

Work organisation in freight transport systems

European approaches to define structural changes and policy requirements following the introduction of new technology

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1 Introduction

Freight transport plays a crucial role in Europe's well being in terms of direct contribution to GDP, impacts on the efficiency of other sectors of the economy, and as a source of employment.

In 1993 the transport services sector accounted for 6.03 million jobs. During the late 80's early 90's, employment in the transport sector increased moderately. Inland transport services (rail, road, and inland waterways) accounted for 62,8% of total employment in transport. Sea and air transports take a share of 9,7%. Indirect transport services, supporting services and other auxiliary services have a share of 27,4% in the sector's total employment (1). The nature of the work in the transport field, however, is undergoing rapid change. The transport market is evolving from a low - wage, low skill, and labour intensive sector, to becoming a high skill, high technology, and capital intensive one. New technologies are introduced which should allow operators to meet increasing demands in terms of service quality, reliability and reduced costs. On top of that, new regulations and procedures are conceived to meet safety and environmental concerns.

The whole freight transport sector faces structural changes

under the influence of various factors such as: introduction of new technology, new production and logistics requirements, new societal demands related to environmental issues etc. The effort of defining the structural changes and the subsequent measures required for promoting positive aspects and avoiding undesirable situations concerning the introduction of new technology on European level is the subject of this paper¹.

2 Outline of the approach followed

In facing the research question, how new technology influences work organisation in freight transport systems, the main lines of the approach followed in European research projects are describe in the following diagram 1. The aim

is to gain a general comprehensive overview (a sort of a "mapping") of what is the state of the art.

At a first stage, a review of new technology under introduction in freight transport systems is conducted, where systems which have been implemented during the last five years, or are under development (usually for a time horizon of 5 years), are considered.

Next, following Delphi studies among experts, a first set of impacts of new technology on work organisation is identified,

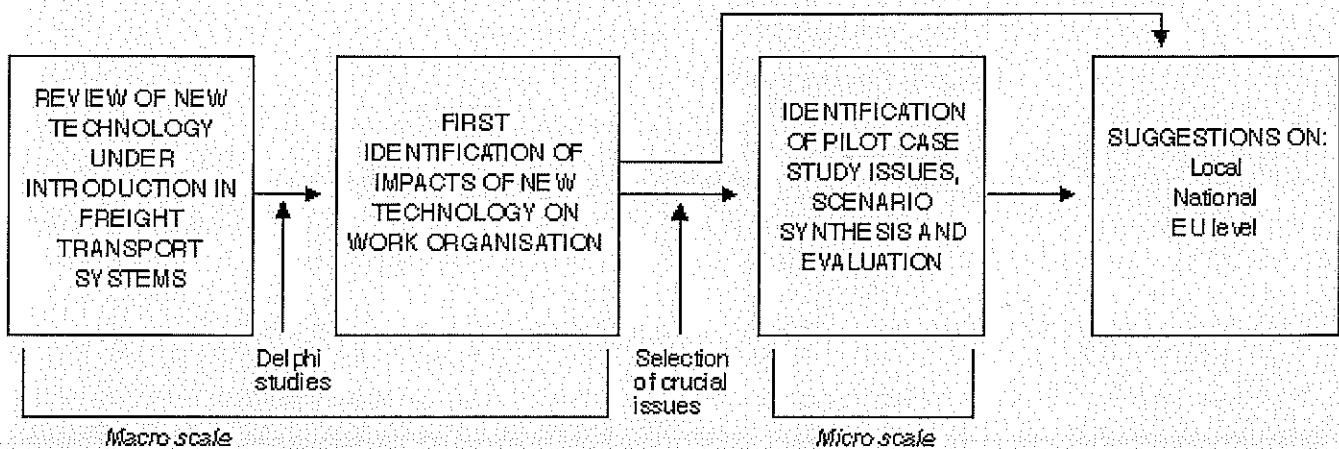


Diagram 1: Procedure followed in to identify impacts of new technology on work organisation on macro and micro scale.

providing an overview of possible evolutions. Following a selection of crucial issues, a further examination is made focusing on selected pilot case studies (micro scale). The pilot case studies provide the ground to examine selected issues in depth and also synthesise and evaluate scenarios for future developments.

Next, results stemming from the macro and micro scale considerations, provide the basis for suggestions on Local, National and European Union level.

It has to be noted though, that the EU, local or national policy makers do not necessarily adopt suggestions resulting from EU research projects. Usually, this is done following further verification and refinement procedures.

3 Relevant EU projects, scope and context

Major relevant EU projects which largely follow the procedure described previously, aiming to answer the basic research question concerning the impacts of new technology on work organisation are, WORKFRET, WORKPORT and THALASSES. A project aiming to review results and promote a consensus on main issues on EU level is ACCEPT. All three aforementioned projects follow the general line described in diagram 1 but include also other issues, their scope and context is discussed in the following.

WORKFRET: "Working cultures in the face of Intermodal freight transport systems".

This project focuses on intermodal transport. New technology under introduction in intermodal transport is surveyed and its impacts on "Working cultures" are considered (2). The term "Working cultures" is operationalised considering as main parameters the following: Labour force, Work Organisation, Work Environment, Employment Conditions and Labour Relations (3).

Considering as focal points the ports of Rotterdam in Netherlands, the port of Thessaloniki (Greece), Sofia (Bulgaria) axis the Regensburg-Bahntrans freight centre in Germany, the Wakefield Europort, the Doncaster International Railport and the Leeds freight center in U.K, also the AGA company in Finland, the project aims to draw conclusions on the impacts of new technology on work organisation.

WORKPORT "Work organisation in ports".

A main WORKPORT objective is to define the impacts of the introduction of new technology in both maritime transport and ports to the work organisation in ports (4), also how ideas and systems successfully applied in other industrial sectors can be applied in the port environment, what are the new requirements and challenges to be met by new organisational structures in ports. The pilot case studies under consideration here are: The Duisburg port in Germany, the Kotka port in Finland, the Thessaloniki port in Greece.

The whole effort aims to define how at preliminary stages,

the required actions on EU, national and local (where possible) level can be implemented to promote the smooth acceptance of new technologies, avoid undesirable impacts, and above all create structures centred on the human element.

THALASSES: "New technologies in Maritime Transport Interacting with the human element: Assessment of impacts".

A main objective here is to define the impacts of the introduction of new technology in maritime transport on the work organisation and on the human element (5). Other objectives are also included, such as the consideration of the impact of new technologies in Maritime Education and Training (MET), the application of SHIP - MATE tool, the Integrated Ship Operation concept, the use of simulators etc. A pilot case study is foreseen concerning the application of the Integrated Ship Operation concept in Hapag - Lloyd.

ACCEPT: "Action concerning acceptance of new technology and procedures in Transport".

This is not a Research Project but a Concerted Action, which means that no research tasks are included, but only review work on what is readily available concerning results. All EU countries are invited to participate with one representative from the administration and another one who is expert in the field. Apart from the EU countries, Norway, Switzerland, Iceland and Israel can also participate as they have a special agreement with EU concerning their participation in projects. The main objective of ACCEPT is to review acceptance assessment methods, results of relevant E.U. projects, national projects, case studies, define problems of acceptance of new technologies and actions to overcome them.

4 Preliminary findings

The "Working culture" parameters as defined in WORKFRET may be used as reference headings to include suggestions concerning required actions in relation to human factors and work organisation as a result of the introduction of new technologies. Some preliminary indicative findings of the work in the previously mentioned three research projects will be listed here.

A. Labour force

- Education and training needed due to the demand created by new technologies
- Transfer of skills for declining industries (e.g. coal and steel)
- Reports of vocational training programs to strengthen focus on IT and on basic skills (including language)

B. Work Organisation

- Towards more participative management style.

- Implementation of work design which maximises worker autonomy and control
- Development of IT systems which are interactive

C. Work Environment

- Investment in regular health screening of employees
- Devising model for risk assessment including training of assessors
- Evaluation of new forms of work organisation and new technologies

D. Employment Conditions

- Improvement in job security and career development opportunities
- Review of reward strategy and use of incentive pay
- Promotion of fair employment practices and equal opportunities in freight transport

E. Labour relations

- Review of collective bargaining in freight transport at EU, national and regional level
- Promotion of social partnership by all actors in freight transport industrial relations.

5 Conclusions, the way ahead

- The work under conduct in the EU research projects: WORKFRET, WORKPORT, THALASSES aims to conclude in a "MAPPA MUNDI" ("world map") concerning the introduction of new technology in freight transport systems in maritime, rail, road, intermodal transport as well as in ports, and their possible impacts on the human element and the work organisation.

- Results of the aforementioned projects accomplished with similar ones from other research initiatives will be utilised in establishing a common understanding among participants / representatives from the 15 EU and the four other, participating in EU projects, countries in the framework of the ACCEPT project.

- The utilisation of results does not solely concern the Commission. All actors involved i.e. employers - employees organisations, national government, regional authorities (especially concerning the case study areas), research institutes can and should utilise the research results.

- The success of this effort depends heavily on the possibility of research to define and describe adequately the forthcoming evolutions and suggest the required measures, and on the other hand on the willingness of the politicians to understand and promote such suggestions. The way ahead presents many challenges and difficulties which should be carefully considered. This is even more true if European policies aim at

guiding in the field of social policy and not only adopt the solutions offered by the market.

LITERATURE

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NOTES

¹ The projects referred to in this paper i.e. WORKFRET, WORKPORT, THALASSES and ACCEPT are financed by the European Commission in the framework of the Transport Programme of DGVII. The opinions expressed here belong to the author and do not reflect necessarily the Commission's policy.

² The term "working cultures" in freight transport systems was first introduced by A. Naniopoulos in the WORKFRET proposal and was operationalised by the WORKFRET Consortium in 5 main parameters and further sub-headings for each category where the following main elements are included: Labour force (numbers employed, social characteristics, contractual status, recruitment sources), work organisation (work systems, functional flexibility, organisation structures, organisational cultures), working environment (technological characteristics, human factors at work, occupational health and safety, physical conditions), Employment conditions (working time, payment systems, employment procedures, welfare provisions), Labour relations (trade union membership, collective bargaining structure, employee consultation, labour conflicts)