Effective Lifelong Learning strategies and value creation at the enterprise level

Ulrik Brandi
Aarhus University
Denmark

Rosa Lisa Iannone
Aarhus University
Denmark

LLLight´in´Europe

LifeLong | Learning | Innovation | Growth & Human Capital | Tracks in Europe

IMPRESSUM

EFFECTIVE LIFELONG LEARNING STRATEGIES AND VALUE CREATION AT THE ENTERPRISE LEVEL

About the authors

Ulrik Brandi

Prof Dr Ulrik Brandi is Associate Professor in Organisational Learning at Aarhus University's Department of Education and Head of the Lifelong Learning research programme. He holds an M.A. in Educational Studies and Philosophy and a PhD in Organisational Learning from Learning Lab Denmark. Ulrik's research interests include workplace and organisational learning and change, knowledge sharing, and innovation. He examines how organisations and their members learn new practices and share knowledge, and studies the factors that facilitate or impede these learning processes.

Rosa Lisa Iannone

Rosa Lisa Iannone is an independent professional in the field of education who has worked in a variety of roles in European collaborative projects and individual higher education institutions. She is also a Research Assistant at Aarhus University's Department of Education, Associate at University College London, Institute of Education, and a member of the Comparative Education Society in Europe. She holds a multidisciplinary bachelor in Global Governance from York University, Collège Glendon and an Erasmus Mundus Masters in Lifelong Learning: Policy and Management from Aarhus University, the University of Deusto and the Institute of Education, University of London.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report endeavours to describe and map effective lifelong learning strategies as they are employed at an enterprise level, including an analysis of how such strategies influence enterprises' learning capacity in their strive towards value creation and high performance. The empirical data triangulates three sources: 1) past empirical and theoretical work (1990-2012); 2) LLLight'in'Europe's empirical data from 47 semi-structured interviews and 182 questionnaire responses in a total of 194 enterprises (31 EU, 163 EU-competitors), across 53 industries; 3) 2009 and 2013 European Company Survey results. A key conjecture for the empirical analysis and conceptual model is that the ways in which different kinds of learning opportunities, understood as human resource practices (HRPs), are enacted in an enterprise is linked to available arrangements of specific systems, structures, values, processes and resources, mediated by learning. Similarities and differences in these factors create arrays of learning opportunities and potentials for attracting, sustaining and developing competences. The research and analytical synthesis address three interrelated areas of lifelong learning in enterprises, identified as imperatives in high-performance work systems: skills development; learning systems and incentives; and work design and the organisation of work.

Regarding skills development, results show that the highest valued employee skills are soft skills. Yet for the most part, there is a focus on the development of skills that explicitly and directly contribute to new business formation and financial bottom-lines, in ways that are also fast and on-demand (short-term goals). We found that it is primarily the individual's role to prompt learning in the workplace, with the exception of induction processes and industry standards or regulatory training and development. We have also noted that enterprise size has a significant effect on provisions of learning opportunities.

On learning systems and incentives, findings indicate that enterprises strive for a balance between the use of systematic and ad-hoc arrangements. Transactional and traditional compensation elements are very much in place, particularly in larger enterprises. Nevertheless, the implementation of incentives that respond to intrinsic needs, such as offering interesting and challenging work, being flexible, setting up work organisation that is structured along teams and fostering a sense of belonging and ownership, also in positive atmosphere, are essential to attracting and keeping desired staff. Negative-motivators still characterise incentives for work, yet these cannot be relied on for growth, and are therefore not long-term strategies to be used; though socio-economic factors play a significant role in dissolving these incentive practices.

In relation to work design and the organisation of work, results demonstrate that having an HR department, or designated HR-person, helps systematise HRPs.

Paralleling this trend, especially in larger enterprises, however are an increase in hierarchy and distinction in status between employees (and ranks), which do not foster responsiveness to on-demand, work-related needs. Optimistically, a slight majority of research participants report their work as being 'very' or 'extremely' challenging and that they assume decision-making power over their work design, and that a good proportion of work is being organised through teams. An examination of conflicts and challenges reveals that stress and burn-outs are still chief problems, followed by communication breakdowns, conflicts with clients, frustrations with workloads and conflicts between management and staff. Affecting this aspect of HRPs are contextual forces that require further exploration.

Findings and analyses have led us to model an understanding of value creation as actualised enterprise lifelong learning capacity (ELLC) in which the affective dimension of HRPs can draw from behavioural learning approaches in enacting changes to learning systems and incentives; the cognitive dimension of HRPs can apply cognitive and action learning principles to address skills development; and the structural dimension of HRPs can use socio-cultural learning elements to enact innovations in work design and the organisation of work. For each, developments may be achieved in ways that affect transactional, tradition and/or transformational HRPs, in an enterprise's quest towards actualising ELLC and thereby marshalling value creation.

ACRONYMS

ECS	European Company Survey
EFQM	European Foundation for Quality Management
ELLC	Enterprise lifelong learning capacity
EU	European Union
HPWS	High-performance work systems
HR	Human resources
HRM	Human resource management
HRP, HRPs	Human resource practice(s)
ICT	Information and communications technology(ies)
IT	Information technology
LLLight'in'Europe	Overall research project name, www.lllightineurope.com
MOOC	Massive open online course
SHRM	Strategic human resource management
SME, SMEs	Small and medium-sized enterprise(s)
WP	Work package
WP4	Work package 4

LIST OF FIGURES AND TABLES

1. INTRODUCTION

1.1. Purpose and objectives

This report presents findings from a large-scale, FP7 European-funded study into how lifelong learning strategies are being realised at the enterprise level, across enterprise size, industry and country. The fundamental premise workpackage 4 (WP4) has been striving to elucidate is that learning at the enterprise level plays a significant role for competitiveness and value creation. In this respect, the purpose has been to account for how enterprises perceive lifelong learning strategies, which lifelong learning strategies are being deployed and how the strategies connect and impact the actualisation of enterprise lifelong learning capacity (ELLC); what we argue is the nucleus of value creation.

As part of our empirical underpinnings, we have operationalised the notion of lifelong learning strategies as interlinked to human resource management (HRM), human resource practices (HRPs) as well as organisational learning and workplace learning. We define lifelong learning strategies at the enterprise level as: HRPs that encompass arrangements of education and learning opportunities, resources, structures, values, and systems utilised with the intention of influencing the development of competences mediated by learning processes at individual, group and organisational levels (Brandi et al., 2013). We have done so, in order to facilitate mutual understandings between researchers and practitioners/participants, and also in order to widen the scope of related research we could draw from. We make use of a synthesis of past empirical work which helps guide and verify our own empirical results, triangulated with the 2009 European Company Survey (ECS) in order to identify the impacts of practice and implications of:

1. lifelong learning strategies that are in place and being used by successful enterprises in EU and EU-competitor countries;

2. the patterns of enterprise lifelong learning strategies and how they can be used to actualise ELLC in the continual strive towards value creation

We centre on the understanding that lifelong learning strategies at an enterprise level become visible in how HRPs are organised and deployed in the form of different arrangements of resources, values, circumstances, systems and structures. We further consider these arrangements along the three main organisational learning-, workplace learning- and HRP-dimensions – skills development; learning systems and incentives; and, work design and the organisation of work – so as to gain insight into the suitability/applicability of HRPs in terms of value creation for enterprises.

[1] See WP4's D4.1, "Conceptual model and questionnaire" (Brandi et al., 2013).

[2] Our mandate was to examine a minimum of 50 enterprises, yet we were able to reach 194 enterprises. See section 2 for data details.

1.2. Conceptualising lifelong learning strategies at an enterprise level to enable empirical research

Theoretically, lifelong learning strategies have received great attention from two related research disciplines: organisational and workplace learning theory and HRM theory. It is widely recognised that learning occurs in a variety of circumstances in enterprises (Argote, 2011; Easterby-Smith, Crossan & Nicolini, 2000; Hager, 2004; Kang, Morris & Snell, 2007), and as a result, addressing the actualisation of the continuous learning capacity of employees, teams and enterprises has become of essential importance for competiveness and success in today's globalised knowledge society (Becker & Huselid, 2006; Bontis, Crossan & Hulland, 2002; Buller & McEvoy, 2012; Chiva, 2007; Huselid & Becker, 1995; Marsick & Watkins, 2003). In this report, we explore this actualisation in terms of ELLC.

ELLC refers to the organisational and managerial practices that foster individuals' and enterprises' ability to accommodate and modify skill, knowledge and competences in volatile and changing environments (Chiva, 2007: 226). Our review of past empirical work in the relevant research fields (WP4, D4.1, Brandi et al., 2013) identifies three main dimensions for these practices, operationalised in the context of striving towards high performance and high-performance work systems (HPWS) – where continuous lifelong learning is integral (Alegre & Chiva, 2008; Becker & Gerhart, 1996; Boxall, Hutchison & Wassenaar, 2015; Boxall & Macky, 2009; Yang, Watkins & Marsick, 2004).

Within organisational and workplace learning theory, we perceive a shift in the main focus from continuous education throughout life in different forms (equivalent to lifelong learning) to a focus on the term learning as a signifier for learning that goes beyond formal education (Billett, 2010; Edwards & Usher, 2001; Hager, 2004). Lifelong learning and its strategies, encompassing formal, non-formal and informal processes of learning, targeting the development of competences at the enterprise level in the most general sense. In this way, we start with an understanding of lifelong learning as lifelong and also lifewide, referring to the fact that learning throughout life and in different institutional contexts opens up the notion of learning to comprise structured as well as more practice-based and organisational-based learning processes (Argote & Miron-Spektor, 2011; Brandi & Elkjaer, 2011; Gherardi, 2006; Yanow, 2000). Our review of learning theory can be synthesised to align with three main approaches to HRPs from HRM theory.

Further, examining how skills, knowledge and competences are formed at an enterprise level through lifelong learning strategies vis-à-vis HRPs leads us to also consider the levels at which these are deployed: at an individual, group and organisational level (Buller & McEvoy, 2012). In our study, we construe organisational, workplace learning, and learning capacity as the conditions for integrating and acquiring work-related skills, knowledge and competences through both formal and non-formal HRM, structured training, and learning activities, as well as informal interactions amongst employees, teams and project groups, and larger enterprise settings.

In this way, learning at the organisational level and learning capacity are used to describe the diverse approaches for how to procure of work-related skills and knowledge. Organisational and workplace learning thus connect to more than formal training programmes; they also relate to specific learning systems and incentive structures, work design and arrangements and learning circumstances in enterprises that aim to create a foundation or capacity for continuous learning, high performance and reinforced practices.

Focusing on how enterprises secure and develop skills, knowledge and competences is fixed to the organising and facilitation of their learning capacity. Thus, we also turned our attention to strategic human resource management (SHRM). Today, in many enterprises, SHRM functions as the gateway for building work-related and enterprise-relevant competences by putting people first. Thus, the HR literature shows that HR departments function as strategic nodes through which enterprises enhance productivity, performance and results, by planning for employee skills, knowledge and competence development.

In this report, we address how value creation at an enterprise level is supported by enhancing competences through different types of strategic learning circumstances. In this light, enterprises can function as strategic centres for sustaining and developing learning (Lepak, Bartol & Erhardt, 2005; Lepak & Snell, 1999). Bridging HR theory and concepts to organisational and workplace learning theory helps us hone in on how enterprises strategically actualise their capacity to learn, laying the foundation for the continuous creation of knowledge, strengthening of the workforce and innovation.

An underpinning inference in this report is that the ways in which ELLC becomes realised in enterprises, are strongly associated to available HRP-setups. Different configurations of HRPs outline specific compositions of enterprise- or industry-based learning systems and incentives, skills development systems and work design that produce different learning opportunities for employees and enterprises. In turn, this has implications for how lifelong learning strategies become key elements for value creation. This argument points to the importance of connecting the concept of learning to an analysis of how competences are developed and facilitated through different types of HRPs such as extensive training and continuing education, selective hiring, employment security, knowledge-sharing, effective work organisation, external relations, rewards and performance appraisals. Assuming that one set of best practices fits all enterprises, regardless of industrial sector or geography underestimates the diversity of elements that influence the learning capacity in enterprises and thereby value creation and performance. Leading from this, our report will address strategically-informed HRPs and how these practices influence learning capacity and competence development at an enterprise level, drawing from the essences of HRPs, rather than generalisations from our findings. As such, lessons learned from our empirical can foster best practices without them become prescriptive.

1.3. Structure of the report

This report is organised as follows. In section 2, we describe the methods employed for our research, data collection and data analysis. We then begin section 3 by presenting our findings, as derived from secondary data – past empirical work (1990-2012) that addresses HR strategies as integral to performance and competitiveness. Subsequently, we present our empirical findings, based on 194 enterprise fiches which were formulated with data obtained through 47 semi-structured interviews with LLLight'in'Europe participating enterprises, internationally, and 182 confirmatory questionnaires. Thus, we also triangulate our data with 2009 ECS data and present established lifelong learning strategies at the enterprise level, along with contextualised examples from our empirical narratives. In section 4, we discuss the implications of our findings in terms of ELLC and value creation and propose a value creation model. Our concluding remarks are presented in section 5.

2. RESEARCHING LIFELONG LEARNING STRATEGIES AT THE ENTERPRISE LEVEL

This section consists of two sub-sections. First, we provide an overview of the data used in WP4's research, laying the foundation for this report, our analyses (section 3) and a value creation model (presented in section 4). A list and documentation of data collected in WP4 is available in Appendix II. In sub-section 2.2., the overall analytical strategy and interpretation processes will be delineated.

2.1. Data description

The research study that constitutes the empirical base for our findings of lifelong learning strategies at the enterprise level is based on different sets of data. Each finding and interpretation is tied to a research question that is substantiated by a certain combination of collected and generated data in WP4 and other relevant LLLight'in'Europe WPs. The research and analytical design were to directly inform WP4's deliverables in the LLLight'in'Europe project. Overall, LLLight'in'Europe's plan for WP4 was to make use of the following data from the project's global (i.e. all WPs) data pool. In Table 1 we present the data collected in WP4. Data setData description

---

[3] See Appendix I. for a template of our enterprise fiches. All enterprise fiches have been published in WP4's "D4.2 and D4.3.1 – Data documentation and enterprise fiches", 2015 (Brandi & Iannone, 2015).

Table 1: Overview of collected data in WP4

Data set	Data description
Phase 1 data: Empirical studies, 1990-2012 (see Brandi *et al*., 2013 and section 3.1 of this report)	The empirical studies were selected from a literature review of SHRM and HRPs, also in relation to HPWS, from a lifelong learning perspective. Synthesis formed the basis of our interview guide and analytical strategy.
Phase 2 data: Semi-structured interviews and confirmatory questionnaires (informing enterprise fiches)	Enterprise fiches present synthesised qualitative data from semi-structured interviews and confirmatory questionnaires. See Appendix I. for the fiche template. See Appendix IV for the cross-analysis plan.
Phase 3 data: Data from the 2009 ECS, with some references to the 2013 ECS (where applicable and where cross-referencing data is available)	The ECS captures work organisation and HRM in 30 countries based on interviews with one representative from management and one from the employee layer on subjects such as HRPs and work organisation.

To be able to formulate an approach for WP4's three phases of qualitative data research, we began by developing an analytical plan for systematically assessing the body of relevant empirical literature addressing our research questions. Following our aforementioned definition of lifelong learning strategies at an enterprise level, we searched academic journals for empirical studies that considered HRPs used in enterprises and how HRPs are linked to the development of competences and enterprise performance, mediated by learning. Two general search strings were employed for the analysis: one that focused on the interrelations of HRPs and competences, and a second search that looked deeper into how learning processes affect the development of competences. In order to conduct our review, we followed a structure from Tranfield et al. (2003) that sets out three distinct stages: a planning stage, an execution stage, and a reporting stage. We divided our review into two groups: the HR-group, which primarily dealt with HRPs and HPWS; and, the learning-group, which focused on HRPs and workplace learning. In the HR-group we located 32 relevant empirical studies and in the learning-group we found 37. All 69 articles were analysed and presented in WP4's D4.1 (Brandi et al., 2013). This constituted Phase 1 of our empirical data collection.

In Phase 2 of our data collection, WP4 would undertake empirical work, including semi-structured interviews and questionnaires, leading to enterprise fiches for individual participating enterprises. We began by developing a conceptual framework that focused on mapping dominating lifelong learning strategies at the enterprise level; that is, HRPs for HPWS and learning capacity-building, as derived from Phase 1 research results. The objective for developing the conceptual framework was to support the formulation of our interview guide and questions (see Appendix III. for an excerpt of our interview guide, with interview questions). Data from these would inform our enterprise fiches as well as WP4's research objective of identifying effective HRPs, which are, lifelong learning strategies at an enterprise level. The fiches would also serve to validate our findings.

The interview questions thus touched upon dimensions of SHRM, as revealed in our examination of HRPs. The three dimensions which we perceived as having primordial impact on enterprise lifelong learning strategy are: skills development, including training and education strategies; learning systems and incentives; and work design and the organisation of work, focusing on interactive features, communication and knowledge-sharing practices. In addition, interviews would also probe participants through introduction- and exit-questions touching upon the themes of[4] :

- characteristics of the enterprise's HR strategy;

- elements interviewees consider as most contributing to the overall success of their enterprise;

- interviewees' optimal training and education vision;

- interviewees' knowledge of and perspectives on lifelong learning.

Important to note is that we did not aim to report on each of the interview themes, though findings are very interesting and meaningful. Rather, data from the additional questions would help serve to contextualise the main questions we posed, relevant to WP4's specific mandate and research objective.

From the onset, we aimed to contribute new knowledge on which lifelong learning strategies are in place, endowing enterprises with the needed competences to handle their competitive goals. Thus, interview questions were structured along the three dimensions of effective HRPs, yet were kept them open so as to elicit new and characterising-thinking from project participants and interviewees. The intent was that our data should take us beyond the mere verification of existing knowledge. Furthermore, we formulated questions that touch upon the sub-features that distinguish each of the dimensions which are not covered by other sources of data within the LLLight'in'Europe project.

Overall, WP4's mandate was to carry out 200 semi-structured interviews at 50-60 enterprises, spanning 5-6 industrial sectors, across 15 EU countries and 4 EU-competitor countries. In addition, interviews were to be conducted with at least one chief executive, one human resources executive, one production or sales executive and one trade union representative. Depending on the country and enterprise, we anticipated job titles to vary, along with job specifications and responsibilities, yet we aimed to reach interviewees who held positions as closely related to those set out in our mandate.

---

[4] See Appendix III for an excerpt of WP4's interview guide, with interview questions.

Given that the recruitment process for participating enterprises took longer than initially planned by LLLight'in'Europe's consortium, WP4 had to adapt its original research and analytical design, following empirical research Phase 1, in the midst of Phase 2 data collection processes. Sequential to WP4's conceptual work in its "Conceptual model and questionnaire" (Brandi et al., 2013), the research design for WP4 was conceived of as an abductive (Bertilsson, 2004; Charmaz, 2000; Dubois & Gadde, 2002; Locke, Golden-Biddle & Feldman, 2008; Timmermans & Tavory, 2012) inquiry, still focusing on the three main dimensions and sub-features of SHRM HRPs, also related to HPWS and learning capacity.

Up to October 1, 2014, WP4, in collaboration with other LLLight'in'Europe WPs, we conducted close to 50 individual interviews working at a total of 15 enterprises, in 4 EU countries (Denmark, Germany, Slovakia and Spain) and 1 EU-competitor country (South Africa). In relation to WP4's targets, data collection results for Phase 2 research were:

	Target	October 1, 2014	Target reached
Individual WP4 interviews	200	44	23%
Enterprises (EU)	50-60	15	36%
Enterprises (EU competitors)		3	
EU countries	15	4	27%
EU competitor countries	4	1	25%
Industries	5-6	8	100%

We had not yet reached our targets and time was of the essence. Consequently, project management extended WP4's delivery deadlines by an additional 6 months (for the second time), which means that target numbers need to be reached by December, 2014 for D4.2 and July, 2015 for D4.3 (this report). Furthermore, because enterprise recruitment impacted all LLLight'in'Europe's expected outputs and deliverables in terms of timelines, the project created a MOOC (massive open online course) so as to open participation in the project globally. The course commence on October 8, 2014.

In light of the above, WP4 consulted with the project's manager in order to mitigate the complex problem of further delays and/or insufficient data. A solution was reached, whereby WP4 would combine data collected through the original WP4 research design with future data, collected and analysed through new methods. Interview data obtained up to October 1, 2014 would be interpreted through qualitative data analysis methods in order to reach interim results. WP4 would then use Phase 1 data and combine this with interim results to elicit verification data obtained through questionnaire-data. Furthermore, we would use data from the 2009 ECS to triangulate our results. We planned to extend an invitation to participate in WP4 research to LLLight'in'Europe MOOC participants.

Our questionnaire was thus formulated along the three main dimensions of HRPs, broaching semi-structured interview themes and sub-features. WP4 chose to launch the questionnaire online so as to ease response coordination and expedite data collection. Data obtained from both questionnaires and semi-structured interviews would comprise Phase 2 research data, informing WP4's enterprise fiches, analyses and value creation model.

The questionnaire was launched online in early 2015 and convenience sampling was employed, first reaching out to WP4's professional network, LLLight'in'Europe MOOC participants and then secondary networks. We collected a total of 199 responses, out of which 182 were complete (17 were slightly incomplete, and thus, left out of our analysis). We also collected an additional three semi-structured interviews from one Italian enterprise and one Slovakian enterprise, in collaboration with WP5. On July 15, 2015, we closed Phase 2 data collection, with the following targets reached:

	Target	July 15, 2015	Target reached
Individual WP4 interviews	200	47	+100%
Individual questionnaires (complete)		182	
Enterprises (EU)	50-60	31	+100%
Enterprises (EU competitors)		163	
EU countries	15	9	60%
EU competitor countries	4	13	+100%
Industries	5-6	53	+100%

For more information regarding specific countries, EU-competitor countries and industries covered, as well as interview details on personnel, please see Appendix II.

To help triangulate Phase 2 research results, we opted to source data from the 2009 ESC, forming Phase 3 research data. The ECS is a large-scale representative survey, launched in all EU-27 countries, plus Croatia, Macedonia and Turkey. ECS interviews are carried out in enterprises with 10 or more employees, deployed as computer assisted telephone interviews. All interviews were conducted in the national language of the country covered by the study and translated. In each enterprise, one management staff and one employee representative (where it was possible) were interviewed. In larger enterprises, the management representative was typically the HR Manager, and in smaller units, this person was the Managing Director or in the case of subsidiaries, the Branch Manager. Whenever possible, the employee being interviewed was also a chairperson of employee representation at the enterprise. For each category of respondents a separate questionnaire was deployed. The duration of interviews was on average 20 minutes for management representatives and 15 minutes for employee representatives. In all, 27,160 management interviews and 6,569 employee representative interviews were carried out within the fieldwork period for the 2009 ECS. Results for the employee representative interviews varied greatly.

For example, in the Nordic countries the highest rate of employee representative interviews were seen (Finland: 57%; Sweden: 54%; Denmark: 39%) while in other countries, less than 10% of enterprises had employee representatives interviewed (Portugal: 4%; Greece: 7%; Malta: 7%). The survey objectives were to:

- map, assess and quantify information on enterprise policies and practices across Europe on a harmonised basis;

- analyse relationships between enterprise practices and their impact as well as analyse practices from the point of view of structures at an enterprise level, focusing in particular on social dialogue;

- monitor trends;

- contribute to the Europe 2020 strategy on the issue of enterprise policies and practices with regard to their impact on job quality, as well as the development of social dialogue in enterprises. The survey should allow for the development of homogeneous indicators on these issues for a European audience.

The thematic focus of the 2009 ECS is on different flexibility strategies used by enterprises in order to cope with challenges such as workload variations, problems in HR, HRM and measures of restructuration or reorganisation. Altogether, the 2009 ECS presents data relevant for the identification of lifelong learning strategies at the enterprise level. Thus, the data could cogently serve to further validate WP4's Phase 1 and Phase 2 findings.

For the purposes of this report, we were granted access to raw data from the 2009 ECS and the 2013 ECS in the form of already analysed data. We have primarily used the 2009 ECS to illustrate the general delivery of lifelong learning strategies at the enterprise level, and have employed data from the 2013 ECS, wherever relevant. Topics between the 2009 and 2013 ECS overlap, however the 2009 ECS emphasises issues of HR policies and practices, work organisation and employee participation, which is of great relevance to WP4's endeavour.

2.2. Data analysis

The overall research design of WP4 is a qualitative cross-case research study where abductive qualitative reasoning and techniques have been used to analyse collected data from three research phases. An abductive research design is characterised by a transaction between data and theory as a way to account for empirical findings (Bertilsson, 2004; Charmaz, 2000; Dubois & Gadde, 2002; Locke, Golden-Biddle & Feldman, 2008; Timmermans & Tavory, 2012). It is known as a third distinct scientific research strategy, as compared to deduction and induction, developed by the American mathematician and pragmatist Charles S. Peirce (Anderson, 2005; Bertilsson, 2004).

Abduction is a form of reasoning by which researchers observe the studied phenomenon or unit of analysis from a situational fit between observed facts and theory and rules. The abductive inference is aimed at developing theory and hereby validates the categories into which observations falls (Timmermans & Tavory, 2012). Morgan (2007: 71) accentuated, that an abductive analysis alternates between induction and deduction from converting observations into theory, and then evaluating these theories from observations from practice.

The consequence of choosing an abductive research design is to base the analysis on concrete facts that need to be analysed, interpreted and understood. Our starting proposition in WP4 was the observable phenomenon of enterprise success in LLLight'in'Europe's participants, as a function of lifelong learning. Building on this proposition, the underlying premise for our study is tied to the understanding of enterprise lifelong learning strategies as a significant factor and tentative principle for value creation and the actualisation of success. The analytical focus of WP4 is to study and explain how lifelong learning strategies contribute to creating the conditions for competitive and successful enterprises, framed in the context of value creation. Thus, the main analytical objectives for WP4 are to analyse collected data in order to elucidate lifelong learning strategies as contributions to the phenomenon of enterprise success, to generate observations by use of revelatory examples, and conclude with theoretical insights into value creation.

Our abductive analysis employs a three-pronged validation, by way of cross-analysing our three sets of data from data collection Phases 1, 2 and 3. Our first step in this validation process was to conduct a review of lifelong learning strategies and analyse empirical studies – Phase 1 data, as described in the previous sub-section. The review process followed an inductive line of reasoning in that we had to identify themes and dimensions for lifelong learning strategies and value creation at the enterprise level, strongly linked to the empirical studies themselves. We therefore conducted our inquiry without trying to fit findings into a pre-existing analytical framework. The review resulted in a conceptual model for how to interpret lifelong learning strategies at the enterprise level, in connection to what characterises HPWS – enterprise success. This conceptual model guided the construction of questions for our Phase 2 research interviews and questionnaires, triangulating data with the 2009 ECS, analysis and value creation model.

The second step of our analysis involved collated data from Phase 2 data, in light of our findings from Phase 1. Analytically, we were driven by the theoretical dimensions from the conceptual work in Phase 1 and conducted analysis following a theory-driven thematic analytical strategy (Braun & Clarke, 2006). In the second step of our three-pronged validation process, we coded data from Phase 2 interview data for quite specific research questions, which centred on how enterprises understood and actualised lifelong learning strategies and value creation.

Thus, our analysis in this step follows a deductive logic as we used the three dimensions of HRPs, derived from Phase 1 research to structure and corroborate findings from our Phase 2 interview data. In this way, we constructed a more detailed and in-depth body of knowledge of our HRP dimensions through how interviewees expounded on lifelong learning strategies. More specifically, to estimate the distribution of beliefs, attitudes and knowledge about lifelong learning strategies and value creation, we verified interim findings from a thematic analysis of our interviews. Based on this, we formulated the confirmatory questionnaire along the three main dimensions of HRPs, broaching interview themes and sub-features. We analysed the confirmatory questionnaire results by calculating summary scores for agreement between statements made in the questionnaire and interim results from our interviews, linked to selected dimensions, sub-features, enterprise size, industry type and country. The steps we followed for the confirmatory analysis were inspired by Claassen et al. (2014).

We conducted our analysis of secondary data from the 2009 ECS through cross-tabulation analysis among relevant and selected dependent variables for our research study on lifelong learning strategies: skills development; learning systems and incentives; and, work design and the organisation of work. Independent variables were industry type, size and country. We used SPSS v.21 to analyse data. In the cross-tabulation analysis, we focused on shared distributions between selected variables from the 2009 ECS data and incorporated a simple bivariate analysis with two variables. We also calculated data from using Chi-square tests for all cross-tabulations, in order to test the significance of our findings using the .01 level to assess the strength of the association between observed lifelong learning dimensions and selected independent variables, as presented in section 3.

3. FINDINGS AND ANALYSIS: EFFECTIVE LIFELONG LEARNING STRATEGIES AT THE ENTERPRISE LEVEL

In this section, we describe and examine effective lifelong learning strategies that are being employed towards the continual bolstering of value creation, in enterprises. These have been organised in relation to WP4's conceptualisation of enterprise lifelong learning strategies (see sub-section 1.2.), and foundational findings from past empirical and theoretical studies (2009-2012, and as detailed in Brandi et al., 2013).

In brief, we could trace lifelong learning strategies in enterprises by examining HR strategies, grouped into: skills development activities; learning systems and incentives; and, work design and the organisation of work. This three-part categorisation also delineates how WP4 methodised its research, and how findings will be presented.

Furthermore, and as described in section 2, WP4 made use of three research phases which together, enabled us to elucidate what lifelong learning strategies in enterprises are. Once identified, our analysis hinged on how such strategies can be understood as contributing to enterprise value creation.

We thus begin by analysing findings from Phase 1 research, followed by analyses of findings from WP4's empirical work in Phase 2 research, triangulated by findings from the 2009 ECS, from WP4's Phase 3 research.

3.1. Findings from Phase 1 research: Empirical and theoretical work (2009-2012) on lifelong learning strategies at the enterprise level

Lifelong learning strategies on an enterprise level can be understood as policies, strategies and practices used in the ongoing inclusion and development of personnel in terms of knowledge, skills, attitudes and competences, so as to close employment and socio-economic gaps (Brandi et al., 2013). Governments worldwide turn to lifelong learning strategies in order to build individual, civic, social and economic strengths by prioritising strategies and investments into competence development (CEC, 2000). Examples of this include the Lisbon Agreement (CEC, 2001) which aims towards bolstering Europe into being the most competitive knowledge economy of the world, and ideals that emanate from the literature and research arena, including how "Lifelong learning should improve workers' career development, increase flexibility and strengthen the competitive position of the firm" (van de Wiele, 2010: 582). Likewise, enterprises turn to competence development mediated and organised through HRPs in order to achieve business goals, and this is what our research examines.

In Phase 1 of our research, we reviewed past empirical and theoretical work (2009-2012) that examines how lifelong learning strategies, understood as HRPs, become realised at an enterprise level. We did so across a wide range of research fields, industries and countries so as to gain insight into the praxes, with a particular attention to high-performance enterprises and HPWS. Following our review (see Brandi et al., 2013), our aim was to synthesise empirical descriptions and analyses of operationalised HRPs, as they have been addressed within the field of SHRM and HPWS, over the past few decades (e.g. Delery & Doty, 1996; Pfeffer & Veiga, 1999; Schuler & Jackson, 1987). Strategically informed HRPs and systems are comprised of a certain set of HRPs aiming to augment employee and organisational capacity to integrate, manage and develop knowledge, skills and competences (Camps & Luna-Arocas, 2012; Sun, Aryee & Law, 2007).

Contemporary studies (Batt, 2002; Becker & Gerhart, 1996; Becker & Huselid, 2006; Camps & Luna-Arocas, 2012; Collins & Clark, 2003; Collins & Smith, 2006; Huang, 2000; Huselid & Becker, 1995; Kang, Morris & Snell, 2007; Lepak et al., 2005; Minbaeva, 2005; Prieto Pastor, Santana & Sierra, 2010) have attempted to capture what exactly the relationship is between lifelong learning, competence development and enterprise performance so that best practices and stronger policies can be responsibly utilised in sustaining and strengthening value creation.

We thus perceive from our Phase 1 research that HRPs are used strategically to attract and enhance employee competences in order to secure and strengthen enterprise

competitiveness, and increase enterprise value. Furthermore, we perceive that enterprise value creation is inextricably linked to its learning capacity, and capacity to enact learning, consolidating the strategic worth of lifelong learning in enterprises.

In an influential contribution, Delery and Doty (1996: 802) emphasised the strategic perspective in the design of HRPs, and the desire for researchers to be able to establish the optimal composition of HRPs aimed at optimal enterprise performance. They touched on one of the fundamental issues and challenges for SHRM, which is how available HRPs are to be arranged and delivered in enterprises so that strategic goals are attained. One of the main results from Delery and Doty's (1996) study is that HRM, though easily overlooked as a driver in business, is unquestionably linked by HRPs to organisational performance. Delery and Doty (ibid.: 815) further elaborated by noting particular characterisations of the set of HRPs employed (focusing on HPWS); resulting in an index of significant HRPs, delineated in Box 1.

Box 1: Best human resource practices for high-performance work and learning systems

1. Internal career opportunities: the existence of clear internal career ladders and staffing systems within an enterprise.
2. Appraisals: the use of performance appraisals focused on output or results in the enterprise.
3. Training and education: the degree and quality of formal and informal training programmes provided to employees.
4. Employment security: the degree to which an employee could anticipate to continue in her/his job over an extended period of time.
5. Employee participation: the degree to which employee input and ideas are allowed and valued by the enterprise.
6. Job descriptions: the extent to which job tasks are clearly defined.
7. Profit-sharing: the scope to which employees receive bonuses based on the enterprise's revenue.

(Adapted from Delery and Doty, 1996)

Indeed, the impact that HR investment has on enterprise performance and growth has been the locus of research and practice. However, it is also well understood that employee and organisational capacity to continuously learn remains a largely invisible asset that cannot entirely be accounted for on enterprise balance sheets. A strong increase in the provision of ever-complex services, knowledge and innovation indicates a marked drift from simple input-output production means, making research into HRM and HRPs (as part of lifelong learning) considerably more relevant (Blair, 2011: 53; Buller & McEvoy, 2012: 45).

In one of the most notable works on HRPs in enterprises, Pfeffer (1998; 1999) argued for the importance of developing knowledge, skills and competences and optimising high-performance through a set of seven HRPs, presented in Box 2 (ibid., 1999: 37). Together, they depict an ordinance for HRM in successful enterprises. In later works within HRM research, these have been refined, further developed and established as the essential HRPs for HPWS.

Box 2: Best human resource practices for high-performance work and learning systems

1. Employment security: an organisational environment can be said to create confidence on the employee level, reinforcing their commitment to the enterprise.
2. Selective hiring: ensure that the 'right' pool of people – who possess the needed knowledge and skills and culturally 'fit in' – are being hired.
3. Decentralisation and self-managed teams: a specific form for work design that is contingent on distributing decision making as well as creating a basis for collaboration and knowledge-sharing through working in a team-based structure.
4. Compensation: performance-based wage levels and structures and reward incentives that encourage individual performance.
5. Training and education: the degree of formal and informal learning opportunities available in the enterprise that focus on employee skills and knowledge.
6. Reduced status distinctions: the degree to which the enterprise is able to 'tap into' ideas, skills, knowledge, etc. from all its employees and thereby create an organisational practice where all employees feel important and included.
7. Knowledge-sharing: the extent to which HR structures are effective in facilitating information- and knowledge-sharing throughout the enterprise, across skill sectors and employment groups.

(Adapted from Pfeffer, 1999)

Lepak et al. (2005) have noted that there is a strong homogeneity within the field of HRM with respect to delivery options available to deploy HRPs. In analysing the different sets of HRP characterisations and measures, they demonstrated a high degree of uniformity and strong coherence within the works of Delery and Doty (1996) and Pfeffer (1999), also noticeable in the synergies between Box 1 and Box 2. Synthesised, the main HRPs to fostering and strengthening HPWS, as per the empirical articles are: training and development, selective hiring, performance appraisal and career management, employment security, compensation and work organisation and providing learning opportunities. Compounded further, these can be grouped into three dimensions, also demonstrating where our empirical focus resides (Figure 1).

Individual HRPs, as we have reviewed earlier on in the LLLight'in'Europe project (see "Table 4. Summary of HRPs" in Brandi et al., 2013) reflect a tripartite structure that support and align to business goals and value creation. Prieto Pastor et al. (2010: 2455) made the conjecture that in order to fully leverage the vast range of HRPs for HPWS, it is necessary to grasp the fundamental purpose(s) of distinctive HRP-categories or -dimensions. Inspired by Delery and Doty (1996), Huselid, Batt and Colvin (2011), and Prieto Pastor et al. (2010), WP4 rendered an overall tripartite structure of HRPs that synthesises our Phase 1 research findings. This conceptual grouping also laid the foundation for WP4's "Emerging Conceptual Model" (Brandi et al., 2013: 22) and enables us to further perceive how these groupings interrelate in an effort to bolster lifelong learning in enterprises and enhance value creation.

Figure 1: Synthesis of HRP dimensions for enterprise value creation

Skills development; aimed at influencing employee competences (knowledge, skills and experiences) formed and developed through formal and informal learning strategies.

Learning systems and incentive structures; aimed at creating learning arrangements that produce and support motivation and commitment.

Work design and the organisation of work; aimed at creating strong network ties, collaborative learning opportunities and employee-led organisation of work in the workplace.

(Adapted from Prieto Pastor et al., 2010 and "WP4's Emerging Conceptual Model" in Brandi et al., 2013)

The skills development dimension underscores the importance of formal and non-formal learning initiatives in and around the workplace as well as staffing and career development chances in the enterprise. Combinations of HRPs within this dimension aim at providing the enterprise direct means of improving competence thresholds and inducing the workforce as a whole with the capacity of ongoing learning and knowledge creation. Focus on the skills development dimension is characterised by an outlook on hard (specific) and soft (non-specific) competences in combination with training and learning activities being highly sensitive to different types of enterprise needs (e.g. project needs, client needs, employee needs, knowledge gaps, etc.).

The second dimension, incentive structures, relates to generating, managing and facilitating a learning system that is conducive to producing and sustaining the high commitment, security and motivation of the workforce with different types of rewards, wage levels and appraisal inducements. Prieto Pastor et al. (2010: 2456) describe this dimension as oriented towards building trust in and across the enterprise, thus indirectly facilitating a productive platform for creating new ideas and sharing knowledge.

The third dimension, work design and the organisation of work, addresses how enterprises organise work in order to create an all-encompassing foundation for the creation of learning capacity and competence development. Batt emphasised that the main aim for the work design in HPWS is to "provide opportunities for individual discretion and ongoing learning through collaboration with other employees" (2011: 588).

Creating a coherent enterprise that draws on a socio-cultural set-up where continuous learning is a sine qua non through participation in self-directed teams and problem-solving tasks is mandatory according to the vast majority of HR researchers and empirical findings. Further, studies underscore, in relation to well-functioning work design, that employees should be given a high degree of independence, decision-making and influence on how work processes are organised. In order to create and sustain learning and innovation, low risk-aversion and embracing challenges are seen as significant factors, together with a flexible and team-based work organisation, also advantageous for HPWS.

To bring us back to WP4's guiding research question, Which strategically established HRPs are in place in enterprises?, our analysis of past empirical and theoretical studies has led us to more precisely understand what lifelong learning strategies in enterprises are and begin to contextualise these in an understanding of HRPs' role in value creation. The core set of HRPs are: training and development, selective hiring, performance appraisal and career management, employment security, compensation policies and work organisation and learning opportunities. Synthesised, these consolidate into three dimensions: skills development; incentives and learning systems; and, work design and the organisation of work. Together, these revolve around, support and enhance ELLC, which is inextricably intertwined with enterprise value creation, laying the foundation for WP4's own empirical research – Phase 2 research and findings, presented in the subsequent sub-section.

3.2. Findings from Phases 2 and 3 research: WP4's empirical study of lifelong learning strategies at the enterprise level and the 2009 European Company Survey

Following Phase 1 research findings, WP4 undertook a qualitative empirical examination of lifelong learning strategies at an enterprise level, carried out between 2013 and 2015, internationally. Our main objective has been to consolidate results that help identify patterns, themes and recurrent practices, also giving way to some practical examples of HRPs, strategically used to influence enterprise value creation. In line with our Phase 1 research findings, Phase 2 research findings and analyses follow the three dimensions of HRP-strategies: skills development; learning systems and incentives; and, work design and the organisation of work. In the following, we will thus present our findings and consider their impact and implications in relation to the contexts of enterprise value creation. Also, data from the ECS (Eurofound, 2009, 2013) will be used to add insight and triangulate our empirical findings. Altogether, this will serve as the foundation for section 4, where we will integrate our analyses in the light of enterprise value creation.

3.2.1. Skills development

As we have learned from WP4's Phase 1 research findings, the skills development dimension is characterised by an outlook on hard (specific) and soft (non-specific) competences in combination with learning activities, development and training.

Thus, the qualitative empirical work we undertook probed into these facets in terms of enterprises' outlook on and contribution to skills development. The four main sub-themes that emerged are: highest valued employee skill, triggers for learning, investment in learning and successful types of learning, which we will consider below.

Highest valued employee skills

To begin, we look to an open question we posed to our participants regarding the employee skill(s) their enterprise value the most. As demonstrated in Figure 2, a mixture of hard and soft skills were mentioned, with notable attention to soft, or transversal skills. Irrespective of how technical our participants' work or particular job descriptions were, and independent from how highly valued hard skills are (for example, in our engineering, medical, accounting and aerospace enterprises), skills such as 'communication', 'creativity', 'customer service', 'interpersonal relations' and 'teamwork' come out as highest valued. 'Knowledge', part of an employee's cognitive hard skills-set was also highlighted, though it is the ability to apply and ability to communicate knowledge that contribute to the valuation of knowledge as a skill.

Figure 2: Highest valued employee skills

Based on a content analysis of semi-structured interview responses and responses to questionnaires

The insight we gain from considering 'communication' as the highest valued skill, across all industries, enterprise size and geographies, reverberates what Argyris and Schön (1996) discovered as the root of productive learning patterns. In their analysis, they identified communication as being one of two types: defensive or productive. In the first arrangement, we have communication that emphasises the definition of goals, minimising errors and mistakes (see Tolerance to mistakes for example, in 3.2.2. below) and avoiding, yet producing communication that generates negative feelings. The consequences of such a communication pattern include an intensity of managed communication, such as strategic communication from the executive and management levels of an enterprise, heightened control of work organisation (see Hierarchy and status distinction for example, in 3.2.3. below), a focus on individual or local responsibility (and blame) for incongruences, depersonalising work, sensitising information (i.e. only a few 'know the whole picture') and concentrating on the intellectualisation of tasks.

On the other hand, productive communication, which our respondents highly value, is characterised by individuals being part of a team that jointly produces according to their needs and according to a joint endeavour, where dedication to work is free from coercion, and solutions to problems and goals can be determined creatively, and tested in an environment of trust.

The implication of having great communicators as part of an enterprise's team emphasises this second pattern of communication and holds the potential for transformational (and long-term) learning. With defensive communication, transactional (and short-term) learning and transactional HRPs are accentuated (see Figure 31 to distinguish between transactional, traditional and transformation HRPs). Productive communication however places priority on transformation – on the individual as well as on the enterprise level; be it for solving a particular product-problem or process-problem that results in internal reorganisation. Productive communication thus, forms a bridge between enterprise objectives and action learning (Revans, 1980), where relevant work- and task-related questions transition from simply *who?* and *what?* to *how?* and *why?* so that reflection on practice is encouraged and included in work process.

One prime example we have is from a participating enterprise in the private healthcare industry (NACE code Q – human health and social work activities) whose employees were increasingly encountering problems and complaints, even mistreatment from clients, which in turn caused stress and defensive communication between staff as well as among the enterprise's leaders. Our participants at this enterprise reported a long and arduous period of struggle as communication deteriorated, more acutely in the last year before an intervention occurred. When they first became aware of the communication breakdown, leaders' strategy was to collect descriptions of what happened and who was involved and they attempted to mediate complaints in succession, separately, and in confidence. The intention was to handle complaints discreetly and confidentially. Doing so however, produced feelings of blame, inefficacy and even impotence on the part of staff as the design of new goals and new remedial tasks were targeted and did not evolve into a global endeavour. Changes in work organisation therefore induced stress as work-reforms came to be experienced as disciplinary action, which had a negative effect on staff self-valuation, morale and confidence. These negative feelings then spilled over into every activity of reform in the enterprise so that any attempt at improving practice – triggered by a need to evolve rather than a reaction to complaints – came to be perceived as an attack on employee competence. For instance, a co-owner of the enterprise took the decision to bring in a world-renown chef to work alongside the in-house chef for a period of time, with the intention of spurring on innovation in the kitchen.

> *But our chef was very… insulted. […] This state of mind is more on the management level and our chef is a part of management. He's part of the first row, so he's in a very high position and if you bring something from the outside and say 'Okay, he's going to teach you', maybe I didn't do that in a very diplomatic way,*

I don't know. […] It's not very easy to give them [staff and leaders] or to tell them where they have to go for development and training. This has not been in our philosophy until now (Medical Director & Co-Managing Director, Enterprise DE51QSSI4: 13).

As the atmosphere and communication further broke down at this enterprise, so did feelings of isolation and threat, unintentional as this might have been. Management intervened again, but by breaking with their traditional methods of communication and problem resolution; they contracted an external coach who made use of HRPs that emphasised action learning features. The result that ensued was a "restructuration, where we had the crisis – he [the coach] was very, very important. He helped us make a very stable base" (ibid.: 19). The coach further contributed in the sense that, "We have largely made use of a system of conflict resolution. […] He tried to see the potential in all conflicts – to see your potential, and 'what can you learn from that?'" (ibid.: 15). To help sustain the change, the coach has been contracted to continue to visit the enterprise every two to three months for follow-ups with staff and management. In alignment to productive communication patterns and action learning, the coach focused on the questions of why? and how? of conflicts, inciting reflection that in turn provoked a self-actualisation and self-determination of change that transferred onto the global level of the enterprise: "…it's primordial to transmit values and morals. […] I don't want people considering themselves here as victims and since we […] propose to our patients to increase consciousness [mindfulness] when they are here, I think we should do that for our personnel too" (ibid.: 23-24).

The result of this transformational type of intervention upholds the general principle that communication is the highest valued transversal skill to enterprises and that if fostered, is integral to an ethic of continual learning, contributing to continuous enterprise value creation. By firstly becoming aware of and then disposing of defensive routines in the workplace, authentic and mindful change can occur in a facilitative and collaborative climate where choices are co-created and staff are learning-oriented and can confront difficult and complex situations.

This being the case however, does not mean that we have great knowledge about how to develop productive learning through productive communication. From our example above, the enterprise's leaders were confronted with a wide variety of conflicts that lasted for a notable period of time. Also, despite addressing conflicts with practical responsiveness and confidentiality – in the mode of detecting and correcting errors (Argyris & Schön, 1996) – the enterprise needed to re-examine its assumptions about how to handle conflict altogether since its strategies were having inconsequential or reverse effects. Therefore, if an enterprise's culture is to avoid conflicts or carry on using ineffectual methods to dealing with conflicts (by avoiding, ignoring or being blind as to the negative results of practice), uncovering the need for innovation in communication becomes more elusive, and the responsibility of great communication is consequentially downloaded onto the individual.

A pre-emptive condition to championing productive communication is thus to foster a trusting work environment where staff are encouraged to frankly and openly discuss both the positives and negatives of their work, free of judgement and blame. We have several examples from our participants who report that their workloads are very heavy and as we will see in sub-section 3.2.3., this produces conflicts that relate to health and wellbeing. Situations such as these could very well benefit from strengthening productive communication, which could lead to process innovations that unburden individual staff members from their stress. There are several strategies and HRPs enterprises have to their avail that can help foster the very skill they value most, such as the example noted at Enterprise DE51QSSI4, yet as we will see a little later in this sub-section, investment in such training and development is low, as reported by our participants.

Main triggers for learning and investment in learning

We began our empirical analysis on the main triggers for learning and investment in learning through our semi-structured interviews. In general, we found that triggers for learning were chiefly prompted by work-related, project-related and client-related needs. On one level, enterprises satisfy regulatory needs with training, and induction needs for new employees, though the mix of offerings for the latter was more varied. For example, some enterprises have well-formulated mentorship programmes for interns who might eventually stay at the enterprise, such with one of our participating German enterprises in the machining industry (NACE C25.6.2 – Machining):

> *Yes. In-house. Very successful and we educate per year about, approximately 15 young people. And this is a three-year education, so that means that we always have, on average, 10% of our staff as apprentices (Co-Managing Partner, Enterprise DE51C25SSI15: 3).*

However, we have more generally found that triggers for learning originate from individual employees, who identify needs as well as opportunities for learning, themselves. Broadly amiss, nevertheless, were systematic, internal check-ups on learning needs (also part of the dimension on learning systems and incentives below) in our participating enterprises. So although we perceive that learning activities are exertive (see types in the next theme), the trend reflects the following example from one of our Spanish participants, which tells the story of individuals taking the initiative and being resourceful in fulfilling lifelong learning needs:

> *And, then, back to what I said before: it is important to be willing to learn. Here, there is a constant need for being updated. And not everybody has the willingness to engage in continuous learning. Not always. For the job you do here, training does not always mean a formal course with defined hours and in a defined place. No! It is many times triggered by new information that requires reading, searches on the Internet, talking to other colleagues, going to certain conferences and seminars. For all of this, one has to have personal initiative (Executive Partner & Development Director, Enterprise ES11M70SSI11: 4).*

This interview excerpt from Enterprise ES11M70SSI11 (a medium-sized enterprise, NACE M70.2 – Management consultancy activities) tells the story that learning is essentially managed by individuals who must be perceptive enough to uncover blind-spots in their knowledge, skills and competences and either bring that to the attention of management and/or take the initiative to up-skill themselves. Further on, the interviewee elaborated that for such initiative to add value for the enterprise, it must relate to work demands directly or better, fulfil learning gaps that can bridge onto new business opportunities:

> For example, take the case of a company [a client, in our country] where we are going to develop and implement a software programme and this client tells us that they are planning to expand to Latin America. This information represents an opportunity for us because we also provide services in the areas of expatriation, international work contracts, and so forth. If the consultant [the individual employee] is exclusively focused on the development of the software programme that she was called for, then the opportunity of providing a more comprehensive service than initially expected is lost. So, we need people who can perceive these business opportunities (ibid.).

In such a line of reasoning, this enterprise leader entwines learning with building business. He looks onto learning as something that expands capabilities and also expands capacities. The extent to which the enterprise invests resources in building capacity was left unclear from interviews in this enterprise, however, there is great emphasis on explorative mind-sets and practices.

Generally, our interviewees echoed similar experiences, less one notable exception from a German enterprise that is very large in size, with thousands of employees, in the C29– Manufacture of motor vehicles and trailers industry. Enterprise DE250C29SSI7 has a very systematic approach to organising learning opportunities and distributing them across work groups. Needs assessments are performed according to a set plan in this enterprise and there is a dedicated group of HR leaders who also manage a dedicated amount of resources for development and learning, internationally. Triggers for learning here may come from industry standards for example and strategic business decisions that align HRPs to business goals, globally.

From the ECS (Eurofound, 2009) we find that question MM563 addresses this feature in the skills development dimension by posing: "Have any of your employees been given time off from their normal duties in the past 12 months in order to undergo further training?". Results show a significant association between enterprise size and whether employees are given time off (a type of enterprise investment) in order to undertake training. Analysis demonstrates that the larger the size of the enterprise, the higher the chance that employees will be provided time off from their normal work assignments to participate in formal or non-formal learning activities, as illustrated in Table 2.

Here we can see that the decision to give employees time off from normal work duties is close to being equally distributed between 'yes' and 'no' replies for SMEs, while about 80% of employees in large enterprises (250+ employees) are granted opportunities, as part of the workplace learning strategy. Compared to responses from the 2013 ECS (Eurofound, 2013), we observe an increase in the average number of enterprises that give time off to provide further training or on-the-job training (non-formal) from about 61% in 2009 to 71% in 2013, which is a promising increase.

Table 2: Have any of your employees been given time off in order to undergo further training? - Question MM563, 2009 ECS

		Time off for further training		
		Yes	No	DK/NA
Size	10 to 19	48,8%	50,6%	0,6%
	20 to 49	56,2%	42,9%	0,9%
	50 to 249	66,0%	32,8%	1,2%
	250 to 499	76,5%	22,3%	1,2%
	500 +	81,6%	16,7%	1,7%

*size of enterprise in five categories, correlation is significant at the 0.01 level (2-tailed)

Informants that answered 'yes' to MM563 where asked to refine their answer through a related question. MM564_1, probed whether enterprises prioritise the provision of employee time off from normal work to undertake learning and educational activities, with a particular focus on the vocational adjustment of new employees: "Please tell me for each of the following potential motives of further training whether or not it was an important driver behind the application of these training measures?". Here, we see a analogous association that significantly indicates that the larger the number of employees, the bigger the chance for time off to undertake further training for new employees, as depicted in Table 3.

Table 3: Have any of your employees been given time off in order to undergo further training in the vocational adjustment of new employees? - Question MM564_1, 2009 ECS

		Vocational adjustment of new employees		
		Yes	No	DK/NA
Size	10 to 19	54,5%	44,5%	1,0%
	20 to 49	61,1%	38,0%	0,9%
	50 to 249	66,0%	32,9%	1,1%
	250 to 499	71,7%	27,2%	1,1%
	500 +	76,4%	22,9%	0,7%

*size of enterprise in five categories, correlation is significant at the 0.01 level (2-tailed)

We found a comparable pattern looking at another dependent variable, which is to what degree enterprises systematically checked the need for further learning and education (MM561), and enterprise size. Analysis of data shows that the strategic and systematic assessment of the need for formal learning and education in and out of the workplace increases significantly with the size of the enterprise, as depicted in Figure 3 below.

Figure 3: Is the need for further training periodically checked in a systematic way in your enterprise? - Question MM561, 2009 ECS
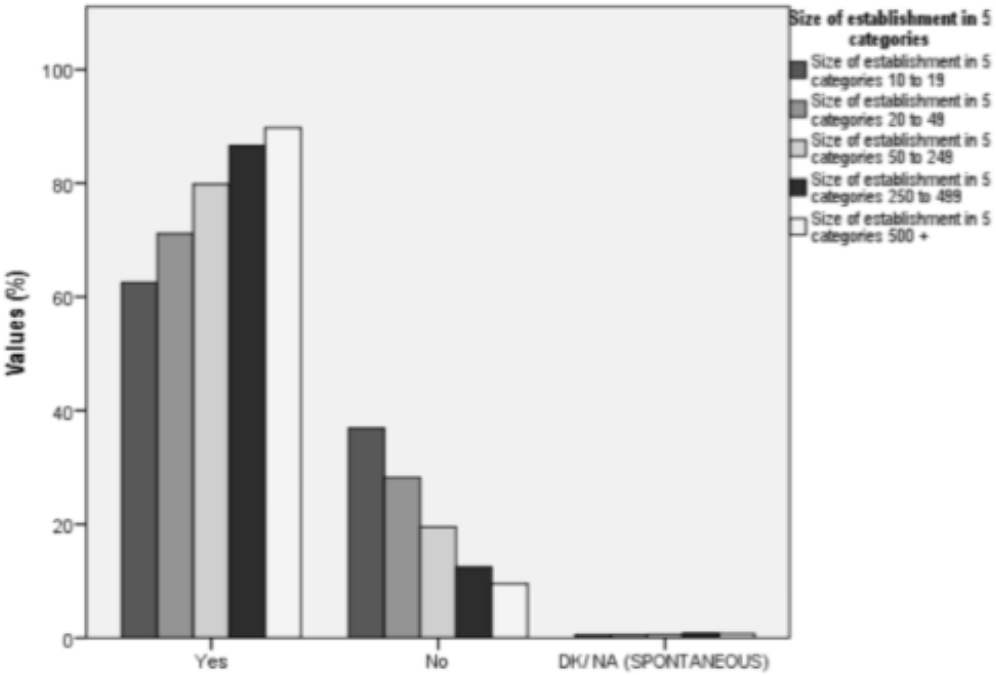
*size of enterprise in five categories, correlation is significant at the 0.01 level (2-tailed)

Almost 90% of all participating large enterprises (250+ employees) have a systematic practice for monitoring the need for further learning and up-skilling, while the number is between about 60-70% for SMEs. Thus, looking at enterprise size, our analysis demonstrates a strong association between size and opportunities given to participate in skills development, with a more systematic management and check of learning. The larger the enterprise, the higher the chances the enterprise will have a more structured and controlled approach to workplace learning related activities.

From our analysis, we see no clear pattern in the distribution of formal learning opportunities across sectors following NACE codes, however. Enterprise types have an almost similar proportion of 'yes' answers to time off and systematic checks of learning needs. It seems though that knowledge-intensive industries, e.g. ICT and financial, have a tendency to be more strategic and systematic with their learning activities, and have greater provisions for employees to take time off for training. Enterprises from e.g. manufacturing and construction sectors are less systematised with their workplace learning activities.

When we analysed data on a country level, we observed quite a high proportion of 'yes' to the question of whether enterprises intermittently check for further learning and education systematically. On average, 74% report that they check for further learning opportunities, which illustrates a general distribution of replies for this variable. In contrast, the proportion of enterprises that give employees time off to undertake formalised learning and education activities is quite different from country to country, illustrated below in Figure 4.

Figure 4: Have your employees been given time off in order to undergo further training? Yes answers - 2009 ECS
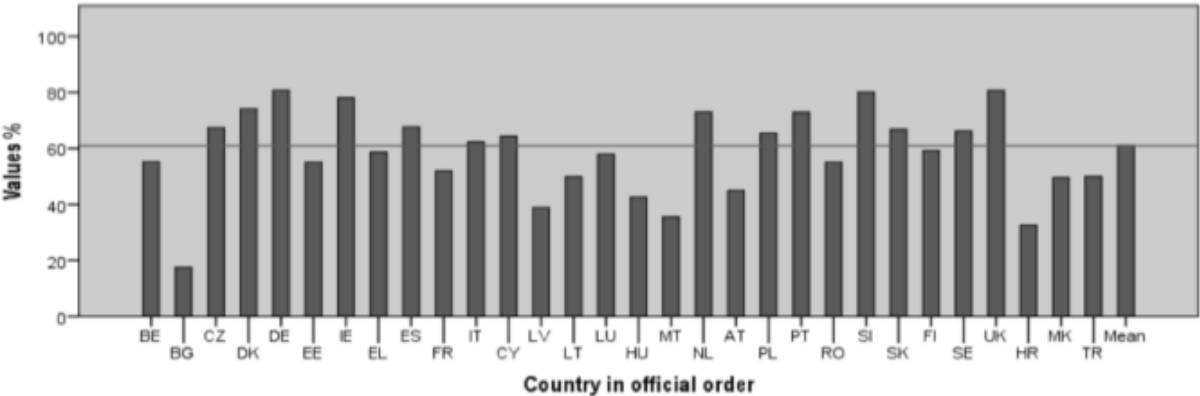
The countries with the highest proportion of enterprises responding 'yes' to providing employees with time off for continuous learning and education are Germany, Ireland, Slovenia and the United Kingdom, where about 80% of all enterprises give employees time off.

As we will see in the next feature of skills development, employees who do not get enough/time off from work to pursue education or engage in learning activities make use of ingenious strategies to fulfil their learning needs. And, enterprises who do not have the resources to provide employees with time off are equally creative with their approaches.

Most successful types of learning

Echoing some of the insights mentioned earlier in this sub-section, the most successful types of learning reported by our participants relate to job-specific, learner-centred, in-house, classroom, group and one-to-one initiatives, as shown in Figure 5. Certificates and policy-mandated training are also noted as popular and effective, particularly since they target highly practical requirements of work, directly. This highlights a focus on the cognitive dimension of learning as an effective approach to strategic HRPs.

Figure 5: Most successful types of learning

However, noteworthy is the 'soft-skills' mention as a successful type of learning which includes, for instance, leadership training, interpersonal skills development, cultural diversity training, negotiation and argumentation honing, customer service, public speaking, presentation skills and teamwork development. Moreover, respondents noted informal, workshop-type, seminars, short courses and online/digital contexts as befitting to continuous learning. In line with the premise that learning must be continually renewed, the most effective learning occurs on demand – as also noted through the learning triggers examined above. A great example comes from a Project Manager of Software Development, one of our German, medium-sized (120 employees) enterprise, DE51M69SSI3 (NACE M69.2 – Accounting and auditing activities):

Interviewer: Alright… this is difficult… so you don't have any training… okay, so the people on your team, if they needs something, like books, or an online course, or… Does the company provide that for them?

Interviewee: If they ask for this, I think they would, but I think that it's not necessary at the moment. For example, looking at how I learn… In the past, I had often bought books without using them. For example if […] you want to programme or implement a special [software] thing, if you want to manipulate 'xml', that's some technical stuff, you have to look at what kinds of classes [training options] are responsible for this. […] I think you cannot learn such things from books. Books, […] are just for the introduction of a topic; a brief overview […]. So it's better to look on the Internet, but easier, is to look at what other programme developers are doing in this region [on this topic]. So many sources, from [database name] to blogs and… These present you with some solutions, and you can select what is best.

Interviewer: Okay, so […] you are using these blogs and these online networks then to get answers if you have questions?

Interviewee: Yeah […]. That's right, but it's an incremental process, it's not like 'you have a session for two days', like a guerrilla camp or something […]. It's more that it's 'learning by doing'. […]

So, if you have a problem, you have to look at how you can solve it and afterwards, maybe you can select good solutions for it. You have to look for it yourself of course. But it's not… formal. […] I think the main source [for learning] is the Internet right now (Project Manager of Software Development, Enterprise DE51M69SSI3: 6-8).

In this example, which is representative of today's configuration of skills development strategies, reinforces the premise that enterprise lifelong learning is prompted by individuals in response to immediate and work-/task-related needs and that cognitive learning has evolved into a more social and community sphere through online networks and the like. Having access to knowledge within an enterprise (e.g. knowledge repository, networks, etc.) as well as beyond the enterprise, to relevant communities of practice (Wenger, 2000) for instance, bolsters connectivism (Kop & Hill, 2008; Siemens, 2004) and also emphasises individuals' skills to know where to find solutions – quickly – rather than know the solutions first-hand. Being resourceful and problem-solving on-demand outrank knowing vast amounts of information, particularly since information is in a continual cycle of renewal and update.

In a second example, we have an enterprise from Spain who makes great use of social funds to up-skill employees. Enterprise ES51QSSI2 in the NACE Q – Human health and social work activities industry reports:

Interviewee: When going through the EFQM [European Foundation for Quality Management[5]] process, one of the things that we identified was the need to improve internal communication. To this end, we set up an IT [information technology] system covering all premises. The implementation of this system was very costly and took a lot of time. In this context, IT training for all staff has been fundamental. The training is for enabling everyone to use our new management software and has been very successful. We have conceived of this training to progress gradually, with very little things to be learned each time. [… because] We have employees who are 40-50 years old and have never completed upper-secondary education or professional training, […some] personnel had never used a computer before this training initiative!

Interviewer: Within the framework of labour policy in Spain, enterprises may benefit from an economic contribution whenever they carry out training courses for groups of employees or facilitate training/education to an individual employee. Do you take this economic support into account?

Interviewee: Yes, every year. Last year, we contracted a company for doing the management of this [particular financial] credit […]. This year we have decided to use the credit for training in EFQM (Director, Enterprise ES51QSSI2: 4-5).

Enterprise ES51QSSI2, registered as a not-for-profit charity, is located in a fairly remote part of Spain, which as our four interviewees explained, poses some challenges with respect to staffing, as well as access to skill development opportunities.

[5] See the European Foundation for Quality Management's website at www.efqm.org for more information.

Yet by leveraging network channels championed by the Director, creative use of external funding sources enables up-skilling and continual learning. The enterprise successfully achieved ISO certification as well as a certificate of excellent in quality management through the EFQM and introduced new technology, which as our interviewees emphasised, are extremely high accomplishments that strengthened competence, confidence, and even local pride.

Summary

In our analysis of findings in the skills development dimension of lifelong learning at an enterprise level, we perceive that the highest valued employee skills are soft skills. Yet for the most part, there is a focus on learning, training and developing skills that explicitly and directly relate to tasks, projects, and overall business goals; learning that visibly – rather than implicitly or indirectly – contributes to new business formation and financial bottom-lines, in ways that are also fast and on-demand. Enterprise investment in learning therefore follows suit when linkages to work demands can clearly be perceived, and the individual's role is tacitly understood as the catalyst for learning, with the exception of induction processes and industry standards or regulatory training and development.

We have seen from the ECS that enterprise size has a significant effect on provisions of learning opportunities and also, that there may be some country-specific trends that show a priority placed on lifelong learning such as in Germany, Ireland, Slovenia and the United Kingdom, where about 80% of all enterprises give employees time off for ongoing development. That being so, we have presented some examples of the creative channels enterprises and staff make use of for skills development: external funding, networks and communities of practice.

The learning approaches we see as highly linked to the dimension of skills development include action learning (Argyris, 1991; Revans, 1980), connectivism (Siemens, 2004), as well as learning that is on-demand and online. Communities of practice (Wenger, 2000) also serve to enhance learning in this dimension – however skills development most fundamentally addresses the cognitive dimension of learning.

The implications of such findings reinforces past empirical work, depicting soft skills as the most desirable and valued employee skills, while investments in learning are low in addressing them in a targeted way. Investment in skills development is mixed, from our results, yet what is clear is that the responsibility of triggering learning and also fulfilling skills gaps chiefly rest on the capacity and initiative of individual employees. However championing skills development might not require huge investments from enterprises, given that the most advantageous and successful type of training reported are short, generally informal, online and on-the-job.

3.2.2. Learning systems and incentives

From our Phase 1 research and analysis, learning systems and incentives emerged as the second HRP-dimension to consider for value creation in enterprises. "Taken as a whole, the primary conclusions of this line of research have been that the financial returns to investments in HPWS are both economically and statistically significant (Becker & Huselid, 1998, 2006; Combs, Ketchen, Hall & Liu, 2006; Huselid, 1995)" (Huselid & Becker, 2011: 422). This dimension relates to the production, management and facilitation of learning arrangements and structures, conducive to creating and sustaining the high commitment, security and motivation of the workforce. Generally this encompasses incentivising with rewards, wage levels and appraisal inducements, with organisational activities that are focused on building trust in and across the enterprise. Thus, learning systems and incentives indirectly facilitate a productive platform from which new skills, creativity and innovation can develop. From our Phase 2 (WP4 empirical) and Phase 3 (ECS) research, several patterns have emerged, giving us insights into various aspects of this dimension, presented below.

Systematic organisation and measurement of learning, and performance appraisals

When asked about the systematisation of learning, training and development at their enterprises, our respondents strengthened the premise that the larger the enterprise (size of enterprise in Figure 6's legend), the more methodical and organised learning is, and the smaller the enterprise, the more ad-hoc arrangements are:

Figure 6: The systematic organisation of learning activities, versus ad-hoc
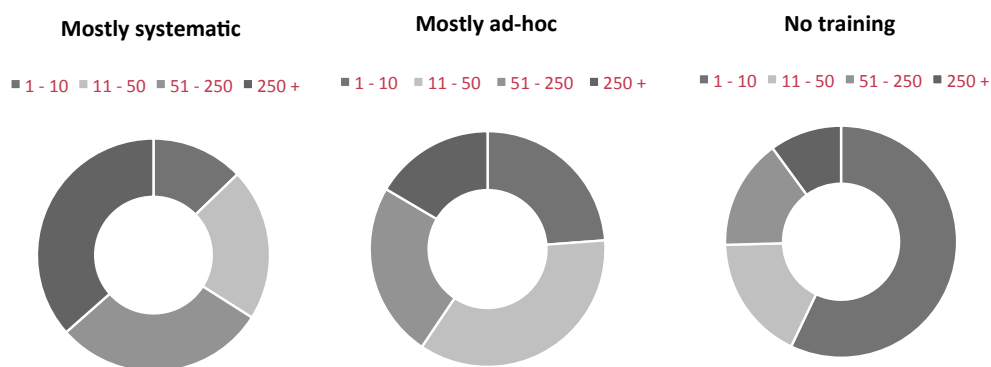
This finding, however, does not tell how systematisation affects enterprises' responsiveness to learning needs – i.e. does a more systematic approach mean there are straightforward or convoluted systematic steps to fulfilling learning needs? However, as we will see in sub-section 3.3.3. below, the extent of bureaucracy shows a similar pattern to the systematisation of learning; the larger the enterprise, the more bureaucratic, and the more systematic in terms of learning. The implications are that for certain types of learning, larger enterprises can offer more consistent and established opportunities, also by way of systematically checking for learning needs (see Figure 3 above, depicting the periodic check for learning needs), and as a result of pre-set budgets for learning. Exemplifying this well is a narrative from our interview with the Director of Labour Relations, at German (large) Enterprise DE250C29SSI7:

> *Interviewee: The HR goals are connected very strongly to our globalisation strategy and the overall principles for the company – it supports the whole company strategy. We have never educated so many people, also in other countries, as we do in these years [now], but that has more to do with our globalisation strategy. We have to make sure that people are skilled the way we need. […] We do follow the company – how much education and training is given, what were the costs and can we see some kind of long-term consequences of that – but we do not follow-up one-to-one [e.g. by measuring the effects of investment in training, in relation to every individual]. I am very critical to that kind of measuring, because the benefits of training are only significant in a long-term perspective. If we do not offer anything [training and development opportunities] this year, we would probably will not feel it this year. But over a longer period of time, over years, it would be a problem. Ten years ago we started to train our sales staff and it is not until recently that we profit from that. We do spend a lot of money on education and training.*
>
> *Interviewer: If you think of last year, did you have more, or less, training than asked for?*
>
> *Interviewee: Technical issues, we covered it all. […] More general issues like language or project management we had significantly more people wanting courses than we offered. Courses about leadership, we had almost as many courses as asked for (Director of Labour Relations, Enterprise DE250C29SSI7: 1-2).*

The impact of having a balance between systematic learning arrangements and ad-hoc ones is that an enterprises can strategically benefit from regular follow-ups with project and work demands, as well as employee requests, and at the same time, create a plan for flexible offerings in terms of training and development. As expressed in the narrative, there is more demand for some types of training over others, and these demands, change over time. However, Enterprise DE250C29SSI7, for example, opens training options in relation to both business needs and employee requests, with the added insight that training and development does not always yield immediate or short-term results.

The key we see about having both a systematic and ad-hoc approach to learning is that leaders and employees can be both responsive to change while planning for the year and years ahead. Systematic approaches do not necessarily need to be entirely top-down, as our interviewee expressed, even at a large enterprise. However, embedded in a systematic learning arrangement are the principles and values of an enterprise, which requires serious attention to answering the question of why have training and development altogether? In the example above, the learning system both supports the enterprise's goal of globalised business as well as individual skills development and lifelong learning needs, and industry standards: "[in] the HR area we have a lot of rules coming in from externals, politics or unions, laws etc., which changes the starting point and influences our goals (Director of Labour Relations, Enterprise DE250C29SSI7: 3).

Complementing the planned provision of training and development are examinations of the effects of learning. However, in line with what the Director of Labour Relations noted above, all of our interviewees, without exception, emphasised that measurements/calculations are difficult, if not doubtful, or impossible with respect to learning and development, particularly concerning soft skills. As a result, enterprises take on supportive, linked strategies to indirectly measure the benefits of learning by, for example, collecting experiential feedback from employees, clients, staff peer evaluations, self-evaluations and other general performance appraisal information:

Figure 7. Enterprises making use of performance appraisal systems
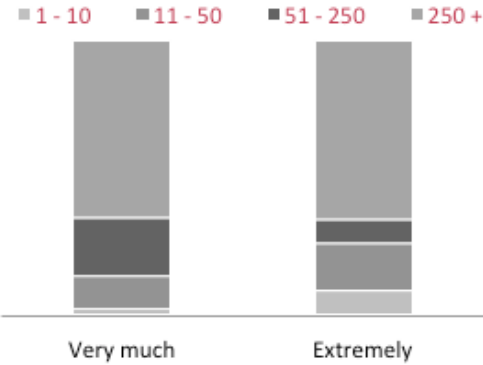
As depicted in the figure above, and in line with the systematisation of learning arrangements, the larger the enterprise, the more performance appraisals are being used. In performance appraisals, we have performance evaluations in relation to targets, goals and objectives, career development planning, and job-change discussions. An employee's abilities and needs for future growth are also part of performance appraisals, as well as potential for training and development. Thus, the whole supports continued lifelong learning and parallels the systematic evolution of business goals.

Compensation (e.g. salary, vacation, benefits) and rewards (e.g. bonuses, promotions, perks)

Turning to compensation and rewards, we find a similar pattern to the systematisation of learning, and performance appraisal systems. Results from the ECS (Eurofound, 2009) echo findings we obtained from our empirical research, whereby large enterprises are slightly more likely to give employees specific elements of pay related to performance, while about 30-35% of SMEs give performance-pay:

Table 4: Do employees - except those in top management - receive specific elements of pay that depend on the performance of the individual? - Question MM454, 2009 ECS

		Employees receiving specific elements of pay that depend on performance	
		Yes	**No**
Size	10 to 19	31,7%	67,4%
	20 to 49	35,4%	63,4%
	50 to 249	43,6%	54,8%
	250 to 499	54,1%	44,1%
	500 +	55,9%	42,6%

*size of enterprise in five categories

In our analysis, we see no clear pattern for the proportion of performance-related pay across sectors following NACE codes. All enterprise types have an almost similar distribution of 'yes' replies to performance-related pay, which is on average about 40%. More recent results from the 2013 ECS show no development in enterprises that use performance-related pay, with the 2013 survey publishing an almost identical result to the 2009 survey (Eurofound, 2013: 76). The only type of industry where there is a marked difference between 2009 and 2013 is in the ICT sector, where 61% of responding enterprises reported the use of performance-related pay. On the other hand, we observe from the 2009 ECS survey that the least likely to make use of performance-related pay include professional and administrative occupations. Looking at a country level, it is difficult to see any systematic variance in the results.

Implications of this type of finding are mixed. Since there seems to be no notable increase in the use of this type of compensation and reward, it could underline the fact that measurements for performance are becoming less straightforward since productivity is linked to much more than the output of physical products:

> *…it is possible [to measure performance]. Like if someone has to produce 100 pieces of something. In the 'white collar' area it is more difficult. […] It has something to do with how close you are to the production [of physical products]. If you are close, then it is often measured, and in numbers. But if you work in other areas, such as HR, we work with personal goals instead. […] We have goal pyramids, which means that it starts from the top and then goes down throughout the company [the goals your leader has, have to do with your goals and so on] (Director of Labour Relations, Enterprise DE250C29SSI7: 3).*

Results from the 2009 and 2013 ECS could also indicate that employees are benefiting from other types of incentives that address motivational factors as in, for example, incentives that foster a positive and rewarding work climate – examined next.

Appeal of the environment and reasons for retention

A large part of the affective dimension, in which learning systems and incentives reside, relates to the environment in which employees work. Analysis of how the approached management members in general would rate work climate in their enterprise shows that size once again has a significant influence, as per data from our Phase 3 analysis with the ECS. Even though the correlation is weak (.137 significance at the 0.01 level, 2-tailed), we observe that the larger the enterprise, the more likely it is that the work climate is experienced as somewhat strained rather than quite good or very good, as illustrated in the distribution assessment of work climate in Table 5. The mean value for each answer category is to be interpreted as: 1, for very good work climate; 2, for quite good work climate; 3, for somewhat strained work climate; 4, for very strained work climate; and 5, for 'don't know' or 'no answer'. Thus, the lower the mean value, the more favourable respondents consider the enterprise's work climate:

Table 5: How would you rate the current general work climate in your establishment? - Question MM701, 2009 ECS

		Current general work climate in the enterprise						
		Mean value	1 - Very good	2 - Quite good	3 - Somewhat strained	4 - Very strained	5 - DK/ NA	Total
Siz e	10 to 19	1,87	32,2%	52,7%	11,9%	2,6%	0,6%	100%
	20 to 49	1,93	27,7%	55,0%	14,4%	2,3%	0,6%	100%
	50 to 249	2,04	21,2%	57,9%	17,6%	2,4%	0,9%	100%
	250 to 499	2,15	15,6%	58,8%	21,6%	3,0%	1,0%	100%
	500 +	2,18	14,0%	58,0%	24,7%	2,5%	0,8%	100%
Total			24,8%	55,8%	16,1%	2,5%	0,7%	100%

*size of enterprise in five categories

The mean value for small enterprises is 1,87, which equals an assessment of the work climate between very good and quite good, while the mean value is above 2,15 for enterprises having 250+ employees. This places the mean value between quite good and somewhat strained for large enterprises. Crossing these results with industry type, our analysis shows sectorial differences, where professional (including scientific and technical), transportation and ICT service sectors report good work climate, all above 85%. ECS 2013 deployed the same question. However, the item was provided in the survey to both managers and employee representatives, which demonstrated a difference where managers tended to be more positive than employee representatives about the work climate (Eurofound, 2013: 27). Country differences display quite a range of results with high standard deviation (average .758). Analysis shows that the best mean values from enterprise assessment of the general work climate is to be found in enterprises in Denmark (mean=1,55), Cyprus (mean=1,61) and Sweden (mean=1,68), having the best scores, with more than 90% of answers in the 'very good' or 'quite good' categories, as illustrated in the figure below.

Figure 8: How would you rate the current general work climate in your enterprise, per country?
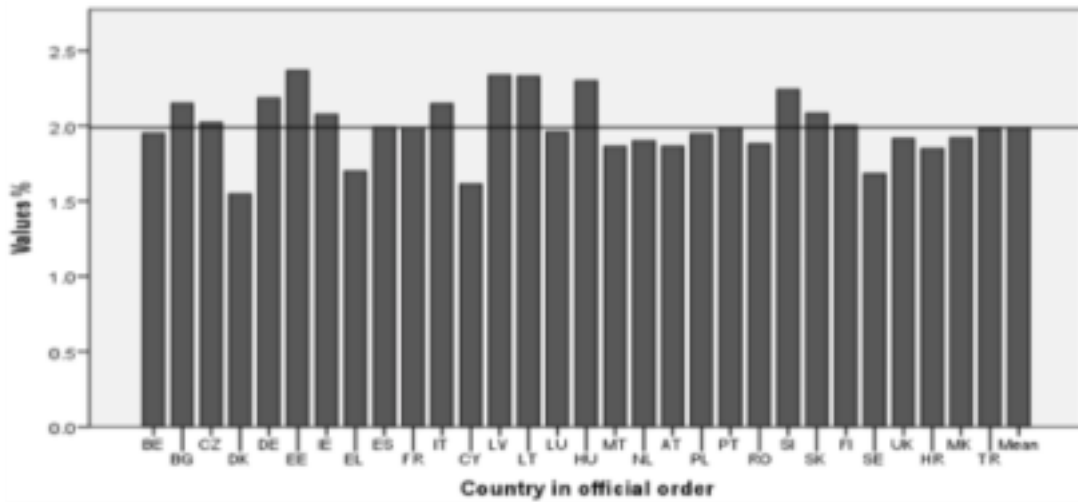
country in official order; the lower the mean value, the better the assessment of the work climate

A positive atmosphere, providing access to state-of-the art tools and software, strengthening employee cohesion and the like are all enabling aspects of performance and value creation, as noted from our Phase 1 research results and responses to our interviews and questionnaires. A content analysis of keyword-responses to the questions: "In your view, why do people want to work there, what makes the work environment appealing?" and "In your view, what is the key to your organisation acquiring and keeping 'great' staff?" yielded the following:

Figure 9: Appeal of the work environment, acquiring and keeping staff
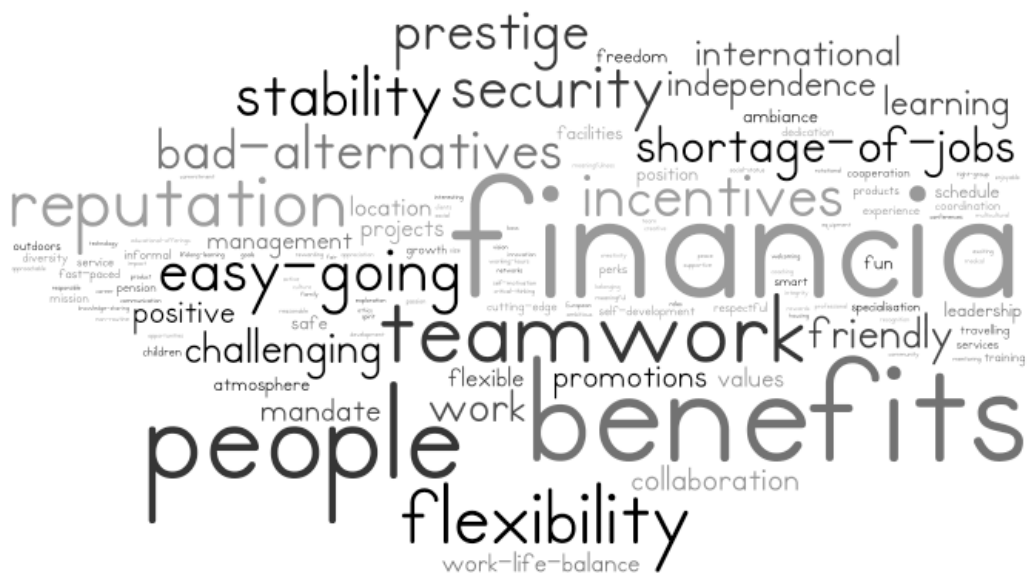
Synthesised, we have both extrinsic and intrinsic motivation factors that attract staff and ensure retention. To begin, financial compensation was mentioned the most, along with benefit packages, which include medical, retirement, vacation and other traditional compensation items. This satisfies the extrinsic motivational factors of having a job and earning enough to secure a livelihood and future. Following this, however, we have 'people' and 'teamwork' as well as 'reputation', 'flexibility' and 'stability' – all intrinsic motivators. In fact, there are mentions of many more intrinsic aspects of workplace environment than extrinsic. Altogether, our participants' responses reinforce Herzberg's (2003) thesis that there are elements leading to satisfaction in the workplace and others that directly contribute to dissatisfaction. Results also emphasise Maslow's (1943) understanding of motivation that reflects people's pursuit to satisfying a hierarchy of needs in their quest to being the best they can be (self-actualisation) through their work. First, people need to satisfy their basic need of earning for the present and some for the future (e.g. retirement); but there is much more contributing to a sense of satisfaction. Several of our interview narratives tell of these positive motivators, strengthening the premise that intrinsic motivators, addressing higher-order needs, result in happiness in the workplace, and benefits to the enterprise. Such is the case at Enterprise DE250J62SSI10, a newly large (250+ employees) German enterprise in the J62.0.9 – Other IT and computer service activities industry:

> […] since we are an extremely fast-growing company, our main goals of course, are employee happiness, customer happiness, keeping employees… in a company like ours. It's very crucial that people stay with us. […] For us, we think that training and giving options to all is a huge way of making people happy here and making people stay with the company. So this is the goal. And of course, we measure… We have company-wide, every two years now – we used to do this every year, but now, due to how big we are [recently crossing the size threshold from medium to large in enterprise size], we do this every two years – we ask every employee certain questions about how happy he/she is, how happy he/she is with the company, the structure, the way the company is growing, where we're going… And of course, training is a big part of the questions […]. And besides this, […] we talk to the person leading the people, like the team leaders, how they're happy with it… We ask the project managers, because, every person has a different perspective on how things are working. And this is how we measure our goal fulfilment. [And] the success… […] first of all, I think that we are, from the technology point of view, we are dealing with topics that are quite interesting for the industry, like […] the things we've been dealing with for the last couple of years are the key technologies for market growth. […] Then, of course, on the employee-side of things, we are competitors with the 'big players', like Porsche, Daimler, Bosch and so on. And our winning thing here is that we are a family-driven company and we have a family-culture. Family-culture means, helping each other, being there for each other, and the way we talk to each other and work together. And this is one of the biggest success stories, with us (Senior Manager Research and Development, Enterprise DE250J62SSI10: 4-5).

In this example, we have several HRPs from the affective dimension being used to reward employees intrinsically, including the work, the work set-up and the organisation (emphasising the importance of the third dimension of HRPs, work design and the organisation of work), valuing staff's opinions and future goals, and also addressing the cognitive dimension of HRPs – sills development – in the highest possible way. This interviewee also estimated that around 50 short training options are currently open to employees, growing in number. Also, the interviewee proudly reported of a new and team-building way of learning informally, which is to hold regular, short (1/2-day to 2 days) inter-team and inter-departmental workshops on selected topics and then use employees' diversity and divergent thinking to try and make headway with a particular problem or challenge which could be service-, process- and/or product-related. Topics are chosen by employees facing an immanent and complex problem they have not be able to resolve on their own or with their immediate teammates. Overall, employees at this enterprise seem to be engaged in highly challenging work with small teams that fit together to form a synergising whole. The mission and vision of the enterprise are clear and dynamically align with employees'. There are no measurements on how much an employee does or doesn't do. Rather, employees are portrayed as putting their best foot forward as much as possible, and in turn, the enterprise provides them with as much flexibility and as many resources as possible. Nevertheless, there is a little angst that we perceived in our interviews at this enterprise, with respect to the growing size and potential changes towards more bureaucracy and hierarchy. There is some apprehension that increasing in size might disrupt the happiness or synergy. Contrasting this, our results also show that negative-motivators or hygiene factors (Herzberg, 2003) also draw employees to work at an enterprise, despite the fact that working there results in their unhappiness. As both Herzberg and Maslow would contend, as well as Phase 1 research results, such reasons for staying at an enterprise are not sustainable and are unhealthy (as we will see in sub-section 3.2.3. Work design and the organisation of work). 'Shortage of jobs' and 'bad alternatives' represent two closely related accounts; people feel obligated to take a certain job and stay, out of basic necessity[8]:

> Interviewer: So what do you think that [Enterprise Anonymous I] does to make it such a great environment for you and others to work here so much [a little humour at the end of the question, since the interviewee just grieved about how many long hours there are to work, and that this, to her dismay has become part of the enterprise's expectation and culture].
>
> Interviewee: Hmm… [long pause, followed by laughter] I don't want…
> [both laugh]
> Interviewer: No, the positives, the positives… what is good about this place?
>
> Interviewee: It's good that you have enough time, and time to do your own work, to organise yourself and… But I have only negatives…

[8] Enterprise details including country and industry, enterprise codes and interviewee occupational titles have been withheld in the following two excerpts for ethical reasons.

Interviewer: Oh, no! But those can be used as motivators… I guess? Do you think that it has a motivating effect if you have negative environment factors?

Interviewee: Hmm… no… [long pause] it's perhaps, it's… I think, our general management isn't often in the house, and so you have to wait until they are there to talk about problems you've had for three weeks… umm… It's time [the problem]. It's always time!

Interviewer: Okay. So… what is keeping you here?
[both laugh]
Interviewee: Money! I'm not going to lie! (Loyal Employee of more than a decade of service, Enterprise Anonymous I: 8).

This narrative clearly tells the story that the enterprise has essentially continued to benefit from an employee's loyalty and hard work for many, many years, without the knowledge, capacity or willingness to discover – perhaps – that this employee, and others (as we uncovered in our interviews), are exceedingly unhappy. Top management and management had a counter-narrative on almost every aspect of our interviews, which tells a lot about the disconnect between work and employees – again, despite the growth this enterprise has experienced, particularly in the last five years. Long-term effects of such disconnectedness result in disenchantment at the least, and more serious consequences such as stress leave, as our interviewees further disclosed. In yet another interview, we hear about negative-motivators for work:

I believe that people stay because there aren't that many job opportunities around here… And they need the money. The money is not much […] and then in my case, I got married and had children and had to deal with 'work-life balance' issues. In any case, they stay because they need the job. We are the second most important employer [in this area] (Loyal Employee of close to a decade of service, Enterprise Anonymous II: 7).

There is a stark difference in the overall quality of work-/life between employees who report being happy at work and those who do not and this transuded through our interviews, even if we did not forcibly focus on negative aspects of work. As the brief examples presented above tell, there is a myriad of ways enterprises can foster intrinsic motivation, though foundation is the offer of competitive financial and benefits packages. The following sub-themes of learning systems and incentives will bolster this assertion.

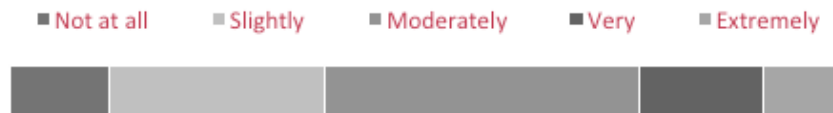## Flexibility and tolerance to risk-taking and mistakes

The results we obtained from our empirical data regarding risk-tolerance and tolerance to mistakes shows that there is a general trend of having some flexibility for both, and this is the same pattern, irrespective of enterprise size. To illustrate this, Figures 10 and 11 aggregate responses from all participants in WP4's Phase 2 empirical work:

Figure 10: Tolerance to risk

Not at all   ▪Slightly   ▪Moderately   ▪Very   ▪Extremely

Figure 11: Tolerance to mistakes

▪Not at all   ▪Slightly   ▪Moderately   ▪Very   ▪Extremely

Not surprisingly, our response pattern was similar to questions related to enterprise flexibility, and the extent to which employees could characterise their enterprise as flexible:

Figure 12: Extent to which employees perceive the enterprise as flexible

▪Not at all   ▪Slightly   ▪Moderately   ▪Very   ▪Extremely

However, answers provided by employees who work in smaller enterprises were slightly more positive:

Figure 13: Extent to which employees perceive the enterprise as flexible, per enterprise size
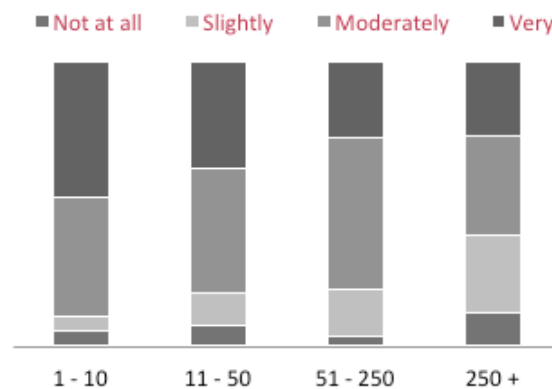
Based on results from Phase 1 research and past empirical work on incentives at the enterprise level, we know that flexibility plays to all the dimensions of learning; affective, structural and cognitive. Flexibility can affect motivation, performance, and freedom over work design among other aspects and our findings reinforce this; Figure 9., 'Appeal of the work environment, acquiring and keeping staff' highlights how flexibility is meaningful. However, we note that flexibility is somewhat linked to enterprise size, though since the levels of enterprise flexibility reported by our participants are rather equal, there may be further insights gained by examining flexibility in relation to work tasks. For instance, there are some work scenarios that cannot afford much flexibility, such as in emergency services, security, monitoring, medical, assembly-line work, etc. and, flexibility might be something that can wax and wane, perhaps at various intervals in a fiscal year, such as in financial and audit services sectors. Nevertheless, it remains an important aspect of incentive to be considered in HPWS.

Provision of stability and security

As also accentuated in our analysis on appeal of the work environment and reasons for retention (see Figure 9), the provision of stability and security are highly important to employees, addressing their intrinsic needs, as a motivating factor. However, responses as to the current state of affairs tells the us that stability and security are relatively weak – about half of all our respondents face the reality that they hold only moderate, slight or no anticipation to continue at their current jobs over an extended period of time. As noted by Phase 1 findings on past empirical work, employment security is one of the most basic, yet fundamental HRPs that affects enterprise performance (Batt, 2002; Camps & Luna-Arocas, 2012; Delery & Doty, 1996: 815; Prieto Pastor et al., 2010; Sun et al., 2007; Vlachos, 2008).

In the recent climate of economic recovery, where some industries and countries are still experiencing hardships, job security is perceived as something desirable, yet not entirely assured:

Figure 14: Extent to which employees perceive the enterprise as offering stability and security

Not surprisingly, enterprise size has an effect on this provision and perception, as demonstrated in the figure below, where none of the small enterprises have employees who feel their jobs are stable and secure, with only about half of those working in SMEs and large enterprises reporting 'very much' or 'extremely'.

Figure 15: Extent to which employees perceive the enterprise as offering stability and security, per enterprise size
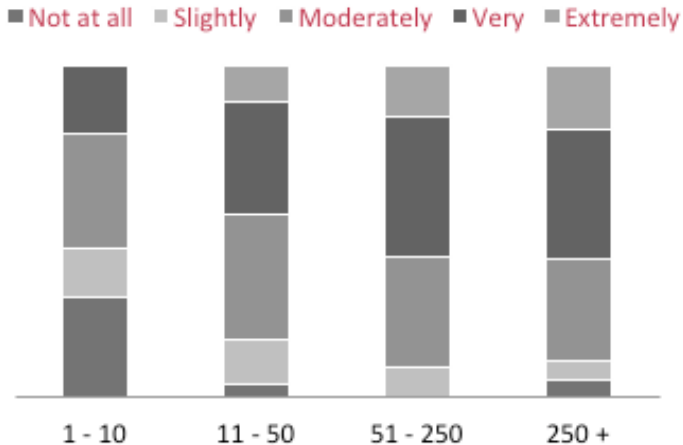
These findings reinforce our knowledge that the larger the enterprise, the more stable and secure employees perceive their jobs. However, the reported limited confidence in employment security on the part of employees leads us to more questions: is there a trend of employees being hired on contract work?; are employees opting for contract work that offers other incentives out of their own preference in work arrangements or mobility?; are reports of employment insecurity a result of economic pressures, enterprise takeovers, mergers, lack of unionised action, etc.? As one of our Spanish interviewees described,

…at present there have been bad times. In this context, as it is part of each person's job to recruit customers, and it becomes understandable the we must reduce the price of a service, work three times more in order to earn half of what we used to earn. From the moment you join the company, this is known; it is something that you are involved in from the beginning. This is why I think that it is not seen as being 'unfair'; rather, it is understood that it is 'how it works' in bad times (Area Director, Quality, Enterprise ES11M70SSI11: 9).

This narrative, for example, gives context as to the knowledge employees have about their employment security. Much like entrepreneurs and contract workers, employees, even in larger or large enterprises have entrepreneurial aspects to their positions, whereby value creation is something highly linked to financial gain and business-generating activities that essentially pay for their own wages. However, as elaborated on by Ashford, Lee and Bobko, a perceived lack of stability or control leads to "attitudinal reactions – intentions to quit, reduced commitment, and reduced satisfaction" (1989: 803), which means this extrinsic motivational factor is not to be overlooked, even if it seems to be how things are in some contexts.

Feeling of belonging

A feeling of belonging is yet another intrinsic motivational aspect that contributes to the wellbeing of employees and overall enterprise productivity. Substantial evidence from previous empirical work on SHRM "supports the relationship between high-performance HR practices and organizational performance […and is reinforced in current empirical work, that] employees' collective perceptions of high-performance HR practice use are positively related to affective commitment, organizational citizenship behaviour, and intent to remain with the organization and negatively relate to absenteeism" (Kehoe & Wright, 2013: 383), for example.

Our participants report a relatively low sense of belonging in their enterprises, with less than a third answering 'very' or 'extremely', with a weaker sense of community in larger enterprises. The first figure below depicts the trend as per aggregated responses in interviews and to our questionnaire; then Figure 17 shows results per enterprise size.

Figure 16: Extent to which employees feel a sense of belonging in their enterprises
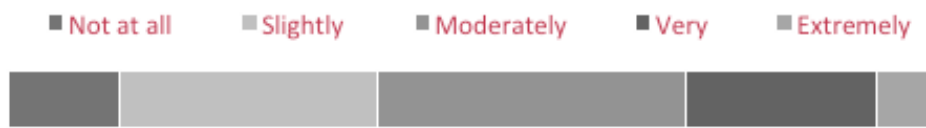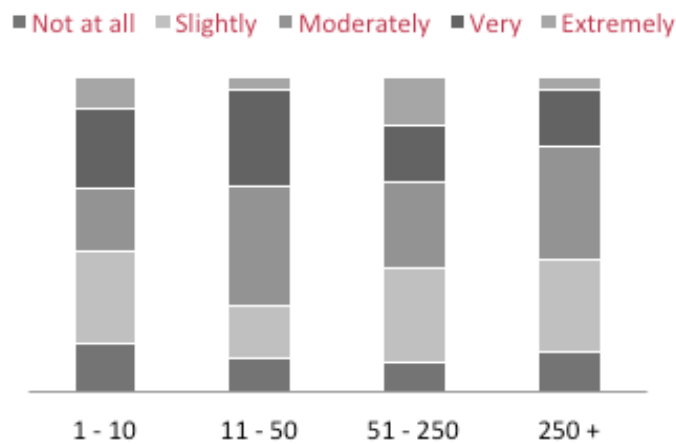

Figure 17: Extent to which employees feel a sense of belonging in their enterprises, per enterprise size

A sense of belonging can be fostered in a variety of ways. There are HRPs that focus on communication, where frequent interactions between people, departments, teams, managers and staff, etc. are fostered so as to create support, source inspiration, nurture cross-fertilisation and establish presence and synergy. A sense of belonging can also be cultivated by sharing ownership – of ideas, and also ownership of the enterprise, such as at Slovakian SME, Enterprise SK11AISSI5, in the NACE industry, A1.6 – Support activities to agriculture:

In the past 24 years, I have given a portion of my shares to people who have created a new department [now there are five departments], who brought new business and who I saw to be very good. I gave them 10-20% of my shares. So now I have 37% and another colleague has 33%. Next year I will retire and give away my shares to my colleagues. Moreover, I must say, that there is an on-going practice within the company that official shareholders unofficially give a portion of their shares to employees who perform well; as a kind of a reward. They are unofficial shareholders, but there is an agreement about this that is based upon the company's turnover. So the colleague who now has 33% has given 10% to his best employee. According to the turnover, one may have 1-3% of an official share (CEO, Enterprise SK11AISSI5: 9).

In this example of share-ownership being distributed, a sense of entrepreneurialism is also championed, through rewards that are somewhat enduring. In a previous narrative presented in the sub-theme 'Provision of stability and security', where employees at Enterprise ES11M70SSI11 knowingly sign-up for unstable work they need to continually generate themselves by creating new business and establishing new clients. In contrast, employees at Enterprise SK11AISSI5 are indirectly beckoned to do the same, but with a reward that is more stable and long-standing than a pay check or bonus. Clearly, HRPs that promote a sense of belonging respond to the affective needs of employees and empirically, this leads to more employee satisfaction, coupled with enterprise performance growth.

Summary

In our analysis of learning systems and incentives – the affective dimension of lifelong learning at the enterprise level – we find that enterprises are making use of a variety of creative methods of organising learning, with a trend of striking a balance between systematic and ad-hoc arrangements. Traditional compensation elements are very much in place, particularly in larger enterprises, and are also desired aspects, on the part of employees, satisfying extrinsic and fundamental needs. Nevertheless, the key to attracting and keeping great staff is through the implementation of incentives that respond to intrinsic needs, such as offering interesting and challenging work, being flexible, setting up work organisation that is structured along teams and fostering a sense of belonging and ownership, also in a positive atmosphere. Enterprise size, though, has an influence on some provisions, particularly with respect to stability and security. Past empirical work informs that negative-motivators cannot be relied on for HPWS growth, and are therefore not long-term strategies to be relied upon. Though as our own empirical echoes, socio-economic factors oblige employees to continue to work in less than favourable and unfulfilling conditions. Promisingly, we discovered that although risk and mistakes are to be avoided, there is moderate tolerance to them in today's workplaces.

Overall, our findings reinforce the premise that incentives and balanced learning systems contribute to employee satisfaction and value creation. They are not only a means to satisfying standards and regulations, they are instruments through which the highest potential of every employee can be derived, starting from functional contributions, towards contributions of self-actualised learning.

3.2.3. Work design and the organisation of work

We now turn to the third, and last, HRP-dimension for the enactment of a HPWS and lifelong learning at the enterprise level: work design and the organisation of work. Work design or work organisation encompasses the setups, channels and strategies adopted towards supporting production, communication, and general enterprise performance, internally. By examining these aspects, we can identify the coordinated efforts of work that lay the foundation to providing employees coherent competence development opportunities and continuous learning in and around the workplace.

Having an HR department, hierarchy, status distinction and bureaucracy

To begin, we examined the setup of HR systems – are there HR leaders in the enterprise?; are there HR teams or HR departments?; is there a clear person or area one can go to for HR-related needs? Not surprisingly, enterprise size determines the existence of HR-coordinated functions, much like in our earlier findings, in relation to the systematisation of learning:

Figure 18: How enterprise size matters in terms of having an HR department
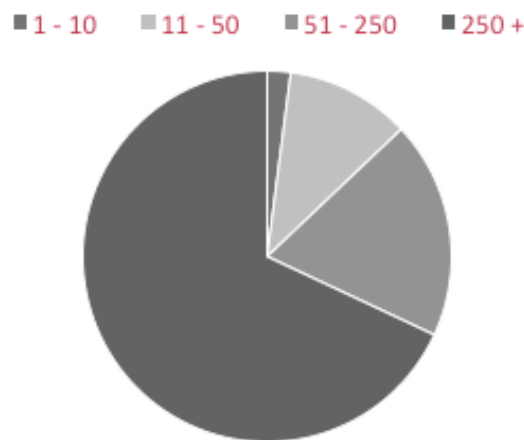
The figure above reinforces the recognition that the larger the enterprise, the more systematic the organisation of learning, and the more formalised HRPs are. Linked to hierarchy and bureaucracy trends (below), the administrative distinction of an HR-area also tends to lead to a rather top-down organisation of work, rather than a bottom-up approach. For example, Figure 19 illustrates that in large part, hierarchy is still very present and felt in large enterprises, echoed in Figure 20, which depicts the extent to which status distinction permeates workplaces. Paralleling these trends are layers of bureaucracy, which also play a role in impinging on enterprise flexibility, employee autonomy and agency, as well as change and adaptation processes.

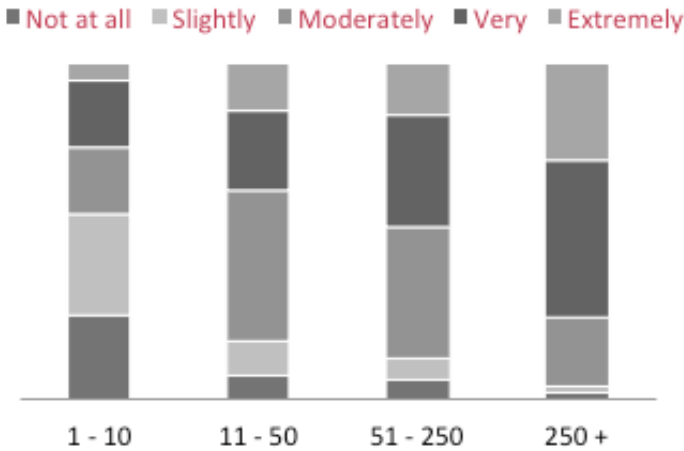Figure 19. Extent to which employees perceive the enterprise as hierarchical, per enterprise size

Figure 20: Extent to which employees perceive distinction in status & ranks, per enterprise size
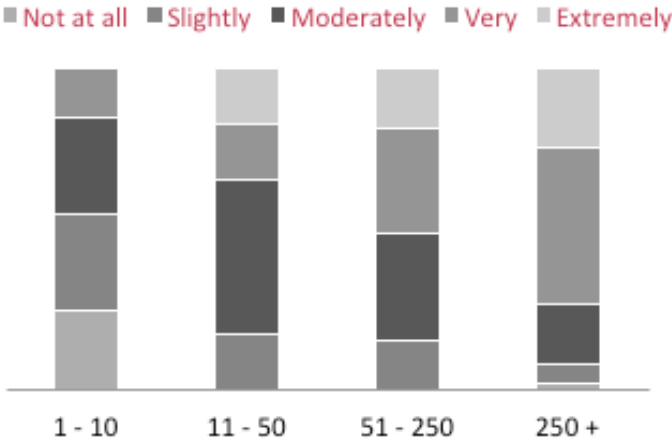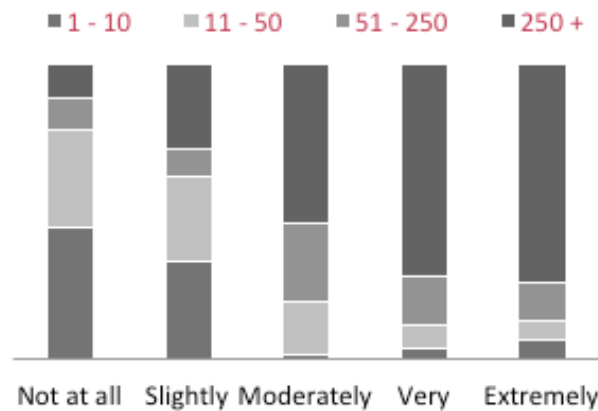
Figure 21: Extent to which employees perceive the enterprise as bureaucratic, per enterprise size

As expressed by several of our participants, and the literature on HRPs, these three aspects pose challenges to ongoing training and development, particularly with respect to informal and non-formal workplace learning – which from our analysis of successful types of learning in sub-section 3.2.2., represent the greatest variety and source for on-demand, responsive learning to work-related needs. For more traditional and transaction HRP-deployment (see Figure 31), such as the administrative management of personnel (e.g. leave, benefits, contracts, etc.), coordinated and transparent HR operations function as facilitators. However, as we have seen from earlier participant narratives presented in our analyses, hierarchy, bureaucracy and status distinction may encroach on feelings of belonging, a sense of "family" (Senior Manager Research and Development, Enterprise DE250J62SSI10) and may also stall performance: "I think, our general management isn't often in the house, and so you have to wait until they are there to talk about problems you've had for three weeks…" (Loyal Employee of more than a decade of service, Enterprise Anonymous I: 8). As we will discuss a little later in this section, empowering employees to actualise their own potential can be enabled by work arrangements where employees have influence and decision-making power over their own work and teams.

Routine work

Work arrangements – formal or informal – are largely dependent on the type of work performed. Certain industries are characterised by a high degree of routine work such as in manufacturing, financial provisions (e.g. auditing and insurance provisions) and human care services (e.g. dentistry, physiotherapy, specialised surgery work, etc.), while knowledge work and other creative industries require outputs that are less replicable and more differentiated, unique – created through a greater level of divergent thinking and enacting.

What we know from the literature however, is that the identification of opportunities for growth (personal and work processes) are prefaced with disjuncture; when we are not in harmony with the state of affairs (Jarvis, 2012), which is why special assignments and job-rotation are considered as incentivising HRPs for example. This is not to say that we must go looking for problems in routine work, since routine work has its strengths and must be leveraged/exploited (Kang, Morris & Snell, 2007; March, 1991), in a quest for evermore effective and efficient modes of delivery. Yet routine work inevitably draws on our lower-order thinking skills (Bloom & Krathwohl, 1956) and if forsaken, higher-order thinking skills (ibid.) begin to dull and an individual's intrinsic motivational need to self-actualise (Herzberg, 2003; Maslow, 1943) through work abates, leading to performance repercussions, as noted in our Phase 1 research findings from past empirical work.

Our respondents tell the story that routine work is very much a reality of work arrangements, with close to half reporting their work is 'very' or 'extremely' routined:

Figure 22: Extent to which employees perceive their work as routine work

We analysed responses according to enterprise size and found that employees working in larger enterprises report having more routined work than those in SMEs, though the difference is slight. What this indicates is that employees are in positions where most of their work is known to them, with only a fraction who report their work as being 'not at all' or 'slightly' routined. The implications lead to further questions as to whether this contributes to enterprise growth, job satisfaction or other facets of HPWS, yet we note that the larger the enterprise, the more work becomes routined:

Figure 23: Extent to which employees perceive their work as routine work, per enterprise size
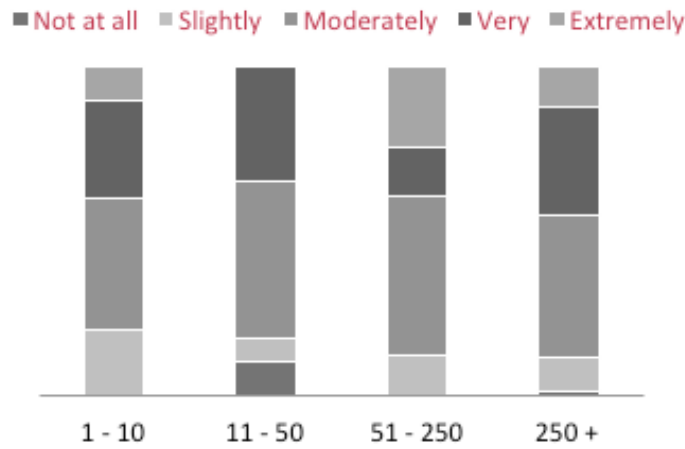
Challenging work

Alongside routine work is the level of challenge work presents to employees; including cognitive, physical, psychological and other challenges. In our analysis, we found that the pattern of challenging work was shared by all employees, irrespective of enterprise size:

Figure 24: Extent to which employees perceive their work as challenging work, per enterprise size
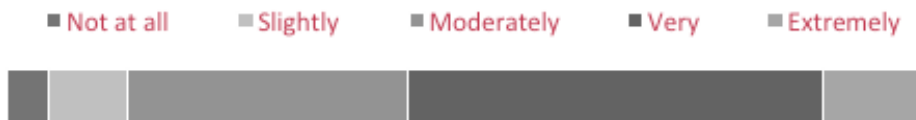
What Figure 24 illustrates is that a slight majority of our participants find their work 'very' or 'extremely' challenging with a small proportion reporting only 'slight' or 'no' challenge at all. An example of challenging work arrangements is presented from a South African SME, operating in the NACE M73.1 – Advertising industry:

> *Staff development happens informally. We haven't synced any of our staff on courses or anything like that. But, I think they all have quite a lot [to learn] on the job so, 'the works'. The work that we get changes all the time. Each new project has new challenges which requires new learning. And whenever there's a project that requires new learning, we take into account how we allocate time for that project so that they [employees] can learn, whatever they need to learn. There's definitely quite a strong culture of self-learning, because we de-brand development. It's quite a broad spectrum of services, and we are always trying to stay on top of new technologies. When there's a new technology or a new service, then we often allocate that to somebody. It's very much learning on the job, giving space and time to do that (Creative & Managing Director, Enterprise ZA1M73SSI12: 2-3).*

This narrative demonstrates how challenging work is highly linked to decision-making power on the individual level in enterprises, attending to the intrinsic rewards of work. As we have seen in earlier narratives, challenging work is also something characterising teamwork, with teams that are grouped according to business areas, but also temporary teams who come together to discuss potential solutions to newly discovered mistakes, exceptions, and atypical situations.

Team-based work

Team-based work is a necessary consequence of evermore complex work and HPWS, as we have seen from findings in Phase 1 research. Our participants report that a good proportion of work is organised through teams, though as our findings suggest, the larger the enterprise, the less team-based work is a particular:

Figure 25: Extent to which employees experience team-based work

Figure 26: Extent to which employees experience team-based work, per enterprise size
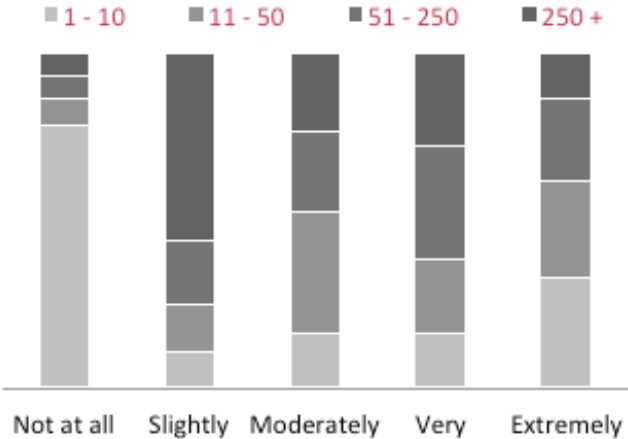
In Figure 26 above, very small enterprises (1-10 employees) and large enterprises (250+ employees) report the least team-based organisation of work. For the former, this may be due to low employee count, and for the latter, this may be due to the deconstruction and segregation of work processes into smaller, lesser-skilled work tasks. This inference is also based on linking these results with the patterns we found regarding enterprise size, bureaucracy and hierarchy. Given the motivating factors of work, team-based work responds to intrinsic, cognitive, and affective needs and is therefore an important feature in HPWS. It is one of the most successful work arrangement in fostering, ongoing, socio-cultural and action learning through interactions.

Employee influence on work

Decision-making and influence on work that is bottom-up is also characteristic of HPWS. Empirical studies (Phase 1 research findings) underscore, in relation to high-functioning work design, that employees should be given a high degree of independence, decision-making and influence on how work processes are organised. Generally, our analysis shows that employees in smaller enterprises are more likely to experience that they have influence, as compared to employees in larger enterprises.

Data from the ECS in Table 6 , demonstrates that enterprises with 10-19 employees (60,5%) and 20-49 employees (57,4%) report that they have either 'very strong' or 'quite strong' influence on changes in the organisation of work, while around 50% of employees report the same in enterprises with 250+ employees.

Table 6: How large is the influence of employees on management decisions in the enterprise for changes in the organisation of work processes and workflow? - Question ER207_6, 2009 ECS

		Influence on changes in the organisation of work processes and workflow					
		Very strong	Quite strong	Quite weak	Very weak	DK/ NA	Total
Size	10 to 19	15,0%	45,4%	22,3%	12,4%	4,9%	100,0%
	20 to 49	13,0%	44,4%	26,5%	12,1%	4,0%	100,0%
	50 to 249	8,2%	39,6%	33,6%	14,2%	4,5%	100,0%
	250 to 499	7,5%	35,3%	38,5%	15,6%	3,1%	100,0%
	500 +	8,5%	37,4%	39,8%	12,2%	2,1%	100,0%
Total		9,8%	40,2%	32,6%	13,5%	3,9%	100,0%

Thus, an interpretation from our analysis – even though the correlation is rather weak (.064 significance at the 0.01 level, 2-tailed) – is that there is an inclination to have a type of top-down decision-making practice in larger enterprises while smaller enterprises are characterised by a larger degree of autonomy when it comes to influence on changes in general. Looking at industry types, employees in transportation and storage services industries report the greatest sense of influence on changes in the organisation of work processes and workflow, with 59,2% responding 'very strong' or 'quite strong'. The construction and administration and support services industries report slightly weaker levels of influence, with 54,1% of employees reporting 'very strong' or 'quite strong'. In contrast, the ICT services sector reports 41% of employees experiencing their impact on decision-making regarding the organisation of work processes and workflow. Given the distribution of data, it is our perception that there exist specific historical, cultural and sociological conditions that are difficult to seize with the quantitative data presented in the ECS on this specific aspect. For example, some sectors are characterised by larger enterprises and others by SMEs and some industry types have a history of top-down and bureaucratic organisational structures, while others are characterised by flatter structures. In enterprises whose operations rely mostly upon labour-intensive work that is routine, we have an example that tells how to leverage employee agency, despite the organisation of work that decreases independence and decision-making power. A Slovakian enterprise of around 120 employees, operating in the NACE C23.4 – Manufacture of porcelain and ceramic products explains:

There are different approaches for different production parts; very particular and sensitive areas are sales- and technology-lines. For sales we have an individual approach. We are operating in emerging markets and every person in sales faces different challenges related to their geographical area and the nature of their partners. For operators of the technology parts, I personally seek to make them understand the underlying processes, and to act proactively, to anticipate problems and avoid larger damages. […] We are world-wide leaders in enamelling technology for steel bathtubs and shower trays. That gives us major strength in terms of quality, aesthetic parameters and the production costs of the products. […] For individual employees, crucial is that they have to understand and believe in their own importance, of their own position for the company outcome (Owner and CEO, Enterprise SK11C23SSI8: 2).

From the empirical data we gathered in our interviews and questionnaire responses, the pattern of decision-making power over work organisation is similar to ECS data results, with about half reporting they enjoy personal influence over their work, decreasing as the enterprise size increases:

Figure 27: Employees enjoying independence, decision-making power and influence over their work design
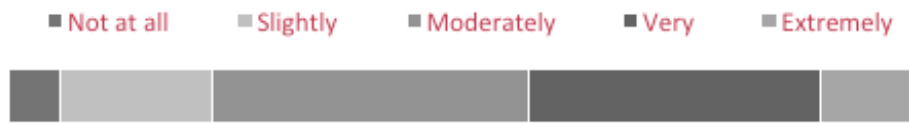
Figure 28: Employees enjoying independence, decision-making power and influence over their work design, per enterprise size
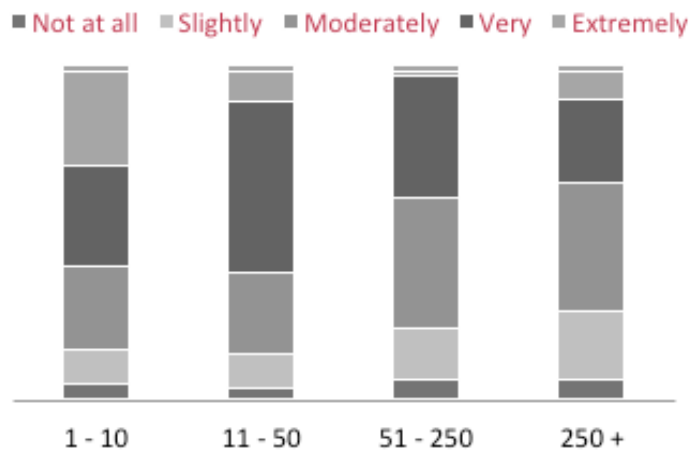
Main conflicts

The sum of our findings lead to either enhanced operations and performance, such as in HPWS or the reverse; conflicts that impinge on growth or stagnation. When asked about most common workplace challenges and conflicts, an analysis of keyword responses to our empirical data highlights 'stress' as the most onerous, linked to burn-outs, followed by communication problems, conflicts with clients, workload difficulties and conflicts between management and staff.

Figure 29: Most common conflicts

These point to interpersonal difficulties and other challenges that deal with soft-skills development. For example, stress and burn-outs might be alleviated with either better time-management skills, or a decompression in terms of expectations from the enterprise, which may be a consequence of poor foresight, resource allocation and/or planning. Indeed, the responses provided point to the need to implement HRPs that address each of the dimensions of lifelong learning at the enterprise. For example, a respondent from one of our participating enterprises in Slovakia, in the NACE A1.6 – Support activities to agriculture industry, recounted:

> By the way, regarding support for employees – it just came to my mind – we haven't been talking about health issues! For the second time we have organised a medical check-up for our employees, complemented with a screening for oncological diseases. This has been very useful. In the case of one employee, we were able to identify a problem he was not aware of. We also realised that apart from education we need to support employees in a more complex way. So to avoid this employee [or others] having stress with arranging individual medical check-ups, we have made arrangements for this, and when the results come, he can act further on it. I appreciate this initiative personally, and so do other colleagues (HR Manager, Enterprise SK11AISSI5: 11).

In yet another example from a South African, medium-sized enterprise in the NACE M73.1 – Advertising sector, we see HRPs related to work environment also in use, to proactively minimise communication conflicts and stress at work:

> I think, firstly, the building itself [is of importance]. So the environment really tries to – we try to create with art and with the way the discs are placed... a very stress-free environment, an environment that even though you have deadlines, even though you are dealing with a stressful project, the environment itself or your office space is as stress-free as possible. From the colours of the walls, to the paintings that surround you, to how much privacy or too much privacy you have… We try to keep office spaces really open, as much as possible, so it creates or opens communication and there's always interaction of – with staff – but also a level of privacy. We also don't want to have our production off the premises; because we easily could do that. So as you can hear, there's knocking [building sounds] going on, there are all of these activities going on and it is actually – well for most of us – it's stimulating rather than annoying (HR Developer, Enterprise ZA11M73SSI17: 4).

So as we begin to contextualise some of the challenges and conflicts that employees report, we see that pressures from industry, clients, resources, etc. all influence communication patterns, work organisation in general and employee stress sources at work. Of course in HPWS, priority to responsiveness in conflicts and challenges are characteristic. And, from organisational learning theory, we know that some solutions are in the detection and correction or problems, while others require a deeper examination of and change to inherent values in the organisation of work (Argyris & Schön, 1996).

Summary

Our data reinforces the premise that work design and the organisation of work are important aspects to be considered in HPWS and enterprise growth. To begin, having an HR department, or designated HR-person, helps systematise HRPs. At the very minimum, transactional and traditional HRPs that are more administrative in nature are more easily handled when centralised and consequentially, larger enterprises make use of this to manage HR processes. Paralleling this trend however are an increase in hierarchy and distinction in status between employees (and ranks), which do not foster responsiveness to on-demand, work-related needs. Furthermore, despite the fact that most of today's routine work is being undertaken by large enterprises, a slight majority of our participants report their work as being 'very' or 'extremely' challenging and that they assume decision-making power over their work design. Also, a good proportion of work is being organised through teams. Team-based work arrangements increase as enterprise size decreases to about 10 employees; less than 10 employees typically means individuals are working alongside one another, independently.

In the last theme analysed under this HR dimension, conflicts and challenges at the workplace were examined. Stress and burn-outs were reported as the most important and onerous workplace problems, followed by communication breakdowns, conflicts with clients, frustrations with workloads and conflicts between management and staff. Affecting this aspect are contextual forces that require further examination. Nevertheless, and as exemplified in some of the narratives presented throughout section 3, there are HRPs that address problem-detection and problem-resolution (e.g. Argyris & Schön, 1996) so that enterprises and staff may overcome these.

4. IMPLICATIONS FOR ENTERPRISE LIFELONG LEARNING CAPACITY AND VALUE CREATION

4.1. Actualising enterprise lifelong learning capacity and value creation

In light of our findings and analyses, Section 4 outlines the implications of lifelong learning strategies for value creation; the actualisation of enterprise lifelong learning capacity (ELLC), as we will refer to it.

The line of reasoning is founded on the empirical argument that lifelong learning strategies are bound to enterprise value creation, in line with past empirical work on HPWS (section 3.1.) and our empirical work (section 3.2.).

There is a clear tradition in research that attempts to capture the phenomenon of value creation as it links activities that enterprises undertake towards an exchange with external stakeholders – mostly named customers. In his influential book, Porter (1990) put forth the argument that value is something enterprises create through the designing of products or processes that are able to boost an enterprise's capital and its competitive capacity. For Porter, value is defined within a monetary context: "The ultimate value a firm creates is measured by the amount buyers are willing to pay for its product or services" (ibid.: 40). Porter uses his definition of value to build a model for how value is created through and by different types of supporting activities in the enterprise, labelling the model, "The value chain". The model entails the deployment of different types of enterprise activities in the process of creating value for the enterprise (see Figure 30). These activities are all tied to the notion of creating competitive advantage for the enterprise through creating a positive relation between the cost of creating a certain product or service and the difference in monetary value the enterprise is able to obtain from customers.

Figure 30: Value chain activities
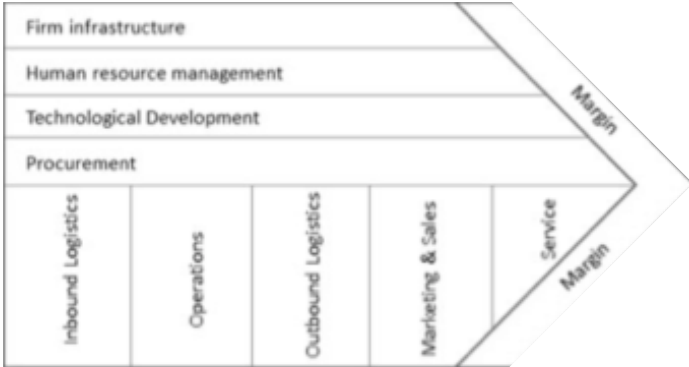
(Adapted from Porter, 1990: 41)

As we can see from the figure above, value creation is multi-faceted (internally). Ultimately, the model emphasises that value creation is determined by the use and payment of enterprise outputs (good and/or services), but that there are several internal factors that are integral to creating value. Namely, Porter (1990: 40) differentiates between primary activities – such as ongoing production, marketing, delivery and the servicing of products and services – and supporting activities – such as technologies, enterprise infrastructure, HR management and procurement – that provide inputs into the value creation process. Similarly, Teece (2010) also presents the idea that enterprise value creation is about creating value for customers, enticing payment from those customers and converting customer payments into profits. Combined, Porter and Teece represent two highly influential voices in the fields of management studies, HR and business studies. Their understandings of value creation echo the findings from WP4's conceptual work (WP4 D4.1, Brandi et al., 2013), which emphasises a linear understanding of inputs that affect predictable and known outputs. Also key to these understandings is that value is created externally – outside the enterprise.

Qualifying and refining the work of Porter and Teece, Lepak et al. (2007) underscore, in a special issue in the Academy of Management Review journal, that due to the multidisciplinary nature of the research field (i.e. which includes HRM, organisational behaviour, economics, entrepreneurship, etc.) there exists no consensus on how to define and capture value creation. Lepak et al. (ibid.) argue that when we characterise value and value creation in research, practice and policy contexts, we need to distinguish between the different levels of analysis of the source of value creation, differentiating between individual, organisational and societal levels of activity and analysis of value creation. They have further argued that there is a tendency to confound creation of value and capture of value, as well as value process and content of value, leading to confusion about how to outline value creation. In their concluding explications, Lepak et al. (ibid.: 190) define value creation as: "…the difference between use and exchange value that can apply to all levels of analysis", connecting yet again to an economic understanding of the phenomenon.

In WP4, we have focused on the processes of, contributors and challenges to value creation, from a lifelong learning perspective as well as from the three main dimensions of lifelong learning at an enterprise level; namely, skills development, learning systems and incentives and the organisation of work. We have therefore concentrated on the HRM facet of Porter's (1990: 41) value chain activities, illustrated in Figure 30 and have stirred clear of the debates regarding how to capture value as an output value, following the advice from Lepak et al. (ibid.: 191), though we have focused on indicators of HPWS. From our data and analyses therefore, we contend that value creation is the actualisation of ELLC.

In one of the contributions to the same special issue referred to above – Kang et al. (2007) connect directly to theories of organisational and workplace learning as the source of value creation at the enterprise level.

This understanding aligns very closely to our own emergent value creation understanding and is integral to our value creation model, presented in the next sub-section. Kang et al. (ibid.) connect to James G. March's (1991) theory of organisational learning that outlines value creation as constituted by learning processes that range between exploitative and explorative in framework. As a vital basis for processes of value creation, Kang et al. (2007) further demonstrate how these learning processes can be managed through specific configurations of the HR architecture. They do so from the design of specific arrangements of structural, affective and cognitive HRPs, as we have also realised.

To briefly recap, the cognitive dimension focuses on shared or common knowledge as a key to facilitating organisational learning and value creation. The postulation is that a shared cognitive basis is needed in order to absorb and employ new competences on an enterprise level (ibid.: 240). The affective dimension introduces the issue of trust in the enterprise as a vital condition for lifelong learning in enterprises (ibid.: 239). The inherent assertion is that latent value from work-related interactions in an enterprise cannot be realised if employees, managers and other stakeholders do not trust one another; under such conditions, knowledge-sharing and competence development are obfuscated or impeded altogether. The third dimension is the structural dimension of organisational learning, and it refers to the coordination of connections or relationships in and around the enterprise. These connections are characterised as network structures that influence employees' opportunities to locate, identify and access relevant knowledge within and across the enterprise (ibid.: 239).

The three learning dimensions that frame value creation from Kang et al. (2007) correspond to the three HRP-dimensions located in WP4's empirical and previous conceptual work in that: 1) the cognitive dimension refers to the management of skills development; 2) the affective dimension parallels learning systems and incentives; and 3) the structural dimension connects to work design and the organisation of work. In our conceptual work (Brandi et al., 2013), WP4 described, then synthesised lifelong learning strategies – HRPs – into three interrelated learning classifications (see Figure 1). This claim and its underlying rationale have been corroborated by contributions from organisational and workplace learning theorists (Brandi & Elkjaer, 2011; Easterby-Smith, 2000; Hager, 2004). Skills development is about building, adding and developing shared systems of knowledge and competences that are needed for organisational learning, in connection to a cognitive and action learning perspective (Argyris, 1991: 116; Argyris & Schön, 1996: 86). In the learning system and incentives dimension, learning approaches underscore the importance of a coherent learning system and incentives that are able to create and sustain effective organisational routines, focusing on behavioural change (Augier, 2008; March, 1991). The work design dimension is characterised by a strong focus on how to organise, coordinate and manage work-related interactions that expound how employees in an enterprise legitimise their agency and become members of a culture and a community of practice. The type of learning identified here is socio-cultural learning in the workplace (Brown, 1991; Wenger, 2000).

Modelled, the representation forms the foundation of our emerging value creation model for ELLC, presented in the next sub-section.

4.2. Value creation model presented

Constituting the grounds for a value creation model for lifelong learning at the enterprise level, we operationalised results and interpretations from sections 3.1. and 3.2., as well as the theoretical underpinnings from empirical and theoretical research (Brandi et al., 2013). Throughout this report, we have described and analysed how lifelong learning strategies are understood and deployed at the enterprise level. We have shown – both theoretically and empirically – that lifelong learning strategy pertains to three dimensions: skills development; learning systems and incentives; as well as work design and the organisation of work. The three dimensions directly contribute to ELLC and value creation, as Kang et al. (2007) likewise highlighted. The dimensions also address the cognitive, affective and structural aspects of ELLC and as such, call for cognitive and action learning, behavioural and socio-cultural HRPs to actualise ELLC. There is a wide range of possibilities in choosing HRPs for enterprises, and as we have seen, size, industry, and other contextual factors very much play a deciding role in which is appropriate. Adding to this complexity, HRPs can be pooled from a host of transactional, traditional and transformational options:

Figure 31: HRP categorisation

(Lepak et al., 2005)

This lays the foundation for a dynamic view on value creation and a corresponding model for the actualisation of lifelong learning strategies at the enterprise level.

Synthesising empirical and theoretical understandings of lifelong learning and value creation at the enterprise level, as well as results from our own empirical examinations leads us to conceptualise value creation as the actualisation of lifelong learning. Actualising lifelong learning relates to our capacity – as individuals, teams, enterprises and wider communities – to address the highest order of thinking, enacting and experiencing in the workplace.

It is characterised by an interrelationship between enterprises and staff that is mediated by continuously involving and evolving learning, awakening the kinetic energy of people and systems who effectuate innovation and value in enterprises. Leveraging the cognitive, behavioural and social dimensions of learning, value creation realises both staff needs and enterprise needs at the highest order. The process of producing and sustaining value creation is dynamic and relies on our ability to both identify and enhance areas in need of adaptation or augmentation, through acts of exploitation and exploration that lead to changes (the most significant one being transformation – of the individual, group, work arrangement, or enterprise). Value creation circumscribes to the processes that in turn capacitate outputs of products and services. Thus, value creation relies on the tenant of asking the following questions: what?, which?, when?, where? and who?, for catalysing changes for processes in need of adjustments or corrective measures; how?, for catalysing changes for processes that are still in need of adjustments or corrective measures, following change enactment that resulted from the first set of questions; and why? for marshalling global change towards transformations in the enterprise. Our resulting value creation model, arising from the actualisation of ELLC is thus:

Figure 32: Value creation at the enterprise level through a lifelong learning perspective
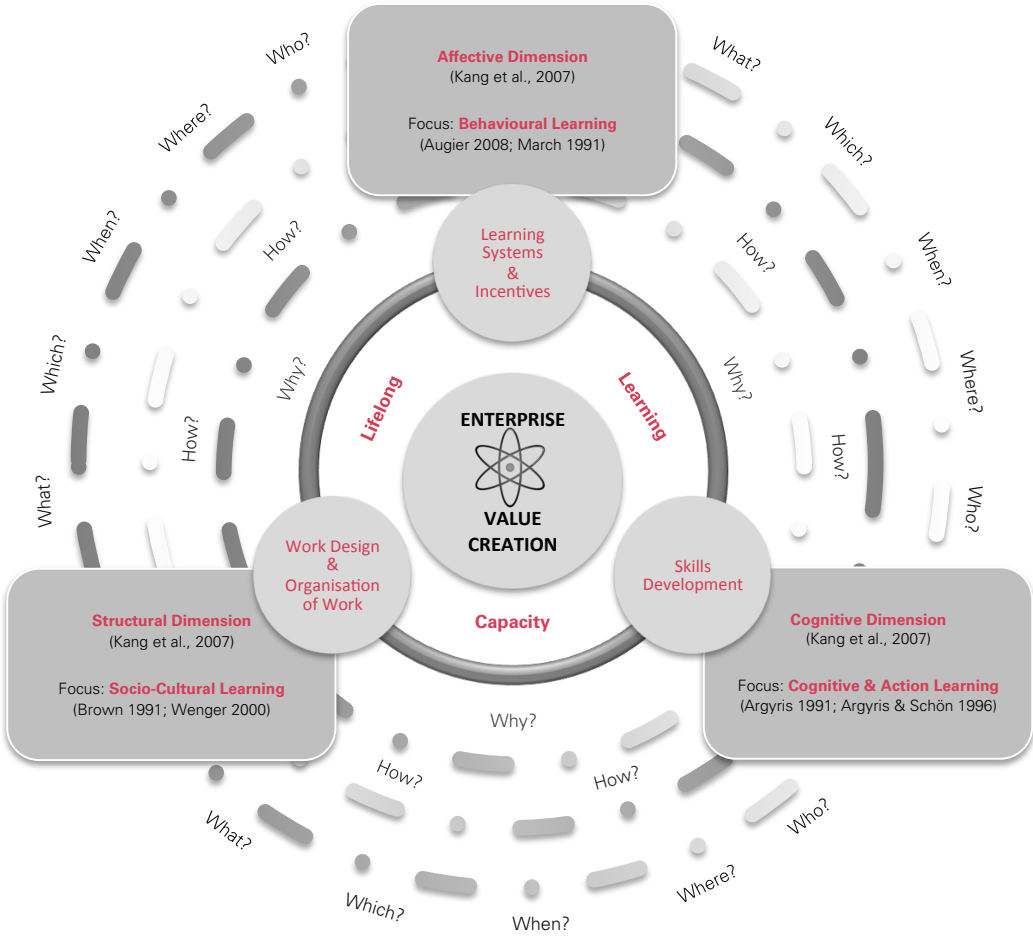
5. CONCLUSION

A key conjecture for the empirical analysis and conceptual model is that the way in which different kinds of learning opportunities, understood as HRPs, are enacted in an enterprise is linked to available arrangements of specific systems, structures, values, processes and resources, mediated by learning. Similarities and differences in these factors create arrays of learning opportunities and different potentials for attracting, sustaining and developing competences at the enterprise level.

We have seen that effective HRPs address three interrelated areas of lifelong learning in enterprises, namely: skills development; learning systems and incentives; and work design and the organisation of work. With this, we have noted the trends derived from past empirical findings, our current empirical work and findings from the 2009 ECS. Regarding skills development, we perceive that the highest valued employee skills are soft skills. Yet for the most part, there is a focus on the development of skills that explicitly and directly contribute to new business formation and financial bottom-lines, in ways that are also fast and on-demand (short-term goals). We found that it is primarily the individual's role to prompt learning in the workplace, with the exception of induction processes and industry standards or regulatory training and development. We have also noted that enterprise size has a significant effect on provisions of learning opportunities and have presented examples of the creative channels made use of for skills development when resources are limited.

On learning systems and incentives, we found that enterprises are striving for balance between the use of systematic and ad-hoc arrangements. Transactional and traditional compensation elements are very much in place, particularly in larger enterprises. Nevertheless, the key to attracting and keeping great staff is through the implementation of incentives that respond to intrinsic needs, such as offering interesting and challenging work, being flexible, setting up work organisation that is structured along teams and fostering a sense of belonging and ownership, also in positive atmosphere. We have also identified that negative-motivators cannot be relied on for HPWS growth, and are therefore not long-term strategies to be used but that socio-economic factors play a significant role in dissolving these HRPs.

In relation to work design and the organisation of work, we found that having an HR department, or designated HR-person, helps systematise HRPs. Paralleling this trend, especially in larger enterprises, however are an increase in hierarchy and distinction in status between employees (and ranks), which do not foster responsiveness to on-demand, work-related needs. Optimistically, a slight majority of our participants report their work as being 'very' or 'extremely' challenging and that they assume decision-making power over their work design, and a good proportion of work is being organised through teams. An examination of conflicts and challenges revealed that stress and burn-outs are still chief problems, followed by communication breakdowns, conflicts with clients, frustrations with workloads and conflicts between management and staff.

Affecting this aspect are contextual forces that require further exploration.

Overall, our examinations inform us of changing work needs, including employee needs, and enterprises' role in fulfilling those needs in an effort to brandish productivity, creativity and innovation – value creation. We have argued that lifelong learning capacity is one that can be stimulated by transactional, traditional, and transformational HRPs and how behavioural, cognitive, action and socio-cultural learning can contribute. Synthesised, our findings and analyses have led us to model our understanding of value creation as actualised lifelong learning capacity in enterprises. And, in the quest towards continual learning, the following questions may serve: what?, which?, when?, where? and who?, for catalysing changes for processes in need of adjustments or corrective measures; how?, for catalysing changes for processes that are still in need of adjustments or corrective measures, following change enactment that resulted from the first set of questions; and why? for marshalling global change towards transformations in the enterprise.

It is our hope that this report opens up for further conversations with and between enterprise stakeholders in making headway towards evermore optimal enterprise value creation arrangements through ELLC. Encouragingly, our empirical attests to the importance and relevance of lifelong learning in enterprises, as the key to unlocking potential and seizing both social and economic goals.

REFERENCES

Alegre, J., & Chiva, R. (2008). Assessing the impact of organizational learning capability on product innovation performance: An empirical test. Technovation, 28(6), 315-326.

Anderson, D. (2005). Peirce and the art of reasoning. Studies in Philosophy and Education, 24(3-4), 277-289.

Argote, L. (2011). Organizational learning research: Past, presence and future. Management Learning, 42(4), 439-446.

Argote, L., & Miron-Spektor, E. (2011). Organizational learning: From experience to knowledge. Organization Science, 22(5), 1123-1137.

Argyris, C. (1991). Teaching smart people how to learn. Harvard Business Review, 63(3), 99-109.

Argyris, C., & Schön, D. (1996). Organizational learning II: Theory, method, and practice. Reading, Massachusetts: Addison Wesley.

Ashford, S. J., Lee, C., & Bobko, P. (1989). Content, causes, and consequences of job insecurity: A theory-based measure and substantive test. Academy of Management Journal, 32(4), 803-829.

Augier, M., & March, J. G. (2008). A retrospective look at A behavioral theory of the firm. Journal of Economic Behavior & Organization, 66(1), 1-6.

Bapuji, H., & Crossan, M. (2004). From questions to answers: Reviewing organizational learning research. Management Learning, 35(4), 397-417.

Batt, R. (2002). Managing customer services: Human resource practices, quit rates, and sales growth. Academy of Management Journal, 45(3), 587-597.

Batt, R., & Colvin, A. J. S. (2011). An employment systems approach to turnover: Human resources practices, quits, dismissals, and performance. Academy of Management Journal, 54(4), 695-717.

Becker, B. E., & Gerhart, B. (1996). The impact of human resource management on organizational performance. Academy of Management Journal, 39(2), 779-801.

Becker, B. E., & Huselid, M. A. (2006). Strategic human resource management: Where do we go from here? Journal of Management, 6(2), 898-925.

Bertilsson, T. M. (2004). The elementary forms of pragmatism: On different types of abduction. European Journal of Social Theory, 7(3), 371-389.

Billett, S. (2010). Lifelong learning and self: Work, subjectivity and learning. Studies in Continuing Education, 32(1), 1-16.

Blair, M. M. (2011). An economic perspective on the notion of ‚human capital'. Oxford: Oxford University Press.

Bloom, B. D., & Krathwohl, D. R. (1956). Taxonomy of educational objectives: The classification of educational goals by a committee of college and university examiners. Handbook 1. Cognitive domain. New York: Addison Wesley.

Bontis, N., Crossan, M., & Hulland, J. (2002). Managing an organizational learning system by aligning stocks and flows. Journal of Management Studies, 39(4), 437-469.

Boxall, P., Hutchison, A., & Wassenaar, B. (2015). How do high-involvement work processes influence employee outcomes? An examination of the mediating roles of skill utilisation and intrinsic motivation. The International Journal of Human Resource Management, 26(13), 1737-1752.

Boxall, P., & Macky, K. (2009). Research and theory on high-performance work systems: progressing the high-involvement stream. Human Resource Management Journal, 19(1), 3-23.

Brandi, U., & Elkjaer, B. (2011). Organisational learning viewed from a social learning perspective. In M. Easterby-Smith & M. A. Lyles (Eds.), Handbook of organizational learning and knowledge management. West Sussex: John Wiley & Sons.

Brandi, U., Elkjaer, B., Holford, J., Iannone, R. L., Mckenzie, L., & Mossfeldt, N. (2013). Conceptual model and questionnaire: LLLight'in'Europe: Lifelong learning, innovation, growth and human capital, tracks in Europe. Report, 61 p.

Brandi, U., & Iannone, R. L. (2015). Data documentation and enterprise fiches. LLLight'in'Europe: Lifelong learning, innovation, growth and human capital, tracks in Europe. Report, 75 p.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative research in psychology, 3(1), 77-101.

Brown, J. S., & Duguid, P. (1991). Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. Organization Science, 2(1), 40-57.

Buller, P. F., & McEvoy, G. M. (2012). Strategy, human resource management and performance: Sharpening line of sight. Human Resource Management Review, 22(1), 43-56.

Camps, J., & Luna-Arocas, R. (2012). A matter of learning: How human resources affect organizational performance. British Journal of Management, 23(1), 1-21.

CEC, C. O. T. E. C. (2000). Commission staff working paper: A memorandum on lifelong learning. Brussels: European Commission.

Charmaz, K. (2000). Grounded theory: Objectivist and constructivist methods. Thousand Oaks: Sage Publications.

Chiva, R. (2007). Measuring organisational learning capability among the workforce. International Journal of Manpower, 28(3/4), 224-242.

Claassen, L., Bostrom, A., & Timmermans, D. R. M. (2014). Focal points for improving communications about electromagnetic fields and health: A mental models approach. Journal of Risk Research, November, 3-24.

Collins, C. J., & Clark, K. D. (2003). Strategic human resource practices, top management team social networks, and firm performance: The role of human resource practices in creating organizational competitive advantage. Academy of Management Journal, 46(6), 740-751.

Collins, C. J., & Smith, K. G. (2006). Knowledge exchange and combination: The role of human resource practices in the performance of high-technology firms. Academy of Management Journal, 49(3), 544-560.

Delery, J. E., & Doty, D. H. (1996). Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance predictions. Academy of Management Journal, 39(4), 802-835.

Dubois, A., & Gadde, L.-E. (2002). Systematic combining: An abductive approach to case research. Journal of Business Research, 55, 553-560.

Easterby-Smith, M., Crossan, M. M., & Nicolini, D. (2000). Organizational learning: Debates past, present and future. Journal of Management Studies, 37(6), 783 796.

Edwards, R., & Usher, R. (2001). Lifelong learning: A postmodern condition of education? Adult Education Quarterly, 51(4), 273-287.

Eurofound. (2009). European Company Survey (ECS) 2009. Retrieved from https://www.eurofound.europa.eu/surveys/ecs/2009/european-company-survey-2009

Eurofound. (2013). European Company Survey 2013. Retrieved from https://www.
       eurofound.europa.eu/surveys/ecs/2013/european-company-survey-2013

Gherardi, S. (2006). From organizational learning to practice-based knowing. Human
       Relations, 54(1), 131-139.

Hager, P. (2004). Conceptions of learning and understanding learning at work. Studies
       in Continuing Education, 26(1), 3-17.

Herzberg, F. (2003). One more time: How do you motivate employees? Harvard
       Business Review. Retrieved from http://www2.arnes.si/~korpl2/FM/articles/
       Herzberg_motivate-Damijan%20M.pdf

Huang, T. C. (2000). Are the human resource practices of effective firms distinctly
       different from those of poorly performing ones? Evidence from Taiwanese
       enterprises. International Journal of Human Resource Management, 11(2),
       436-451.

Huselid, M. A., & Becker, B. E. (1995). The impact of human resource management
       practices on turnover, productivity, and corporate financial performance.
       Academy of Management Journal, 38(4), 635-672.

Jarvis, P. Learning from everyday life. Human & Social Studies Research and Practice,
       1(1), 1-20.

Kang, S.-C., Morris, S. S., & Snell, S. A. (2007). Relational archetypes, organizational
       learning, and value creation: Extending the human resource architecture.
       Academy of Management Review, 32(1), 236-256.

Kang, S. C., Morris, S. S., & Snell, S. A. (2007). Relational archetypes, organizational
       learning, and value creation: Extending the human resource architecture.
       Academy of Management Review, 32(1), 236-256.

Kehoe, R. R., & Wright, P. M. (2013). The impact of high-performance human resource
       practices on employees' attitudes and behaviors. Journal of Management,
       39(2), 366-391.

Kop, R., & Hill, A. (2008). Connectivism: Learning theory of the future or vestige of
       the past? International Review of Research in Open and Distance Learning,
       9(3). Retrieved from http://files.eric.ed.gov/fulltext/EJ815759.pdf

Lepak, D. P., Bartol, K. M., & Erhardt, N. L. (2005). A contingency framework for the
       delivery of HR practices. Human Resource Management Review, 15(2), 139-
       159.

Lepak, D. P., Smith, K. G., & Taylor, M. S. (2007). Value creation and value capture: A
       multilevel perspective. Academy of Management Review, 32(1), 180-194.

Lepak, D. P., & Snell, S. A. (1999). The human resource architecture: Toward a theory of human capital allocation and development. Academy of Management Review, 24(1), 31-48.

Locke, K., Golden-Biddle, K., & Feldman, M. S. (2008). Making doubt generative: Rethinking the role of doubt in the research process. Organization Science, 19(6), 907-918.

March, J. G. (1991). Exploration and exploitation in organizational learning. Organization Science, 2(1), 71-87.

Maslow, A. H. (1943). A theory of human motivation. Psychological Review, 50, 370-396.

Marsick, V. J., & Watkins, K. E. (2003). Demonstrating the value of an organization's learning culture: The dimensions of the learning organization questionnaire. Advances in Developing Human Resources, 5(2), 132-151.

Minbaeva, D. B. (2005). HRM practices and MNC knowledge transfer. Personnel Review, 34(1), 125-144.

Morgan, D. L. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. Journal of Mixed Methods, 1(1), 48-76.

Pfeffer, J. (1998). The human equation: Building profits by putting people first. Boston, MA: Harvard Business School press.

Pfeffer, J., & Veiga, J. F. (1999). Putting people first for organizational success. The Academy of Management Executive, 13(2), 37-48.

Porter, M. E. (1990). The competitive advantage of nations. Harvard Business Review, 68(2), 73-93.

Prieto Pastor, I. M., Santana, M. P. P., & Sierra, C. M. (2010). Managing knowledge through human resource practices: Empirical examination on the Spanish automotive industry. International Journal of Human Resource Management, 21(13), 2452-2467.

Revans, R. (1980). Action learning: New techniques for management. London: Blond & Briggs, Ltd.

Schuler, R., & Jackson, S. E. (1987). Linking competitive strategies with human resource management practices. The Academy of Management Executive, 1(3), 207-219.

Siemens, G. (2004). Connectivism: A learning theory for the digital age. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=B39863B2A5D099326F039E04B56666E0?doi=10.1.1.87.3793&rep=rep1&type=pdf

Sun, L. Y., Aryee, S., & Law, K. S. (2007). High-performance human resource practices, citizenship behavior, and organizational performance: A relational perspective. Academy of Management Journal, 50(3), 558-577.

Tamilina, L. (2012). LLLight project definitions of lifelong learning categories. Retrieved from http://www.lllightineurope.com/fileadmin/lllightineurope/download/background/wp7_LLLcategories_position_paper_120322_lt.pdf

Teece, D. J. (2010). Business models, business strategy and innovation. Long Range Planning, 43(2-3), 172-194.

Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. Sociological Theory, 30(3), 167-186.

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. British Journal of Management, 14(3), 207-222.

Van de Wiele, P. (2010). The impact of training participation and training costs on firm productivity in Belgium. International Journal of Human Resource Management, 21(4), 582-599.

Vlachos, I. (2008). The effect of human resource practices on organizational performance: Evidence from Greece. International Journal of Human Resource Management, 19(1), 74-97.

Wenger, E. (2000). Communities of practice and social learning systems. Organization, 7(2), 225-246.

Yang, B., Watkins, K. E., & Marsick, V. J. (2004). The construct of the learning organization: Dimensions, measurement, and validation. Human Resource Development Quarterly, 15(1), 31.

Yanow, D. (2000). Seeing organizational learning: A ‚cultural' view. Organization, 7(2), 247-268.

APPENDICES

I. Enterprise fiche template

ENTERPRISE IDENTIFIER:		
Country:		

Urban size location: (capital cities in blue)

- 50 000 - 100 000
- 100 000 - 250 000
- 250 000 - 500 000
- 500 000 - 1 000 000
- 1 000 000 - 5 000 000
- > 5 000 000

Enterprise size: (number of employees)

- 1 - 10
- 11 - 50
- 51 - 250
- > 250

Enterprise type: Private

Industry code (NACE):

HR department:

SKILLS DEVELOPMENT

Highest valued employee skill:

Main trigger for learning:

Investment in learning:

Most successful types of training:

LEARNING SYSTEMS AND INCENTIVES

Organisation of learning:

Measuring the effects of learning:

Performance appraisal systems:

Use of compensation and rewards:

Appeal of the environment:

Reason for retention:

Tolerance to risk-taking:

Tolerance to mistakes:

Job flexibility:

Job stability and security:

Feeling of belonging:

WORK DESIGN / ORGANISATION OF WORK

Hierarchical, status distinction:

Extent of bureaucracy:

Team-based work:

Collaborative work:

Routine work:

Challenging work:

Employee influence on work:

Main conflicts:

II. Overview of data collected for WP4's empirical work

Documentation

(excerpt from WP4's D4.2 and D4.3.1 – Data documentation and enterprise fiches)

Phase 1: Review of past empirical work

In this phase, we made use of specific criteria and a WP4 search protocol in order to uncover past empirical research (1990-2012) that could inform WP4's research questions. As described in WP4's D4.1, Conceptual model and questionnaire, this yielded a total of 130 relevant abstracts to be considered, and a total of 69 articles included in the final analysis of this phase. At the end of Phase 1, we were able to conceive of a conceptual understanding of what lifelong learning strategies at an enterprise are, as well as how they can be deployed and leveraged for high performance.

Phase 2: WP4's empirical data

Empirical data for WP4 was initiated through WP2's recruitment of participating enterprises. Up to October 1, 2014, WP4, in collaboration with WP5 and LLLight'in'Europe partners, conducted close to 50 semi-structured interviews in 15 companies, in 4 EU countries (Denmark, Germany, Slovakia and Spain) and 1 EU competitor (South Africa):

	Target	October 1, 2014	Target reached
Individual WP4 interviews	200	44	23%
Enterprises (EU)	50-60	15	36%
Enterprises (EU competitors)		3	
EU countries	15	4	27%
EU competitor countries	4	1	25%
Industries	5-6	8	100%

In order to fulfil WP4's data collection targets, a research design modification ensued, whereby interviews, wherever possible would be carried out, and a confirmatory questionnaire would be launched. The design of the confirmatory questionnaire was based on interim results from Phases 1 and 2, up to October 1, 2014. The questionnaire was launched in early 2015 and WP4 collected a total of 199 responses, out of which 182 were complete (17 were slightly incomplete, and thus, left out of our analysis). We also collected an additional three semi-structured interviews from one Italian enterprise and one Slovakian enterprise, in collaboration with WP5. The final numbers of WP4's empirical efforts were:

	Target	July 15, 2015	Target reached
Individual WP4 interviews	200	47	+100%
Individual questionnaires (complete)		182	
Enterprises (EU)	50-60	31	+100%
Enterprises (EU competitors)		163	
EU countries	15	9	60%
EU competitor countries	4	13	+100%
Industries	5-6	53	+100%

EU participating countries:

Denmark	Hungary	Slovakia
Finland	Italy	Spain
Germany	Lithuania	United Kingdom

EU participating countries:

Australia	Japan	Thailand
Canada	Macedonia	United States
China	Malaysia	Vietnam
Hong Kong	Serbia	
India	South Africa	

Industries covered include (coded using European standard NACE codes):

A - Agriculture, forestry and fishing

A1.6 - Support activities to agriculture

B - Mining and quarrying

B6 - Extraction of crude petroleum and natural gas

B9.1 - Support activities, petroleum & natural gas

C10 - Manufacture of food products

C22.2 - Manufacture of plastics products

C23.4 - Manufacture of other porcelain and ceramic products

C23.9 - Manufacture of abrasive products

C25.1.2 - Manufacture of doors and windows

C25.6.2 - Machining

C26.1 - Manufacture of electronic components

C26.3 - Manufacturing communication equipment

C28 - Manufacture of machinery and equipment

C29 - Manufacture of motor vehicles & trailers

C30.1 - Building of ships and boats

D - Electricity, gas, steam and air conditioning supply

F41 - Construction of buildings

F42 - Civil engineering

F43 - Specialised construction activities

G - Wholesale and retail trade

G47.7.1 - Retail sale of clothing

H - Transporting and storage

I56.1 - Restaurant activities

J58 - Publishing activities

J61 - Telecommunications

J62.0.9 - Other IT and computer service activities

J63.9.1 - News agency activities

K - Financial and insurance activities

K66.3 - Fund management activities

L - Real estate activities

M69.1 - Legal activities

M69.2 - Accounting and auditing activities

M70.2 - Management consultancy activities

M71 - Architectural and engineering activities

M73 - Advertising and market research

M73.1 - Advertising

M75 - Veterinary activities

N - Administrative and support service activities

N79.1.1 - Travel agency activities

N80 - Security and investigation activities

N81 - Services to buildings and landscape activities

N82.9.1 - Collection agencies and credit bureaus

O - Public administration and defence

O84.1.1 - General public administration activities

P85 - Education

P85.4 - Higher education

P85.5 - Other education

Q - Human health and social work activities

Q86.1 - Hospital activities

R - Arts, entertainment and recreation

R90.0.3 - Artistic creation

S96.0.2 - Hairdressing and other beauty treatments

The fieldwork conducted was organised into "enterprise fiches", providing a snapshot for lifelong learning as it is unfolding at an enterprise level, in terms of the three main analytical dimensions: skills development; learning systems and incentives; and, work design and the organisation of work.

In order to uncover trends in the data, WP4 made use of the fiches (See Appendix I. for the template) and interview transcripts.

All empirical data has been anonymised and coded, in accordance with WP4's institutional guidelines and ethics requirements. Voice recordings, transcripts, consent forms obtained from participants and original questionnaire answers are securely stored at Aarhus University's Department of Education in Copenhagen, Denmark. One hard-copy of the data has been archived along with one soft copy (on a USB key) and code decryption instructions.

Interview details:

Enterprise Code:	Country:	Industry:	Interviewees:	Interview count:	Interview date:	Interviewer(s):	Others present:	Format:	Language:	Voice recording:	English transcript:
DK11M71SSI 1	Denmark	M71 - Architectural and engineering activities	COO	4	13 November 2013	Ulrik Brandi	N/A	In-person	Danish	Yes	Yes
			Concept Manager		13 November 2013	Ulrik Brandi	N/A	In-person	Danish	Yes	Yes
			Project Manager & Manager of HR		13 November 2013	Ulrik Brandi	N/A	In-person	Danish	Yes	Yes
			Union Representative		13 November 2013	Ulrik Brandi	N/A	In-person	Danish	Yes	Yes
ES51QSSI2	Spain	Q - Human health and social work activities	Director	4	14 July 2014	Susana Melo	Rosa Lisa Iannone	In-person	Spanish	Yes	Yes
			Account and Head of Administration		14 July 2014	Susana Melo	Rosa Lisa Iannone	In-person	Spanish	Yes	Yes
			Psychotherapist & Care Service Manager		14 July 2014	Susana Melo	Rosa Lisa Iannone	In-person	Spanish	Yes	Yes
			Employees' Committee Representative		14 July 2014	Susana Melo	Rosa Lisa Iannone	In-person	Spanish	Yes	Yes
DE51M69SSI 3	Germany	M69.2 - Accounting and auditing activities	Manager of Finance and Administration	3	07 December 2013	Rosa Lisa Iannone	Peer Ederer	In-person	English	Yes	Yes
			Project Manager of Software Development		07 December 2013	Rosa Lisa Iannone	Peer Ederer	In-person	English	Yes	Yes
			Co-Founder & Co-Managing Partner		07 December 2013	Rosa Lisa Iannone	Peer Ederer	In-person	English	Yes	Yes

Enterprise Code:	Country:	Industry:	Interviewees:	Interview count:	Interview date:	Interviewer(s):	Others present:	Format:	Language:	Voice recording:	English transcript:
DE51QSSI4	Germany	Q - Human health and social work activities	Medical Director & Co-Managing Director	4	15 July 2013	Rosa Lisa Iannone	Peer Ederer, Moritz David Umbach & Silvia Castellazzi	In-person	English	Yes	Yes
			Co-Managing Partner		15 July 2013	Rosa Lisa Iannone	Peer Ederer, Moritz David Umbach & Silvia Castellazzi	In-person	English	Yes	Yes
			Vice Director of Administration & HR		17 July 2013	Peer Ederer & Moritz David Umbach	Rosa Lisa Iannone	In-person	German	Yes	Yes
			Chief Financial Planner		15 July 2013	Peer Ederer & Moritz David Umbach	Rosa Lisa Iannone & Silvia Castellazzi	In-person	German	Yes	Yes
SK11AISSI5	Slovakia	A1.6 - Support activities to agriculture	CEO	3	18 February 2015	Susana Melo & Ivana Studena	John Holford & Jonas Neubert	In-person	Slovak	Yes	Yes
			HR Manager		24 February 2015	Ivana Studenà	N/A	In-person	Slovak	Yes	Yes
			Sales Executive		26 February 2015	Ivana Studenà	N/A	In-person	Slovak	Yes	Yes
DE1J62SSI6	Germany	J62.0.9 - Other IT and computer service activities	Director	2	12 October 2014	Pasqua Marina Tota	N/A	Telephone	English	Yes	Yes
			HR Manager		16/12/14	Pasqua Marina Tota	N/A	Telephone	English	Yes	Yes
DE250C29SSI7	Germany	C29 - Manufacture of motor vehicles & trailers	Director of Labour Relations	2	17/9/13	Moritz David Umbach	N/A	Telephone	German	Yes	Yes
			Director of Labour Relations		03 April 2015	Pasqua Marina Tota	N/A	Telephone	English	Yes	Yes
SK11C23SSI8	Slovakia	C23.4 - Manufacture of porcelain and	Owner & CEO	1	29 July 2014	Pavol Babos	Ivana Studenà & Richard Heriban	In-person	Slovak	No	Yes

Enterprise Code:	Country:	Industry:	Interviewees:	Interview count:	Interview date:	Interviewer(s):	Others present:	Format:	Language:	Voice recording:	English transcript:
ZA1M70SSI9	South Africa	M70.2 - Management consultancy activities	Investment Broker	2	31 March 2013	Alma Sammel	N/A	In-person	English	No	Yes
			CEO & Director of HR		31 March 2013	Alma Sammel	N/A	In-person	English	No	Yes
DE250J62SSI 10	Germany	J62.0.9 - Other IT and computer service activities	Senior Manager, Research and Development	3	15 July 2013	Rosa Lisa Iannone	Peer Ederer & Moritz David Umbach	In-person	English	Yes	Yes
			Specialist, HR Development and Training		08 June 2013	Moritz David Umbach	N/A	Telephone	German	Yes	Yes
			Founder & Chair of the Managing Board		15 July 2013	Rosa Lisa Iannone	Peer Ederer & Moritz David Umbach	In-person	English	Yes	Yes
ES11M70SSI 11	Spain	M70.2 - Management consultancy activities	Head of HR Administration	3	08 July 2014	Susana Melo	Rosa Lisa Iannone	In-person	Spanish	Yes	Yes
			Executive Partner & Development Director		08 July 2014	Susana Melo	Rosa Lisa Iannone	In-person	Spanish	Yes	Yes
			Area Director, Quality		08 July 2014	Susana Melo	Rosa Lisa Iannone	In-person	Spanish	Yes	Yes
ZA1M73SSI1 2	South Africa	M73.1 - Advertising	Creative & Managing Director	2	02 April 2014	Alma Sammel	N/A	In-person	English	No	Yes
			Creative & Managing Director		02 April 2014	Alma Sammel	N/A	In-person	English	No	Yes
ZA11R90SSI 13	South Africa	R90.0.3 - Artistic creation	Chief Operations Manager	3	31 March 2014	Alma Sammel	N/A	In-person	English	No	Yes
			Special Projects & Innovation Manager		31 March 2014	Alma Sammel	N/A	In-person	English	No	Yes
			Founder and CEO		31 March 2014	Alma Sammel	N/A	In-person	English	No	Yes
IT1M71SSI1 4	Italy	M71 - Architectural and engineering activities	Co-Founder	2	06 May 2015	Pasqua Marina Tota	N/A	VOIP	Italian	Yes	Yes
			Co-Founder		13 May 2013	Pasqua Marina Tota	N/A	VOIP	Italian	Yes	Yes

Enterprise Code:	Country:	Industry:	Interviewees:	Interview count:	Interview date:	Interviewer(s):	Others present:	Format:	Language:	Voice recording:	English transcript:
DE51C25SSI15	Germany	C25.6.2 - Machining	Chair of the Workers Council	4	17 July 2013	Peer Ederer & Moritz David Umbach	Rosa Lisa Iannone	In-person	German	Yes	Yes
			Director of HR and Employee Welfare		17 July 2013	Peer Ederer & Moritz David Umbach	Rosa Lisa Iannone	In-person	German	Yes	Yes
			Director of Construction and Technical Coordination		17 July 2013	Peer Ederer & Moritz David Umbach	Rosa Lisa Iannone	In-person	German	Yes	Yes
			Co-Managing Partner		17 July 2013	Rosa Lisa Iannone	N/A	In-person	English	Yes	Yes
DE250C28SSI16	Germany	C28 - Manufacture of machinery and equipment	CFO	4	24 July 2013	Peer Ederer & Moritz David Umbach	N/A	In-person	German	Yes	Yes
			Chair of the Workers Council		24 July 2013	Peer Ederer & Moritz David Umbach	N/A	In-person	German	Yes	Yes
			Director of HR		24 July 2013	Peer Ederer & Moritz David Umbach	N/A	In-person	German	Yes	Yes
			Co-Managing Partner		24 July 2013	Peer Ederer & Moritz David Umbach	N/A	In-person	German	Yes	Yes
ZA11M73SSI17	South Africa	M73.1 - Advertising	HR Developer	1	03 April 2014	Alma Sammel	N/A	In-person	English	No	Yes

Phase 3: European Company Survey (2009) data

Data sourced through the European Company Survey (2009) has been used to further triangulate WP4's findings on the three analytical dimensions of lifelong learning at an enterprise level. More specifically, we used results from the survey's items:

Item Number	Dimension	Question
MM561	Skills development	Is the need for further training periodically checked in a systematic way in your establishment?
MM563	Skills development	Have any of your employees been given time off from their normal duties in the past 12 months in order to undergo further training?
MM564_1	Skills development	Please tell me for each of the following potential motives of further training whether or not it was an important driver behind the application of these training measures?
MM454	Learning systems and incentives	Employees receive specific elements of pay that depend on the performance of the individual?
MM701	Learning systems and incentives	How would you rate the current general work climate in your establishment?
ER207_6	Work design and the organisation of work	How large is the influence of the employee representation on management decisions in this enterprise for the area of changes in the organisation of work processes and workflow?

For an overview of the survey's results, please see:

http://www.eurofound.europa.eu/sites/default/files/ef_files/pubdocs/2010/05/en/1/EF1005EN.pdf

WP4 gained access to and used the primary data collected through the survey for the analytical parts of WP4 D4.3.

III. Excerpt: WP4's semi-structure interview guide, including interview questions

Please use a portable digital recorder to record the interview. Devices from brands like Zoom, Yamaha, Tascam and Olympus will do the job, especially for the novice to audio recording. If the recorder comes with external foam cover heads always leave them on the microphone heads to keep wind noise from the recording. Remember to always take new backup batteries and the cable to transfer data to a PC with you. In addition to the above, you will need enough business cards for all people you will meet. Also, bring enough hard copies of consent forms and closed questions for each interviewee.

Beginning of the meeting

Greet your interviewee and start the conversation with small-talk to make your interviewee feel comfortable. Don't forget to introduce yourself:

I am … and I work at … in the capacity of … for the LLLight'in'Europe project.

Now, shortly recap the purpose of the LLL project for your interviewee:

- Investigating successful lifelong learning strategies at an enterprise level in 50 European companies through 200 interviews with leading contacts in the enterprises;

- Examining the complex problem solving skills of 4,000 employees at those 50 enterprises and researching how learning leads to the development of complex problem solving skills (done via the CPS test, until June 2015).

Then, convey the purpose of this interview to your interviewee:

Our first goal for this interview is to understand how lifelong learning strategies are understood in this enterprise. Second, we want to know what the strategies to ensure value creation and growth through lifelong learning for this enterprise are. Besides, you should let the interviewee know what's in it for them (specific to the interview); for example:

"By reflecting on this, you can gain new insights into…

- HR policy, training and education
- Employee skill development
- Company value creation
- HR development…"

Now that this is done, please gather the necessary contact information, which you will need to enter into the LLL database (a business card for each interviewee will do). During the interview, no other colleagues of your interviewee should be present in the room. If - for some reason - this still happens, please mark down their names and position in the company.

Obtain permission to record the interview by signing the Consent Form, to which the Closed Questions are attached and ask your interviewee to fill it out during your meeting, but not during the interview (e.g. if they would rather fill out the closed questions at a later time and email a scan back to you, this is entirely okay; don't forget to detach and keep page 1 [the consent portion] and then follow-up with them at a later date).

Start recording interview now

Please ask all questions if possible. You should use the information in italics and (in parentheses) only if your interviewee is "stuck" on a train of thought or doesn't fully understand a question.

Here are verbatim suggestions:

"To give you an idea of time, since you have blocked 1 hour for this interview, we have 23 questions for overall 5 segments that fit into 30 to 60 minutes. Is this okay with you?
This interview is also about Human Resources, which we will refer to as HR in short. In the … language this can be translated with … Also, we will be discussing the terms training – in the … language this is … and HR development, which is … in the … language. How does that sound to you?
Great! Then let's get started with our first segment of 5 questions."

Dimension	Sub-Dimension		Interview Question
Introducing company and interviewee		1	How did you get to the position you currently have?
		2	How involved are you in developing your staff? (e.g. making policies, training employees, how frequently)
		3	How would you characterise the company's HR strategy? (How has it developed? e.g. with stakeholders, management, external consultants, HR department)
		4	How is your HR approach connected to your business strategies and goals? (Exemplify!)
		5	What element contributes most to the company's success? (e.g. people with excellent ethics, people who care for customers, employee happiness, employee trust, workplace harmony)
Skill development ■	Training and education	6	What employee skills are most important for this company? (Exemplify!)
		7	What kinds of training and education are most successful with employees? (Why? Exemplify!)
		8	Do you have a mentorship or similar program? (Briefly describe! e.g. special assignments in different departments)
		9	How are the effects of training measured? (Could they be measured? e.g. ROI calculations)
		10	Is there a gap between the supply and demand of training opportunities for employees? (Why? Do they need to be told to engage in training and education?)

"Thank you. And now, let's shift to 5 questions on work design"

Dimension	Sub-Dimension		Interview Question
Work design	Interactivity	11	How does the company create an appealing working environment?
		12	What is the company's key to success for acquiring and keeping staff?
		13	Does the company organise or provide the setting for extra-curricular activities outside of work? (Why? Exemplify! e.g. charities, networks, clubs, groups)
		14	How is value creation on the employee level defined? (i.e. how is an employee adding value for the company)
	Communication ■	15	What are the dominant challenges employees face in conflict resolution? How frequently? How is it resolved? How are employees supported?

Dimension	Sub-Dimension		Interview Question

Dimension	Sub-Dimension		Interview Question
Knowledge sharing	Internal relations	1	Considering your position in this company: Who do you internally collaborate with the most? (Why? Exemplify!)
		2	How does knowledge from higher levels of the company become transferred into general knowledge for all employees? (Exemplify!)
	External relations	3	What external partners do you work with for education and training in your enterprise? (i.e. agencies, social and business partners)
		4	How is the company's HR approach influenced by policy or industry best practices? (Exemplify!)
Closing with critical insights		5	What would the optimal training and education in this enterprise look like if you had unlimited resources, permission and time?
		6	Given that this project is examining lifelong learning strategies at the enterprise level, do you view "lifelong learning" separate from HR development? (Define both terms!)
		7	Before we close the interview, is there anything we haven't covered that you believe is important?
		8	How has it been for you to participate in this project?

Tell your interviewee that the interview now is (formally) over. Tell your interviewee that you will be transcribing / translating / summarising the interview. Explain that with the other 200 interviews from the project, you will create several analyses until June 2015 that will ultimately be published with the project's findings. Ask if your interviewee has any further questions. Tell your interviewee (and their colleagues) that you are thankful for their time. Tell all of them they can contact you at any time and provide your e-mail address and telephone number.

Stop recording the interview now

Don't forget to take your recorder, their business cards, the signed consent forms and filled-out closed questions with you.

End of meeting

On the following day, please send a short thank you note via e-mail or mail and follow-up on any missing information or information that needs to be clarified. Please scan all consent forms and closed questions and transfer the interview audio files to your PC. Then upload these files to the secure data cloud on Wuala (Note: If you do not have access to the LLL Dissemination folder on Wuala yet, please have a fellow researcher contact the Aarhus Team at aarhus@lllightineurope.com and vouch for you to join).

IV. Cross-analysis plan for empirical data and data from the 2009 ECS

DIMENSION	ECS code	WP4 code
Independent variables: Country/City - Pub./Priv./Soc.Ent. - Industry - Size		
* WP4 empirical and secondary empirical will globally reflect on the following dimensions and aspects		
SKILLS DEVELOPMENT		
Are there systematic checks for learning needs?	MM561	
2. What are the highest valued skills?		18
2a. Generic (soft)		20
2.b. Specific (hard)		19
3. Have employees been given time off to learn activities?	MM563	
3.a. For new employees?	MM564_1	
4. What/when/why - triggers for new skills development?		11
4.a. Provided for by the enterprise?		
5. Popular types of training?		
6. Mentorship/orientation/induction programme?		
LEARNING SYSTEMS AND INCENTIVES		
1. Enterprise makes use of performance reviews/appraisals?	MM454	16
2. How important is the use of compensation/rewards as incentives?		15
3. What makes the work environment appealing?		34
3.a. Why do staff stay?	MM701	35
4. To what extent is risk-taking is tolerated?		29
5. To what extent are mistakes tolerated?		39
6. To what extent is the enterprise flexible?		31
7. Does the enterprise provide a sense of stability and security?		13
8. How much is there a feeling of "one" (belonging)?		38
9. How systematic is the organisation of learning (versus ad-hoc)?		10
9.a. Are the effects of learning measured?		21
WORK DESIGN / ORGANISATION OF WORK		
1. Is the enterprise hierarchical?		22
1.a. To what extent is there status distinction?		23
2. Is there an HR department?		8
3. Is the enterprise bureaucratic?		39
4. How much is work performed through teams (rather than departments)?		25
5. How much of the work is routine?		32
6. How challenging is the work?		33
7. How much influence does staff have on their own work design?	ER207_6	28
8. What are the main conflicts and challenges?		37

PROJECT IDENTITY

LLLight'in'Europe is an FP7 research project supported by the European Union, which has investigated the relevance and impact of lifelong learning and 21st century skills on innovation, productivity and employability. Against the background of increasingly complex tasks and jobs, understanding which skills impact individuals and organizations, and how such skills can be supported, has important policy implications. LLLight'in'Europe pioneered the use of an instrument to test complex problem solving skills of adults in their work environment. This allowed for the first time insights into the development of professional and learning paths of employed individuals and entrepreneurs and the role that problem solving skills play. Additionally, LLLight'in'Europe draws on a series of databases on adult competences from across the world to conduct rich analyses of skills and their impact.

These analyses were conducted in concert with different disciplines. Economists have been analyzing the impact of cognitive skills on wages and growth; sociologists have been investigating how public policies can support the development of such skills and lifelong learning; innovation researchers have been tracking the relationships between problem solving skills, lifelong learning and entrepreneurship at the organizational level;. educational scientists have investigated how successful enterprises support their workforce's competences; cognitive psychologists have researched on the development and implications of cognitive skills relevant for modern occupations and tasks; and an analysis from the perspective of business ethics has clarified the role and scope of employers' responsibility in fostering skills acquisition in their workforce. The team has carried out its research and analyses on the value of skills and lifelong learning in EU countries, USA, China, Latin America and Africa.

The result is a multi-disciplinary analysis of the process of adult learning and problem solving in its different nuances, and of the levers which can support the development of these skills for both those who are already in jobs, and for those who are (re)entering the labor market, as well as the development of effective HR strategies and public policy schemes to support them.

Coordinator	Zeppelin University
Project Director	Peer Ederer
EU Project Officer	Monica Menapace
EU Contribution	€ 2,695,000
EU Project #	290683
Project Duration	January 2012 – September 2015

Human capital of managerial leadership is related to innovativeness of the enterprise
POLICY BRIEF
SEPTEMBER 2015

Incentives are highly effective resources for lifelong learning in enterprises
POLICY BRIEF
SEPTEMBER 2015

Public policies support lifelong learning among company employees
POLICY BRIEF
SEPTEMBER 2015

Returns to part-time formal education while on the job are positive and worthwhile, but are lower than full time formal education
POLICY BRIEF
SEPTEMBER 2015

Enterprises can leverage work arrangements for more effective lifelong learning
POLICY BRIEF
SEPTEMBER 2015

Partnerships and networks support lifelong learning in companies
POLICY BRIEF
SEPTEMBER 2015

Non-formal education dominates the circumstances of lifelong learning
POLICY BRIEF
SEPTEMBER 2015

Human resource strategies are the key to bolstering lifelong learning circumstances at the enterprise level
POLICY BRIEF
SEPTEMBER 2015

Technology and business needs shape training and learning
POLICY BRIEF
SEPTEMBER 2015

Complex problem solving: a promising candidate for facilitating the acquisition of job skills
POLICY BRIEF
SEPTEMBER 2015

Enterprises are greatly important for lifelong learning activities
POLICY BRIEF
SEPTEMBER 2015

ICT skills are highly valued in european labor markets
POLICY BRIEF
SEPTEMBER 2015

Skill mismatch affects life-long earnings
POLICY BRIEF
SEPTEMBER 2015

Enterprises can help increase access to training and lifelong learning: Opportunities and responsibility
POLICY BRIEF
SEPTEMBER 2015

Language skills are critical for workers' human capital transferability among labor markets
POLICY BRIEF
SEPTEMBER 2015

Income returns to complex problem solving skills are strongly significant
POLICY BRIEF
SEPTEMBER 2015

Opportunity competence contributes to successfully leveraging ideas for entrepreneurship and innovativeness in enterprises
POLICY BRIEF
SEPTEMBER 2015

European economies benefit greatly from a higher-skilled workforce
POLICY BRIEF
SEPTEMBER 2015

Income growth is related to complexity
POLICY BRIEF
SEPTEMBER 2015

High levels of individual and feed forward learning foster employee-driven entrepreneurship and innovativeness
POLICY BRIEF
SEPTEMBER 2015

Lifelong Learning is a growing factor in employability
POLICY BRIEF
SEPTEMBER 2015

Learning to Lifelong Learn
THEMATIC REPORT
SEPTEMBER 2015

Effective lifelong learning strategies and value creation at the enterprise level
THEMATIC REPORT
SEPTEMBER 2015

Job Complexity and Lifelong Learning
THEMATIC REPORT
SEPTEMBER 2015

Links between flexicurity and workplace learning: the role of the enterprise
THEMATIC REPORT
SEPTEMBER 2015

Employee-driven innovation/entrepreneurship and Lifelong Learning
THEMATIC REPORT
SEPTEMBER 2015

Macroeconomic Growth and Lifelong Learning
THEMATIC REPORT
SEPTEMBER 2015

LLLight'in'Europe
Lifelong Learning Innovation Growth & Human Capital Tracks in Europe
SYNTHESIS REPORT

These **28 reports** together are the publication suite presenting the results of the LLLightinEurope project, and can be downloaded at **www.llllightineurope.com**