FITa
Update

FOUNDATION FOR
INFORMATION TECHNOLOGY
ACCESSIBILITY

JULY 2010

www.knpd.org/mittsfita

FITA is the principal advocate and coordinator for making information communications technology (ICT) accessible for disabled people in the Maltese islands.

FITA's principle function is to provide support to disabled individuals in overcoming or removing barriers to education and employment through ICT. Through empowerment and social inclusion disabled persons need to rely less on family and state support. In ensuring that due steps are taken to minimize the digital divide, we aim to enable individuals to contribute productively to society and the economy. (cont. on page 4)

How can every business profit from the development of a Maltese Speech Engine?

The Foundation for Information Technology Accessibility (FITA) is developing a Maltese Speech Engine which will enable computers and other ICT devices to produce spoken Maltese. This will allow a more natural interaction between Maltese language speakers and technology devices. Users can obtain information in audio speech format and not only via graphics and text on a display screen. This technology already exists today for a number of languages, including English. Until now, Maltese speakers, including school children, illiterate and disabled persons, have been unable to avail themselves of this technology. This project will change this.

FITA Overview

FITA was established by the Malta Information Technology Agency (MITA) and the National Commission Disabled Persons (KNPD) in 2001 as the principal advocate and coordinator for making information communications technology (ICT) accessible to disabled people on the Maltese islands.

Our information services assist disabled individuals in the selection, acquisition, or use of an assistive technology device, to improve the individual's quality of life. FITA encourages blue chip companies to participate and collaborate in the formulation of relevant ICT initiatives. Close participation implies that besides providing token funding to FITA's operations, these business entities champion the interests and purposes of FITA. The aims and objectives of the Foundation are:

- To promote equal opportunities for all, in particular in relation to information technology matters;
- To provide training services in information technology to disabled people;
- To gather and disseminate information and to increase awareness on information technology matters
- To liaise with and facilitate public and private endeavours in respect of the creation of equal opportunities in respect of information technology
- To offer advice and consultancy services to private and public organisations in information technology and its use by disabled persons.

In 2008 FITA was given a grant, under the European Regional Development Fund for the development of The Maltese Speech Engine which will be developing a SAPI compatible speech engine, which will integrate with existing assistive and educational technology in order to promote the use of e-services, Maltese literacy and ICT accessibility. This project is part-financed (85%) under Operational Programme I – Cohesion Policy 2007-2013, Investing In competitiveness for a Better Quality of Life. FITA is collaborating with a number of disability NGOs and the Directorate for Educational Services on this project. In order to promote access to education and employment, a requirement of this project was the conducting of a survey covering households and businesses.

Households Survey
ERDF 114 Survey 2009-Summary Report

FITA commissioned a quantitative research study among local commercial entities and private households to assess their perceptions, views and attitudes towards the use of a Maltese Speech Engine.

Respondents who do not use computers (257 respondents)

The survey indicates that 38% of the 678 household respondents never make use of the computer. More than half of these are respondents aged over 60 years of which 73% are females. These respondents hailed mainly from the Northern Region followed by the Northern Harbour Region. 97% of the 257 respondents who do not use computers mentioned that they had not attended any computer course in the past 5 years. These consisted mainly of respondents aged 50 and over. Amongst these respondents who attended a computer course the majority (87%), had attended a MyWeb (Introduction to ICT)/Basis/ Beginners course.

A high 73.2% of those respondents who do not use the computer are females. This included respondents who are between 18 and 29 years of age and 74% of the respondents who are over 60 years old. When questioned whether they would use the computer if it featured Maltese Speech synthesis/ recognition, 44% said that they still would not make use of computers. This answer was given by 57% of the respondents who are over 60 years of age.

Another 23.7% of the respondents answered 'yes' and 'maybe' respectively to whether they would make more use of computers if these were speech enabled. While all respondents between 18 and 29 years and 37.5% of the respondents between 50 and 59 years replied 'yes', 50% of the respondents who fall in the 40 to 49 age bracket replied 'maybe'. This

M.Fsadni & Associates carried out this research and the surveys were completed in December 2009.

The resulting survey results portray the perceptions of 678 households and 197 commercial entities, concerning use of technology, and the use of voice enabled technology in particular.

Research Methodology

The research which took place between October and November 2009 was based around CATI (ComputerAided Telephone Interviews) methodology in order to obtain a good representation of local corporate entaties hailing from the various industrial sectors. A total of a 197 completed interviews were conducted amongst private companies operating in Malta.

Completed interviews were conducted with companies from the each of the following Business Sectors: ICT; Manufacturing; Banking, Finance; Tourism, Education and Training.

Fsadni and Associates ensured that the sample frame adequately represents the views and opinions of the target population. This also guarantees a statistically-viable quantitative representation and provides research findings with a 95% confidence level at a +/-5% confidence interval

Fig. 1

38%

62%

- Never Use Computer
- Do Use Computer
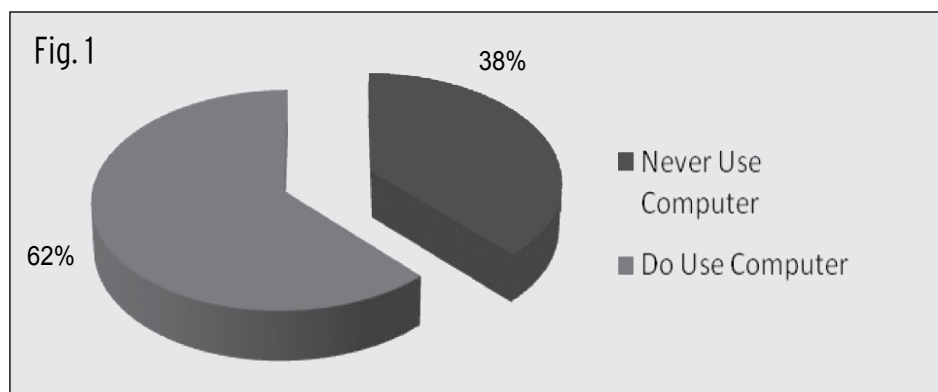
feedback, combined with the low use of speech enabled technology in general, may indicate that these respondents have limited knowledge of the benefits of speech enabled software, or have no use for it altogether.

Respondents who do use computers (421 respondents)

67% of the respondents stated that they make use of the computer everyday. Another 18% said that they make use of the computer often while 13% of the survey respondents replied that they do not make use of the computer very often. The 156 respondents, who confirmed attending a computer course in the past five years, were also asked to indicate the level of education of the course they attended. It transpires that 43% of the respondents attended a MyWeb (Introduction to ICT) /
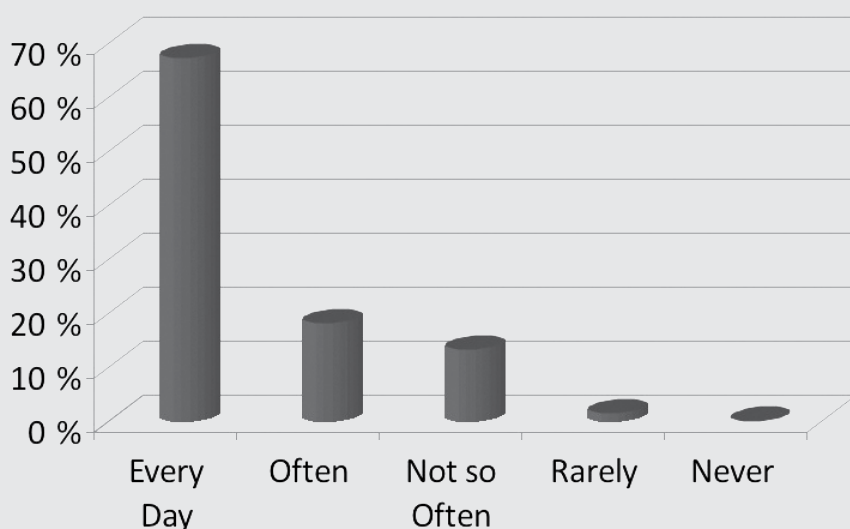
Basic / Beginners computer course. This percentage includes 75% of those over 60 years of age.
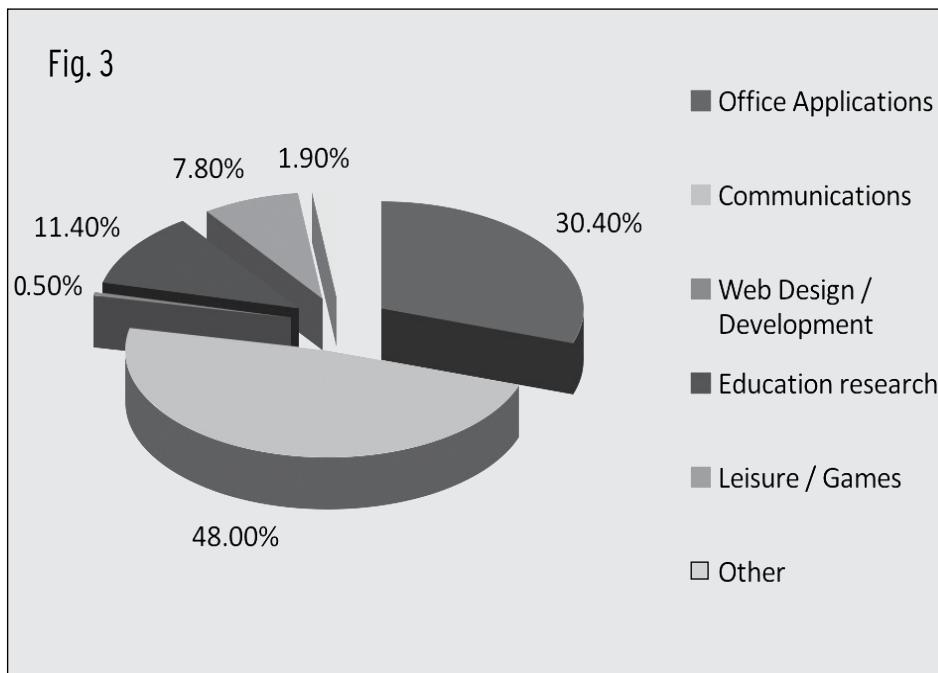
Home and work are the two places where the respondents make most use of the computer with 70% of the respondents indicating that they make use of the computer everyday. 47.5% of the respondents pointed out that they use the computer for less than two hours during any given day while a further 23.5% indicated that they spend between two and four hours daily using the computer. 89% indicated that they never/ rarely need special equipment when using the computer. 43% confirmed a heightened awareness to the availability of special equipment on the market, thus suggesting respondents have a reasonable general awareness of basic ICT accessibility

issues, and therefore gave an informed reply. 48% of the survey respondents indicated that they use the computer for communication purposes. This was followed by 30.4% who indicated that the use of office applications was their main purpose for using the computer. This was followed by 17.8% of the same 326 respondents who said that they use their computer for educational resources and to look up information. The 368 respondents, who indicated that they make use of the computer for communication purposes, provided a total of 706 responses as to how they communicate. Half of the responses identified email as the preferred communications medium. The findings show that emails is most popular with respondents of older age groups. In fact, this was mentioned by 67.5% of respondents who fall in the over 60 age category and by 57% of respondents between 50 and 59 years.

The use of email as a means for communication was followed by that of Social Networks like *Facebook* and *My Space*. The latter registered a total of 117 responses which amounts to [16.6%] of the 706 responses received. This number includes 23.5% [46 responses] of responses given by those aged between 18 and 29 years and 19% [29 responses] of responses

Fig. 2

Fig. 3

Office Applications
Communications
Web Design / Development
Education research
Leisure / Games
Other

7.80% 1.90%
11.40%
0.50%
30.40%
48.00%

Potential use of Speech enabled Software

98% of the survey respondents specified that they either never or else rarely make use of speech enabled software. 44% of the respondents indicated either 'probably not' or 'definitely not' to the need for their computer software to be speech enabled. Also, 44% answered either 'probably yes' or 'definitely yes' when asked if they would opt for speech-enabled software which uses the Maltese language. 56% replied positively when offered the option of using computer software featuring a Maltese language dictionary. An average of 29% of the survey respondents indicated that they would likely use Maltese speech-enabled technology across automated customer care, ATM service, e-services websites, educational software, literacy aids and communication aids.

given by those between 30 and 39 years of age.

The 222 respondents who indicated that they use the computer for leisure mentioned 328 alternatives.

Amongst these, computer games are the most popular among respondents. 34.5% of the aggregate responses show that listening to music and audio books is also a popular activity among the respondents.

66% of the respondents said they consider Maltese Government websites as easily accessible/very easily accessible. 62% of the survey respondents consider Maltese e-Commerce websites as either easily accessible/very easily accessible. 5% of the respondents expressed that Maltese Government websites are either rather hard to access [4.5% - 19 respondents] or very hard to access [0.5% - 2 respondents].

The age of these respondents is equally distributed among all age categories. 62% of the survey respondents consider Maltese e-Commerce websites as either easily accessible 20.2% or very easily accessible 41.8%.

The majority of these respondents were aged between 30 and 39 years (78%) and between 18 and 29 (73%) years old.
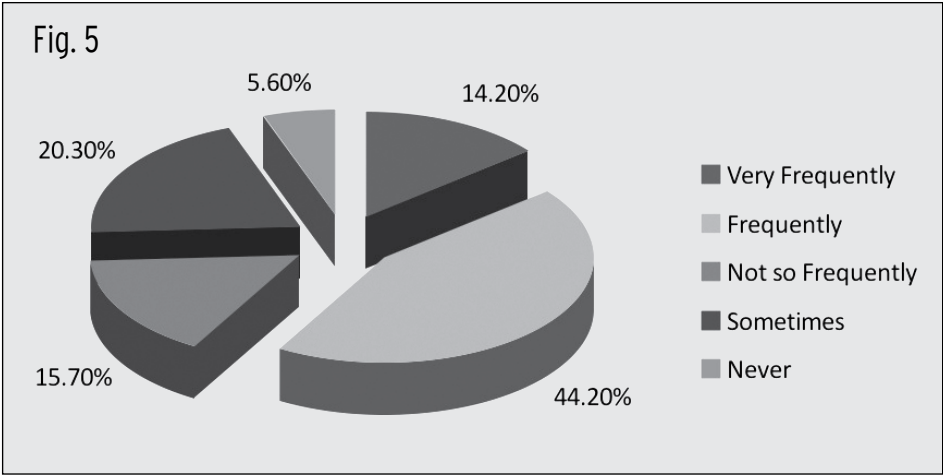

Fig. 4
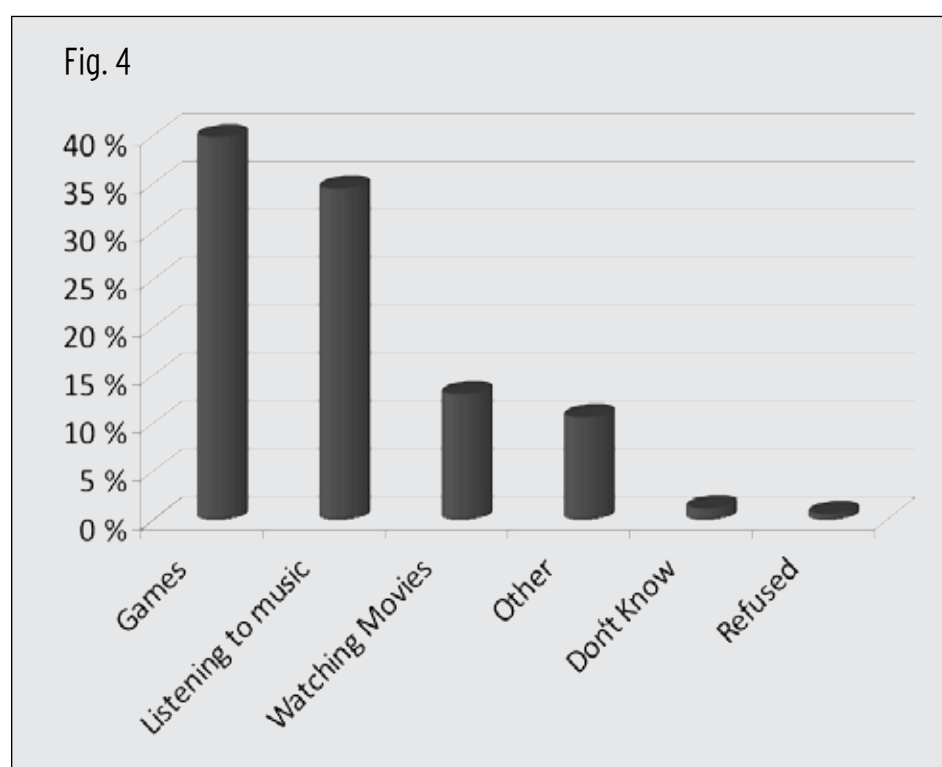
Business Survey
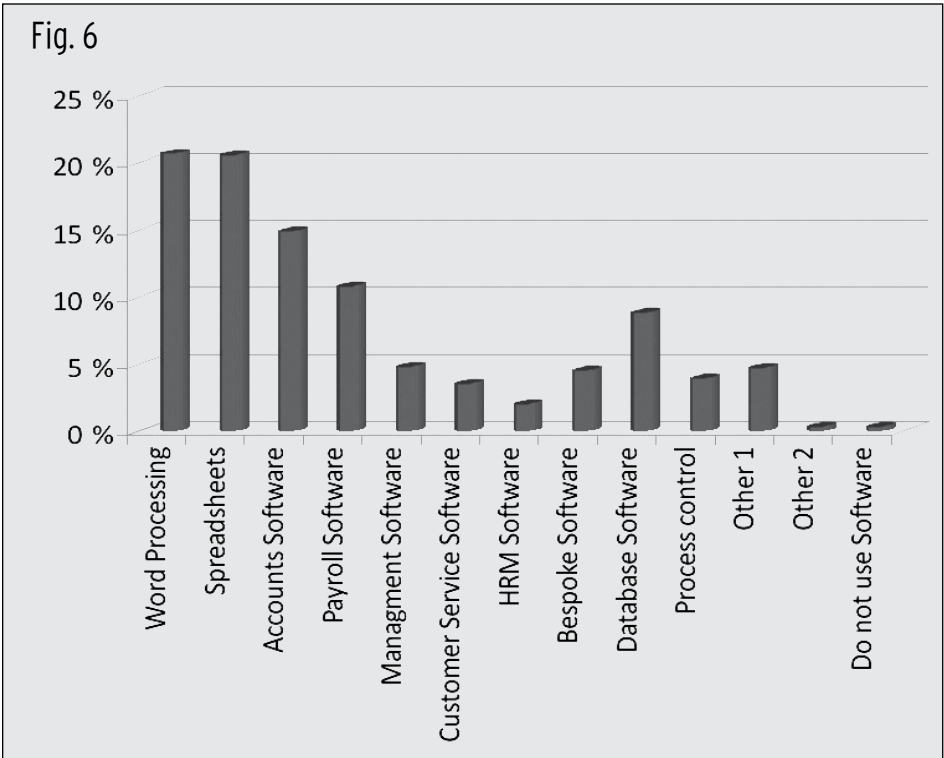# ERDF 114 Survey 2009 Summary Report

A total of 20.7% of respondents stated that they use word processing applications within their company and another 20.6% of respondents confirmed using spreadsheet applications on a regular basis

Fig. 5

- 14.20% Very Frequently
- 44.20% Frequently
- 15.70% Not so Frequently
- 20.30% Sometimes
- 5.60% Never

A total of 55.6% of the survey respondents pointed out that 'email' is the preferred communication medium used by their company for communication. 57% of the total responses show that, no web design and development software is used by the companies participating in the survey. 78.6% of the responses identified the Internet as a popular means of obtaining information. 58.4% confirmed frequent use of Maltese websites while another 36% suggested a more occasional use of such websites. It also appears that a high 68.2% of companies perceive Maltese Government websites as either easily accessible while another 22.6% of the company respondents stated that Maltese Government websites are sometimes hard to access. Almost 84% of the respondents

stated that they perceive Maltese e-Commerce websites as being easily accessible while another 11.3% of the respondents suggested that they perceive Maltese e-Commerce websites as being sometimes hard to access. 95% of the survey respondents

said they 'never' or 'rarely' use speech-enabled software within their company. Almost 82% indicated either 'definitely not' or 'probably not' to the need of using speech-enabled software by their employees. 58% of the respondents also stated that they perceived no need for their application software to feature a Maltese language dictionary. When respondents were asked whether they perceived the possibility of including a Maltese speech engine as an add-on to the company's existing product, 17.3% replied in the affirmative. In fact, 11.2% indicated 'probably yes' while 6.1% indicated 'definitely

Fig. 6

25 %
20 %
15 %
10 %
5 %
0 %

Word Processing, Spreadsheets, Accounts Software, Payroll Software, Managment Software, Customer Service Software, HRM Software, Bespoke Software, Database Software, Process control, Other 1, Other 2, Do not use Software

yes'. This was indicated by 35% of those hailing from the banks, financial institutions, insurance and business services sector whilst 18.4% came from the education and training sector.

Fig. 7

Fig. 8

Fig. 9
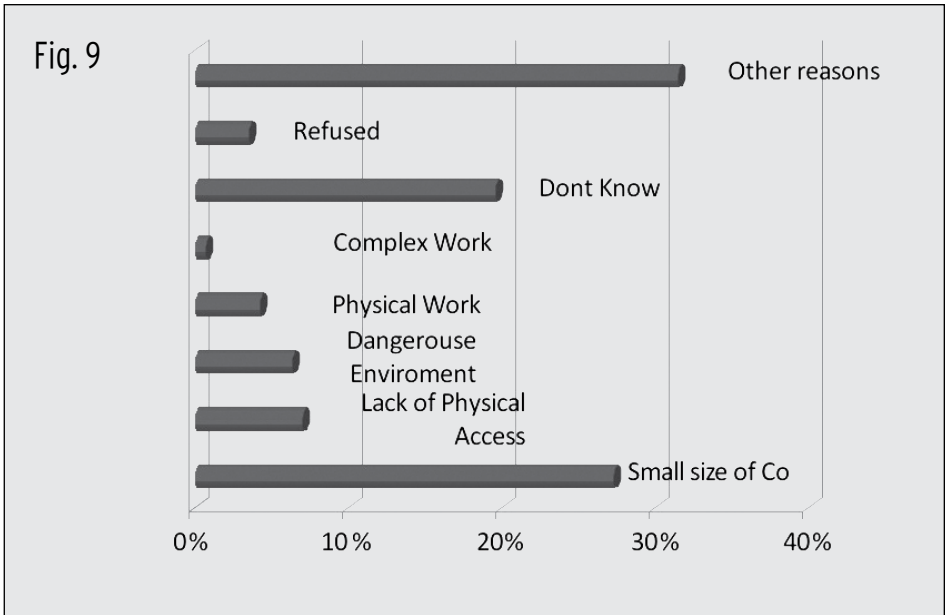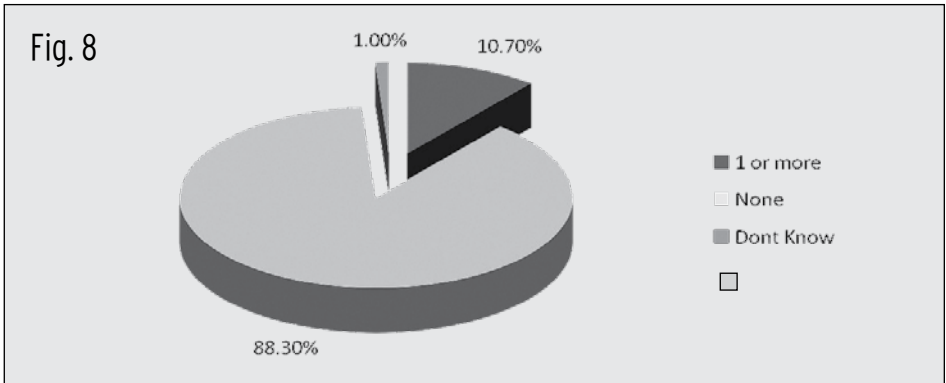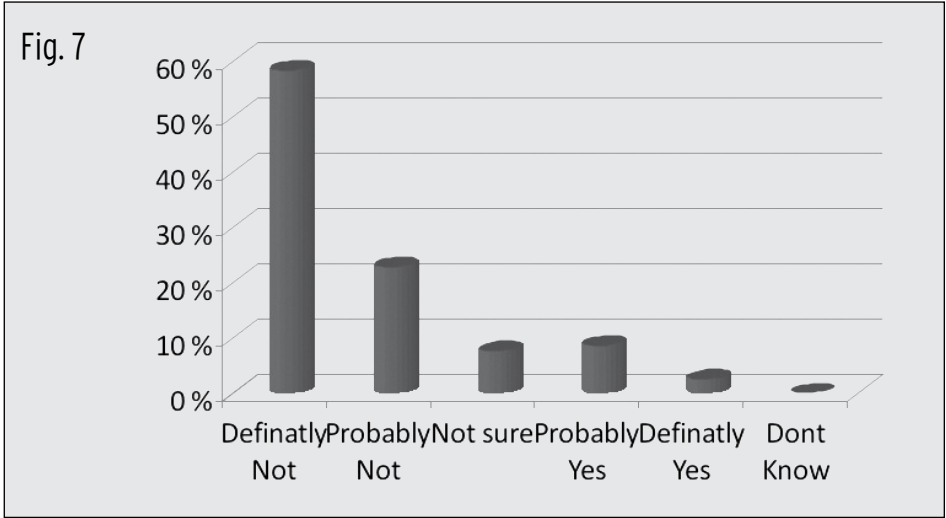
88% of the 197 respondents specified that their company currently does not employ disabled persons. 81% of these respondents said that their company has never employed disabled persons.

31.5% of the 143 respondents who indicated that their company has never employed any disabled persons explained that their company has never employed disabled persons because no such person has ever applied for any open vacancies within the company. Other respondents also specified that their company has never had any open vacancies. 27% attributed their never seeking to employ disabled persons, to the small size of the company. 16.8% of the participating respondents claimed that physical accommodation is a primary issue which has to be considered before a disabled person is employed. Another 16% specified that the job requirements and the qualifications needed for the particular vacancy are the main issues.

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This means that all information services and media relying on Maltese electronic text remain inaccessible to individuals.

This technology does not only have implications for disabled persons but also has applications that can be utilized within many industries and the commercial sector. The project is presently underway and will reach completion in 2012. The funding for the project is being Part Financed by the European Union, Operational Program 1- Cohesion Policy 2007-2013, Investing in Competitiveness for a better Quality of life, entitled European Regional Development Fund (ERDF) 114-Maltese Text to Speech Synthesis.

www.ppcd.gov.mt

What is Speech Synthesis?

Speech synthesis is the artificial production of human speech. Computer hardware or software used for this purpose is called a speech synthesizer. A text-to-speech (TTS) system converts written text into speech; other systems render symbolic linguistic representations like phonetic transcriptions into speech.

The quality of a speech synthesizer is judged by its similarity to the human voice and by its ability to be understood. Some computer systems have included speech synthesizers since the early 1980s. Technology and speech output has improved considerably over the years.

Uses for the Maltese Speech Engine

The Maltese Speech Engine will allow users and application developers to convert electronic Maltese text to speech audio output, whilst conforming to industry standards. When integrated within other software applications, this will provide a Maltese speech interface for websites and software (See ICT Accessibility Audits article on page 11).

The Maltese Speech Engine will also benefit disabled persons using assistive ICT. This software will have a wide reaching effect, with repercussions across other initiatives listed here and the activities of other organizations which make use of speech enabled software.

This project is part of the European Regional Development Fund in conjunction with the

KNPD

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Malta Information Technology Agency
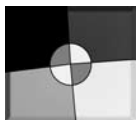
MCCF THE MALTA COMMUNITY CHEST FUND

Ministry of Education
Employment and the Family

University of Malta

GO

melita

Microsoft ®

Planning, Priorities Coordination Department (PPCD) and the Ministry for Infrastructure, Transport and Communications (MITC).

These and FITA's other endeavors contribute towards the economic and social participation of disabled persons. Without accessible towns and villages inclusive IT and, control over social care, disabled persons remain outsiders. However, with these, disabled persons can become net contributors to society.

Assistive ICT Consultancy

FITA assists disabled persons, educators and employers in providing the best ICT solutions to match the requirements and goals of disabled persons within specific environments. Our consultation services provide guidance and advice on the availability and procurement of accessible technology and its effective use. This includes screen readers, magnifiers and communication aids which make active use of speech synthesis in order to reproduce on screen text in audio format. The availability of a Maltese Speech Engine will augment the potential use of this technology and help ensure business can retain its competitive edge by holding on to the human resources it invested in and developed through the years.

Partners: Malta Community Chest Fund (MCCF), Physically Handicapped Rehabilitation Fund (PHRF), Malta Communications Authority and the Directorate for Education Services

ICT Accessibility Audits and Research

A Maltese Speech Engine will promote the use of e-services by enhancing access to Maltese information content of accessible websites. One of FITA's core services is the assessment and certification of websites, based on the Web Accessibility Initiative (WAI) guidelines. It is of little use to speech enable web browsers, if the websites remain inaccessible to end users. FITA's audit services therefore cater for websites, software and hardware solutions, in order to promote universal design principles and compatibility with speech enabled products.

Partners: Malta Information Technology Agency (MITA), Kummissjoni Nazzjonali Persuni b'Dizabilita' (KNPD)

Career and Opportunities in ICT

FITA provides accessible ICT training to persons with a visualimpairment and intellectual impairment. This training is carried out in the English language since there exists no usable Maltese Speech Engine

which can work with screen readers. ICT training courses are provided in collaboration with the Malta College of Arts Science and Technology, (MCAST), the Employment Training Corporation (ETC) and the Education Life Long Learning Department. The courses consist of all ECDL Modules, Maltese Literacy training using ICT resources, MyWeb ICT training and ICT training for the blind and visually impaired. The *European Computer Driving Licence is a European wide qualification which enables people to demonstrate their competence in computer skills.* The availability of a Maltese Speech Engine shall encourage other students whose first language is Maltese, to make a more effective use of computers. This is doubly important, since these courses also act as an incentive for disabled students to study further and obtain ICT Industry Certification in combination with MCAST ICT courses.

Partners: Directorate for Educational Services, MCAST, Ministry for Infrastructure, Transport and Communications (MITC)

Educational Software in Maltese

FITA is developing educational programs targeted towards individuals whose first language is Maltese. This software will become much more effectives once we are able to integrate the Maltese Speech Engine with it, as this will give us the flexibility of converting

A SPEECH INTERFACE, WILL GREATLY ENHANCE THE ACCESSIBILITY OF WEBSITES AND SOFTWARE

Maltese text to audio speech, and not be limited by pre-recorded voice messages.

Partners: MITA , Directorate for Educational Services, Speech and Language Department , Dar Tal-Providenza

Computer Refurbishment Workshop

For different reasons, not all disabled persons may make the most effective use of a brand new computer. In some cases FITA may consider that disabled persons can effectively benefit from using older computer equipment, which better matches their needs. Since May 2006, this initiative has evolved so as to include a new workshop at the Physically Handicapped Rehabilitation Centre in Paola. The Maltese Speech Engine can form part of the basic toolset which comes pre-installed on these computers, in order to better assist users in learning ICT when using these computers.

Partners: PHRF, MCCF

Speech Synthesis and FITA's ICT Accessibility Audits Service

The ICT audits service, guides clients (for example website owners) in implementing technology industry standards successfully and gaining maximum benefit from it. By evaluating the implementation of accessibility across ICT projects, FITA ensures that there is the technical framework necessary for the Maltese Speech Engine to perform effectively.

FITA endorses the most widely used international accessibility standards, the Web Content Accessibility Guidelines (WCAG). FITA's reports are written in non-technical language for managers who are responsible for websites but who may not have a technical background. We also provide a technical checklist in order to guide developers.

Speech synthesis has long been a vital assistive technology tool and its application in this area is significant and widespread. It allows information barriers to be removed for people with a wide range of disabilities or literacy difficulties.

The longest application has been in the use of screenreaders[1] for people with visual impairment,

but text-to-speech systems are now commonly used by people with dyslexia and other reading difficulties as well as by pre-literate youngsters and illiterate persons, especially within edutainment products.

Maltese Government policy recommends conformance rating with the WCAG as the standard that all public sector website should achieve. Through close collaboration with MITA, FITA provides ICT audits as part of the quality assurance services of MITA, for new public sector websites.

FITA's audit services also assist commercial entities, by helping improve the accessibility of ICT products and by providing support in the implementation of WCAG guidelines. This process will:

- show where your product stands in conforming with the WCAG;
- indicate how it can be improved;
- guide you in drawing an implementation plan to improve accessibility;
- give you a basis for deciding whether to amend the identified accessibility issues or redevelop the product.

A speech interface, will greatly enhance the accessibility of websites and software, by

reaching out to users who have difficulty accessing written text. Accessibility audits help identify what elements of software, hardware and websites are accessible and which need to be improved.

You probably need to have an accessibility audit carried out if:

- your organisation is in the public sector or is otherwise obliged or committed to achieving accessibility (for example, because of corporate policy); and
- you do not have independent proof that it meets WCAG accessibility; or
- you know that the site is not compliant with WCAG 1.0 or 2.0 (as obliged by law).

Accessibility audits are very useful first steps on the road to accessibility. However, it is important to remember that accessibility audits are not a goal in themselves. Carrying out an audit, in many cases, will be

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1   Screenreaders are software typically used by blind persons in order to have text which is displayed on computer screens, read to them via the computer speakers. However, screenreaders can provide much more information to the user, allowing them to use computers without the need for human assistance.

the first step towards achieving the real goal of heightened awareness about the importance of accessibility and universal design for reaching a much wider audience and clientele therefore it also makes business sense.

In the medium to long run, a change in corporate culture will lead to improved capacity within your organization so as to maintain this level of accessibility. In tough economic times, disability equality matters more, not less. We must avoid creatin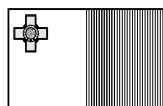g new inequalities and must target scarce resources where they are needed most, so that all members of society can contribute according to their abilities.

FITA funding partners are blue-chip business organizations that, by using these services, and supporting the development of a Maltese Speech Engine, provide tangible evidence, that these crucial values are being upheld.

Partners: Directorate for Educational Services, MITC, MITA Associations of Blind Persons, Microsoft Corporation

WE MUST AVOID CREATING NEW INEQUALITIES AND MUST TARGET SCARCE RESOURCES