refer to sick leave and to the use of medicine.

A concept of much importance in present day's job quality considerations concerns the employees' work stress. Many theoretical models and concepts have been developed in job stress research, but the dominant model during the last decades has been the *Job Demand and Control (JD-C) model* of Karasek (1979) and Theorell (Karasek & Theorell 1990). The JD-C model is based on two dimensions; job demands and job control, or decision latitude. The expectation is that neither high demands nor low control causes job stress. It is rather the combination of high demands and low control that is detrimental to health. Healthy work is defined as a job that gives the worker opportunities to use her skill, and to control her activities in order to balance the demands of the job. These active jobs give the employee opportunities to learn and motivate her to develop new behaviour patterns (coping strategies).

As organisational change often leads to changed work practices and new job tasks as well as to changed power relations between workers and managers or between groups of workers, the JD-C model is relevant for studies of changed working conditions as a consequence of organisational change. Several studies also indicate that organisational change can be hazardous for health (Bordia et al 2004, Kaminski 2001, Kivimäki et al 2001) while other studies indicate development possibilities for the workers as a result of organisational change (see e.g. Balogun & Jenkins 2003). Both these situations can be reflected by the JD-C model

From another perspective stress is bound to the breach of a norm of distributive justice. This idea is mirrored by the *model of effort – reward imbalance* (ERI). Recurrent violation of the norm of reciprocity may elicit a sense of being treated unfairly and suffering injustice which afflicts the workers' self-esteem. Conversely, adequate approval and esteem, whether experienced in terms of money or recognition, job promotion or job stability, enhances self-esteem and satisfaction.

How organisational change affects job demand, job control, efforts and rewards might be contingent both upon the starting point and the direction of change. Stress levels may be high for workers that have been engaged in standardised work for many years and suddenly have to learn to make more decisions by themselves. Another factor that mediates the effect of organisational change upon stress is the employment security related to the firm and the security offered for unemployed. Stress is to be expected if the risk for losing the job is high and if the individual carries most of the economic risks of becoming unemployed. For instance recent organisational changes have exposed middle managers to high risks of job loss and this may contribute to their stress level in connection with processes of organisational change.

Motivation and reward systems

Work is an important factor in individuals self identification and desire for social relationships (Graversen 1992). Therefore it is not difficult to understand that motivation to work must build upon these elements. Yet in recent years more focus has been directed towards the important balance between work and family life not to forget the negative side of unemployment. How exactly to design jobs from this basic understanding is a major challenge which demands monitoring ongoing experiences. It is necessary to refine well known theories of hierarchy of needs (Maslow), organisation design by 'job enrichment' and 'job enlargement' (Herzberg 1968) and the importance of individual expectations relative to organisational goals (Vroom 1964).

Monetary rewards or compensation systems are an important part of motivation theories. From an employee perspective it is important to secure internal fairness in pay relationships among jobs in the organisation. Furthermore the result will depend upon mutual understanding between employer and employee let it be by job analysis, job evaluation or employee appraisal. The various types of reward systems and pay forms are based on (1) individual or group level (2) pure time pay, pure performance pay or mixed time and performance pay. Most often the reward system and pay forms in the organisation has three elements: a base pay (time based), performance pay (job evaluation) and indirect pay (non cash benefits). At the same time it is important to notice that the introduction of such systems within firms often is dependent of collective agreements. It is of much interest to get a

better understanding of the effects of ongoing changes toward more negotiations about compensation at the work place level.

Skill requirements, skill utilisation and training

The extension of new management practices and the role of employee participation point to a number of skills which are seen as necessary for these developments. They comprise various social skills combined with technical skills. Examples comprise 'taking responsibility' engage in commitment and involvement and becoming multi-skilled. The necessary acquisition and upgrading of such skills are based on both formal training supplied by external agencies and on-the-job learning. The specific advantages and disadvantages of different ways of learning under given circumstances are in need of more research.

Contrary to this development degrading of skills requirements can be seen as emanating from fragmentation of jobs. Such a development should not be seen as a purely technical necessity but is closely connected to the choice of work structuring and division of labour. In this connection it must also be mentioned that firm flexibility and labour market developments mean that employees may not use their original education and vocational training but work in quite another field.

In continuation of the various skill categories must be mentioned the difference between skills and competence. The latter has been defined as an "underlying characteristic of an individual which is causally related to effective or superior performance in a job" (Mansfield, 2004). Competence building has a broader perspective than skill development and is a strong element in Human Resources Management's approaches.

Job security and employment status

The employment status of employees can vary between full-time and part-time work, and between permanent contracts and temporary contracts, and again the contracts may contain more or less strict dismissal rules. In connection with organisational change it is important to get a better understanding of the social and economic effect of these different employment statuses and corresponding job security or insecurity. Recent research has suggested that flexible non-standard employment may have adverse effects on the health of workers (Benach 2004). Nevertheless the empirical evidence linking non-standard work and health is extremely limited and the results are mixed.

To sum up, the treatment of the work organisation has pointed to changes of work tasks, job demands and the parallel requirement of new skills. But it has also been underlined that much has to be done to get a clearer picture of the content and the implications of the changes because positive impressions of group work has been opposed to negative ones and job enrichments confronted by job exclusion. In this context the theoretical perspectives of the positive value of balance between job demands and job control, job efforts and job rewards should be reflected in a MEADOW effort to develop indicators of worker outcomes of different organisational forms to the benefit of a better understanding of economic growth and individual well being.

Organisational performance: Economic and social

Firm strategy, management practices, structure of the work system and the way in which an organisation adapts to dynamics in its environment are all perceived to affect organisational performance. In this section we classify writings and perspectives on organisational performance into two broad categories: (1) Economic performance, and (2) social performance, each category containing different subcategories.

Economic performance is closely related to the competitive performance of private business firms measured in terms of productivity, financial performance, firm survival and innovation performance. These generally accepted measures are integrated in many literatures taking interest in economic performance of organisations, for example in the aforementioned literature on Human Resource Management where bundles of new HRM practices have been found to positively affect productivity and financial performance (Huselid, 1995; Huselid, Jackson, & Schuler, 1997; Macduffie, 1995). Firm

survival as a performance criterion is integrated in e.g. evolutionary economics (Nelson & Winter, 1982), and given today's dynamic economic settings, innovation and innovative performance has received increased attention in the literature (Fagerberg, Mowery, & Nelson, 2005). Related to innovation as an outcome and as a measure for economic performance, Arundel et al. (2007) find a link between organisation of work and innovation performance.

Even though many stakeholders will emphasise concepts and measures referring to 'equity', 'attending common good' and 'quality' when evaluating public sector performance, then economic performance criteria are also related to public organisations. Public organisations should allocate scarce resources efficiently and deliver quality service in a productive way, and the aforementioned transformation pressures and reforms related to New Public Management are meant to increase economic performance orientation and efficiency based schemes in the public sector (see e.g. Hood, 1991, 2004). Besides, public sector entrepreneurship and public sector innovations are increasingly important in today's evolving societies (Windrum & Koch, 2008).

Turning to *social performance*, it is here defined as good employment and working conditions, including decent wages, safety at work, potentials for competence development and work-life balance. Given the European context and the Lisbon Agenda, these social dimensions of organisational performance are an important complement to the economic performance measures.

Issues of social performance are dealt with in literatures on organisation, management practices and organisational change. If, for example, work intensifies in a context of organisational changes and new management practices (Burchell, Lapido, & Wilkinson, 2002; Green, 2001), then it may influence employee stress, psychological health and family tension negatively, especially if the work intensification is not handled appropriately (Green, 2004). This is in accordance with the Job Demand and Control (JD-C) model proposing that a combination of high job demands and a low degree of worker control may lead to job-related stress and thus be detrimental to health. Healthy work, on the other hand, is related to jobs that give workers opportunities to use their skills and control their activities in order to balance the demands of their job (Karasek, 1979; Karasek & Theorell, 1990). Such jobs also motivate employees to learn and cope with change through new behaviour patterns. As organisational change often leads to changes in work practices, new job tasks and changes in power relations between workers and managers or between groups of workers, the JD-C model is relevant for studies of organisational change. Some studies have indicated that organisational change may be hazardous for health (Bordia, Hunt, Paulsen, Tourish, & DiFonzo, 2004; Kaminski, 2001), while other studies indicate development possibilities for the workers as a result of organisational change (see e.g. Balogun & Jenkins, 2003).

Dealing with social performance, parts of the literature on organisation and organisational change focus upon the gender dimension. Kanter (1977) and Acker (1999) are two contributions arguing that structures of and processes in organisations are important for gender biases and divisions, e.g. related to division of work, wages and hierarchies. Organisational change often means that work structures and interactions change, and according to Acker (1999) this means that organisational change has a gender dimension, and may thus alter power relations and recondition previous gender biases. Empirical studies have, however, indicated that the traditional gender order and biases are very resistant to change (Abrahamsson, 2000; Bergman, 2004).

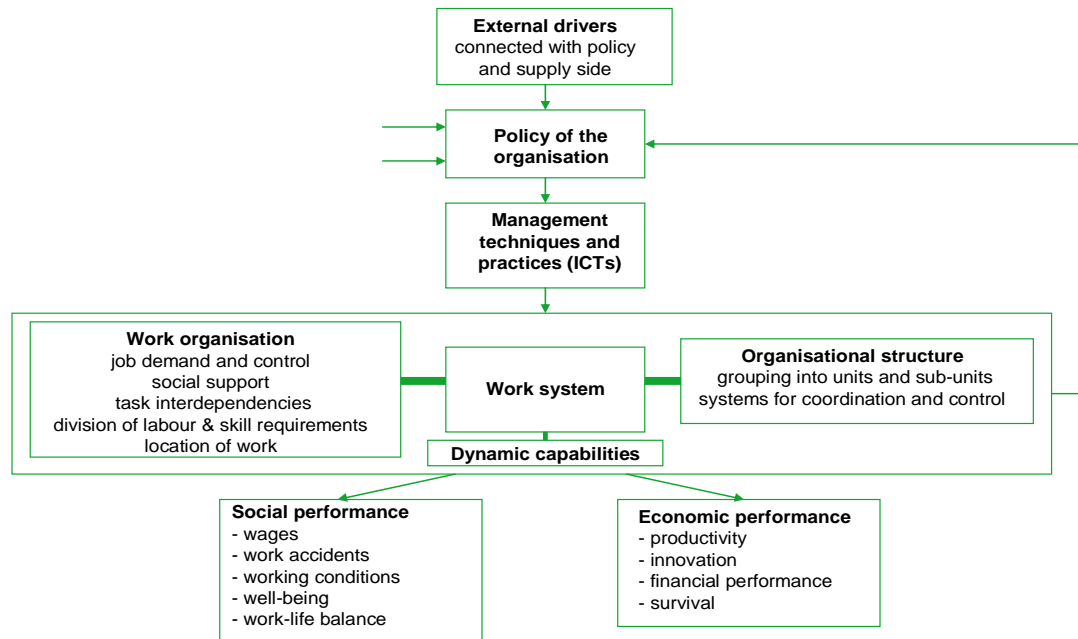
To sum up, organisation and organisational change lead to different types of economic and social performances. Economic performance can be measured in terms of productivity, financial performance and firm survival, whereas social performance is related to good employment and working conditions. Depending on organisational goal specifications both performance categories can be seen as important and, thus, call for further investigation and collection of empirical data. As for the social performance of organisations grounds have been given in the literature for scrutinising biases in relation to gender.

III. An analytical framework and basic definitions

The theoretical perspectives and practices accounted for in sections II form the basis of this manual's analytical framework for surveying organisations and organisational change. Figure 1

illustrates the main structure of this analytical framework, and the figure can be interpreted from two perspectives: (1) From the perspective of the individual organisation, the target of an employer survey, and (2) from the perspective of the individual employee as a part of the organisation and living with the social consequences of it, the target of an employee survey.

Figure 1: The analytical framework



First, figure 1 highlights that the organisational context and drivers of change are important. Organisational context is here defined as main factors that influence the structure and characteristics of the organisation, and drivers are defined as main factors that influence, or cause the organisation to change. In the MEADOW survey guidelines, it will be important to capture external drivers, i.e. exogenous changes in the environment of the organisation, and in particular those connected to change in global competition and technology as well as changes in public policy (e.g. regulations, education and labour market policy).

Second, the MEADOW guidelines shall be advanced to capture survey information on internal dimensions of organisation and organisational change. Our theory-based analytical framework thus calls for survey information on the following concepts and definitions:

- The policy of the organisation defined as main lines of the general strategy in terms of goals and means, set up by the management to fulfil the identified needs of the organisation.
- Management techniques and practices: Organisations are not only composed of people and objects, they also embed values and beliefs, knowledge and rules allowing managers to evaluate the way they perform and to orient behaviours and choices. Management techniques are models of organised activity used by managers to rationalise actions they take in organisations. A management technique generates a management practice when it contributes to shaping rules and methods of work.
- Information and Communication Technologies (ICTs) are tools (equipment or software) that are used to produce, process, transmit and store information. ICTs and managerial techniques and practices are closely connected.
- Organisational structure refers to the grouping of people, tasks and objects (like equipment or buildings) into sub-units and business functions, and the systems to ensure coordination and control both horizontally and vertically within the boundaries of the organisation and outside these boundaries, with suppliers, customers and other business partners.
- Work organisation refers to how work is actually divided into tasks, the bundling of tasks into jobs and assignments and the skills required, the interdependencies between workers in performing the job, the job demands, the degree of control over the work done and the support possibilities.

Most of the internal dimensions of organisation may be surveyed either from a static, structural perspective, or from a more dynamic, process-oriented perspective. Given today's dynamic economic and social environments, special attention shall be directed to dynamic, organisational capabilities and organisational change. Dynamic capabilities are here defined as the set of characteristics of the work system that enable an organisation to adapt and innovate with a low adjustment cost. Some management practices aim at developing them. Organisational changes are defined as changes in the applied management techniques and practices (including ICTs) or in the work system, either in the structure of the organisation or in the actual organisation of work. In providing guidelines for measuring organisational change at the employer level, we focus on changes that are intended by the management. As for employee participation to organisational change, it is perceived to be an important channel that contributes to employee influence.

Third, with MEADOW guidelines related to external context factors and drivers, as well as to internal structures and dynamics of organisation, these shall be supplemented with guidelines outlining how survey data can be collected on economic and social performances related to organisation and organisational change. Economic performances are here defined as increases in the competitive advantage of *private organisations* on markets. Resource use, quality of service delivered to the citizen and innovation are three important dimensions of economic performance in *public organisations*. Social performances of organisations are related to how they, whether public or private, contribute to securing employment, as well as the commitment of employees to their job, their health and work-life balance.

IV. Areas for investigation

The MEADOW manual is based on the basic perception that policy debates, policy initiatives and policy evaluation for underpinning economic efficiency, growth and social goals in accordance with the Lisbon Agenda will benefit from relevant survey information and analysis of aspects related to organisation and organisational change. Especially if, as is the case for the MEADOW Guideline manual, complementary survey information is suggested to be collected from the employer as well as the employee perspective.

Ideally, a comprehensive information system should provide data on all types of factors relevant to organisation research, analysis and policy, because this would allow indisputable analysis and ideal potentials for dealing with specific policy issues that may arise. In practice, however, surveys will only provide us with some relevant data, and these data will then be complementary to other sources of qualitative and quantitative information collected on organisation and organisational change. For surveys to produce as strong a data foundation as possible, it is important to consider what is suitable for survey measurement, and what needs to be addressed by other data collection means.

What can be measured in surveys?

Surveys are suitable for providing much relevant information on organisation and organisational change. Starting from the organisational level, surveys directed to the employer-level can provide information on some of the important organisational contextual factors and drivers of change. Thus, although an organisational survey cannot measure context settings and drivers directly, it can collect information on how these are perceived by respondents. The MEADOW Guidelines will provide standards for collecting information on characteristics of markets, competitive pressures and the political, legal environments related to organisations and organisational changes. The Guidelines will also provide standards for collecting information of the distinctive traits of public organisations.

Organisational surveys directed to the employer-level can also provide relevant information on how organisations decide on policies, manage their organisation and structure their work system, as well as how they approach and cope with challenges of organisational change. In these initiatives managers are central actors and the MEADOW Guidelines will provide standards for collecting survey information from them on organisation and organisational change, and standards will be provided on how these organisational characteristics and changes affect perceived economic social

performances of the organisation. The MEADOW Guidelines will furthermore provide standards for collecting information on the gender dimension of organisation and organisational change. In this respect, employer-level questionnaires can collect information on formal policies and practices pertaining to the gender dimension.

One critical limitation of survey data obtained from the employer-level is that the data is based on, and thus biased towards, the employers' perceptions on organisation and organisational change. In order to counterbalance this, the MEADOW Guideline manual will also provide standards for collecting survey information from employees. Surveys directed to employees can contribute with employees' perspectives on organisation and organisational change, including the employees' evaluation of the social performances and the gender issues related to the organisations in which they are employed. This employee perspective is no less interesting appreciating that human resources are often stated as the most important resources of any organisation. The advantages of linked employer-employee surveys will be further developed in chapter 2 of this manual.

Linked employer-employee surveys hold the potential to provide relevant, complementary information on organisation and organisational changes. This does not mean that such collected survey data will not need to be supplemented with case-study data or quantitative register data when specific, in-depth analysis is required. But, it does mean that collecting valid and reliable survey data holds the potential to improve our knowledge on organisations, and use this for knowledge-based policy initiatives underpinning the goals in the Lisbon Agenda. And if comparable survey data are collected across EU member states, it will make possible comparative analysis and underpin the open method of national learning and policy development in Europe.

For survey data to be as strong a data foundation as possible, thorough methodological work needs to be done on developing indicators and designing the survey and its execution. This is the fundamental task to be carried out in the rest of this MEADOW guideline manual.

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Chapter II : From existing surveys to a general survey framework

Revised Chapter

January 2009

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I. Introduction

This aim of this chapter is to propose and justify a general survey framework for measuring the dynamics of organisations and work based on the experiences accumulated at an international level over the past twenty years. The Meadow project has produced an overview of these experiences, the Grid Report³, a companion document to this chapter. Surveys on changes in work and organisations can be of three types: employer level surveys, employee level surveys of linked employer-employee surveys. The Grid report has focused on employer and linked employer-employee surveys. The overview by Weiler (2007), issued by the European Foundation for the Improvement of Living and Working Conditions (EFILWC), complements the Grid report for employee level surveys. Twenty three surveys have been selected out of this large number of experiences for the needs of this chapter according to two main criteria: They allow organisational change to be measured at least in one of its dimension and/or they contain methodological innovation. In particular, we have selected extensively linked employer-employee survey because of their novelty and high measurement potential.

Although each of the selected surveys tackles organisational issues, the topics they cover are diverse, comprising innovation, employment relationship, employment relations and collective bargaining, wage structure, production management and working conditions. They are carried out in a national or international context. They embed a wide range of methodological designs among which we identify four major survey options to implement: employer only, employee only, linked employer/employee where the employer is sampled first and linked employee/employer where the employee is sampled first. Another important methodological choice is between a cross section survey measuring change through retrospective questions and a panel survey measuring change through repeated surveys. Table 1 classifies the selected surveys according to these main methodological options.

Table 1: A set of possible survey designs

	Time dimension	Example of existing survey
Employer only	Cross section	CIS, ESWT, EMS
	Panel option	DISKO, OSA Er, NUTEK, PASO
Employee only	Cross section	EWCS, ESS, BSS
	Panel option	NEA, OSA Ee
Linked employer/employee (or employer first approach)	Cross section	COI, ESES, MOA, TNO/WIS
	Panel option	LIAB, REPNSE, WES, WERS,
Linked employee/employer (or employee first approach)	Cross section	AES-CVTS, EFE, NOS,
	Panel option	-

Note: surveys highlighted in green are internationally harmonised surveys, NOS and WES are north American, PASO is regional European and the other surveys are national European. The extensive name of each survey and the name of its producers and sponsors is given in annex.

Taking into account both the policy need of better understanding the flexibility of enterprises and their consequence in terms of performance and job quality and the theoretical perspectives drawn in chapter 1, this chapter will make use of the methodological experiences derived from the selected surveys in order to propose a general survey framework. The surveys offer a base from which it is possible to assess advantages and drawbacks of different types of survey designs in terms of data quality and in terms of further analysis in a research perspective. In this chapter, we will also use these surveys as examples in order to illustrate the methodological issues on which the Guidelines present recommendations. As a result the Guidelines are solidly founded on national and international experiences.

The importance of international harmonisation needs to be stressed. Given that the MEADOW project seeks to develop recommendations for a survey that can be administered in different national contexts within Europe in a way that allows international comparability, the European harmonisation

³ Deliverable D2.1, part I, Background Document N°2.

in the survey design is a clear priority of the project. This brings with it some challenges, because most of the surveys analysed are conducted at a national level, while only some of the surveys have addressed some of the most challenging methodological issues – i.e. establishing relevant, valid and reliable international comparisons.

One major difficulty that we have to face is the *current* lack of a unified employer database at the European level which would allow drawing a representative sample of employer units in a simple way. We have thus to investigate alternative methods conditional on the existence of statistical infrastructure at the national or European level such as registers of employers. Special attention should thus be given to the handful of surveys which cover more than one country. Among the 23 analysed surveys, 6 are international. However, whilst 11 of the national surveys are linked employer-employee surveys, one international survey only is linked. This constitutes a major challenge for the MEADOW project that acknowledges from the start the complementarity of employer and employee-level surveys in measuring changes in organisations and work.

Two different organisation strategies can be followed to carry out the survey: a centrally coordinated mode or a decentralised mode. In a centrally coordinated mode, one organisation is in charge of developing and translating a questionnaire and of prescribing the survey methodology. The European Working Conditions Survey (EWCS) or the European Social Survey (ESS) are centrally coordinated. In the first case, an international organisation is prescribing the survey (EFILWC); in the second one, it is a central coordinating consortium of institutions that is responsible for the design and coordination of the survey under the lead of the Centre for Comparative Social Surveys in City University (UK). In the two cases, the fieldwork is carried out by a network of contractors. The Community Innovation Survey (CIS) or the European Structure of Earnings Survey (ESES) have been carried out in a decentralised mode. These surveys are covered by a European regulation so that each member states have an obligation of carrying it out. Being responsible for coordination and quality issues, Eurostat in close cooperation with EU Member States develops a standard core questionnaire in English an accompanying set of definitions and methodological recommendations. The responsibility for the survey at the national level is in most cases with the National Statistical Office. Pilot surveys are also often carried out on a decentralised mode, with a number of statistical organisations or offices volunteering to implement a survey instrument following a set of guidelines. The way comparability is built in the development of the survey partly depends on the survey organisation strategy. In particular, a centrally coordinated survey should lead to a fully harmonised survey. This goal will be more difficult to reach in a decentralised mode.

However, we can propose some general harmonisation principles:

- The key elements of the survey design, such as the method for linking the employers and the employees, or the choice of panel observation and retrospective questions, must be identical in all countries.
- The sampled units and population covered also need to be identical - i.e. all surveys define employer units and their employees in the same way, making the same exclusions and inclusions.
- Even if the above principle needs some more investigation (because currently there is no European employer register), the recommendation is to use a sampling frame in each country which offers an exhaustive listing of survey units.
- In all countries, the sampling procedures should be based on the principle of random selection and one should be able to adjust the achieved samples to account for differential non-response within the country across some key structural variables (e.g. size of employer unit and industry sector).
- Each country sample should meet some accepted minimum criteria regarding the statistical precision of the estimates
- An identical data collection period should be an aim.
- The survey can comprise a core of identical and well-translated questions, complemented by a set of more specific national questions and, if such data exist, enriched by national administrative data.

Given these first principles about international harmonisation, the second section of the chapter deals with the policy and research relevance of linked data and each of the following sections deals with core aspects of survey design: the linking method (section III), the method for measuring change (section IV) and other key elements of survey design (section V) including unit to survey, representativeness and data collection. The guidelines concluding each section set a general survey framework for MEADOW.

II. The relevance of linked data on the dynamics of organisations and work

The Guidelines consider a survey that links the interview of an employer with the interviews of his or her employees as the richest survey setting for measuring the dynamics of organisations and work. This section puts first under scrutiny the policy and research relevance of linked data on the dynamics of organizations and work. It then turns considering different linking methods.

Policy relevance

A survey instrument that takes into accounts both employers and employee points of view and allows linking employers' practices with economic performance and employee outcomes indicators has high policy relevance.

In many European countries, evidence based policy is called upon to improve the quality of decision making. Evidence based policy requires hard facts, analytical reasoning and taking into account stakeholders view.

A statistical survey provides hard facts, but when it is a linked survey, it provides hard facts from different stakeholders' perspective: from employers and employees in most linked surveys and sometimes from employee representatives like in the WERS or REPOSE surveys. Scoreboards are useful tools to benchmark hard facts in EU-countries. For example, the Community Innovation Survey (CIS, Eurostat) is used in the European Innovation Scoreboard (EIS) for assessing innovative activity across EU-27 countries (Parvan, 2007). However, even though CIS proposes a new measure of organisational innovation, now included in the EIS, it focuses on managerial decisions and formal organisation of employer units. If this is an important key for economic success, it is not sufficient to understand sources of performance in a dynamic environment where organisations have to adjust. When processes are changing within an organisation, it is essential to understand management practices and their underlying strategy, but it is also critical to know what is happening on the "people" side. Adding an employee questionnaire to CIS would also allow scoring for example the share of employees with innovative behaviour or specific further training and computing this score in the population of innovative employers and non innovative employers across European countries. We can also take the example of the European Working Conditions Survey (EWCS, EFILWC). This employee level survey is used to assess job quality across Europe through key working condition indicators (EFILWC, 2007). However, the employer is only characterised through its size and sector as it is declared by employees. And if the employee gives his views on how his own work is organised, the management policy and the practices implemented at the employer level remain the hidden face of the coin. Adding an employer questionnaire to the EWCS would allow scoring for example the share of employers with High Performance Work Organisations (HPWO) and then computing working conditions indicators in the population of employers with and without HPWO across European countries.

Apart from providing useful indicators for policy making, linked surveys give analytical insights that set hard facts into context.

First, they may contribute to evaluating the policies and management practices of private and public employers. The more mature linked datasets available are longitudinal and derive from administrative linked registers tracking employers and employees over time and linking workplace fortune (productivity, employment growth, survival) to worker flows and worker progression in terms of tenure and wages (Bryson and Forth, 2006). Many results have been obtained from these datasets, showing that employers' activities have a strong influence on wages and other labour outcomes and thus implying that most policy issues on the labour market have an employer angle (Groshen, 1991; Abowd, Kramarz and Margolis, 1999). Linked surveys on organisational practices allow going beyond the analysis of wage and employment practices to tackle other important area of employers' behaviour. Three examples will serve as illustrations. Using the Canadian linked Workplace and Employee Survey (WES) over 1999-2002, Dionne and Dostie (2007) analyse the influence of firm-level policy variables on workers absenteeism. They find that centralisation and the introduction of flexible working hour in the firm are associated with higher absenteeism while job rotation and outsourcing are related to lower absenteeism. The authors also find strong evidence

that the employee own work arrangements are important determinants of absence: standard weekday work hours, work-at-home options, and reduced workweeks are associated with reduced absence, whereas shift work and compressed work weeks are associated with increased absence. Dale-Olson (2007) focuses on the provision of fringe benefits by Norwegian employers. His research uses an establishment survey of compensation, work practices and organisation issues (ABU 2003) including questions on the nature of fringe benefits matched with a linked register covering all the employers and their employees where employers' declaration of the value of fringe benefits to the tax administration is registered. The results show that fringe benefits as reported to the tax authorities strongly reduce turnover. Most employers thus provide fringe benefits for retention and recruitment. However, different groups of workers prefer different combinations of benefits, suggesting that employers should carefully design compensation bundles. A third important result is that fringe benefit policies are closely and positively related to productivity. Finally, Diaye, Greenan and Urdanivia (2008), using the French linked COI 1997 survey analyse jointly the determinants and outcome of individual evaluation interviews. The results indicate that evaluation interviews both attract high productivity workers and have a direct effect on productivity within worker type. Evaluation interviews increase employee's effort without raising the risk of work overload, and evaluated employees have a better knowledge of the rules driving wage setting and earn more than in a classical incentive scheme. The scarcity of EU harmonised micro data sources allowing comparative assessments limits the quality and range of analysis carried out by the research community. A better knowledge is gained on countries with richer and more accessible micro data sources. However, there is much to be learned from international comparison of organisations' policy and practices, in particular identify how national institutions generate some heterogeneity in their outcomes for both employers and for employees, which is a prerequisite to engaging with policy supported practice transfers across firms and countries.

Second, linking information from employers with information from employees on changes in organisations and work provide a way of analysing, in a policy perspective, interactions between different policy areas of organisations, and in particular between innovation, employment relationship and organisational design strategies. The survey should allow observing changes in organisational structures, management practices and working processes, in the face of changing product demand, technologies and workers flows. What types of linkages are there between forms of organisations and employee competences? What type of labour force adjustments, in terms of training, internal mobility, turnover are observed when employers invest in ICTs or adopt new management practices? Is it possible to characterise sustainable organisational innovations in terms of their employee outcomes?

Third, linked survey could be used in monitoring the impact of labour market or industrial government intervention. For example, active ageing is moving up the policy agenda. The maintenance of work ability among ageing workers and their efficient utilisation by employers is become crucial to increase participation rates of older workers. Analysis based on linked surveys of organisations could contribute to identifying the flexible working arrangements, the type of further training or the job design characteristics that are best suited to maintain older workers in employment. The effect of employer incentives to keep older workers in employment could also be assessed using the temporal and spatial variation in policies across European countries. More generally, a linked survey on the dynamics of organisations and work should aim at reflecting on the design of policies to help employers and employees succeed in an increasingly global economy.

Finally, the policy relevance of results obtained from linked surveys critically depends on the quality of the data. It is very important that the survey be representative both at the employer and at the employee level. Methodology issues like linkage accuracy, coverage of the relevant population universe at the two levels and the completeness of the data in the two sampling sources have to be carefully scrutinised. Chapter 5 of the Guidelines will cover extensively these issues.

Research relevance

The research relevance of linked surveys also contributes to supporting this survey setting. This research to study labour market, industrial relations, organisational design and work psychology issues is well established. Linked datasets representative at a National level started to be created at the end of the 1980s. Results from these research infrastructures have been published in scientific books and special issues of academic Journals⁴. An international research community has

⁴ Results from NOS 1991 have been published in Kalleberg and alii (eds), 1994; results from COI 1997 are in Greenan and Mairesse (dir.), 2006; results from WERS 2004 are in Kersley and alii (2006), results from REPOSE 2004-2004 are in Amossé and alii (dir), 2008.

progressively structured herself in large networks, organising workshops and conferences. The fields of the labour economics and industrial relations have been particularly active. In 1998, an international symposium on linked employer-employee data was held in Washington and led to a first breakthrough book volume on the creation and analysis of matched employer employee data (Haltiwanger and alii, 1999). In 2006 an international workshop that took place in Nuremberg (CAFÉ) showed the different path followed by researchers analysing interactions of firms and employees with linked data (Bender and alii (eds), 2008; Lane and alii (eds), 2008). The Conference on Comparative Analysis of Enterprise (micro) Data (CAED) that takes place every second year since 2003, generally holds sessions on linked employer-employee data and is now covered by a COST action. Another interesting initiative is the Linked Employer Employee Data (LEED) project (Marsden (coord), 2008), sponsored by DG employment to organise a network on European labour market analysis using firm-level panel data and linked employer-employee data, and in particular the European Survey on Earnings Structure (Eurostat). This research community is ready to face the challenges of developing and using linked as well as designing methods to secure data access and confidentiality.

There are several ways in which a linked survey can offer unique insights into the dynamics of organisations and work.

First, employer-level information and employee-level information are complementary in the measurement of organisational change. A linked survey allows for the enrichment of information from one level with information from the other. For example, employer-level information brings useful contextualisation to the description of work given by employees, whilst employee-level information can be used to compute indicators at the employer-level on topics that cannot be easily discussed with an employer, such as informal work practices. Developing a linked survey also allows to choose the most informed and relevant respondent for each topic of the survey. For example, an employer will be better aware of the organisation's strategy while an employee can more easily indicate his job characteristics, such as whether his or her colleagues can assist him in carrying out his job. Moreover, it is easier to reflect on the collective nature of an organisation when various interlocutors are interviewed. Employer-level surveys tend to emphasise the role of management in organisations, while employee-level surveys often underestimate the constraints shaping job contents. Earlier studies comparing employer's and employee's perceptions of organisational change have shown that employers assess consequences more positively than employees (Härenstam *et alii*, 2004). The employees tend to emphasise more negative aspects linked to change, such as downsizing, while employers stress more positive aspects of organisational change such as innovation and development. Developing both an employer-level and an employee-level set of measures can therefore bring about an improvement in the measurement strategy for each level, which can also feed-back into conceptual considerations.

Second, a richer set of information allows one to go further in analyses by opening the "black box" of organisations. Box 1 gives examples of questions that can be analysed with a linked survey. In such a survey setting, fewer characteristics remain unobserved and one could obtain a better overall understanding of a phenomenon. This might lead to better estimates, for example, of what human resource practices affect an employee outcome or of the productivity effect of such practices (Hamermesh, 2008).

Box 1: Examples of questions that can be analysed with a linked survey

How do work organisational practices and HR policy influence job characteristics and the performance of employees?
Does innovation at the organisational level have an impact on employees' well-being?
How are organisational changes communicated and made visible to employees?
How do employees react to and cope with different types of changes?
What is the effect of trade unions on employee awareness of changes?
What is the indirect effect of trade unions on employer and employee change-related outcomes?

Also more rigorous studies can be conducted when the diversity of contexts or circumstances in which employers and employees are involved is taken into account. Current theories suggest that returns to particular practices may be heterogeneous along dimensions such as product market competition or level of trust between employers and employees. It is thus important to assess whether there are best practices from which any kind of employer may benefit or whether there must be a fit between the practice and the external environment or the characteristics and the workforce (Bryson and Forth, 2006). Analyses at the individual level, where one level is related to the other one can also be conducted. For example data from the employer-level can be combined or compared with data on employee perceptions, or data on employee characteristics can be used to explain the adoption of organisational changes. Trade unions are a third party that may interfere in the interaction between employers and employees at least in some sectors and/or European countries. Empirical studies based on the British WERS or French REPOSE show the existence of cross-over effects in the presence of trade unions. For example, Amossé and Coutrot (2008) show that the presence of trade-unions at the workplace increases the perception of job insecurity relatively to an objective measure of exits and that symmetrically the absence of trade unions decreases this

perception. This effect of collective voice on the accuracy of employees' awareness suggests that trade union presence and collective bargaining should be taken into account as controls or interacted with other variables when analysing employees' subjective assessments of the workplace conditions.

Third, linked data can provide new sets of instruments to identify endogenous mechanisms, which are not rare when analysing companies' strategic decisions about work organisation. And when there is a longitudinal dimension to the data, the selection process of employer and employee can be approached as well as antecedents to practice adoption by employers and to their implementation at the employee level, also allowing for a more rigorous assessment of causal processes.

Finally, securing access at reasonable cost for the research community to an environment in which micro data sources from different country are stored side by side and can be jointly analysed is an important challenge for increasing the quality of research as well as its policy relevance. The PiEP project funded under the Fifth Framework Programme has been a breakthrough step (Desai, 2008). The aim of this project was to make use of the 1995 European Structure of Earning Survey (ESES) micro data in a European comparative perspective. The national holders of the ESES that were willing to grant access to the micro data preferred a solution involving Eurostat. So the PiEP project devised a remote access system (PieP-LISSY), with data being stored at Eurostat and access managed at the LSE at London. The LEED project continued the PiEP project when ESES 2002 was released. Potential access to ESES 2002 micro data through the PiEP-LISSY system has been agreed by 11 National Statistical Offices. Access to the European wide ESES and Community Innovation Survey (CIS) micro data for scientific purposes is possible through a SAFE centre in Eurostat premises at Luxembourg. OECD is also concerned with access to micro data sets for international comparisons and analysis and has launched a reflection on governance principles in access to micro data in 2005.

Different linking methods

Nevertheless, a linked employer-employee survey that aims to analyse organisational change adds complexity to the practical side of data collection. Indeed, a linked survey may increase costs for it adds a new survey if the employer or the employee survey already exists and it requires a coordination of the two levels. The sampling, contact and response procedures are also more complex as there are now two potential sources of non-response bias and there is the added difficulty of optimising the sampling methods at both levels. In spite of this, more information is available to correct non-responses and identify biases. These technical difficulties must be weighed up against the novelty of the information that is gathered and their potential use in evidence based policy, and by the new field of research in social sciences on interactions between employers and employees, which such a dataset opens up.

Of course, within these Guidelines, one possibility would be to work out a separate employer or employee-level survey. However, we need to stress that linking is a practicable and interesting solution. In some countries, it will just amount to the coordination of samples for two existing surveys. For example, in France two separate European harmonised surveys on training have been linked recently: the Adult Education Survey (AES) among employees and the Continuous Vocational Training Survey (CVTS) among employers. Linked surveys can also rest on an existing linked employer-employee register, like for example the LIAB in Germany or they can be successfully administered from scratch like the WERS survey in the UK.

There are two possible methods for administering linked employer and employee-level surveys. The employer can be sampled first, while the employee is being sampled in a second stage (linked employer/employee survey). Or, the opposite way round, the employee can be sampled and interviewed first, while the interviewed sample of employers is derived from this employee sample (linked employee/employer survey). These two different ways of linking are not equivalent in terms of advantages and drawbacks.

The Guidelines consider a survey that links the interview of an employer with the interviews of his or her employees as the richest survey setting for measuring the dynamics of organisations and work because of its policy and research relevance.

III. Linked employer/employee survey versus linked employee/employer survey

In this section, the advantages and drawbacks of two possible methods for administering linked surveys is examined: an employer first approach (linked employer/employee survey) and an employee first approach (linked employee/employer).

Linked employer/employee survey

When linked employer and employee surveys are administered, the most common practice at present is for the employer to be designated as the primary sampling unit. Table 2 gives basic information about six linked employer/employee surveys⁵.

A linked employer/employee survey has many advantages. First, taking the employer as the primary sampling unit (PSU) makes it easier to survey various employees linked to it. A clustered sample is obtained, which is more simple and cheaper to administer as fewer contacts overall will be necessary. Second, in the absence of a linked employer/employee register, the unit that is sampled first will also be easier to follow up in a longitudinal survey. As a result, it will be more difficult to obtain a panel of employers units if employees are the PSU. Section 2 will show that a panel design is an interesting solution for measuring organisational change. Third the representativity of the sample of employers should be easier to guarantee in a setting where the employer is the PSU. As a matter of fact, as the sampling frame is mastered at the first sampling degree only, the dispersion of sampling rates is always higher at the second sampling degree. There are also two sources of non-response bias at this second degree. Both effects play in favour of a higher variance in estimates (Ernst *et alii*, 1989). Moreover at the employee-level there are already a number of longstanding employee surveys which are harmonised at the European level. Two well-known examples are the Community Labour Force Surveys (CLFS) and the European Working Conditions Survey (EWCS). These background statistics allow checking the validity of estimates at the employee-level. At the employer-level, the knowledge base around harmonised surveys is not as strong as it is more recent, making the control of the sampling frame more critical. Forth all of these reasons imply that a linked employer/employee survey makes a better use of a fixed budget as has been documented for the Canadian WES survey (Krebs *et alii*, 1999).

Foundations have been set at European level in respect of the development of employer-level surveys in the mid 1990s. The Community Innovation Survey (CIS) and the Continuous Vocational Training Surveys (CVTS) are examples of a harmonisation effort around employer-level surveys stimulated and followed up by Eurostat. The European Establishment Survey (ESS) (see Box 2) is another promising experience of a European harmonised survey conducted by a European Institution.

Box 2: The European Establishment Survey

The European Establishment Survey is developed by the European Foundation for the Improvement of Living and Working Conditions (EFILWC). It is not a linked survey but a European harmonised establishment survey. A first establishment survey was carried out by the EFILWC in 1996 on employee participation (EPOC). A second one was carried out in 2004-2005 on working time arrangements and work-life balance (ESWT). Recently, the EFILWC has decided to develop an establishment survey on a regular basis. It will be called the European Establishment Survey (EES). This survey gives the example of a first degree of sampling for a linked employer/employee survey at the European level.

Another important experience for MEADOW is the European Structure of Earnings Survey (ESES), covered with Council Regulation N°530/1999 and coordinated by Eurostat, as it is the only harmonised European linked employer/employee survey. This survey has been carried out in 1995, 2002 and 2006 and progressively extended to the 27 Member States of the European Union. It gives a strong knowledge base to the implementation of a linked employer/employee frame to the MEADOW survey. Flexibility in data collection is a central feature of ESES: information can be

⁵ Some of the surveys have technical documentations from which we extracted the information in table 2. Greenan and Hamon-Cholet (2001) was used to describe COI; Eurostat, unit F2, 2006 summarises ESES 2002 quality reports from each participation country; Alda and alii (2005) gives details about the LIAB; Chaplin and alii (2005) gives technical insights into WERS 2004 and Krebs and alii (1999) was used to describe WES.

obtained from “tailor-made” questionnaires, from existing surveys, from administrative data or from a collection of those sources. If flexibility is a central condition to the existence of ESES, it has some drawbacks as it creates some barriers to comparisons (Desai, 2008): at the most basic level, the definition of the survey unit can be variable as there is no European agreement on the definition of a firm or an establishment. Thus European wide results obtained from exploiting this data sometimes falls behind the standards applied at a national level due to difference in units of observation, sampling frames and classifications. The consequences of these differences are difficult to assess as much of the knowledge about them remains tacit, related to the routines and practices of National Statistical Offices in each country. However, Eurostat, though its coordination role contributes to building up a convergence in these practices and progressively improves the documentation of these differences by analysing and making available quality reports (Eurostat Unit F2, 2006).

Table 2: Linked employer/employee surveys

	Sampling procedure	Net sample size of linked samples and response rate
<p>COI (France) 1997, 2006 http://www.enquetecoi.net</p>	<p>Sample of firms: stratified by size and industry from a business register, 10 or more employees, private sector and exploration in public sector in 2006 Sample of employees: random samples of 2 to 15 employees with at least one year of seniority from a social contribution register.</p>	<p>In 2006: 7,700 private firms, 85% 15,000 employees, 72%</p>
<p>ESES (European) 1995, 2002, 2006 http://epp.eurostat.ec.europa.eu/ http://cep.lse.ac.uk/leed/</p>	<p>The European Union Structure of Earnings Survey was conducted in 2006 in the 27 Member States of the European Union and Norway. Sample of establishments: stratified by firm size, sector and region, 10 or more employees, in private and public sector in 2006 (sections C-K, M-O of NACE Rev.1.1), coverage of smaller size firms is optional. Sample of employees: the management of establishments collects detailed information on employees and/or a random sample of employees is drawn to collect information in a questionnaire sent at the employee address. The average number of employees per workplace ranges between 9 (Portugal) and 1,000. (Slovakia).</p>	<p>In 2002: largest employee sample: Czech Republic: 2,300 establishments 1 million employees smallest employee sample: Portugal: 6,600 establishment 60,000 employees</p>
<p>LIAB (Germany) since 1993 http://fdz.iab.de/</p>	<p>Sample of establishment: with at least one employee covered by social security, stratified by sector, size and region from a business register, private and public sectors Sample of employees: information from the social security register; there is a lag of two years due to the Social Security System, for example: 2006 employee information is available by 2008). A first employee survey was conducted in 2007.</p>	<p>In 2006: 15,449 establishments, 80% exhaustive register information for employees</p>
<p>REPONSE (France) 1998, 2004 http://www.travail-solidarite.gouv.fr/</p>	<p>Sample of establishments: stratified by size and industry from a business register, private sector, 20 or more employees Sample of employees: random samples of 8 to 12 employees per establishment from a register in 2004 (Third sample of employee representatives)</p>	<p>In 2004: 2,677 establishments, 62% 7,940 employees, 32% (1,970 employee representatives, 88%)</p>
<p>WERS (UK) 2004 http://www.wers2004.info/</p>	<p>Sample of workplaces: stratified by size and industry from a business register, private and public sectors, 5 or more employees in 2004 Sample of employees: random samples of 25 employees per workplace (census in workplaces with 5 to 25 employees) from a list given by the employer (Third sample of employee representatives)</p>	<p>In 2004: 1,733 workplaces, 64% 22,451 employees, 60% (1,000 employee representatives, 77%)</p>
<p>WES (Canada) from 1999 to 2005 http://www.statcan.gc.ca/</p>	<p>Sample of workplaces: stratified by size, industry and region from a business register, private and public sectors, more than 1 employee, Sample of employees: random samples of 4 to 24 employees from a list given by the employer</p>	<p>In 2005: 6,693 workplaces, 78% 24,197 employees, 81%</p>

Another reason for choosing the employer as the PSU is that it seems quite natural to explore the employer-level first when one thinks of organisational change, being the major theme of the survey because it is at that level that changes can be assumed to be initiated most of the time. Therefore it is opportunistic to start interviewing a person with knowledge on the whole organisation and who has the capacity to speak on behalf of it. A more pragmatic argument is that, in the field of work and organisation, most national experiences with linking start from the employer-level. However, this point is not a strong one. Even if the theme of the survey implies to collect more information from employers than from employees, it still does not follow that the employer necessarily has to come first in the sampling frame. For example, the WES survey collects more information from employees than employers, but takes the employer as the PSU.

Taking the employer-level as the first degree of sampling may also lead to practical difficulties. Currently the main difficulty is the absence of a European harmonised employer register: at the European level, no exhaustive and up-to-date database is available that includes: addresses of employer units (headquarters, subsidiaries, etc.); a classification of industries such as the NACE; and more generally the information that is required to stratify and optimise sampling rates. At the national level, business registers are used most of the time, but they do not always cover all sectors (the public sector for example). Moreover, the question of access rights to national employer databases (e.g. Official Statistical Registers and Chamber or Commerce) requires further examination. Existing experiences which are mentioned above need to be assessed in these respects.

Choosing the employer as the first degree can also result in a bias in the employee sample towards employees that are more satisfied with their employer or their work (social climate bias), if they are selected from a list given by the employer. Thus, even if employees are randomly selected from this list, it will be practically much more difficult to obtain a random sample of employees because the employers provide the sampling frame for the employee survey within their units. Three national level surveys, COI, LIAB and REPONSE use linked employer/employee registers rather than lists of employees given by employers to sample the second degree. This is a solution to the social climate bias problem, but it will not be easily practicable at the European level due to the lack of this type of register. Chapter 5 of the Guidelines deals with sources of biases in linked employer/employee surveys.

If, at the European level, randomness of samples at both the employer and the employee-level is not feasible in a linked employer/employee survey setting, then a linked employee/employer survey could be considered as an alternative solution.

Linked employee/employer survey: another possibility

Although linked employer/employee surveys are more frequent, some examples of linked employee/employer surveys exist. Table 3 gives information about three of them. This option has some advantages.

First, contrary to employer databases, good quality household databases can be obtained in most European countries through the National Statistical Offices or other national institutions. Second, the anonymity of surveyed employees towards their employer is less at threat. Thus, two potential sources of sample non-randomness at the employer and at the employee level are removed. Third, it allows covering a very large field of employers (all kind of establishments, in all sectors, as well as the self-employed) in a way that does not depend on the availability of a business register and the extent to which it is up-to-date. Fourth, the sample of employers derived from a random sample of employees will be automatically proportionate to the size of employer units and reflects their share in total employment, and it can be easily weighted to make it representative of the population of firms (Leombruni, 2003). The US National Organizations Survey (NOS) carried out in 1991, which is to our knowledge the first nationwide linked survey of organisations, used a linked employee/employer method grounded in the General Social Survey (Smith and alii, 2004). This survey was repeated in 2002 and is about to be carried out again. More recently the French AES-CVTS and EFE surveys also used a linked employee/employer method (Table 3). Fifth, when countries hold a business register, interviewed employees in the labour force survey are often asked the name and address of their employer. This information is then translated into a firm or business identifier that is used to enrich the survey with accurate indicators of the industry and size of the firm/establishment/workplace. Thus, in these countries a basic infrastructure for a linked

employee/employer survey is already in place. The EFILWC survey on working conditions (EWCS) and the European Social Survey (ESS) are other existing infrastructures (Box 3). General access to these data is likely to be restricted. Thus conditions under which access could be more widely opened should be investigated.

Box 3: The European Survey on Working Conditions (ESWC) and the European Social Survey (ESS)

Since 1991, and every five years, the EFILWC conducts the European Working Conditions survey (EWCS) to study working conditions in Europe. The EWCS of 2005 was carried out in 31 European countries: the 27 EU member states, Croatia, Turkey, Switzerland and Norway.

The European Social Survey (ESS) is an academically-driven biennial multi-country survey covering over 30 nations. The first round was fielded in 2002/2003, the second in 2004/2005 and the third in 2006/2007. The survey has been funded through the European Commission's fifth and sixth Framework Programme, the European Science Foundation and national funding bodies in each country.

The EWCS and the ESS are not linked surveys but European harmonised surveys which include questions on work organisation addressed to employees. These surveys could become the first sampling degree for a linked employee/employer survey at the European level.

However, these linked employee/employer surveys are still rare. Performing one would certainly require more extensive field testing in order to ensure that this type of linkage could feasibly provide nationally and cross-nationally representative samples of employers and of employees.

Table 3: Linked employee/employer surveys

	Sampling procedure	Net sample size and response rate
<p>AES-CVTS (France) European harmonised survey 2006</p>	<p>Sample of employees (AES): Sample of employees, selected among the individuals belonging to the households who have been interviewed for the 6th and last wave of the Labour Force Survey in 2006. Only one employee per household is selected. The requirements of AES are taken into account in the composition and size of the sample.</p> <p>Sample of employers (CVTS): all the firms of employees surveyed in the first degree (4000). An additional sample of employers (5000) is selected in a business register in order to reach the requirements of CVTS in terms of sample size and composition (stratified sample in terms of size and sector, firms with 10 and more employees in the private sector)</p>	<p>17,776 employees in AES, 97% 4,792 firms in CVTS, 56%</p> <p>The employer and employee surveys can be used either independently from one another or linked. Each sample is representative at its own level.</p> <p>2,000 employees are linked with their employer</p>
<p>EFE (France) 2005 http://www.efe.ined.fr/</p>	<p>Sample of employees: random sample of employees aged 20 to 49 in households from the population census</p> <p>Sample of employers: all the establishments with at least 20 employees of the employees surveyed in the first degree (private and public sectors)</p>	<p>3,050 employees, 75% 2,673 establishments, 67%</p>
<p>NOS (US) 1991, 2002 http://www.icpsr.umich.edu/</p>	<p>Sample of employees: Employees are sampled in the GSS (General Social Survey) sample of households. It is a multi-stage area probability sample to the block or segment level. At the block level, however, quota sampling is used with quotas based on sex, age, and employment status.</p> <p>Sample of employers: During the GSS interviews, half of all household respondents were asked to provide contact information for their place of employment including business name, address, and telephone number</p>	<p>In 2002 2,765 individuals, 70,1% 516 workplaces, 62,4%</p>

Furthermore, this option may lead to some specific difficulties. We will not repeat the difficulties that are the other side of the coin of the advantages of an employer first survey setting (representativity of the employer sample, difficulty to follow up employers in time, budget optimisation). What needs to be mentioned here is the risk of attrition and bias because of the refusal or inability of some employees to provide good contact information about their employer. There is also the fact that the distribution of businesses in terms of size is skewed and thus it is difficult to reach big employer units for which a census is generally conducted in employer level surveys such as CIS. A possibility that will be implemented in the forthcoming NOS survey is to have a split frame, with a number of employer units reached through the employees and targeted employers directly reached to capture important policy areas, like for example multinationals or firms in the high tech or bio tech sectors.

Besides, with such a survey design, there will be only one worker interviewed in most of the employer units, thus prohibiting multi-level analysis.

Although each linking option has concrete limits, both could provide linked data of good quality. Moreover, besides the methodological issues, practical aspects as well as sampling database availability and legal constraints regarding the access rights for individual data may also play a significant role in the choice of the survey design. For example, the opportunity to conduct a linked survey given an existing one, like the EWCS or the EES, could be crucial, or the existence of a dynamic involving National Statistical Offices around a pilot survey.

The Guidelines consider a survey that links the interview of an employer with the interviews of his or her employees as the richest survey setting for measuring the dynamics of organisations and work. A preference is given to a linked employer/employee survey with the employer sampled in a first stage and the employees in a second one. But this preference is conditional on the existence of a harmonised European register of employers. The lack of such a register makes it worthwhile to also consider a linked employee/employer survey as a possible alternative solution.

IV. The longitudinal aspect: a compromise between retrospective questions and a panel

Chapter 1 has stressed that it was important to gather information on organisational states as well as on organisational changes. The relation between the internal organisation of the employer unit and economic performance is a key issue in organisational design theories. This theoretical perspective converges with the view of the policy community, which wants to identify best practices with a view to supporting their transfers across organisations and countries. The Guidelines consider a survey that should allow assessing the relative performance of different forms/states in the organisation of employer units. But changes in the organisation also need to be seized. Measuring the dynamics of change at the employer unit is central for assessing flexibility and adaptation. It is also important to measure change in order to approach its adjustment costs: training needs, renewal of the labour force, stress, accidents, feeling of work intensification, failures etc. If we want to understand barriers to the diffusion of some forms of organisation that seem virtuous in terms of performance, we have to observe how firms are adopting and absorbing changes. Measuring changes without measuring states, like in the innovation survey strategy leads to pooling together employer units that remain inert with units that have undergone major changes in previous periods of time. And if some organisational practices require time to show effect then we have to capture whether a given set of practices has been adopted recently or not in employer units. This section examines measures of change stemming from retrospective questions in cross section surveys and from panel surveys. It then considers a solution mixing both approaches to the measurement of organisational change.

Retrospective questions in cross section surveys

If we consider existing surveys on organisational change, there are a lot of examples where change is examined through retrospective questions. These questions can be found both in employer-level surveys, employee-level surveys and in employer or employee sections of linked surveys. Table 4 gives some examples. Retrospective questions at the employer-level about organisational changes have to be distinguished from retrospective questions at the employee-level about more subjective factors as well-being, involvement etc. as they do not raise the same measurement problems. Chapters 3 and 4 give details on these difficulties.

Whereas a panel by definition consists of at least measurements at two points in time (e.g. a time period of several years) to provide information on changes, the immediate availability of retrospective data is an argument in favour of retrospective questions. Therefore, using this kind of question, analyses on changes in organisation and work can be conducted as soon as the survey is realised. Moreover, the sole reliance on retrospective questions removes the requirement for repeat surveys and is therefore cheaper. Secondly, retrospective questions include the possibility of focusing on the

most recent organisational innovations, as in the 2006 COI survey where, after having described many features of organisation and use of managerial practices at two dates, the employer is asked to focus on the major change that occurred during that period and to describe the difficulties encountered. This cannot be done in a panel design with only state measurements, at least when the organisational innovation occurred in between the panel measurements.

Table 4: Retrospective questions in cross-section surveys

	Longitudinal information	(Net sample size)
Employer-level surveys or sections in linked surveys		
EMS (2002-2003)	There is no systematic approach. Some questions ask for the year in which a technology or organisational concept was used for the first time. Some questions ask whether the organisation offered more services in the last 3 years, and in the period more than three years ago. For some financial indicators it is asked whether there has been a decrease or increase during the last 3 years. Most applied reference period is therefore 3 years, but most questions are not retrospective.	(N=2,249)
CIS4 (2005)	Most questions deal with a 3 year period and therefore contain the phrase "during the period 2002-2004 did your enterprise...?"	(N=125,000)
COI (2006) Employer section	A large section of the questionnaire asks for the situation "now" and 3 years before. Two answers are therefore needed, one for the current situation, and one for the situation 3 years before Reference period is 3 years	(N=13,700)
MOA (1995-1997) Employer section	Evaluation of an increase, decrease or unchanged situations over the last 12 months. For example the question, What proportion of your total sales/activities during the last 12 months was made up of standardized or customer-tailored services/products (customer tailored= the customer was involved in the design of the service or product)? Standardized: 0%; 1-20%; 21-40%; 41-60%; 61-100%. Change? Decreased; Unchanged; Increased (Idem for customer-tailored)	(N=82)
FLEX-2	A number of questions focus on organisational change: "... have there been significant changes during 1995 – 1997?" Reference period is 3 years	(N=911)
Employee-level survey or sections in linked surveys		
British skills survey (2006)	Four types of questions on change are applied: - questions assessing the current state (t1) + Questions assessing the state 5 (or 4 or 3) years ago ('t0'): strength of change can be assessed by comparing the answers on the Likert scales used; - questions assessing the occurrence of events/change during last 5 (or if 4 or 3) years + strength of event/change (major vs. minor); - questions assessing the direction of change with some measurement of strength of change; neither measurement of state at 't0' nor at t1; - questions assessing direction of change of concept with a generalised question (computer skills) with measurement of strength of change; no measurement of state at 't0'. Measurement of state at t1 with detailed questions/different wording.	(N=7,800)
COI (2006) Employee section	The following principles are applied: - questions on the occurrence of change/events during last 12 months but without measurement of state at 't0' and t1; - questions assessing the occurrence of an event + the assessment of the year of the most recent event; - questions on the direction of change in the last 3 years. First the 't1' 'state' is assessed (extent of change is not assessed: no measurement of state at 't0'); - questions with 'attribution': assessing cause-effect relationship in one question; - follow-up questions related to change.	(N=19,780)
MOA (1995-1997) Employee section	In the MOA the following principles can be found: - questions assessing the incidence of events/change(s) in last year, but without measurement of strength or type of event(s)/change(s) - questions assessing changes in recent past including direction of change; strength of change not assessed, however it concerns an instrument for a cohort study. Elsewhere in the questionnaire the t1 state is assessed albeit with a sometimes different phrasing of the concepts. - questions attempting directly to attribute effects to organisational changes (risk of subjective answers), e.g.: "How do changes at the workplace affect you? (changes during the last year or ongoing changes): (..) c) I can't perform the job tasks as good as I want to.	(N=6,500)

A third advantage concerning the employer-level only, is that retrospective questions can provide more coherent and comparable information on activities carried out by organisations and workers, because a single person answers questions at a unique date. Thus, there is no bias linked to a

change of respondent between two different waves like in a panel survey, and the change of general context in the organisation is not likely to influence the interpretation of a given question. A drawback however, is that when organisational changes lead to personal mobility among the management of the workplace, the respondent may not have experienced the change and only have limited or no knowledge of it. Then, if retrospective questions limit some biases in the measure of change, the *quid pro quo* is that information may be missing or incomplete. Some organisations however document the changes that they have implemented and the access to this collective memory facilitates response even in presence of personal mobility.

Besides, and this is a main drawback of retrospective questions, there is a risk of 'recall error': memories may be short (leading to omission) or unauthentic leading to a 'telescoping effect', in which respondents report things in the current period that actually took place beforehand (especially when people are dealing with daily problems and plan for the future). Moser and Kalton (1971) referred to these dual problems. They noted that 'recall loss' (or 'omission') is likely to be greater if the recall period is longer, when the telescoping effect can be greater for shorter recall periods. They point at diary methods as an approach that has been used in surveys of individuals to address the problem of recall loss. Another approach is bounded recall where the respondent is reminded of some information concerning the previous period, but in this case additional panel information is needed.

Hoinville and Jowell (1978) also dealt with the issue of problems of memory. Their common-sense advice is to only ask about events of special significance (since recall errors are likely to be significant in respect of minor events) and to take particular care over retrospective questions about attitudes. The advised steps to limit telescoping include asking the respondent to locate the timing of an event by relating it to the timing of other major events; getting them to refer to documentary evidence; and asking them to keep a diary. But this approach might be more relevant for a household survey. Last, Martin (2006) emphasises that the 'memorability' of an event is a mixture of its recency and its significance, but that the date of an event is usually one of the least recalled features.

As a result, when questions about change are formulated in a general way like "Has the work organisation changed in the company since ...?", there is a tendency to exaggerate reporting of changes. However, when the questions are formulated 'objectively', short and precise enough concerning the reference dates - like for example in the COI survey - biases of memory are limited. Another feature that must be noted in retrospective questions is that they tend to under estimate negative change. For example, when an employer is asked about the use of a given practise at two dates in time, he will more easily identify practises that have been adopted than practises that have been abandoned, his reference period being today's situation where abandoned practises are no more observable.

Panel surveys

Panel data have their advantages, as shown by the numerous existing surveys on dynamics of organisations and work that are based on this principle. Table 5 presents some of them: employer panels, employee panels and panels with linked employer and employee surveys.

One advantage of panel data is that it does not call upon memories. Furthermore the panel measurements can also provide precise information on employers' and employees' characteristics at each date, which is important because changes in such characteristics may explain observed changes in work or organisation.

However, change can only be measured when the second wave of the survey is conducted, so for a first wave, it is always worthwhile to include some retrospective questions. Moreover, panels can only measure changes that can be consistently defined over time, and there is then a significant emphasis on fixing the content of the questionnaire at wave one. But as we are designing a survey on changes, it is likely that a fraction of the survey will have to evolve over time. For example, management practices follow fads (Abrahamson and Fairchild, 1999) and from one wave to the other some practices could have become obsolete while others are evolving during their diffusion process. Using two waves of the WERS survey, Freitas (2008) investigates employers' use of "quality circles" and "Business Process reengineering" through measures based on questions that are identically formulated in 1990 and 1998. She finds that the patterns of use of these practices have changed over time. An explanation is that these practices refer to management concepts that are soft rather than precisely defined and which are constantly recycled as they diffuse, in conjunction with changes

in the social and competitive environment. This gives food for thought about the need for stable questions on practices in surveys on organisational change. A longitudinal survey of these practices calls for a renewal of part of the questions from one survey to the other, even if they relate to the same management concept. Qualitative investigation and analysis of management publication need to be conducted in preparing survey questionnaires to check the evolution and renewal of management concepts.

Table 5: Panel surveys

	Longitudinal information	Net sample sizes, attrition rate ⁶
Employer-level surveys or sections in linked surveys		
DISKO	No regular period of repetition. The DISKO-survey of 1996 was used to establish a partial panel survey PIE in 2001, repeated in 2006. All employers in private sector over 20 employees were approached and ex-post determined whether the same firms were included in both surveys.	N=1,369 of 1,900 employers from first survey are still valid, of which 637 respond Attrition rate: 67%
OSA labour demand panel	First wave in 1989; conducted every 2 years (year alters with year of data collection of OSA labour supply panel (employees)).	N=3,131 in 2005; including 1,199 new recruits in 2005 Attrition rate 2005: 38%
PASO	Survey conducted during 3 consecutive years 2002, 2003 and 2004. The same respondent is approached in subsequent years.	N=2,004 employers followed up Attrition rate: 50%
IAB Employer section	Survey conducted every year since 1993 Employers are followed up in a business register	N=15,500 employers followed up Attrition rate: 15% to 20%
REPOSE Employer section	Survey conducted every six years 1992, 1998, 2004	N=1700 of 3,000 employers from 1998 are still valid in 2004, of which 1000 respond Attrition rate: 66%
WERS Employer section	Cross-section survey conducted in 1980, 1984, 1990, 1998 and 2004. Two-wave panel for 1984-1990, 1990-1998 and 1998-2004. The panel sample is taken from the realised sample in the previous cross-section. Panel workplaces are excluded from the sample for the concurrent cross-section to prevent duplication.	About 2,200 employers in 2004, about 1000 in the panel Attrition rate: 65%.
WES Employer section	Survey conducted every year until 2005 Employers followed up in a business register	6,000 employers followed up Attrition rate: 20 to 30%
Employee-level survey or sections in linked surveys		
NEA cross-section NEA-longi	NEA cross-section since 2003, yearly NEA longitudinal part since 2007: 2 waves planned: October 2007 and 2008	NEA cross section: yearly appr. N=23,000. NEA-longi: attrition rate not known yet
OSA labour supply panel	First wave in 1985; since 1986 every 2 years (year alters with year of data collection of OSA demand (employer) panel).	N=4,332 among which 1,955 new recruits in 2004 Attrition rate: 35% in 2006
WES Employee section	First wave in 1999: 1 year follow-up (sample kept for 2 years, then completely refreshed). Panel waves from 1999 to 2004.	N=16,804 in 2004 Attrition rate: 19% in 2004

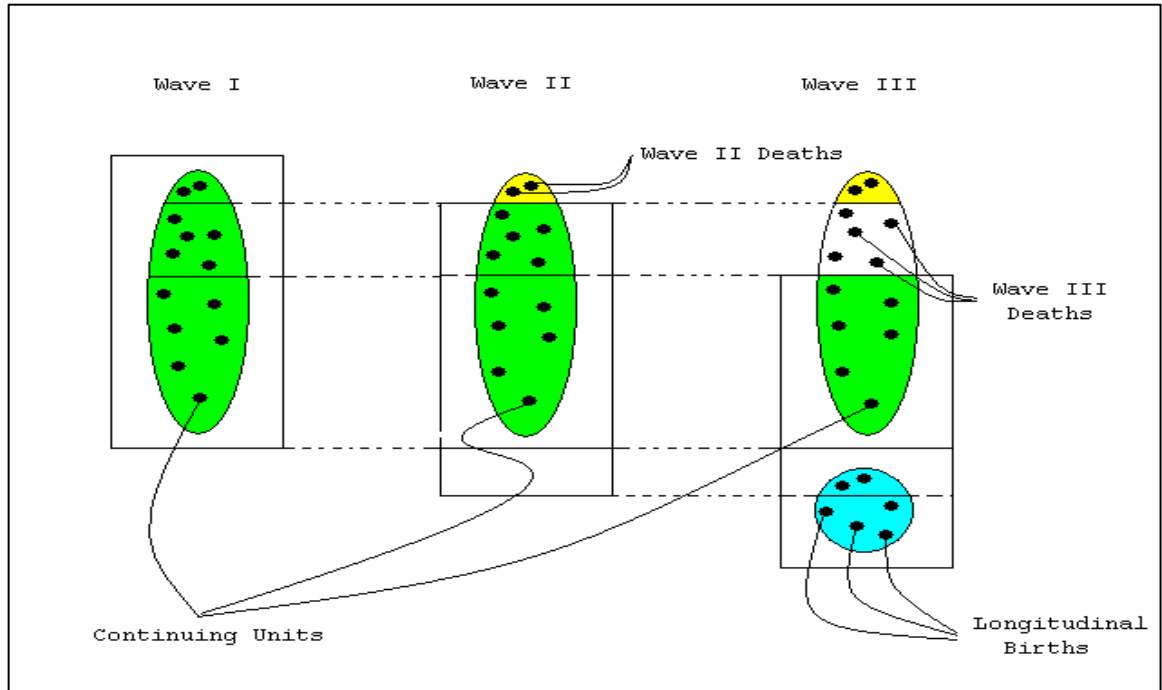
Another argument in favour of panel surveys is the possibility to analyse the changes not only within the organisation, but also between them (and especially between the old and the most recent ones). Of course, this implies that employers from previous waves are followed up while the panel is refreshed with new employers, part of them being newly created organisations (see Figure 1). Indeed, such data should allow one to observe the demographics of organisations and thus to estimate the effects of the structural transformation of the economy (sector, size, etc.) on the dynamics of organisations and work.

Here again there is a drawback: it is expensive and time consuming to trace employers, employees or both of them. Even with adequate resources and appropriate procedures, there will be an attrition, which means that a proportion of the initial sample is lost in each of the following waves since some

⁶ The attrition rates are calculated according to the formula:
 $1 - (\text{response at wave } t2 / \text{number of responses at wave } t1)$. In other words, 'attrition' includes both non-response and units falling out of scope (e.g. closing down).

particular companies, workplaces or employees prefer to stop their panel participation after a while. However, attrition does not necessarily imply a bias. It depends on who falls out and whether their characteristics are correlated with the behaviour one wants to observe. For example, OSA has not experienced in its long labour supply and demand panels that attrition was specific in terms of size or sector. An additional point is that the initial sample has to be large enough to cope with this attrition, both in aggregate and within each stratum. So the initial sampling is more complex in a panel. The refreshing strategy, taking into account birth, death and attrition, is another important issue and attention has to be given to the computation of dynamic weights.

Figure 1: Demography of units in a panel



Source: Decady 2007

The panel aspect in linked surveys is usually limited to the employer part of the surveys. In each wave the employees are taken anew from the participating organisations. In consequence, the employee part of the survey only allows for cross-sectional analyses, except in the case of retrospective questions which will still provide a time dimension. Due to the greater mobility of employees, the establishment of a panel of employees is difficult to achieve. Box 4 gives information about the WES survey, the only existing survey with both an employer and an employee panel. In this case employees are only followed for two years. In a linked survey, it is difficult to follow up both employers and employees during long periods and to maintain the linkage. Thus, it could be interesting to compare information collected from short panels of employees with information collected from retrospective questions in employee questionnaires.

Box 4: An employer and an employee panel in the WES survey

The Canadian WES makes an attempt to follow the employees selected from previous waves, but this only for two consecutive waves. The WES asks the employer, in each selected workplace during interviews, for a numbered list of employees. A Simple Random Sampling Without Replacement of 1, 2, 3, 6, 9, 15 or 24 employees is taken from these lists depending on the size of the workplace. This sample is, however, only kept for two years and then completely refreshed. In the second year, employees who have not changed workplaces receive the same questionnaire. The rest are given an exit questionnaire. A significant portion of the workplaces has an insufficient or no list of new hires and therefore, rather than implementing two different sampling strategies depending on the information available, the employee sample is completely redrawn in the third year. Of course, especially in small workplaces, there will be an overlap between these employee samples. The employees reselected in the new sample will provide employee-variable estimates for the original longitudinal population for at least four years or until they leave their workplace or the workplace closes down.

A solution mixing retrospective questions and a panel

In order to benefit from the advantages of each option and to limit the subsequent disadvantages, the Guidelines propose to combine the use of retrospective questions and a panel design. This has for example been done, in the WERS and REPOSE employer surveys and the WES and OSA employee surveys (see table 6).

Table 6: Panel surveys with retrospective questions

	Retrospective information	Panel dimension
Employer-level surveys or sections in linked surveys		
REPONSE	Retrospective information is gathered by some questions on a 3-year reference period (1990-1992, 1996-1998 and 2002-2004).	Every 6 years 1992, 1998 and 2004
WERS	<ul style="list-style-type: none"> - Retrospective information is gathered by some questions on a 6-year reference period (1984-90, 1990-98 and 1998-2004) - Five questions on changes that have occurred made in the last 2 years, for example "Over the past two years has management here introduced any of the changes listed on this card?"; "Which one of these had the greatest impact on employees working here?" <p>The retrospective questions on changes in practice are in the cross-section survey. The panel only collects information about the current state, although the 1990-1998 did include some questions to ask why practices had changed between the two years, and each panel includes a question to ask whether there has been a merger, takeover, amalgamation, split, relocation etc.</p>	Every 6 years, except first 2 waves 1980, 1984, 1990, 1998, 2004
Employee-level surveys or sections in linked surveys		
NEA cross-section and longitudinal part	<ul style="list-style-type: none"> - Questions assessing the incidence of events/change(s) in last year (but without measurement of strength of event(s)/change(s)) nor of 'state' at t0: for example, it might be the case that at 't0' already many of the company activities have been relocated etc.), e.g. In the last 12 months did one or more of the following changes occur in your company (establishment/location)? (multiple answers possible) - a large reorganization; - takeover by another organization; (..) - downsizing <i>with</i> coerced layoffs; (..) - relocation company's activities to foreign country; - automation of company's activities; - none of the above changes (yes; no)" - Questions assessing change in last 2 year but neither assessment of state at 't0' nor of 'state' at t1; nor of strength of change, e.g.; "Has your job been enlarged in the last 2 years?" 	Cross-section: yearly since 2003 NEA-longi: 2 waves: October 2007 and October 2008
OSA labour supply panel	<ul style="list-style-type: none"> - Labour market situation 2 years ago - Assessment of kind and date of labour market changes that have lasted at least one month in last two years. 	First wave in 1985, every 2 years
WES Employee section	<ul style="list-style-type: none"> - Questions on incidence of events/change(s) in last year, but without measurement of strength of event(s)/change(s)) nor of 'state' at t0. - Questions on changes since respondent started working. Assessment of state at t1 by questions elsewhere in the questionnaire (different wording), t0 information can be derived from panel (1 year follow-up) although time intervals are not the same) - Section with on job comparison (not for respondents whose job title and most important activities or duties have not changed or who respond for the first year) 	First wave in 1999, 2 year panel and then the sample is completely refreshed

A panel survey is convenient for the (short and) mid-term perspective, while retrospective questions are so for the short-term perspective on change. Thus, it would be interesting to start a mid-term panel survey with questionnaires including short-term retrospective questions. The example of the REPONSE employer survey illustrates this approach with, each 6 years, a questionnaire including 3-year retrospective questions as well as questions on the current situation.

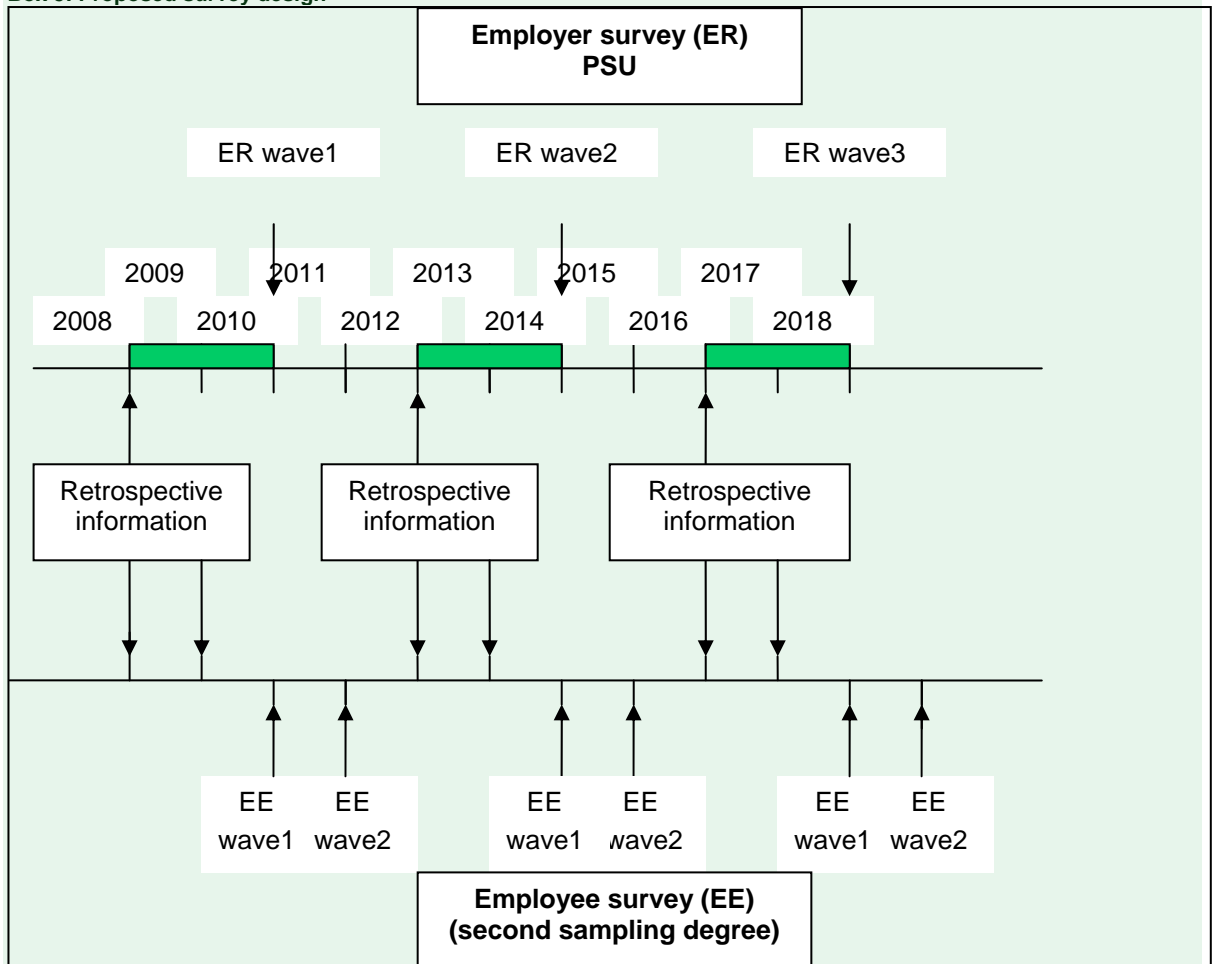
Indeed, this survey design has a lot of advantages. First, data from the first wave are available quickly to analyse dynamics of organisations and work in the recent past. Next, the repetition of the survey in a second wave is useful as it becomes possible to monitor trends in changes and it allows more complex analyses using longitudinal information. Finally, asking the retrospective questions in a subsequent wave fills the gaps in the longer timeline and provides useful, additional information.

Concerning the follow-up period between the waves, a balance has to be found. It should not be too short (for example one or two years) since such regular observations are not required to measure organisational changes. Moreover, such an option would be costly and leads to practical difficulties and an extra burden for companies. However, a low frequency (for example six or eight years) is not convenient either since it would probably lead to important attrition biases (one may encounter major

difficulties in tracing employers, and even more so in tracing employees), it would also leave part on the time line unobserved and suffer from the obsolescence of a large fraction of the questions.

Therefore, the proposed survey design (Box 5) in this matter consists of a four year follow-up period between the several employer survey waves in combination with the use of retrospective questions with a (maximum) recall-period of two years. This is a good compromise to measure work organisation that may change quickly but also needs time to show its effects. With a 4-year repetition frequency, two waves of the survey provide four distinct time points, each separated by a two-year period. In this survey design, information on changes over periods on two years is not strictly comparable from one period to the other. For example, changes between 2008 and 2010 are assessed through retrospective questions addressed to a unique respondent while changes between 2010 and 2012 are based on the comparison between a state variable given by one respondent describing the situation at the date of the survey in wave 1 and a state variable given by another respondent in wave 2 and deriving from a retrospective question. The comparability of these two different measures of change over a two years time period would need further assessment.

Box 5: Proposed survey design



A linked employee-level survey, using the principles of the WES survey, that is a with one-year follow up, leading to a two-waves panel, could be considered as showed in box 6. This design makes it possible to analyse short term effects at the employee-level using the panel dimension of the data. This proposal, mainly inspired by workplaces surveys, would need to be adapted if the employee-level is the PSU, for it would then be more difficult, as stressed earlier, to follow up employers over time.

The Guidelines recommends collecting longitudinal information for measuring change, that is, information about the present state as well as the past state. There are two different ways to reach this aim, either through retrospective questions in cross-section surveys, or through panel surveys. The Guidelines propose a model survey framework, which combines both of them.

V. Other key elements of the survey design

This section explores the various sampling issues at stake when measuring changes in organisations and work. It first examines the issue of relevant unit to survey and respondent at the employer level in order to seize targeted information on the dynamics of organisations and work. It then moves to representativeness issues with the aim to cover a broad population and to coordinate employers and employee samples in terms of coverage and size. Finally, it considers aspects of data collection methods and proposes a flexibility principle to secure harmonisation at an EU level.

Unit to survey and respondent

1) For employers: focus on establishments/workplaces and interview the General Manager or the person directing the local unit

Workplaces, establishments and companies

Although some employer surveys such as DISKO measure the dynamics of organisations through questionnaires addressed to companies or firms, most of them take establishments or workplaces as sampled unit (see Box 7 for definitions of unit and Table 6 for examples of surveys).

Box 7: Workplace, establishment, firm or group

A workplace is a local unit or a business location. A firm or an establishment is a legal unit, establishments being nested within firms. Some workplaces include more than one establishment of a single employer, sometimes a whole company (aggregate units), while they may also host just a fraction of one establishment (partial unit). A group of companies (or business group or corporate group) is a cluster of legally distinct firms with a managerial relationship or financial links. The workplace is the only unit with a uniform definition across countries. The definition of establishment, firms or companies or group is contingent on the legal environment and the corporate governance system.

These definitions apply for the private sector. In the public sector, the notion of establishment is valid, but legal definitions of what is a public sector establishment vary considerably from one country to the other. Moreover, registers for public sector units are often separate from business registers. As for workplaces in the public sector, they can be defined as in the private sector.

This unbalanced situation reveals that workplaces or establishments are relevant units to investigate when trying to assess the implementation of organisational changes. There are two main underlying reasons. First, organisational practices are more accurately measured at the workplace level, where it is easier to ask the employer about the share of employees concerned by a given practice. Second, in a linked employer/employee survey there is more chance that an employee will be concerned by an employer practice defined at the workplace level rather than at a higher level. As a result, measured correlations between employee level indicators and employer level indicators are expected to be stronger at the workplace level than at the company level.

Table 6: Sampled units at the Employer-level in surveys on organisational change

Firm or company	Establishment	Workplace
COI DISKO	REPONSE PASO TNO/WIS LIAB	WERS WES NOS NUTEK MOA

The availability of an official business register from where to sample the employer unit will play a central role in choosing to sample legal units (establishments or firms) rather than statistical units (workplaces). In some countries the official business register is linked to an employee register, making it very easy to draw two stages random samples of employers and employees. These linked employer / employee registers are available in the Scandinavian countries, Germany, France and the Netherlands, with differing access rights for sampling purposes. In France, the samples for COI and REPONSE are drawn in such a linked register (Déclarations, Anuelles de Données Sociales - DADS), with a choice for surveying the firm in COI and the establishment in REPONSE. In the LIAB survey infrastructure, administrative data from one level enriches surveys from the other level: the

IAB establishment panel survey is matched with the Employment Statistics Register, an administrative panel data set of all employees in Germany paying social security contributions.

When a business register is available, workplaces, establishments or firms are three different types of unit that can be sampled. If workplaces or establishments are the units of observation, there are three possibilities: (1) interviewing all the sub-units of a firm and in this case the PSU is the firm or (2) selecting randomly these units within firms and in this case the PSU is still the firm but the workplace or the establishment is a secondary sampling unit or (3) sampling directly at the sub-unit level and in this case, the PSU is the workplace or the establishment. Next, employees are reached through the employers (linked employer/employee survey). The employer questionnaire is addressed to a person able to describe what is going on at the local unit and this person is asked to deliver a list of employees. When a linked register is available, the employee can be directly contacted at the address given in the register.

When no business register is available, a linked employee/employer survey is the only option. The interviewed employee is asked to give the name and address of his employer, this address leading to a particular location and a corresponding workplace. It is also possible to ask the employee to give more information about what a workplace means to her or him. Questions will not have strictly the same meaning depending on the nature of the linkage: whatever the choice made concerning the employer unit to survey, these units are less easy to control, but can be more “flexible” if employees are interviewed first. Indeed, employees may provide information that is less precise (in a legal sense), but more relevant for themselves (in a socio-economic way).

Even though most surveys on organisational issues choose to survey the establishment or the workplace, taking the firm or the company as the sampling unit has several advantages. First, most of the time, the firm is the unit where strategic decisions are made. Thus high quality information on how change has been initiated can be obtained at the firm level. Sometimes it is even at a higher level than the company that decisions are taken, especially in multinational companies. In this case, the level of the business group could be a source of more accurate information (Marginson, 1998). In an increasingly networked economy, many changes in work are related to changes in the relationship between organisations and their environment. Practices as subcontracting, outsourcing, delocalisation or the integration of organisations in networks and global value chains, require a wider scope than the workplace to be monitored and analysed. However, data on links between establishments within a firm or between companies within a business groups are still scarce. For example, even if the LIAB is a rich data source linking employees to establishments, it cannot yet identify establishments that belong to the same company or crossed ownership and mergers between companies. Some research is currently being carried out, merging different data sources to create a company identifier in Germany. Second, accounting usually takes place at the firm or company level where taxes are paid. Thus economic performance is more easily measured at the firm level than at the establishment or workplace level. It is precisely because accounting activities generally take place at the firm level that official business registers focus on this level (with some exception like in the German or UK cases).

The best of both worlds would be to mix the advantages of the workplace/establishment level and of the firm/company level. One possibility is to interview a workplace or an establishment, but to include some questions on the firm or company level, which is done for example in the OSA labour demand panel. It is also possible to select randomly workplaces that will receive a workplace questionnaire within firms, while administering another survey at the company level to collect information on strategy or on performance. In the NUTEK 1998 survey a third option is taken: a first contact, by telephone is made to screen active workplaces in the previous year that had financial responsibility, that is were responsible for income and costs. A self administered questionnaire was then sent to these workplaces.

Who knows about changes in organisations and work at the employer level?

A fixed description of the respondent is not established in advance in many employer-level surveys, due to a lack of names and positions of potential respondents on the sampling frame. Many surveys are therefore confined to vague descriptions along the lines of a “key person”, “spokesman” or “representative” of the organisation (Table 7). This is also because the most informed person may not hold the same role in each workplace. One workplace may have an HR manager, another may not. In face-to-face interviewing, the interviewer can assist on the spot about who is the most suitable respondent and some surveys allow possibility of talking to several respondents.

The most relevant person depends on the main topic of the survey. Because organisational change may impact the organisation as a whole, the Guidelines suggest interviewing the General Manager or the person directing the workplace. He/she can be advised to develop his or her response through some interaction with specialised staff, from the Human Resource department or the IT department for example. A question should be included at the end of the employer questionnaire to give more information on how the employer's response was processed as is done, for example, in the COI survey. In other words: who was the main respondent and did the respondent seek assistance from other persons with specific positions. This is particularly important when the questionnaire is self-administered. Another option is to plan a telephone interview first in which the general structure of the company is investigated. The questionnaire could then be divided into parts according to the structure of the firm and be administered to the most relevant respondents according to the topics covered. In a face-to-face interview, it could be possible to organise the presence of multiple persons during the interview.

Table 7: Main Respondent in Employer-level surveys on organisational change

General manager or person responsible for the workplace	Manager responsible for personnel issues	Other (who?)
COI TNO / WIS (2002) WES	WERS REPOSE PASO TNO / WIS (1998) NOS	DISKO (Employer representative in charge of personnel or organisational matters in the firm) NUTEK 1998 (A person who has an overview of how the work is organised at the enterprise and how you work with change) MOA (Executives, HR and production management representatives)

2) For employees: No proxy admitted

But, in order to have high quality data, it is considered that no one else can answer on behalf of or replace an employee because work situations and experiences have an irreplaceable individual dimension. Another important reason when employees are sampled from a list supplied by the employer is that allowing replacements give the employer an additional opportunity to manipulate the sample. Thus, it is proposed that the employee should not be replaced, in order to be able to calculate a non-response rate and to assess better the quality of the results (a replacement could introduce a bias into the survey sample).

In linked employee/employer surveys, the basic sampling unit at the employee-level could be the household, as in labour force surveys. In this case, it is necessary to fix a rule to select employees. For example: (a) in the EFE survey, which is concerned with work-life balance, all employees aged 20 to 49 are interviewed, for the target population is employees with young children; (b) in the AES-CVTS survey, in which the main theme is training practices, a randomly selected employee per household is interviewed; (c) in the OSA labour supply panel, one or more persons aged 16 through 66 are selected per household, for an important theme in this survey are labour market issues, e.g. labour market transitions.

The measurement frame presented in Chapter 1 has laid some basic principles about the coordination of the employer and employee level questionnaires which are presented in detail in chapters 3 and 4. Complementarity in data gathered at the two levels is a central principle. This implies first that the response burden has to be balanced at the two levels: at a given level, a linked survey must be lighter than a one level only survey. This is because questions can be asked at the most adequate level, where the answer is the easiest to formulate. This choice implies that question redundancy between the two levels is to be avoided.

For the employer survey, the Guidelines recommend that establishments or workplaces are the sampling unit and that the respondent is either the General Manager or the person directing the local unit. But this survey level could prove too limited to measure performance, strategy as well as system level indicators, leading to the development of a company level survey module.

For the employee survey, the Guidelines exclude the option of a proxy: the employee has to be directly interviewed.

Complementarity in data gathered at the employer and the employee levels is a central principle for the coordination of the two questionnaires.

Representativeness issues

1) A broad population coverage: employer units with 20 employees or more covering whole countries and the whole economy, including the public sector and all the employees working at these units

Coverage of whole countries if possible

The geographical coverage of the employer survey should be as wide as possible, yet two general principles apply:

- The spatial structure and the size of samples within geographical units should be consistent with the needs for spatial indicators at the European level.
- The coverage of some regions that are particularly difficult and expensive to survey (e.g. outlying islands or overseas territories) needs further deliberation.

It is a remaining question whether the survey should cover some or all the European countries: the EU-27 or also the candidate countries (Croatia and Turkey) and Norway and Switzerland, as for example in the EWCS of 2005.

Coverage of the whole economy, including the public sector, excluding agriculture

The employer samples should be representative of the whole economy, including most of the sectors: private, public, and semi-public; manufacturing, construction, services including education, health and social services. However, public sector and non-profit organisations need a specific approach, because the sampling methodology for the private sector may not apply here as there may be a separate register and different indicators of activity.

Table 8: Sector coverage of Employer-level surveys on organisational change

Private sector	Including agriculture	Covering also public sector
All employer-level surveys on organisational change Some surveys focus on manufacturing, as EMS	PASO NOS	COI (2006) WERS PASO NUTEK (1998) TNO/WIS (1998) MOA WES

In general agriculture is excluded from existing surveys on work organisation. The issue of covering or not this sector would need further discussions in the context of EU-27 as it employs a large fraction of the workforce in some of the new member states and candidate countries.

Coverage of employer units with more than 20 employees

Large and medium sized workplaces should be covered. The coverage of micro-companies (less than 10 employees), self-employed and family businesses generate some specific difficulties. On the one hand, it is difficult to use the same concepts for very small organisations, which are characterised by a large degree of informality and strong firm creation/destruction. On the other hand, these units are needed to have a representative sample of some specific sectors as they represent a significant part of them (personal services for example). The question of the coverage of agriculture in new member states and candidate countries is also connected with this size issue. In 2004 in the EU-27, 19 millions companies belonged to NACE classes from C to K (excluding J), 17.5 million employed less than 10 employees; 41,000 employed more than 250 employees. However, large companies will employ the majority of all employees, thus the practical difficulties of including smaller unit can be more easily accepted as reasons for omitting them.

A specific employer questionnaire could be envisaged for smaller units. The experience of the COI survey showed that it is difficult to link employer and employee data below a size threshold of 20 employees. While investigating the extension of the survey to the service sector in the 1997 survey, some units with less than 20 employees were included in the linked survey frame. Feedback from employers and employees showed that even if confidentiality was secured in the survey setting, it was more difficult to guarantee the independence of the two levels of the survey and sometimes, the anonymity of the employee: some employees felt that they had to inform their employer about the

fact that they were being interviewed or respondent for the employer survey and employees chose to exchange about their response to the survey.

Table 9: Size coverage of Employer-level surveys on organisational change

1 employee and more	5-10 employees and more	20 employees and more	50 employees and more
NOS PASO WES	COI 2006 (employer sample) TNO/WIS WERS MOA	COI 2006 (matched sample) DISKO NUTEK (1998) REPNSE	NUTEK (1996)

All employees at the employer unit, without exclusions except may be a minimum job tenure

The Guidelines recommend surveying all employees working at the employer unit at the time of the survey, even if it could be relevant to take into account a minimum job experience or a reference year for being employed in the employer unit. This choice implies the inclusion of temporary workers currently working in the workplace or company even if they are employed by a temporary-employment agency, because they take part in organisational changes and are full-part members of the organisation. Such an option implies special devices in building the survey design. For example, if employers are the first sampling level, it is more difficult to trace employees who are not on the company's payroll, like those employed by a temping agency.

Table 10: Population covered in employee-level surveys or employee sections in linked surveys

Employee-level surveys	
BSS	People in paid employment aged 20-60 (20-65 in 2006 survey)
EWCS	Salaried employees, freelancers and self-employed
NEA	Salaried employees (sampling frame: 'Banenbestand', Job register containing information with a two years lag)
OSA	Potential labour force: all members of household 16 years through 64 (who were not following full-time education) until 2002, when household became individual panel and other household members were no longer required to be surveyed but were included if possible. In 2004 the selection was enriched with ages 16 through 66 and includes students.
Linked employer/employee surveys, employee section	
COI	Employees are selected in a social taxes register matching companies and employees one year before they are interviewed. They need to be employed in the firm on the 31 st of December of the year preceding the survey and they must have worked a non negligible amount of hours. Thus employees who still work in the firm for which they have been selected have at least one year of seniority. Employees who have left the firm in the meantime have been interviewed in the 2006 survey. New hires are not sampled.
LIAB	Employees covered by social security
REPNSE	Employees in workplaces with 20 employees and more; in private sector excluding agriculture agriculture in Metropolitan France. Only employees with a job tenure longer than 15 months are included, excluding temporary workers, trainees and directors.
WERS	Employees who are on the payroll (with a contract of employment at the surveyed establishment). The scope of the WERS 2004 Cross-Section extends to cover all workplaces with 5 or more employees, located in Great Britain (England, Scotland and Wales) and engaged in activities within Sections D (Manufacturing) to O (Other Community, Social and Personal Services) of the Standard Industrial Classification (2003).
WES	All employees working or on paid leave in March in the selected workplaces who receive a Canada Customs and Revenue Agency T-4 Supplementary form.
Linked employee/employer survey	
AES-CVTS	The persons aged between 15 and 24 having finished initial education or persons aged between 25 and 64 years of age, in enterprises with 10 or more employees
EFE	Individuals between 20 and 49 in workplaces with 20 employees or more employees

In linked surveys, the population covered will depend on the methodology used (see table 10). For example, in the COI survey, employees are sampled in a linked register where data is available with a lag of one year. Thus interviewed employees have at least one year of seniority. In such a setting, it is possible to identify employees who have left the employer unit between the date when they were sampled and interviewed. In some countries like Denmark, registers allow following employees after

they have left the workplace or before they enter it. In the Danish case, the register is the Danish labour market database (IDA). Such register allows targeting population of new hires and exiting employees that could bring valuable complementary information about organisational change.

More generally, the randomness and the representativity of the sample of employees are easier to secure in a survey setting where the employee is the first sampling level. As mentioned earlier for the case where the employer is the second sampling degree, this is because the dispersion of sampling rates is always higher at the second sampling degree and because there are two sources of non-response bias at this second degree.

Lastly, there should be no over-sampling of some employees. It could be interesting to over sample employees in specific situations that we expect to be rare. For example migrant workers, teleworkers or users of the last wave of new technologies. However, it is unlikely that information will be available for such over-sampling at the employer level or in the sampling frame when employees are the PSU.

2) Minimum size of net sample: *at least a thousand employers per country and 2 or 3000 employees per country*

The minimum size of net samples depends on several criteria:

- The degree to which the sample needs to be representative of particular sub-groups of the population.
- The targets which are pursued in terms of statistical precision of the main estimates and/or for the analysis of sub-samples.
- The nature of the PSU (employer or employee).
- The sampling procedure (units, degrees, stratification).
- The data collection method (face-to-face or telephone interview, postal survey, etc.) and the resources available for a survey.
- The population covered.

If the employer is the first degree of sampling

If the employer is the first degree of sampling, the Guidelines suggests stratifying the sample by sector and size. Stratification improves the precision of all estimates, as it protects against a sample that might severely under-represent particular types of employer because of simple sampling error. To improve the estimation of quantitative indicators such as turnover, performance or employment, one would need to accompany this stratification with variable sampling fractions that over-represent larger units. In case of country stratification, it is proposed to include from 50 to 100 units per stratum in order to achieve some precision with two alternative proposals of stratification based on the experience of reviewed surveys:

- 4-5 grouped economic activities level NACE 17 crossed with 3 to 4 size classes,
- 12 sectors crossed with 4 size classes.

The choice between these two alternatives will depend on the need for aggregated indicators at the European level.

The minimum size of the employees' samples will depend on the size of the employer units and the number of employees wanted for each of them. In the existing linked employer/employee surveys that have been reviewed, the chosen maximum number of interviewed employees per employer ranges from 1 to 25 according to the size of the employer unit. When only one employee is chosen, the target could be a "core" employee, fulfilling an "essential task" in the company, but this would not lead to a representative sample of all employees. Some surveys choose to target small samples of employees within each firm (at least 2). It can be shown that if both the employer and employee samples are random, then small samples of employees within each firm are sufficient to assess the influence of employee-based measures on employer characteristics (Mairesse and Greenan, 1999). Finally, in order to conduct multilevel analyses, samples of at least 15 employees per employer are needed (Hox, 2002).

Box 8: Minimum size of net samples in European wide establishment surveys

The EFILWC and the Bilbao Agency for Safety and Health at Work establishment surveys include around 1000 units per country in their European surveys, 500 units for small countries, 1500 for larger countries. EFILWC may increase their sample size in the next editions of their survey.

If the employee is the first degree of sampling

If the employee is the primary sampling unit, the employer sample size is not controlled *ex ante*, as it is a result of the employee-level survey. The minimum size of the employee sample will depend on the desired size of any sub-samples in terms of age, gender, occupation, etc. in order to achieve a sufficient precision in targeted aggregates at the country level and finally on the targeted number of employers to be identified from the answers of the employees. From AES-CVTS and EFE, it can be assessed that interviewing two or three employees (face-to-face) leads on average to one surveyed employer because of the non-responses and the double counts. So, if around a thousand employers per country are targeted, roughly the aim should be two or three thousand employees per country, if it is enough to ensure that sub-groups are sufficiently well represented. Box 9 gives the size of net samples per country in the 2005 European Survey on Working Conditions. However, this survey is limited in its capacity to estimate aggregates in sub-samples at the country level. This is why country samples could be replenished in subsequent waves of the survey.

Box 9: Size of net samples in the ESWC

The EWCS 2005 includes 29679 interviews (after quality control). If we break down the sample by country, we find the following numbers: Austria 1009, Luxembourg 600, Belgium 1003, Malta 600, Bulgaria 1134, Netherlands 1025, Cyprus 600, Poland 1000, Czech Republic 1027, Portugal 1000, Denmark 1006, Romania 1053, Estonia 602, Slovakia 1024, Finland 1059, Slovenia 600, France 1083, Spain 1017, Germany 1018, Sweden 1059, Greece 1001, United Kingdom 1058, Hungary 1001, Ireland 1009, Croatia 1011, Italy 1005, Norway 1000, Latvia 1003, Switzerland 1040, Lithuania 1017, Turkey 1015 (EFILWC, 2007).

The Guidelines recommend broad population coverage and a coordination of coverage and sample sizes at the employer and employee levels.

At the employer level, the Guidelines recommend a survey of at least a thousand general managers per country in units with 20 employees or more covering whole countries and the whole economy, including the public sector.

At the employee level, the Guidelines recommend a survey of all employees (at the workplace or in the company), with a priority given to the representativeness of the weighted sample (no over-sampling, several thousands of workers per country) and no restriction (except maybe a minimum job tenure).

If employers are surveyed first, between 1 and 25 employees per employer and between 2 and 3 on average should be interviewed. If employees are surveyed first, between two and three thousand employees per country should be interviewed to reach the thousand employers target per country.

Data collection: reasonable flexibility to secure harmonisation

Data collection methods are a last area where these Guidelines recommend general principles. These cannot be discussed without taking into account financial considerations. There is little point in identifying the optimal way to collect data, if no mention is made of the associated costs. These will be assessed in chapter 5. In this section we propose some general principles in the questionnaire design allowing for flexibility to secure harmonisation and master costs. Response rates targets and the length of questionnaires are other important aspects that influence best practice regarding data collection methods.

1) A core survey plus modules and a unimode questionnaire

Cores and modules

The Guidelines recommends the design of a core employer and a core employee questionnaire where questions will be similar, given an appropriate translation, across all countries. These core questionnaires will leave room or time for an additional module that can be developed at a national level according to the information needs and context specificity. This implies that the core questionnaires leave room for additional questions arranged in modules. This flexible approach should facilitate harmonisation if the survey is organised according to a decentralised mode and it could allow some variations in the topics covered between different waves

In a linked survey setting, both the employer and the employee should be informed of the fact that the other level is also being interviewed. Explicit explanations must be given to employees and employers on how the confidentiality of their responses will be secured. In particular, it should be

stressed that employer will not be informed of the identity and responses of employees. The aim of the survey and of the employer/employee linkage should be clearly explained both to employers and to employees. Employees are not asked to assess their employer (and vice versa) but to give a 'picture' of how they work (how the organisation performs) on an everyday basis (over a given period of time).

Interviewing employers

Face-to-face interviews of employers give high response rates and good quality results, but this method is most expensive. As the respondent should preferably be the General Manager or the person directing the employer unit, interviewers must be qualified. Data collection by telephone is presented as a cheaper second best because there are no travel costs. However, there is a tighter constraint on the length of the interview. Postal is not recommended, at least if it is the only method of collecting data, because of particularly low response rates. High response rates, over 80%, with postal surveys are reached in some countries like France, but this is because response to the corresponding surveys is mandatory and non-responders can be fined.

Table 11: Method for completing questionnaires in employer surveys on organisational change

Face-to-face interview	Telephone interview	Postal questionnaire	Web questionnaire	Follow up by mail or telephone
WERS REPNSE WES MOA	WES NOS NUTEK (1998)	COI NUTEK DISKO NOS TNO/WIS	PASO	DISKO PASO COI TNO/WIS

Besides these elements, the choice for completing questionnaires may also depend on the linkage between the employer-level and the employee-level survey. Because the response at the second sampling degree is conditional on the response at the first sampling degree, in a linked employer/employee survey it is preferable to conduct face-to-face interviews at the employer-level.

Given the previous elements and in order to maximise the cost-quality trade off, another option for the employer survey is to combine several data collection methods (Box 10). For instance, face-to-face or telephone interviews can be complemented with postal questionnaire information collected in advance or afterwards on topics where the information is more difficult to gather instantly (for example on productivity, sick leave, number of employees per category). It also is possible to ask the respondent to choose between the methods: postal, telephone, face-to-face, web based or a combination, with the risk of generating specific patterns of response connected with the data collection method.

Box 10: An example from WERS 2004 of combined method for data gathering

As part of the WERS 2004 survey, a four page self-completion questionnaire on financial performance was left with the respondent at the end of the face-to-face interview. It was to be completed either by the respondent, or by another manager who was better able to report on financial matters. The questionnaire was placed in 2,076 workplaces and 1,070 questionnaires were returned (a response rate of 51%) (Forth and McNabb, 2007). The partial non-response rate amounts 49%.

Three important stages should be distinguished in the process of data collection at the employer level and methods in this respect: first, reaching the right person; second, collecting the answers to the questionnaires including collecting figures, precise numbers or matrix data, and third, complementing the data collected in the field with information from other available data sources like registers.

Interviewing employees

The issues of data collection methods are to some extent different for employees, as here it is particularly important to ensure confidentiality. Reaching an employee at work requires the agreement of the employer (Box 11), which can raise biases because it is more difficult to maintain confidentiality. The employee can also practice self-censorship either by refusing to respond or by not giving authentic responses.

Box 11: Reaching the employee through the employer in WERS

Regarding the conduct of the WERS Survey of Employees, in workplaces where managers permitted the survey to take place, the interviewer conducting the management interview obtained a list (from the employer) of all employees at the establishment who were on the payroll at that time. The interviewer selected 25 employees at random from this list and left a named questionnaire for each selected employee, to be distributed by the manager. In workplaces with between 5 and 25 employees, a named questionnaire was left for each employee. Each questionnaire was to be placed in a sealed envelop upon completion. The completed questionnaires were either posted directly to the fieldwork office by the respondent, or collected at the workplace and returned in a single batch to the interviewer or by post.

Even more so than for employers, the choice of the data collection method depends on the way the two steps of the survey are combined (Box 12 and Table 12). If employers are the first sampling degree, the easiest option would certainly be either to distribute questionnaires at work (to the home addresses for those who are on holidays, sick leave), which are returned by postal mail, or to interview employees either directly at work when they can (or later) or to do so by phone or face-to-face at home. If employees are interviewed first, one would prefer either face-to-face or telephone interviews, in order to collect good contact information to identify the employer for the next step.

Box 12: Possibilities for approaching employees tested in developing the WES

In the pilot survey of 1996, employers forwarded an information slip on to their employees and the employees were asked to contact Statistics Canada so that a telephone survey could be conducted. This resulted into a 55% response rate, which is rather low. Other approaches also have been tested in the development of the WES. In another case, workers were asked to complete a small questionnaire (of about five questions) and were asked to return it to Statistics Canada, along with their personal phone number. They were then contacted and a longer telephone interview was conducted. Asking for workers active participation through the completion of a small survey raised response rates to a 70% rate. Also employers have been asked to provide the employees' work telephone number. In this case interviewers from Statistics Canada could actively head for an interview, rather than passively wait for potential respondents to contact them. Also, the possibility has been considered that the interviewer speaks to the employees at the establishment to obtain his consent and telephone number. Taken together, these approaches brought the worker response rates to the high level of about 80%, matching that of the workplaces (Krebs *et alii*, 1999).

Table 12: Method for completing questionnaires in employee surveys on organisational change

Employee identified through the employer and interviewed			Employee identified in a register and interviewed at home		
At work		At home By post or web	Face-to-face	Telephone	Post or Web
Post or web	Face to face or telephone				
WERS	WES	WES	BSK COI EWCS via a random walk procedure	COI	NEA OSA REPOSE

The unimode strategy

A unimode questionnaire, where questions are designed to be suitable for administration in all the modes is an interesting strategy at both levels because it contributes to some further flexibility in the field where the available national survey infrastructure could put some limitation on the way to administer questionnaires. A unimode questionnaire implies lining up with the mode with the strongest constraints, possibly telephone, where length is shorter and where complex written format like matrix questions have to be avoided.

2) questionnaires of reasonable length: 30 minutes if unimode

The experience from surveys on the dynamics of organisations and work shows that this topic is rather well accepted both by employers and by employees. While these questionnaires generally cover a fairly wide range of topics, it was not overly burdensome for respondents if the major part of the questions consists of 'yes or no' type of questions or of questions with Likert answer scales. In the following, we give maximum length for the core questionnaire and the module. To give an idea of the size of the module, we can say about 10 minutes in both the employer and employee questionnaires.

From the large set of employer surveys under review, we can identify the variety of practices as well as the average or modal situation. Of course, the maximum length of the questionnaire depends on the way the questionnaire is to be completed.

if postal: **around 10 pages**

- From 4 to 16 pages (200 questions)

if by telephone: **around half an hour**

- From 15 minutes to 45 minutes

if face-to-face: **around an hour**

- From 10 minutes to 100 minutes

The interview with the employer will be longer if the interviewed person is asked to handle a list of employees or to sample employees, a task which can also be delegated to a subordinate.

WERS is an interesting case (box 13) because even though the survey represents important burden for the respondents, response rates remain quite high. The reason is thought to lie in the official nature of the survey, the extensive finances and time committed to fieldwork and the acquired reputation built on good communication of the results to a large community.

Box 13: Employer questionnaires in WERS 2004

The 2004 employer Cross-section Survey contained the following five components:

Self-completion questionnaire for the main management respondent about the composition of the workforce (four pages)

Face-to-face interview with a main management respondent (average two hours)

Face-to-face interview with union and non-union employee representatives, where present (average 45 mins)

Self-completion questionnaire distributed to a random selection of up to 25 employees in the workplace (eight pages)

Self-completion questionnaire for the financial manager about the financial performance of the establishment (four pages)

Time needed to answer questionnaires should be shorter for employees than for employers, as it requires the agreement of the employer if the survey takes place at work, and it engages the leisure time of the employee if the survey takes place at home. The length of questionnaires should range between **30 minutes to one hour** when the interview is face-to-face, but could be **30 minutes on average** when the interview takes place by telephone or postal/web-based mode.

In a unimode questionnaire setting, the reasonable length is 30 minutes like in a telephone survey, both for employers and for employees.

3) Secure a good response rate: an aim of 60% to 80% for most countries

For both employer and employee, the highest response rate is targeted, but response rates depend on the data collection method used, on the institutional setting at the national level and more generally on the resources devoted to data collection. Response rates in surveys under review vary from 12% to 85%. Box 14 gives the range of country response rates in two European surveys conducted by EFILWC.

Box 14: Response rates in European cross-national surveys

We can take the examples of two recent surveys by the EFILWC: an employer-level survey, the European Survey on Working Time (ESWT) which was conducted in 2004-5, and an employee-level survey, the European Working Conditions Survey, conducted every five years and by means of face-to-face interviews. Response rates ranged from 11% (Hungary) to 61% (Poland) in the ESWT and from 28% (the Netherlands) to 69% (Czech Republic) in the EWCS 2005. Regarding the relatively low response rate in the Netherlands, also the postal/web-based employee surveys NEA 2007 and OSA 2006 show response rates of 29% and 20% respectively, while both applied some financial bonus for completing the questionnaire (EFILWC, 2007).

However the Guidelines recommend target rates between 60% and 80% to meet in most covered country. This target is important to secure the quality of cross-national comparisons. More precisely, from one country to another, methods to complete the questionnaire should be as close as possible as well as response rates and they should reach a high level. However, in case these thresholds are not reachable in some countries, a bias assessment can be planned in the survey methodology for every country, allowing the comparison of respondents and non respondents on key survey variables as suggested by Sturgis and alii (2006) in the context of the PISA survey. This bias assessment could be used to make weighing adjustments.

As a result, particular attention should be given to reducing non-response bias, to analysing non-responses and to weighting procedures. It can be noted that a linked survey brings additional possibilities: in the employee/employer variant employer non-response analysis can be performed using information given by their employees. In the employer/employee variant employee non-response bias can be assessed using responses given by their employers.

It seems generally to be the case that officially-supported surveys get considerably better response rates than academic surveys. There may be a number of reasons for this (e.g. advance letters appear more authoritative and the survey seems more legitimate and worthy). Thus, official bodies in relevant countries (national statistical offices or central government departments) should be brought into the design of the survey as designated supporters.

The Guidelines recommend a flexible approach to data collection methods in order to secure harmonisation and to master costs. The employer and employee surveys should be composed of a core questionnaire and of modules, which can be further developed at the national level. Furthermore, the questionnaires should be designed according to a unimode principle that is, making them suitable for any administration mode. This will imply lining up with the constraints of telephone surveys that are the strongest and implies in particular maximum lengths of 30 minutes. The Guidelines also recommend target response rates between 60% and 80%.

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Appendix: List of reference surveys

Acronym	Name of the survey	Last wave	Country	Producer/sponsor
AES – CVTS linked employee/ employer	Adult Education Survey – Continuing Vocational Training Survey	2006	France	Céreq, Eurostat, INSEE, DARES
BSS employee BSS/EPS linked employee/ employer in 2001/2002	British Skills Survey (Employer Perspectives Survey in 2002)	2006	United Kingdom	University of Kent/ Economic and Social Research Centre (ESRC) on Skills, Knowledge and Organisational Performance (SKOPE)/ Department for Education and Skills/Department for Trade and Industry/the Learning and Skills Council/the Sector Skills Development Agency/ Scottish Enterprise; Futureskills Wales/ Department for Education, Lifelong Learning and Skills, Welsh Assembly Government/Highlands and Islands Enterprise/ East Midlands Development Agency/ Department for Employment and Learning, Northern Ireland
CIS employer	Community Innovation Survey	2005	EU-27, Iceland, Norway	Eurostat
COI linked employer/ employee	Changements Organisationnels et Informatisation	2006	France	Statistique publique INSEE- DARES-DREES-DGAFP-CEE
DISKO employer	Danish Innovation System: Comparative analysis	2006	Denmark	Aalborg University -Denmark Statistics
EFE linked employee/ employer	Enquête famille employeurs	2005	France	Institut National des Etudes Démographiques
EMS employer	European Manufacturing Survey	2006	Germany, Austria, Croatia, France, Great Britain, Italy, Slovenia, Turkey Greece, Netherlands, Spain	Coordinator: Fraunhofer Institute of Systems and Innovation Research (ISI)
ESS persons over 15 years old in private households	European Social Survey	2006/ 2007	32 countries, from which 22 EU countries	Coordinator: City university, UK University of Leuven, Belgium / NSD, Norway / ZUMA, Germany / ESADE, Spain / SCP, Netherlands Sponsored by the European Commission and the European Science Foundation
ESWT employer	Establishment Survey on Working Time and Work-Life Balance	2005	EU-15, Czech Republic, Cyprus, Hungary, Latvia, Poland, Slovenia	European Foundation for the Improvement of Living and Working Conditions
EWCS employees	European Working Conditions Survey	2005	EU-27 + Croatia, Turkey, Switzerland and Norway	European Foundation for the Improvement of Living and Working Conditions (EFILWC)

LIAB linked employer/ employee	Institut für Arbeits- und Berufsforschung	2007	Germany	Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit
MOA linked employer/ employee	The MOA method for assessment of organisations The MOA questionnaire on changed working conditions	2006	Sweden	National Institute for Working Life
NEA employees	Nationale Enquête Arbeid (National Survey on Work and Employment)	2007	The Netherlands	TNO Work and Employment; Ministry of Social Affairs and Employment (SZW); Central Office for Statistics (CBS)
NOS linked employee/ employer	National Organization Study	2002	United States	National Opinion Research Center funded by the National Science Foundation, the National Institute of Occupational Safety and Health and the Commonwealth Fund.
NUTEK employers	Technological and Organisational Change and Labour Demand: Flexible Enterprises - Human Resource Implications	1998	Sweden	Swedish National Board for Industrial and Technical Development, Department of Structural Analysis
OSA Er employers	OSA - Organisatie voor Strategisch Arbeidsmarktonderzo ek - Arbeidsvraagpanel	2007	The Netherlands	OSA Institute for Labour Studies; Ministries of: Social Affairs and Employment; Economic Affairs; Internal affairs and Kingdom Relations; Education, culture and science; Health, welfare, and sport
OSA Ee employees	OSA Arbeidsaanbodpanel	2006	The Netherlands	Idem
PASO employers	Panel Survey of Organisations	2004	Flanders	VIONA – Steunpunt OOI – ESF Vlaanderen
REPONSE linked employer/ employee	Relations professionnelles et négociations d'entreprise	2004	France	DARES
ESES linked employer/ employee	European Structure of Earnings Survey	2002	EU-27 + Iceland and Norway	Eurostat
TNOWIS linked employer/ employee	TNO Work in the Information Society survey	2002	The Netherlands	TNO/Ministry of Social Affairs and Employment (SZW)
WES linked employer/ employee	Workplace and Employee Survey	Employ ees: 2005 Employ ers: 2006	Canada	Statistics Canada
WERS linked employer/ employee	Workplace Employment Relations Survey	2004	Great Britain	Department of Trade and Industry (DTI) Advisory, Conciliation and Arbitration Service (Acas) Economic and Social Research Council (ESRC) Policy Studies Institute (PSI)