Implementation of E-learning in a Large Organization: The Critical Role of Relevance to Work

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***Abstract*—The literature on workplace e-learning recommends in general a standardized implementation process, in which the same type of implementation approach is used in all parts of the company.**

The findings reported in this paper extend the previous research on workplace e-learning. The paper suggests that large, multilevel organizations with different types of work need to adopt a differentiated implementation process that takes the unique characteristics of the organizational units into account. Based on a case study of a large-scale, enterprise-wide implementation of e-learning in the largest Norwegian telecommunications company, the bottlenecks associated with different work contexts are explored.

Using aspects of Activity Theory and the five typologies of work introduced by the Theory of the Historical Development of Production as a conceptual framework for the analysis, six critical problems were identified during a four-year case study. The problem of Relevance to Work is described and analyzed, focusing on the disruptive role of this issue both in the *introduction* phase as well as for the *sustainability* of e-learning in the four main units of the company. The findings provide new insight into the importance of Relevance to Work when implementing e-learning in a corporate setting. By exploring the problem not only in terms of the current workplace e-learning tradition but also informed by Activity Theory and the Theory of the Historical Development of Production, the paper aims to make a contribution to the literature on e-learning implementations in large organizations.

***Index Terms*—Activity Theory, case study, large-scale implementation, workplace e-learning.**

I. INTRODUCTION

The literature on workplace e-learning [3, 4, 18, 21] recommends in general a standardized implementation process, in which the same type of implementation approach is used in all parts of the company. This paper accepts the challenge of taking a critical view on such a common large-scale implementation (the process of taking e-learning into use in the organization). Based on a four-year field study of the introduction and sustainability of enterprise-wide e-learning in Telenor, the largest telecommunications company in Norway [21], potential problems and opportunities associated with the implementation of e-learning in different work contexts are explored.

In the target company, e-learning was used as a strategic tool to support a massive movement of more than 6000 employees to a new headquarters that included open-office solutions, extensive use of Information and Communication Technology (ICT) solutions, advanced meeting rooms, advanced equipment, and expectations to utilize new work practices. At the same time, the organization was shifting from local competence development and a hierarchical organization, to new leader and employee roles and new work forms. This change process that would affect the daily work practice of thousands of employees had two goals. A short-term goal was to do "business as usual" a few days after the relocation, while the long-term goal was to become a learning organization and an innovative workplace.

The article addresses two issues: first, the employees' view of problems in the introduction of e-learning and, second, the units' ability to use e-learning as a strategic tool for change in the exploitation. To gain a deeper understanding of the different situations, e-learning is analyzed through a third-generation Activity Theory lens in the first phase and by the concepts of Expansive Learning [7, 11] in the second phase. To assess how e-learning developed in various parts of the organization, the Theory of the Historical Development of Production [34] is used as a framework. The e-learning activities are mainly examined from the perspective of a training administrator whose role was to execute a plan for e-learning in her unit. In the analysis of problems, however, an employee perspective is also included.

The paper begins with a description of the research design where the site and participants, the data collection methods, and the analytical tools are detailed. First, a category of disturbances that emerged during the first part of the implementation and referred to as Relevance to Work is introduced, before an activity theoretical analysis of this category is carried out. In addition, a selection of tensions that were found within the network of activity systems is presented. Next, and inspired by Expanded Learning, units using e-learning to transform work during the exploitation phase are identified, and aspects related to the Relevance to Work category are singled out. The paper concludes with a summary of the findings and a discussion of ways in which to deal with tensions and opportunities in future implementations of e-learning in a corporate setting.

II. RESEARCH DESIGN

A. Site and Participants

When relocating the more than six thousand employees to the new headquarters at Fornebu, Telenor, as a leading provider of telecommunication services and one of the largest mobile operators worldwide, decided to use e-learning as a means of handling the enormous educational challenge that the move represented, as well as a strategic

tool for internal competence development and trans-formation of the company from a hierarchic structure to a knowledge organization [30]. A project referred to as the E-learning project was launched, primarily to address the technological and organizational aspects of implementing e-learning across the large enterprise. An additional project aim was that e-learning should contribute to making learning cheaper and more effective and making Telenor appear a modern and efficient organization [22].

At the time of moving Telenor consisted of four large units or business areas (Unit 1 to Unit 4). The span in production was large, from mass production of automatic message counting, via products related to data, telecom, and mobile technology, to advanced integrated solutions and services directed to the most demanding customers in the Norwegian industrial market, or, as expressed in the terminology of the Theory of the Historical Development of Production [34], from mass production, via process enhancement and mass customization, to co-customization [21]. Despite this and in line with most enterprise-wide Information System implementations [24], e-learning was implemented as a standardized approach.[1]

In line with the vision of creating a learning organization, the slogan of the E-learning project was "to give the right training to the right people at the right time and in a right way" [31]. A plan was developed that addressed explicit and implicit rules for the learning activity as well as different roles and tasks in the e-learning team. Furthermore, the plan stressed that learning should be integrated with work and take place at the employee's own desk without help from colleagues or tutors. Training administrators, most of whom were part of the human resources staff, were appointed in each of the business areas (TA1 – TA4), and it was their responsibility to execute the plan in their unit. Each unit's top manager, however, had the main responsibility for this activity. Two separate projects were launched in parallel, the Learning Management System (LMS) project and the Infrastructure project, the first responsible for the implementation of a new LMS through which the e-learning modules were to be accessed, and the second for preparing a satisfying infrastructure [22].

The E-learning project also produced twelve multimedia based e-learning modules, classified as "ICT solutions," "Physical workplace," and "New ways of working," to support training of specific skills. Eight modules were compulsory, of which three were expected to be completed before the move and five afterwards. The expected completion time for each module was from 20 to 45 minutes, but users were free to make a break any time, log off and log in later, without losing credits. The modules were all marketed by the project as an opportunity for flexible and mobile learning, with respect to navigation, time as well as space [20]. Employee data, combined with data about the completion rate, were available for the training administrators through predefined LMS reports. To be counted as completed a module had to be at least 80% finished, some even 100%. Four weeks after the relocation, the completion rates of one and the same compulsory module could vary by more than 50 percentage points across the four main units. Unit 1 had the lowest rates.

[1] As a result of the standardized approach, all employees were expected to go through the same learning modules, irrespective of experience, competencies, type of business unit, and so forth.

After the introduction phase, Telenor launched a one-year Exploitation project. Its aim was to support the units in identifying and specifying learning needs, and to provide assistance in the development of new e-learning modules to support these needs. This project began in June 2002, when there was a global recession in the telecom industry. Telenor was also hit by this recession, and, as a result, restructuring as well as cost and workforce reductions followed. During the next three years, LMS-delivered e-learning gradually faded in three of the four units (Unit 1-Unit 3). In one unit (Unit 4) and at the company level, however, new modules were continuously launched.

B. Data Collection

The analysis is based on data collected during a four-year doctoral research [21] using, in accordance with the ethnographic research tradition and to provide validity and reliability, a variety of methods such as inter-viewing, participant observation, observation, field notes, and textual analysis of archived historical documents. The more than 48 audio-taped interviews with sources such as managers, project leaders, project members, training administrators, support staff, and employees comprise the main body of the data together with archival documents while quantitative data from sources such as the LMS and the Enterprise Resource System also have been accessed. The transcribed interviews formed the basis of the analysis. Excerpts from the interviews presented in this article have been translated from Norwegian into English. It should be re-emphasized that Activity Theory did not play an essential role during the process of data collection [22].

C. Data Analysis

Analyzing an enterprise-wide implementation of e-learning in a large complex organization such as Telenor, with different types of work, experience, and competencies, requires analytic tools that manage to handle this complexity and aid in analyzing and making sense of the empirical data. This paper analyzes the data in two parts: *data analysis 1* (focusing on problems in the introduction phase) and *data analysis 2* (addressing opportunities in the exploitation phase). Each part accounts for the specific theories that are applied in the respective phase. Since the Theory of the Historical Development of Production [34] represents a useful tool for interpreting the empirical findings in both phases, a brief introduction to this theory is given first.

An important premise of this theory [34] is that work is a historically changing phenomenon along a 'right path': from craft to mass production, process enhancement, mass customization, and co-configuration, each with its characteristic type of learning. Thus, the theory gives the analyst an opportunity for identifying the type of learning that is required for creating value within different types of work, or for transforming current work into the next type of work along the 'right path' [34]. By offering a tool for examining how the new e-learning approach matched the previous learning in a specific unit, this theory can be a useful supplement to understand how the enterprise-wide e-learning implementation was received in the different parts of Telenor.

1) Data Analysis 1

Using the Grounded Theory 'open coding' procedure [28], reference [21] identified six categories of problems comprising the main obstacles, frustrations, breakdowns,

etc. encountered during the phase of introduction. These are Management Control, Hardware and Software Resources, Execution of Implementation Tasks, Information Sharing, Allocation of Time, and Relevance to Work and Previous Knowledge [21]. From an Activity Theory perspective, these categories represent types of disturbances, characterized as 'deviations from the normal flow of work' [9, 16], and point to structural tensions or potential contradictions[2] within and between activity systems [7]. This section examines one of these categories, the disturbance of relevance to work and previous knowledge. Since the last part of the term (previous knowledge) mainly refers to technological knowledge acquired either through current work, previous experience or education, the category in focus is abbreviated as Relevance to Work. The category is described as follows:

> [the disturbance of Relevance to Work] embraces problems and complaints related to e-learning modules and their lack of relevance to ongoing and future work activity. It also includes missing or poor relevance to earlier experience and competence and discrepancies in relevance to current and future needs. The category refers to complete modules as well as parts of modules [21, p. 105].

This category of disturbance first and foremost affected the daily work among *consultants, specialized workers* and *operating staff*, in all four units, but most of all in Unit 1. Excerpts 1 and 2 below, the first from a group interview with the training administrator in this unit (TA1) and her colleagues and the second from an interview with a senior consultant in the same unit, illustrate the disturbance [21]:

Excerpt 1:

> [The module] e-Building is not relevant for me because I do not have to book meeting rooms in my work.

Excerpt 2:

> [I] did not learn anything new [in the telephone module]… [because I] have had both SMS and fax through Outlook as a pilot user.

To understand why the disruptive role of relevance disturbances was felt as a serious obstacle, it is necessary to grasp the complexity in the implementation process, the complexity in the e-learning environment, the complexity of the Telenor organization with its four rather different working environments, and the tight integration of work and learning activity. By departing from the third-generation Activity Theory, which views the activities as dynamic processes and non-isolated units, continuously influenced by other multi-organizational activities and changes, a network of four interacting activity systems has been sorted out [21]: the Human Resources Activity System (HRAS) with the object to implement e-learning, the Work Activity System (WAS) with the object to engage in e-learning while working, the Management Activity System (MAS), which produces the plan for e-learning, the modules, and the implicit and explicit rules and regulations that constrain this activity, and the Infrastructure Activity System (IAS), which comprises the activities of the Infrastructure project. This network of activity systems (Fig. 1) will be used to identify the tensions that underlie the Relevance to Work disturbances. It should be noted that the four activity systems are presented from different perspectives: the HRAS from the perspective of the TA, the WAS from the perspective of the employees, the MAS from the perspective of the leaders of the LMS project and the E-learning project, and the IAS from the perspective of the Infrastructure project leader. Reference [21] gives a detailed description of this network of activity systems and an explanation of the figure.

Tensions and potential contradictions

Relevance disturbances arose internally in the WAS and the HRAS, between these activity systems and the MAS and the IAS, as well as between the MAS and the IAS. Since the majority of occurrences emerged in Unit 1, the discussion is based on this unit. To deal with the disturbances, the TA1 made four improvisations. She:

1. asked the project group to make only four modules compulsory
2. permitted employees to drop some of the modules (or parts of the modules) because they were assessed as irrelevant to the employees' work
3. permitted employees to skip irrelevant sequences of some modules because the described equipment was not installed in the unit
4. permitted some of the employees to skip irrelevant sequences in some modules because the employees already possessed the actual knowledge

According to Hasu [15], improvisations can be used for identification of underlying tensions and contradictions. Given this suggestion, the following analysis is based on the above improvisations. Due to limited space, however, this paper examines only Improvisation 1.

Improvisation 1

The TA's inquiry, to reduce the number of compulsory modules in the unit, and the e-learning project group's rejection of this request, point to a tension and a potential quaternary contradiction between the subjects in the HRAS and the MAS (arrow 1, Fig. 2). The tension illustrates a conflict between a project leader with a *global focus,* governed by a rule to give the same learning to all employees, and a TA1 with a *local focus*, who experienced that a common knowledge base was not required among all employees in the unit. The TA1's initiative points further to a tension between the e-learning project mandate, saying that the right learning should be given to the right people at the right time and in the right way, and the rules given in the e-learning plan, forcing all employees to carry out the same learning at the same time (within one week after the move) and in the same way. This conflict shows the nature of a potential secondary contradiction in the rules-tools relation in the HRAS (arrow 2, Fig. 2). *The e-learning idea embedded in the project mandate represented a break with the rules in the e-learning plan.*

[2]Reference [9, p. 7] refers to the underlying sources of disturbances as contradictions, or "historically accumulating structural tensions within and between activity systems." Four types of contradictions exist: primary (within each component of the activity system), secondary (between the elements of the activity systems), tertiary (appearing when representatives of a culture introduce the object of a culturally more advanced form of activity), and quaternary (between the central activity and its neighbouring activity systems) [7].

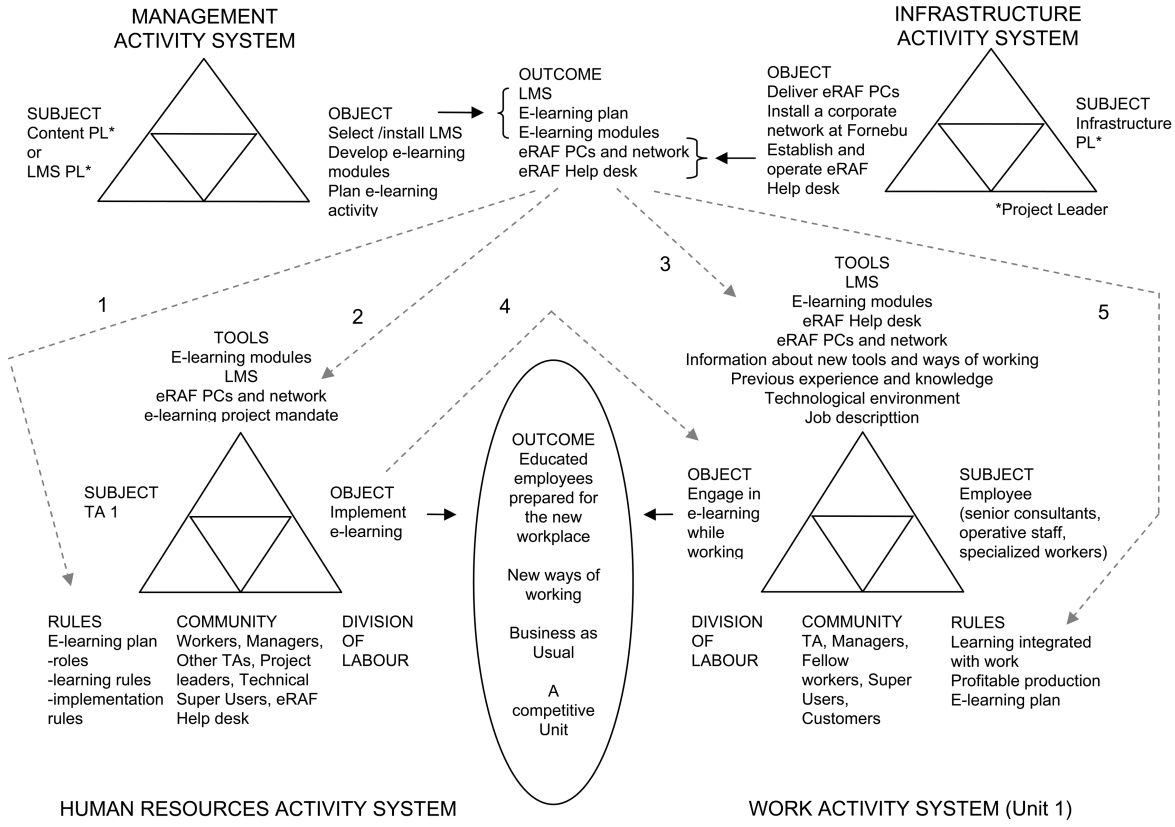

Figure 1. The network of activity systems involved in e-learning

With the four improvisations as backdrop, the research referred to in this paper [21] identified ten potential contradictions underlying the disturbances of Relevance to Work. These are illustrated in Fig. 2. It should be noted that the tensions are articulated from the point of view of the TA1 and the three mentioned groups of employees (senior consultants, specialized workers, and operating staff) in Unit 1. Reference [21] gives a complete analysis of the four improvisations.

Due to the many tensions related to Relevance to Work, at least among some senior consultants, many of the operators, and among employees with rather restricted and specialized work tasks, the e-learning modules never became a tool for improving existing work practices in this unit. In contrast, the modules were rather frequently regarded as a bureaucratic rule, or an administrative demand from above. Such a displacement or ambiguity between the rule and the tool is, as pointed to by reference [8], not uncommon.

2) Data analysis 2

To study how e-learning contributed to organizational development after the initial implementation, the following analysis draws on the theory of Expanded Learning [7]. The analysis is based on an enhanced definition of the expansive learning concept, which includes vertical, horizontal, and inter-organizational learning [9, 10, 11, 12, 13]. This means that learning is not viewed only in terms of the stages a person passes as he/she becomes more expert in a specific domain (vertical), but also in terms of crossing fields (horizontal) as well as disciplinary and organizational boundaries (inter-organizational) in order to collaborate and develop new types of competence and work [21].

The e-learning trajectory in Telenor from 2002 to 2005 did not just represent an expansion toward vertical or sideways movement. In two of four units, e-learning completely faded after a few modules had been developed. In one unit e-learning was still used, but mainly delivered outside the LMS. Only in Unit 4 and at the company level was LMS-delivered e-learning used for transformation of work. These initiatives will be the focus below.

In Unit 4, eleven e-learning modules were developed, mainly to change the unit from mass production to process enhancement [34], as TA4 explains in the following excerpt:

> [E-learning] was quite suitable in a way … we [Unit 4] have seen the advantage of e-learning in the move to Fornebu. Thus we knew that, in relation to this process introduction, many would need training at the same time. This is when we saw the possibilities of e-learning… Naturally, it [e-learning] has indeed become an instrument for the management to carry out process organization… [in order to] teach the employees how to work in this process, in order to obtain a change of attitude, or what we choose to call it. It is about seeing the connection between processes, indeed that you are like an element in a large value chain, would I say [21, p. 171].

At the company level, however, new e-learning modules were principally developed to support new company-wide ICT systems aimed at cost reduction and standardization, to inform about new standardized ways of working, to spread new policies, and to educate the management and the Health, Environment and Security staff. Behind this approach seems to be a desire for a more centralized and standardized organization and for building a common Telenor culture in alignment with the business goals, expressed in the 2002 and 2003 annual reports [32, 33].

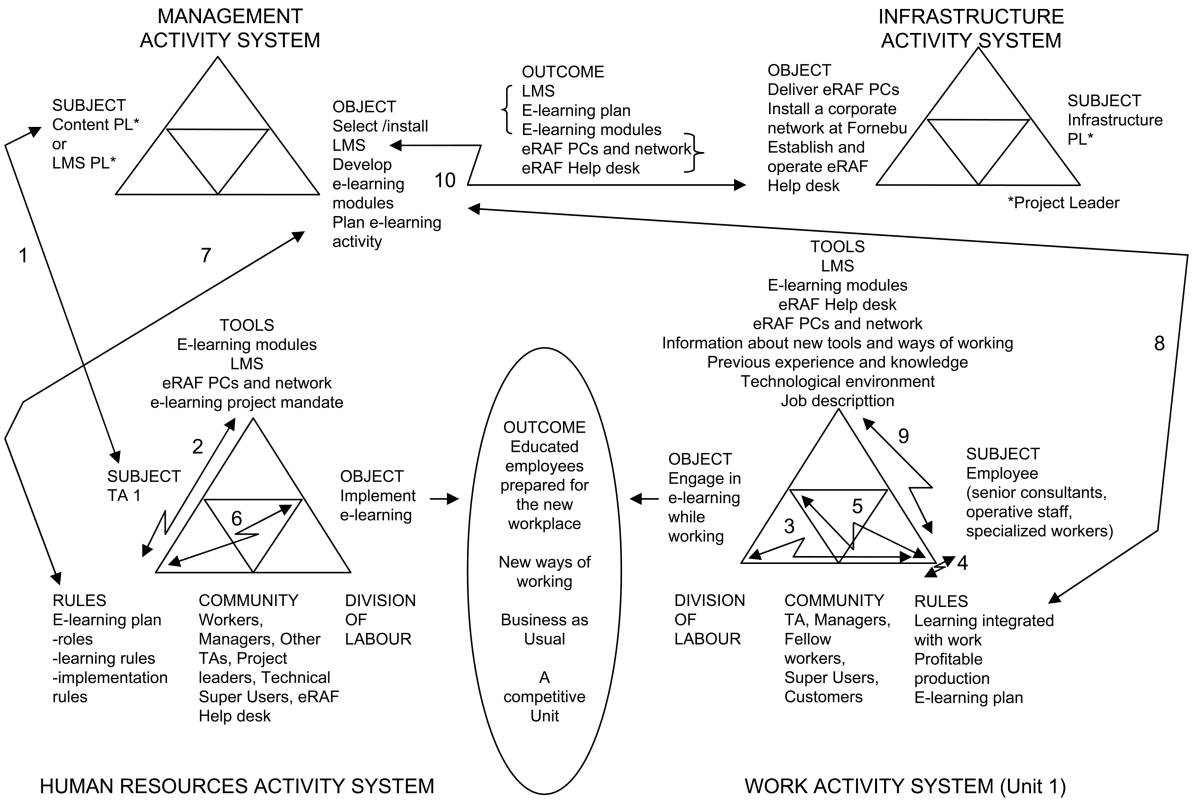

Figure 2. Tensions underlying relevance to work disturbances

Four factors come forth as being important for the sustainability of e-learning at Telenor [21]: 1) the financial situation in the adopter unit, 2) specific characteristics of the TA role, 3) the match between the e-learning system and the production system, and 4) anchoring. The focus in the following is on items 2 and 3. Both of these items point to Relevance to Work as decisive for a successful implementation.

The TA - an exploitation coordinator

In those parts of Telenor where e-learning survived, the new modules either supported high-priority fields of production or transformation of current work, for example, as in Unit 4, where all new modules were developed as part of projects aimed at transforming the production. This approach was chosen because the TA4 was well informed about issuant challenges and required transformation of work. With more than twenty years in the business area, she was familiar with major parts of the production, knew the internal history, was acquainted with many of the employees, and had a direct line to the top manager. This gave her implementation force and made it possible to adjust the e-learning activity in line with future work. A similar approach was chosen by those responsible for e-learning at the corporate level. Here, the new modules were developed to support demanding change processes, and the learning rules were adapted to the target group and the importance of the content. As a result, most employees perceived the received e-learning as relevant to work. Reference [21] gives a more detailed analysis of this issue.

Correspondence between production and learning

The e-learning solution in Telenor was marked by many of the same characteristics as those typical for mass production [21]. Implemented in units with different production systems, different traditions for learning, and, in different developmental phases, the result, in the form of new e-learning modules, varied greatly. First of all, the e-learning solution was a success in Unit 4, Telenor's *factory*. In this unit, e-learning, in combination with meetings and workshops, was used to teach the employees how different internal processes and elements of a process interacted. The ambition was to transform the workers from 'doers' (typical for mass production) into 'doers and thinkers' (characteristic for process enhancement) [34], or, at least, to support and improve the current mass production. At the company level, the majority of modules were mainly developed to support Telenor's vision of creating a more streamlined organization and a leading innovative workplace. In line with this ambition and typical for the characteristics of a learning organization [34], a constant flow of cross-functional information was made available as just-in-time e-learning. In the remaining units, all deviating from mass production, LMS-delivered e-learning contracted rather soon.

III. DISCUSSION OF FINDINGS

This section summarizes the study and presents the key findings before discussing the findings in the context of research on Relevance to Work in the workplace e-learning literature.

A. Summary

This paper has focused on Relevance to Work as a critical factor in the introduction and exploitation of workplace e-learning in a large complex organization. The category, which was identified as a problem through a grounded theory open coding of the empirical data collected during field work in the first year of the implementation, was analyzed by third-generation Activity Theory, and a set of tensions and potential contradictions underlying the Relevance to Work disturbances were uncovered (Fig. 2). Altogether, and as described in reference [21], the sources of these tensions and potential contradictions point to the following weaknesses in the implementation activity:

- *An underlying assumption that learning should be standardized, compulsory and measurable by completion rates,*
- *A lack of ability and/or prioritizing at the management level to transform present work in accordance with the opportunities embedded in the new tools, and*
- *Implementation of learning rules and technology that undermined the embedded opportunities for flexibility and relevance in the modules and in the e-learning project mandate.*

An analysis of the empirical data collected over the next three years, viewed through an expanded learning lens, proposes that the following elements are critical for sustaining e-learning [21]:

- *A coordinator capable of pushing e-learning and adapting it to local needs and with an ability to combine information about the business history and future challenges with social properties and knowledge about technological opportunities,*
- *Implementation plans that leave room for a differentiated approach, in accordance with the prevailing production process and the current or future learning system*[3] *in the various units, and*
- *Relevance of content.*

B. Discussion

The weaknesses of the e-learning implementation uncovered in this paper can partly be a relic from the late 1980s, when Telenor, like other large Norwegian companies, focused on individual learning and general organizational knowledge. The weaknesses can also be explained by an internal focus on New Public Management in the late 1990s, which emphasized the development of individual attitudes and empowerment of the employees to take responsibility of the company's development and growth [25]. Another explanation is that the standardized approach reflects Telenor's history as a state monopolist with a hierarchic and centralized organization. No matter why, Telenor did not take into account the large span in production, challenges, competencies, ICT literacy, and experiences within and across the four units. As presented in this paper, reference [34] is one of the few who explicitly argues for a differentiation of knowledge in specific work contexts and that learning should be tailored to the specific production of the unit. Similar views are, however, also introduced in some of the recent research on workplace learning [1, 35], as well as by reference [17], who claims that internal learning systems differ, especially in large companies and at least in work-integrated learning contexts.

When e-learning was introduced in Units 2 through 4, adaptations were made both in the local e-learning teams and the project-groups at management level. In Unit 2, the implementation plan moved in the direction of mass customization (flexible learning, no control and collegiate support), in Unit 3 in the direction of process enhancement (combined learning and a focus on new work forms), and in Unit 4 toward a plan characterized by a mix of mass production and process enhancement (decentralized support, rule-oriented learning combined with workshops). In the latter unit, where LMS-delivered e-learning still was in use three years after the relocation, e-learning evolved in line with the knowledge typical for process enhancement [34]. However, the changes and adaptations cannot fully explain why some of the disturbances in Unit 1, such as those related to technical understanding, were not experienced as disturbances in some of the other units. In order to understand this, it seems that additional factors have to be taken into account (e.g., technological competence in the staff) [21]. Also in the exploitation phase, the e-learning approaches differed. While Unit 4 adjusted the e-learning activity in alignment with the future production and the company level focused on e-learning modules in line with internal business goals, only Unit 2 of the three remaining units adapted e-learning to production, as already mentioned, mainly outside the LMS. But also in this phase additional factors have to be considered to understand why LMS-delivered e-learning contracted in three of four units (e.g., the financial situation and anchoring) [21].

Relevance to Work disturbances, however, are only the "tip of the iceberg" when dealing with the implementation of e-learning in Telenor as there are at least five other categories of disturbances that have an impact on this process [22]. Three of these, namely, Information Sharing, Hardware and Software Resources, and Execution of Implementation Tasks, are addressed in reference [21].

IV. CONCLUSION

When statements about Relevance to Work emerge in the workplace e-learning literature, they are mainly related to the design phase [3, 6, 26, 29]. Parts of the literature, however, regard work relevance as critical also in the first part of the implementation process, e.g., [4] and [5], which underline that e-learning must match the employees' needs, not least in the selling phase. The literature therefore recommends embedding e-learning in work and making e-learning an integrated part of the employees' daily routines, closely connected to daily work tasks. By doing this, the performance improvement for both the individual and the business will be significant [5, 23]. Similar arguments are also given by references [14] and [27]. The first of these references even claims that work relevance is one of five success factors in the implementation of corporate e-learning. Reference [23] supports this view, and includes appropriate content and authentic learning in his eleven-point list of why most Computer Based Training does not work [23]. A similar focus on relevant content is found in the Forum study [27], which identified the 'quality of

[3] The term 'learning system' is applied to embrace the e-learning modules, the LMS, the e-learning content, the way the modules are implemented, how they are used, and how they are integrated and supplemented with other traditional learning events [21].

learning content' as the fourth of seven barriers to adoption of e-learning at work. Common in most of the statements is, however, that the work context is poorly specified and seldom based on empirical research. References to relevance to work as an important factor for making e-learning sustainable are far less frequent. References [5] and [23] are some of the few authors pointing to this issue.

The workplace e-learning literature also seldom, if ever, points to the significance of a coordinator, capable of adjusting the e-learning activity to work and future challenges and in this way making e-learning relevant and into a tool for transformation of work. Indeed, the literature does underline the importance of locally anchored people as gardeners [19], knowledge activists [36], and bridge builders [36], serving as a link between the management and employees, between external and internal actors or between different parts of the organization, but none of these roles incorporate key characteristics such as linking new business challenges to e-learning.

This article has pointed to Relevance to Work as an underestimated and critical factor in the introduction and exploitation of large-scale implementations of e-learning at the workplace, at least in those situations where learning is expected to be integrated with work. To succeed in this kind of enterprise-wide process, the analysis has pointed to the following aspects of Relevance to Work that should be taken into account:

- The content, as well as the ways of delivering this content, should be targeted toward specific user groups, local learning traditions, and other contextual factors [34].
- The company should put an increased focus on relevance to work as a critical factor in the local introduction and not underestimate a need for rules that allow flexible approaches in accordance with current and future learning needs, previous experience, and individual capacities and learning styles.
- The e-learning system as a whole must match the existing production system and satisfy the local learning needs for growth.
- The large span in work practices and work rules in the different parts of the company must be given attention when learning and work are integrated [34].
- The role of a local e-learning coordinator is critical and requires a person with a historical background, technological competence, and organizational position that gives the person the required authority to adjust the learning activity to local needs.
- To make e-learning sustainable in the long run, the exploitation coordinator must be able to combine information about the unit's history and future challenges with the emergent opportunities of the new learning technology.
- A new division of labor allocating enough time for learning should be prepared, as well as new work tasks that integrate learning and working.

This paper suggests that the use of these points as a checklist for enterprise-wide implementations of e-learning in large organizations will contribute to a smoother and more transparent introduction and management of the disturbances related to Relevance to Work and open up for development and transformation of current work.

Attwell [2] claims that the restricted empirical research in the e-learning field has mainly focused on the development of technology or product evaluation, and not on "what works and what does not [work in a workplace environment]" [2, p. 54]. This paper has made an effort to contribute to the restricted empirical research, by focusing on exactly what works and what does not work when implementing e-learning in the workplace, and putting technology development (the focus of the majority of previous work) in the background.

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