

Teleworking for the Disabled under the TEN-TREND framework

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Abstract. Biotrast's participation in TEN-TREND, which is a project currently under evolution running within EU DG XIII TEN-TELECOM programme on trans-European networks, is targeted on teleworking for the disabled. During the first six months of the project it focused on a specific application identified as a typical example, namely: "Groupwork and collaborative work of disabled software programmers and related occupations (e.g. software testing, documentation) via videoconferencing and application sharing over ISDN". The main aim of the trial is to investigate the functionality and successfulness of the service both in terms of productivity and lessening of expenses as well as in social related issues and issues related to the impact of the services to the personnel, both disabled and not. We describe in this work the concept, material, methods and expected results of the trial.

1. Introduction

TEN-TREND is a project currently under evolution, running within EU DG XIII TEN-TELECOM programme on trans-European networks. TEN-TREND focuses on applications and services over networks supporting and/or promoting teleworking. According to the Technical Annex [1], the key objectives of the project are:

- to identify applications providing teleworking services across Europe;
- to implement demonstrators providing applications at specific European sites.

In order to achieve this, secondary objectives must be fulfilled, as for example:

- to investigate and document the communication requirements of teleworkers;
- to identify the types of user group that are likely to be interested in teleworking services;
- to identify potential demand for teleworking services;
- to investigate and document general market trends on tools, platforms, and applications that can be useful in teleworking environment;
- to perform market analysis on the telework access points;
- to produce principles and guidelines and use them to construct the Telework Framework;
- to define generic services, or generic application components necessary for teleworking under the TEN-TREND set of principles.

2. The teleworking TEN-TREND framework

The framework developed [2] covers a full range of issues which must be dealt with before telework solutions can be deployed, and presents best-practice solutions to key issues, including social and legal issues, covering:

- * networks of call-centres and service centres for teleworking
- * telework centres enabling work from near home
- * networks of centres providing teleworking facilities to business travellers
- * flexible, integrated organisation of dispersed workforces, including sales, maintenance and customer support units
- * **teleworking for disabled people**
- * teleworking across borders of Member States
- * conditions for acceptance and usage by all kinds of teleworkers and organisations

The development of the TEN-TREND framework is based on different types of research. It aims on offering solutions for using trans-European telecommunications networks integrating both user requirements and available solutions as illustrated by figure 1.

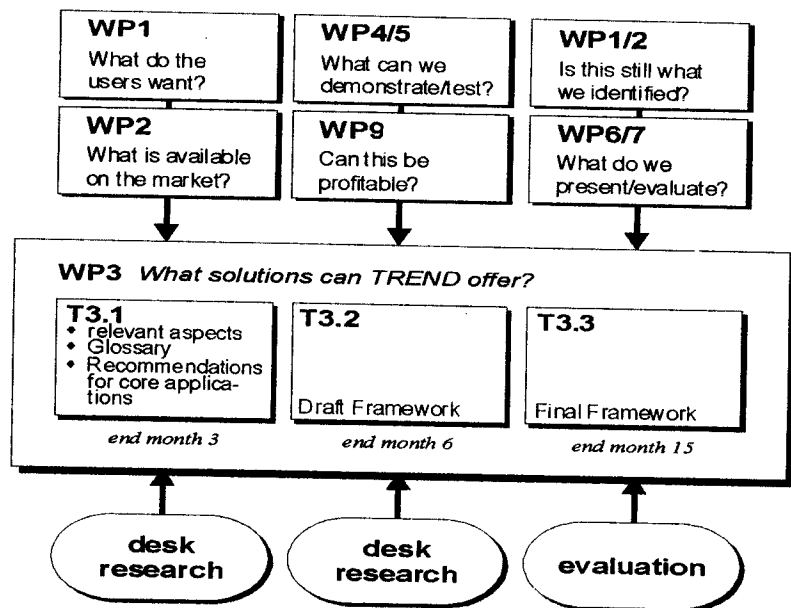


Figure 1. Main structure of TEN-TREND Framework development (WP stands for WorkPackage)

3. Teleworking for the disabled

Biotrast's participation in TEN-TREND is targeted on teleworking for the disabled, based on its previous experience [3],[4]. During the definition of the telework framework and the core applications definition it focused on a specific application identified as a typical example, namely: "Groupwork and collaborative work of disabled software programmers and related occupations (e.g. software testing, documentation) via videoconferencing and application sharing over ISDN"

The application will be tested in Biotrast, which is distributed in two different places, the headquarters in the city of Thessaloniki and the laboratory in the Technology Park in Themi, approximately 20 Km in the East of Thessaloniki. In the trial will also participate the Dept. of Informatics of the Physics School of the University of Thessaloniki and Netsmart, a spin-off company of Biotrast located in Athens.

All these sites are equipped already with ISDN connections (either PRI or BRI), videoconferencing software and relevant equipment.

4. The application

Description

The service is quite simple in conception. The infrastructure is shown in figure 2. Four sites are connected through Euro-ISDN and are able to operate videoconferencing sessions using Intel Proshare and/or PictureTel.

In one of the sites (Biotrast laboratory) the senior programmer is located. He/she is responsible for all software projects of Biotrast, decides how work is distributed among the members of the programming team and maintains contact with outside teams as far as collaborating projects are concerned. The main body of programmers is also located in the same office. In the second site (Biotrast main office) the management of the company is located, which is responsible for closing the project deals, explaining the work to be done to the technical team for each of the projects, supervising the evolution of the work and monitoring the development of each project. The management usually communicates directly with the senior programmer of each project, although in some cases one-to-one interaction with programmers is required. In the headquarters are located the documentation and testing teams, which are responsible for all kinds of documentation including technical and users manual and validation, verification and evaluation of the programs respectively. Both these teams have one disabled member. Communication between members of these teams is constant within working hours. At least one meeting per day is held either in the main office or in the laboratory with members based in both locations.

In the third site a group of software programmers with valuable expertise in medical applications is located. This site is in the Aristotle University of Thessaloniki and Biotrast maintains close collaboration with them in many projects. One disabled works as a programmer in this site. People from Biotrast's technical team both in the main office and the laboratory communicate in a daily basis, both face-to-face and through conventional facilities for development and organisation.

Human and financial resources

The demonstration trial will not require significant financial resources, because all the required infrastructure and equipment are already installed and functioning. It is intended however to proceed in testing additional methods and software especially for groupwork and/or collaborative work as for example groupvideoconferencing, whiteboard and application sharing tools.

Four disabled people are currently foreseen to participate in the trial. Two programmers, one tester and one writer of documentation and manuals. If the application will receive successful acceptance, Biotrast plan to employ one or two disabled, taking advantage of the favourable legislation.

If the project proves successful it will immediately make a return, in the sense of cut-off in transportation and lessen of overheads in communication.

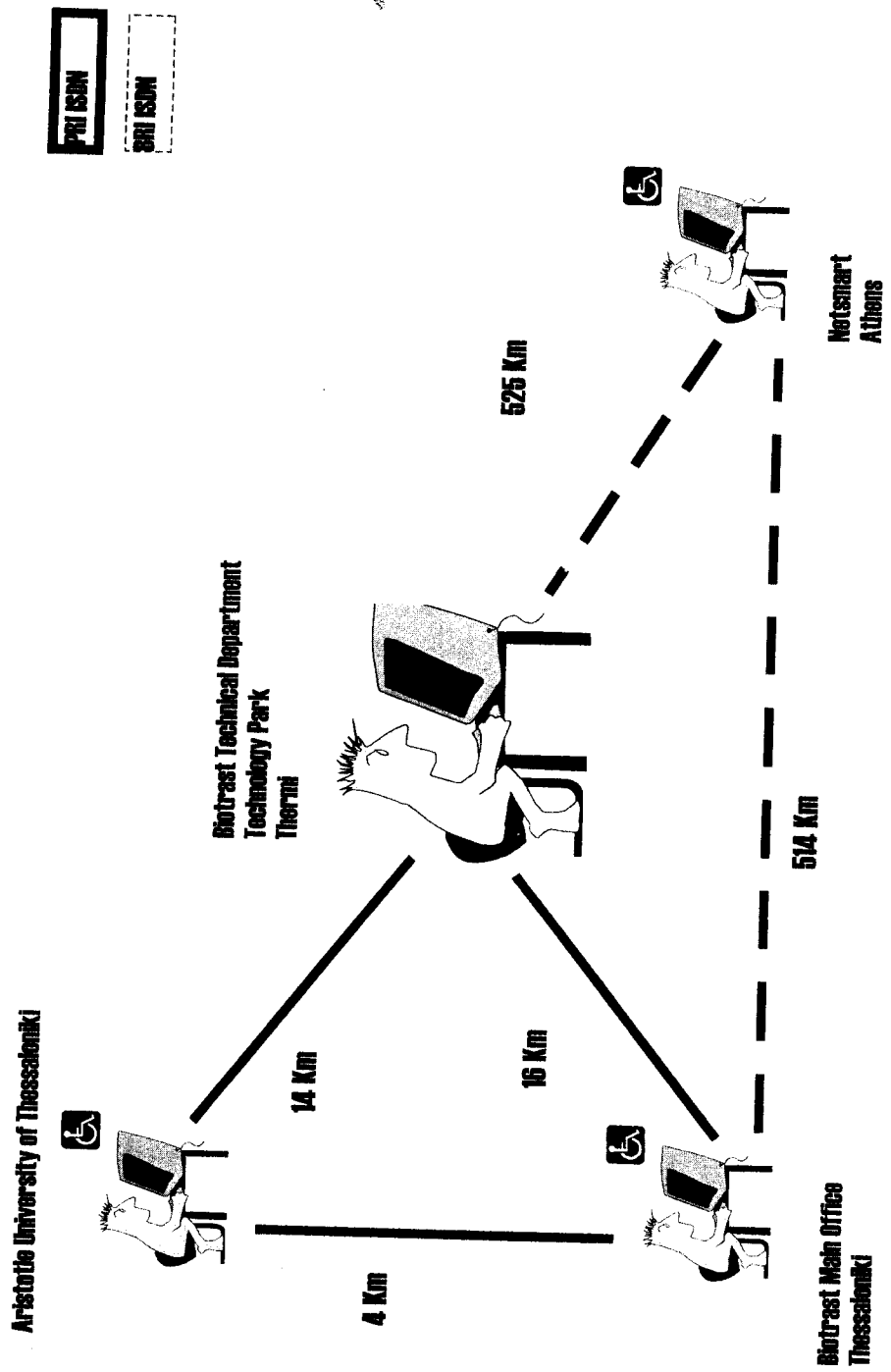


Figure 2: The teleworking for the disabled trial set-up

Methods

The following steps will be followed in establishing and testing the service

1. Identification of common projects among the sites during the trial period
2. Identification of communication needs
3. Videoconferencing for organising development and solving programming problems
4. Videoconferencing for managerial issues
5. Application sharing of software development packages
6. Videoconferencing for testing and evaluation
7. Market investigation on possible useful tools (whiteboard, group-videoconferencing)
8. Reporting of key actors on trials
9. Cost-benefits analysis
10. Evaluation of the core application

Management and control of the trial will follow the TEN-TREND internal regulations. A project trial coordinator on behalf of Biotrast will be responsible for the whole trial. He/she will define in detail the setup of the trial, the expected results, the key issues for identification and the management of the trial. The trial coordinator will begin on July 1st, by defining a detailed workplan of the application trial. The trial will run during the months of August and September, 1997.

Rationale of the application

The scope of the trial is to demonstrate the feasibility of videoconferencing in replacing unnecessary travel and expenses for software development. Currently, it is estimated that one fifth of the labour of software programmers is spent to transportation for meetings and is lost as a result of misunderstandings due to conventional techniques of communication and delayed delivery due to unproductive collaborative work. These problems are even more intense when work is to be carried out with personnel from other organisations, as for example the Aristotle University of Thessaloniki, with which Biotrast maintains close links and shares several projects and with spin-off companies, as for example Netsmart.

Furthermore, Biotrast has been very active in fostering the Greek framework for providing equal opportunities to people with special needs [5] and is also itself making it practice by employing in more than 10% of its personnel disabled people.

Results

The aim of the trial is not mainly technological, standard ISDN connection and videoconferencing will be used although newer tools is intended to be tested. The main aim of the trial is to investigate the functionality and successfulness of the service both in terms of productivity and lessening of expenses as well as in social related issues and issues related to the impact of the services to the personnel, both disabled and not.

For the trial period the application is seen as an internal procedure in Biotrast. The results of the trial in conjunction with those derived from the trial run in parallel with PSG, a sub-contractor of DeTeBerkom, a German telecommunication company, also participating in the project are intended to be made available to the TEN-TREND consortium and then to the European public to promote the effectiveness of similar services to

- telecom operators
- teleworking providers
- companies with distributed offices
- social security and disabled organisations

5. Conclusion

The described application trial focuses on investigating possible pitfalls and benefits of utilising teleworking approaches to assist disabled participants actively and on equal grounds within the working force. It is foreseen to carry out a solid test-bed run that is expected to create a well-defined structured solution that can be thought of as best-practice and European representative. Based on the experience drawn from it, a set of further service trials will be investigated to provide a full list of well documented solutions of teleworking applications for the disabled. The final set of results is expected to be produced by the end of the TEN-TREND project in June, 1998.

References

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