



SKILLS FOR THE FUTURE

REPORT ON SKILLS FOR THE FUTURE

Report by the National Commission for Higher Education on the
outcomes of the conference held on 19th September 2008

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ACKNOWLEDGEMENTS

This report is the result of dialogue between all stakeholders of the education sector. I thank all the participants, heads of institutions, government agencies and stakeholder representatives that collaborated with the NCHE to make this report possible.

I thank the Minister for Education, Ms. Dolores Cristina for her support, and Permanent Secretary, Mr. Francis Borg, for supporting and chairing the conference.

Ms. Kirsten M. Miller, economist by profession and member of the NCHE secretariat, has collated all information submitted during and following the conference and has followed up with additional desk research and thorough analyses to produce this insightful report. I thank her for her commitment and rigour during the process.

I thank all NCHE Commission members for their analyses and recommendations, and all Commission Officers within the Secretariat for their professional organisation of the whole process so far.

I hope that readers find this publication mobilises more efforts towards continuous research on skills requirements for the future development of Malta.

Jacques Sciberras
Chief Executive Officer

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February 2009

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Published by: National Commission for Higher Education

ISBN 978-99957-22-01-2

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FOREWORD

This report is a tangible experience of our realities. Its backbone is the result of conference which brought together more than 200 experts in dialogue to share knowledge and understanding about their sectors. Following this initial effort, research was undertaken to identify what information and data is readily available, and what areas and sectors require further analyses in the future to inform policy formulation on skills in the future.

The final part of the report outlines a number of recommendations which emerge from the findings of the conference and studies undertaken. They reflect the views of the NCHE and propose further research actions related to this vital field of education policy, a set of possible actions that can be taken to address some of the initial findings of this report, and a general framework to address the subject with a long term view in mind.

This provided the NCHE with a learning experience of the dynamics of our society, which I look forward to share with many.

I hope this study is the beginning of a process that will lead to continuous research, in depth analyses of the country's future opportunities and threats, and cautious interpretations of short and long-term trends into educational strategies. Better information will lead to more effective policies and outcomes.

Kirsten M. Miller
Commission Officer



“Hu d-dover tagħna lkoll li naħdmu flimkien biex nassiguraw ruħna li pajjiżna ma’ jkunx nieqes mill-ħiliet meħtieġa għall-iżvilupp kontinwu u l-kompetittività tagħna...”

Għandna nkunu kapaċi li nagħtu lill-istudenti tagħna l-bażi li fuqha jkomplu jaħdmu u jitgħallmu minn jeddhom, biex ikunu flessibbli fid-dinja tax-xogħol u jilqgħu l-isfidi li dinja dejjem aktar avvanzata tipproponilhom minn jum għall-ieħor.”

Hon. Dolores Cristina
Minister for Education, Culture, Youth and Sport

CONFERENCE PROCEEDINGS

On the 19th of September 2008 the NCHE organised a 'Skills for the Future' Conference. The Conference was aimed at addressing skills mismatches which exist in the economy as well as those which could emerge following growth in targeted sectors. Over 200 participants representing industry, commerce, employers, educational institutions, government sectoral agencies, students, and other social partners, attended the conference.

Hon. Dolores Cristina, Minister for Education, Culture, Youth and Sport, launched the conference highlighting the importance of human resource development as the cornerstone for all socio-economic development aspirations and the need to connect policy developments in education with the vision outlined by Government for 2015. The latter includes seven priority areas of development, aiming to transform Malta into a centre of excellence in tourism, financial, health, education, communication and IT and high value added manufacturing services. Additionally Gozo is to be further developed into an ecological island. The Minister pointed out that this requires substantial investment in Malta's human resources.

Representatives of industry, including Ms. Helga Ellul, Deputy President of the Federation of Industry, Mr. Stefano Mallia, Senior Vice-President of the Malta Chamber of Commerce, Mr. Lawrence Mizzi, Deputy President of the Malta Employer's Association, highlighted the importance of skills to sustain economic growth and high productivity rates. A balanced portfolio of skills must be on offer, and more adults in the workforce need to be engaged in training and re-training.

They urged for more students to be attracted into technical and science related programmes of learning, and underlined the crucial need to improve the soft skills and language proficiency of all students leaving education.

Mr. Joseph P. Sammut, Chief Strategy Officer of Malta Enterprise, and Mr. Felix Borg, Operations General Manager from the Employment and Training Corporation, mentioned the various initiatives of their respective development agencies in attracting foreign direct investment into growth segments of the economy and training those who are seeking to enter the labour market.

Prof. Juanito Camilleri, Rector of the University of Malta, shared the University's perspective on fast growth segments in the economy and the necessary response of education at all levels. In his address the Rector stated that education today is preparing students with skills for unknown challenges and opportunities they will face in the future. He echoed the importance of mathematics and language proficiency skills needed from the early stages of children's education and the mission of imparting a lifelong learning attitude in all students. The Rector stressed that skills gaps are a healthy indicator of new areas of development, and that fast responsiveness and adaptability to change are more important than perfect text-book knowledge of a specific subject, or a drive for certification.

Prof. Maurice Grech, Principal of the Malta College of Arts, Science and Technology, highlighted the high growth forecast in middle-skill jobs and the pivotal role of the college in delivering vocational programmes which respond to new work opportunities.

Two other expert interventions by Mr. Joseph F.X. Zahra, Managing Director of MISCO Ltd., and Mr. Torsten Dunkel, Project Manager, Research and Policy Analysis from CEDEFOP, delivered insights on skills gaps in Malta and Europe respectively.



“ it is important to keep science teachers and lecturers up-to-date. By setting up a system of sponsored sabbaticals for University, MCAST, and secondary school science lecturers, teachers are able to spend some months working in industry or pursue research related to developing skills in practical science... ”

... Teachers could also be enrolled into professional scientific associations with government sponsorship or work-resources if necessary. This will keep the material, the teachers and their teaching up to date.”

Ms. Helga Ellul
Vice President, Federation of Industry

WORKSHOP SESSIONS

Seven workshops addressed the key areas of excellence outlined in Government's Vision for 2015. These provided a space for more sector-specific discussions and a more in depth analyses of the skills gaps experienced. A general thrust which was echoed in every workshop was the need for the workforce to strengthen its soft skills and to have a good overall education. The workshop *rapporteurs* were asked to present a brief report on the findings of each workshop session, which are being incorporated in this report.

The conference was organised with the collaboration of:

- The Ministry of Education, Culture, Youth and Sport;
- The University of Malta;
- The Malta College for Arts, Science & Technology;
- The Institute for Tourism Studies;
- The Directorate for Educational Services;
- The Directorate for Quality & Standards in Education;
- The Malta Qualifications Council;
- The Employment & Training Corporation.

The seven workshops were chaired, addressed and reported by the following:

Tourism Workshop <i>Rapporteur:</i> Chair: Speakers:	Mr. Alfred Quintano (University of Malta) Mr. Mark Galea (Air Malta Plc) Mr. Reginald Abela (Institute of Tourism Studies); Mr. Karl Grech, (Malta Tourism Authority); Mr. George Schembri (Malta Hotels and Restaurants Association)
Financial Workshop <i>Rapporteur:</i> Chair: Speakers:	Mr. Philip Beattie (University of Malta) Prof. Charles Farrugia (Malta Financial Services Authority) Mr. Michael Xuereb (Malta Financial Services Authority); Mr. Simon Flynn (Malta Institute of Accountants)
Health Workshop <i>Rapporteur:</i> Chair: Speakers:	Dr. Sandra Buttigieg (University of Malta) Dr. Sandra Buttigieg (University of Malta) Dr. Sandra Buttigieg (University of Malta); Mr. Brian St. John (Foundation for Medical Services); Ms. Katya De Giovanni (Malta College for Arts, Science and Technology)
Education Workshop <i>Rapporteur:</i> Chair: Speakers:	Dr. Valerie Sollars (University of Malta); Dr. Paul J. Pace (University of Malta) Mr. Jacques Sciberras (National Commission for Higher Education) Mr. Jacques Sciberras (National Commission for Higher Education); Mr. Paul A. Attard (Malta College for Arts, Science and Technology)
Communication and IT <i>Rapporteur:</i> Chair:	Dr. John Abela (University of Malta); Mr. Charles Theuma (St. Martin's Institute); Mr. Mario Pace (Malta College of Arts, Science and Technology) Mr. Juan Borg Manduca (Malta College for Arts, Science and Technology); Mr. Marcel Cutajar (Chamber of Commerce), Mr. Ernest Cachia (University of Malta)
Manufacturing and related services <i>Rapporteur:</i> Chair: Speakers:	Dr. Ing. Jonathan Borg (University of Malta) Dr. Ing. Jonathan Borg (University of Malta) Dr. Ing. Jonathan Borg (University of Malta); Mr. Joseph Sammut (Malta Enterprise)
Gozo as an Ecological Island <i>Rapporteur:</i> Chair: Speakers:	Prof. Lino Briguglio (University of Malta) Prof. Lino Briguglio (University of Malta) Mr. Anthony Zammit (Ministry for Gozo); Mr. Joe Muscat (Calypso Hotel)



“...a Smart Society is one which understands its intrinsic strengths and weaknesses; the opportunities and threats posed by its Context, creates the right aptitude and skills, and deploys the right technologies, to preempt, or at least to adapt rapidly to Change...”

..our future is about well-rounded quality education not a mindless drive for certification; it's about life-long learning and continuous professional development; it's about research and innovation to sustain socio-economic growth”

Prof. Juanito Camilleri
Rector, University of Malta

EXECUTIVE SUMMARY

This report outlines the outcomes of a conference, organised by the NCHE, titled 'Skills for the Future' held on the 19th of September 2008. The conference was aimed at addressing skills mismatches which exist in the economy as well as those which could emerge following growth in targeted sectors. Over 200 participants representing industry, commerce, employers, educational institutions, government sectoral agencies, students, and other social partners, attended the conference.

Skills are capabilities and expertise in a particular occupation or activity. Skills can be measured by qualifications, and qualifications are in turn classified in levels. A skills gap emerges when an organisation's skill needs are not available amongst the capabilities of its workforce or in the labour market in general.

The prospects of the economy over the coming decade include the following:

- Over 37,000 jobs would be made vacant by retiring workers;
- Additionally, over 40,000 jobs need to be created to increase the activity rate of the labour force from 59% today to a target of 70%;
- In total, over 77,000 jobs will need to be created to achieve these activity rate targets;
- This implies that in the next decade:
 - for female activity rates to reach 41%, 16,600 women need to join the workforce;
 - for employment rates of 55-64 years olds to reach 35%, 3,400 older workers need to be retained within the workforce;
 - 34,200 people from the inactive or active population would need to upgrade their skills to higher qualification levels;
 - 63,500 of the same cohorts would have to update their skills from low to medium qualifications;
 - the proportion of low skilled workers needs to fall drastically.
- For education this implies that:
 - for target participation rates to be achieved, students aged 16-24 need to increase by 40%, from 31,000 students to 43,500 students in any year;
 - the funding allocation towards further and higher education would also need to increase by around 40% (not factoring for economies of scale and efficiencies), costing around € 140 million more over the next 7 years.

The report outlines the main prospects of retirement and job creation in seven areas of excellence as outlined by Government's Vision 2015. They include: Tourism; Financial services; Health services; Education services; Communications and IT services; Manufacturing and related services and Gozo as an ecological island. Additionally, based on feedback from participants the NCHE added the Marine sector.

Altogether, these sectors have the potential of creating 30,000 jobs.

In view of this the NCHE recommends the following strategic response:

- Undertake more research, provide better statistics and develop foresight capacity to identify trends and anticipate change;
- Create synergies between education, business and government development agencies;
- Professionalise the guidance services in schools and in further education institutions;
- Develop a more responsive education sector;
- Address skills gaps identified.

1. THE IMPORTANCE OF SKILLS

“Skills are capabilities and expertise in a particular occupation or activity...a vital determinant of prosperity, driving national productivity and employment, businesses’ ability to take advantage of new opportunities and individuals’ career prospects...[and] also a key determinant of fairness”¹

The Leitch Report on future skills presented to the British Government in 2004 classifies skills as a mixture between basic and specific skills. The American Society for Training and Development² refers to basic skills as the “three R’s”, (reading, writing and arithmetic) whilst specific skills relate on the other hands to particular occupations (technical and professional skills, management skills and emotional intelligence) and are often times less transferable between occupations.

Skills can be measured by qualifications, and qualifications are in turn classified in levels. The development of the National Qualifications Framework by the Malta Qualifications Council and the work being done to map specific sectoral skills is vital to this end (vide Annex 1).

Qualifications allow employees to demonstrate the skills they have acquired, facilitate portability within the labour market, and motivate individuals and employees to complete their training. Whilst for employers, qualifications are an important part of recruitment strategies and influence at large the training that is offered to their employees.

A skills gap on the other hand is a significant gap between an organisation’s skills needs and the current capabilities of its workforce. A skills gap will undermine the competitive advantage of a business and the country in general. Hence the workforce needs to have the capacity to continually learn and update their skills, allowing them flexibility and economic security.

The reasons for a skills gap can be grouped into four headings:

1. Changing job requirements;
2. Labour supply fluctuations;
3. Education institutions not addressing needs to industry;
4. Lack of business investment in the workforce.

Changing job requirements may result with rapid growth opportunities in sectors, economic booms and troughs and technological changes. Such changes will affect the occupational skills which are needed in the industry in general and the mix of skills used to perform tasks specifically. The latter is often times brought about by technological improvements.

The labour supply is the sum of the full-time gainfully occupied population and the registered unemployed population (actively looking for employment). The labour supply in addition to the inactive population, aged between 15 and 64, then provides the working-age population. Hence the number of active people is directly influenced by the number of students furthering their education and not joining the labour market and the number of men and women who are willing and able to seek employment or to be employed. The labour supply is also greatly influenced by the retirement age and the retirement level.

¹ The Leitch Review (2006), ‘Prosperity for all in the global economy – world class skills’, Final Report, December

² American Society for Training and Development Public Policy Council (2006), ‘Bridging the Skills Gap, How the Skills Shortage Threatens Growth and Competitiveness...and What to do About It.’

Educational and training institutions have a central role to play. They provide the labour market with skills and knowledge through their students. If no link exists between industry needs and the subjects being taught in education centres, skills gaps emerge. Also the education system in conjunction with career guidance teachers bears the responsibility of providing students and parents with information on the most suitable subject choices and career paths. Therefore better quality information will permit students to make more suitable choices which will increase their chances of finding better career opportunities.

Therefore a multi-faceted strategy for improving people, industry and the economy requires that education policy is integrated with employment and social policies. The Lisbon strategy suggests that *“Structural change, greater labour market participation and productivity growth require that there is a continued investment in a highly skilled and adaptable workforce.”*³

The Lisbon strategy’s⁴ priority of ‘Creating more and better jobs’ is based on the following three main points:

- Attracting more people into employment and modernising social protection systems;
- Increasing the adaptability of workers and enterprises and the flexibility of labour markets;
- Investing more in human capital through better education and skills.

The next chapter will attempt to give a macroeconomic overview of the dynamics of the working age population and the influences education systems have on the accompanying labour supply. This will set the undertones for the forecast of qualifications and skills in Malta and comparisons to European Union countries. Reference is made to the recent CEDEFOP report of forecasting skills, ‘Future Skills Needs’. This chapter concludes with a financial outlook of education.

Chapter three will address the forecasting of skills gaps and changes in skill demand in the various sectors and industries in Malta with some insight and comparisons to European Union Member States. The CEDEFOP research paper showing forecasts of occupational changes across all sectors in Malta is analysed in this context. The current skills base of each of the seven areas of excellence of the Government’s Vision for 2015 and the marine sector are the focus of this study.

Chapter four proposes an action plan for businesses and other organisations to identify skills gaps more proactively.

Chapter five puts forward a set of NCHE recommendations which call for a better understanding of skills mismatches. Students, parents, institutional governance and policy makers all need more and better information on which to base their decisions regarding the provision and choice of skills.

³ European Commission (2005), “Working together for growth and jobs – A new start for the Lisbon Strategy”, COM (2005) 24

⁴ Ibid

2. THE MALTESE LABOUR MARKET

The total working age population in Malta between April and June of 2008 was at 344,748⁵, the labour supply was at 170,129, with 10,254 persons being registered as unemployed and the remaining 159,875 being gainfully occupied.

The activity rate measures the labour supply as a share of the total working population. In 2008 this was around 58.8%. Of the active share of the working population, 76.2% were males and 41% females. Table 1 hereunder shows activity rates by age cohort: 50.9% of the 15-24 year old cohort was active, whilst 71.7% of the 25-54 and only 28.7% of the 55-64 year olds were active.

TABLE 1: ACTIVITY RATES BY AGE GROUP IN 2008

Age group	Males	Females	Total
	%	%	%
15-24 years	52.4	49.3	50.9
25-54 years	94.2	48.3	71.7
55-64 years	45.4	12.8	28.7
	76.2	41.0	58.8

Source: National Statistics Office, 2008

Malta's labour market faces broad challenges which include: low activity rates in total; high early retirement rates; low female participation rates; and high levels of early-school-leavers. These are addressed in further detail in the following sections.

ACTIVITY RATES

The need to create more jobs and to aim for higher activity rates derives from the need to sustain increasing social costs (like an ageing population, lower birth rates, and increasing competition). The need to spread a future burden on a broader share of the working age population means that more people will need to be attracted to work or shall be seeking for work. One of the Lisbon targets is to achieve an activity rate of 70% by 2010. If this target is met in the coming decade it would imply that Malta will need to create around 40,000 new jobs over and above those which exist already. 40,000 workers that would otherwise not work will need to obtain the necessary education and training to acquire knowledge and skills for such new jobs.

The Demographic Review of 2006⁶ projected that at the end of 2007, 57,700 people were between 55 and 64 years of age. The activity rate of 28.7% in this age bracket means that 16,600 continued working and 41,000 retired. Should the average retirement age remain at around 55 years in the next decade then at least another 41,000 would retire in this period. If on the other hand the employment rate (hence excluding those of the active population which are unemployed) for older workers is increased to 35%, as suggested in the National Report on Strategies for Social Protection and Social Inclusion for 2008-2010⁷, then the ratio would change to 20,000 in employment and 37,500 out of the workforce⁸.

The phenomenon of simultaneous ageing and shrinking populations affects the age structure of the total working population. Table 2 shows that both the absolute and relative numbers of the 15-24 and 25-54 age cohorts will continue to fall, whilst those

⁵ National Statistics Office (2008), News Release 173/2008, Labour Force Survey: Q2/2008, Malta

⁶ National Statistics Office (2007), Demographic Review 2006, Malta

⁷ National Report on Strategies for Social Protection and Social Inclusion 2008-2010, pg 22, Malta, 2008

⁸ Assuming the population in the age cohort remains equivalent to 2007 figures.

for the 55-64 age cohort will be increasing in the coming years. Unless both the overall activity rates and the average retirement ages increase, the country will face a smaller working age population and hence a smaller labour supply.

TABLE 2: TOTAL POPULATION GROWTH ANALYSIS BY AGE GROUP BETWEEN 2007 AND 2050

Ages	2007		2015		2050	
	000's	%	000's	%	000's	%
0-14	66.60	16.3	60.90	14.7	46.30	12.0
15-24	57.5	14.0	50.2	12.1	33.9	8.8
25-54	171.5	41.9	175.8	42.5	156.6	40.5
55-64	57.7	14.1	58.1	14.1	61.0	15.8
64 +	56.5	13.8	77.0	18.6	101.4	26.2
All ages	409.6	100.0	413.3	100.0	386.9	100.0

Source: National Statistics Office, 2007

These demographic shifts change the age dependency ratio (a measure showing the number of dependents as a percentage of the working age population). This would change from 43% in 2007 to 49% by 2015 and 59% by 2050. In 2007, 2.33 workers supported one dependent; by 2015 this ratio will fall to 2.04:1 and to 1.69:1 by 2050.

The old-age dependency ratio (calculated as the number of 61 year olds and over, as a share of the 16-60 year old population) for 2005 was at 19.3%, with projection of growth to 20.4% in 2010 and 40.6% in 2050⁹. Unless Malta has a net influx of persons in the labour market or the workforce increases its productivity rate, the workforce will face a substantial increase in tax burden in the future.

Female participation is another key issue. In November 2008, Eurostat published data on employment which showed that in 2007 Malta had the highest employment rate gap between men and women in the EU, with a disparity of 37.3 percentage points¹⁰. However, female employment in the second quarter of 2008 was 31.5% up from 29.5% a year earlier¹¹. The National Report on Strategies for Social Protection and Social Inclusion for 2008-2010 is targeting a female employment rate of 41% by 2013, implying an increase of around 16,600 women in the workforce, if the female population remains constant. This is being supported by measures such as childcare provision, more flexible working conditions and family-friendly work measures as well as training targeted directly at this segment.

All these trends will have an effect on the future labour market. These include:

- At least 37,500 jobs would be made vacant by retiring workers in the coming decade, assuming constant population in this group.
- Another 40,000 people will need to join the labour force over and above those that work today to increase activity rates from 58.8% to 70%. These include:
 - 16,600 more women require employment to reach 41% female activity rates;
 - of the 55-64 year olds, 3,400 more would need to remain actively employed to increase their employment rates to 35%.
- In total, 77,500 jobs will need to be created to sustain these target activity and retirement rates.

⁹ National Report on Strategies for Social Protection and Social Inclusion 2008-2010, pg 22, Malta, 2008

¹⁰ The Times of Malta (2008), 'Malta narrows employment rate between men and women, still widest in EU', Thursday, November 13, 2008

¹¹ National Statistics Office (2008), News Release 173/2008, Labour Force Survey: Q2/2008, Malta

Can the labour market sustain these activity rates? Chapter 3 outlines the job creation potential of the seven priorities areas identified by government in its Vision for 2015.

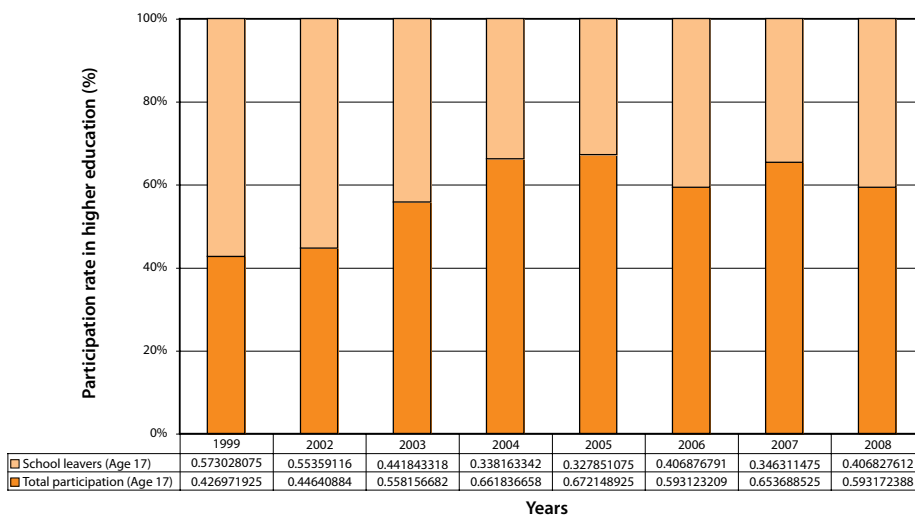
The growth from these sectors alone will generate less than 50% of the 77,500 vacancies forecasted for up to 2015.

EDUCATION PARTICIPATION RATES

The rate of early school leavers¹² determines how many young persons enter the active or inactive portion of the labour supply, and with what level of skills they enter. This is a crucial factor on their ability to find and maintain employment in the long run. In 2007 Malta had an early-school-leaver's rate of 37.3% whereas the EU average was at 15.2%¹³. The EU targets are to reduce the rate to less than 10% by 2010.

At 17, most students in Malta would have completed the secondary level of education, progressed into post-secondary education or left school, but would not have yet started attending University. Table 3 shows the gradual change in the choices made by 17 year olds across 1999 to 2008. The average participation rate of 17 year olds in post secondary education during the last 5 years was on average of 63%¹⁴.

TABLE 3: 17 YEAR OLD STUDENT POPULATION PARTICIPATING IN FURTHER AND HIGHER EDUCATION, 1999-2008



Source: National Statistics Office, 2008

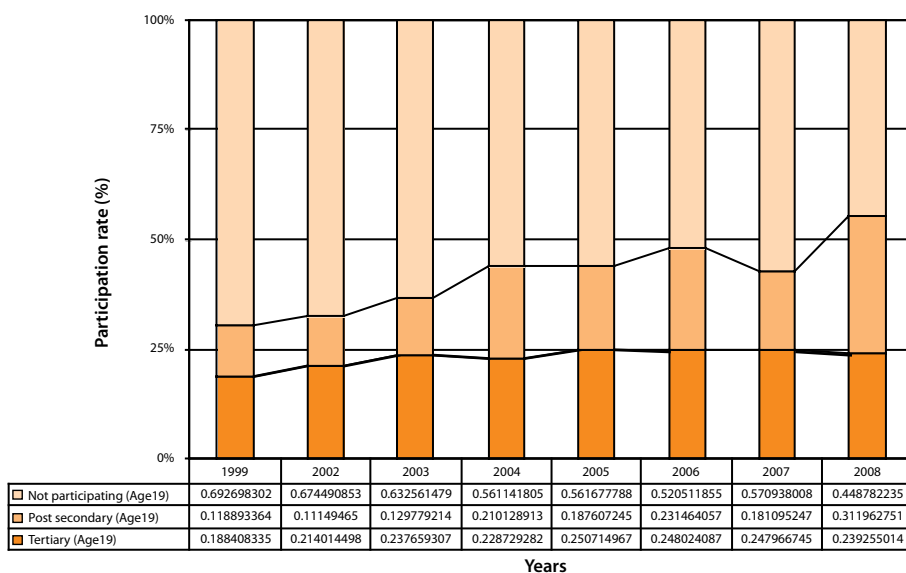
Table 4 illustrates the same analysis extended to age 19 where most students proceed to University or MCAST programmes. At age 19, 45% are no longer participating in education and hence already form part of the labour supply.

In 2008, 31% of 19 year old students were participating in post secondary vocational programmes whilst 24% were following tertiary level programmes. In 2008 there was a significant improvement in the participation rate with 55% of 19 year olds participating in further and higher education. This increase was brought about by the number of students participating in the vocational sector, predominantly at MCAST.

¹² Measured as the percentage of the population aged 18-24 with at most lower secondary education and not in further education or training.

¹³ Eurostat website - Eurostat Structural Indicators - Early School leavers in Europe http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,39140985&_dad=portal&_schema=PORTAL&screen=detailref&language=en&product=EU_SI_main&root=EU_SI_main/si_si_sc/tsisc060

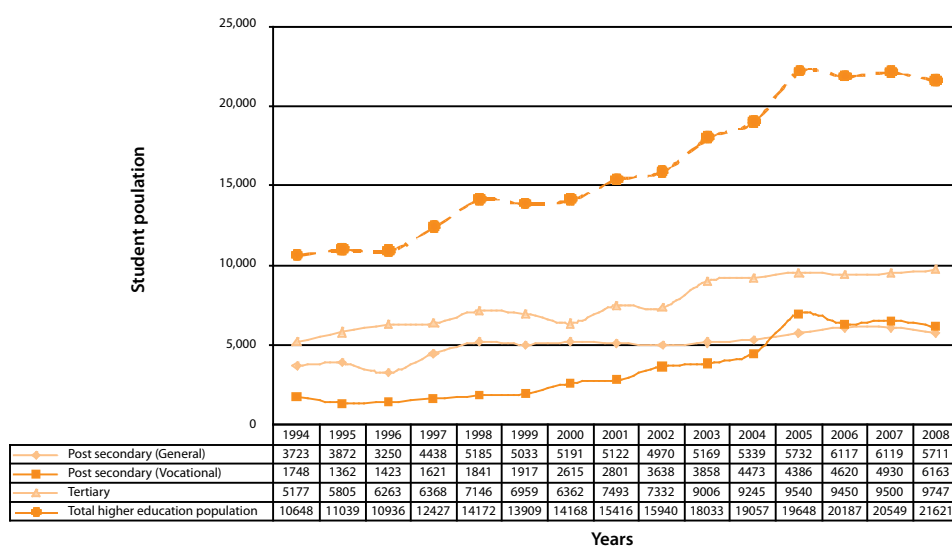
¹⁴ Small shifts in numbers may create between 3-5% variance due to distribution age around the reference date of 31st March used in the survey which generated this data.

TABLE 4: 19 YEAR OLD STUDENT POPULATION PARTICIPATING IN FURTHER AND HIGHER EDUCATION, 1999-2008


Source: National Commission for Higher Education, 2008

The total participation levels in further and higher education are shown in Table 5. This table shows that from 2005 onwards the tertiary population and post secondary general levels remained constant. The increase results mainly from post secondary vocational education which also seems to be reaching a plateau in recent years.

A strong link between progression into general post-secondary programmes and tertiary level programmes is strongly linked to the education outcomes of earlier years, as well as social realities and lucrative low skilled job opportunities on the market.

TABLE 5: TOTAL DAY AND EVENING PROGRAMME STUDENT POPULATION IN FURTHER AND HIGHER EDUCATION, 1994-2008


Source: National Commission for Higher Education, 2008

QUALIFICATION LEVELS

Participation rates in different fields of study and at different levels of education define the potential of Malta's future workforce. Scarcity and skills mismatch will emerge not only as a result of lack of jobs or of persons seeking employment in specific occupations, but also as a result of a lack of persons educated in a number of important areas of specialisation.

Table 6 below shows how labour market inflows are influenced by changes in participations rates of 16-18 years olds. The aim is to increase the participation rates from 63% today to 85% by 2015¹⁵. In 2008, 31,000 students between 16 and 24 are participating in education. If targets are reached this would mean an increase to around 43,500¹⁶- an increase of 40% over the 2008 student population.

TABLE 6: PROJECTED 16-24 YEAR OLDS PARTICIPATING IN EDUCATION, 2008-2015

Participation Rates		Year							
		2008	2009	2010	2011	2012	2013	2014	2015
16-18 year olds									
Live Births	No.	16,144	15,923	15,447	14,586	14,477	14,499	14,556	13,921
Participation Rates	%	63%	66%	69%	72%	75%	78%	81%	85%
In Education	No.	10,171	10,509	10,658	10,502	10,858	11,309	11,790	11,833
Not in Education	No.	5,973	5,414	4,789	4,084	3,619	3,190	2,766	2,088
18-24 year olds									
Live Births	No.	38,045	48,397	37,820	37,722	37,234	36,314	35,765	35,268
Participation Rates	%	55%	60%	65%	70%	75%	80%	85%	90%
In Education	No.	20,925	29,038	24,583	26,405	27,926	29,051	30,400	31,741
Not in Education	No.	17,120	19,359	13,237	11,317	9,308	7,263	5,365	3,527

Source: National Commission for Higher Education, 2008.

The population of 16-24 year olds in 2015 will be of around 82,300. If education participation rates mentioned earlier are reached, then around 21,000 of these students will be highly qualified, 35,000 medium qualified and 26,200 low qualified as shown at the bottom of Table 7.

TABLE 7: PROJECTED QUALIFICATION LEVELS OF STUDENTS, 2008-2015

		2008	2009	2010	2011	2012	2013	2014	2015	Total
16-24 year olds	No.	48,821	-	-	-	-	-	-	-	
Incoming 16 year olds	No.	-	5,147	4,823	4,613	5,038	4,848	4,670	4,403	82,363
Participation Rates										
Tertiary Education	%	24.4	25.2	26.0	26.8	27.6	28.4	29.2	30.0	
Post Secondary Education	%	38.8	41.1	43.4	45.7	48.0	50.4	52.7	55.0	
Not in Education	%	36.8	33.7	30.6	27.5	24.4	21.3	18.1	15.0	
Distribution of Qualifications										
Highly Qualified	No.	11,912	1,297	1,254	1,236	1,390	1,377	1,364	1,321	21,151
Medium Qualified	No.	18,943	2,116	2,094	2,110	2,420	2,441	2,459	2,422	35,004
Low Qualified	No.	17,966	1,734	1,475	1,267	1,227	1,030	847	660	26,207

Source: National Commission for Higher Education, 2008

¹⁵ National Reform Programme 2008-2010

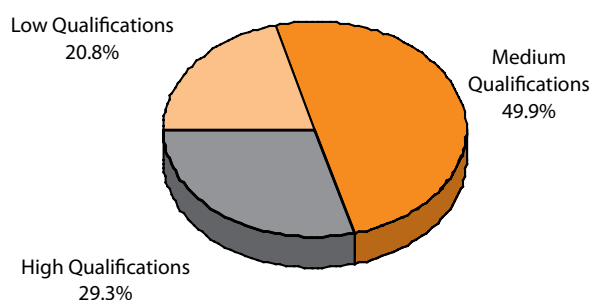
¹⁶ The figure includes double counting on the 18 year old cohort.

A CEDEFOP¹⁷ report published earlier this year presents a medium-term forecast of skills needs in the future, which suggests a total demand of 78,000 (consisting of expansion demand and replacement demand) for Malta up to the year 2015.

This report forecasts also the necessary distribution of qualifications of the EU-25 workforce in 2015, which shows that more high and medium qualifications will be demanded. On the contrary, jobs with low qualifications, in all occupational groups, will fall substantially until 2015¹⁸. Table 8 shows projections for skills demand in the workforce of the EU-25 by 2015. Around 29% will require high qualifications, around 50% of the workforce will need medium qualifications and only 20.8% will suffice with low qualifications.

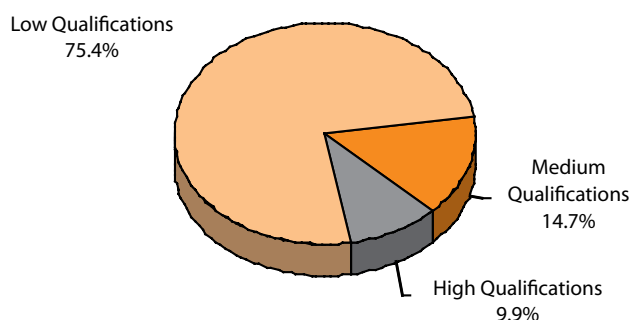
In sharp contrast, Table 9 shows the Labour Force Survey of 2007¹⁹ estimates that around 10% of the Maltese workforce had high qualifications, 14.7% had medium qualifications and more than 75% had low qualifications. A significant gap exists.

TABLE 8: DISTRIBUTION OF QUALIFICATIONS OF EU-25 WORKFORCE, 2015



Source: CEDEFOP, 2008

TABLE 9: DISTRIBUTION OF QUALIFICATIONS OF MALTA 15+ POPULATION, 2007



Source: National Statistics Office, 2008

Table 10 shows how in 2007 45.6% of those with low levels of qualifications, 71.7% of those with medium qualifications and 85% of those with high qualifications were in employment. These figures compare well with those of the EU-27 countries.

¹⁷ CEDEFOP (2008) 'Future Skill Needs in Europe, Medium-term Forecast, Synthesis Report', Luxembourg, Office for Official Publications of the European Communities

¹⁸ Low qualifications (ISCED 0-2) include pre-primary, primary & lower secondary education; medium qualifications (ISCED 3-4) consist of upper secondary and post-secondary non-tertiary level of education and high qualifications (ISCED 5-6) suggest tertiary education.

¹⁹ National Statistics Office (2008), Labour Force Survey 2007, pg 6, Malta

TABLE 10: EMPLOYMENT RATES BY HIGHEST LEVEL OF EDUCATION ATTAINED (24-64 YEARS), 2000-2007

Qualification	ISCED 0-2		ISCED3-4		ISCED 5-6	
	Low		Medium		High	
	%		%		%	
Year	Malta	EU-27	Malta	EU-27	Malta	EU-27
2000	49.4	48.8	70.3	68.3	85.5	82.4
2001	49.3	47.9	67.2	68.3	86.2	82.8
2002	50.0	47.4	67.6	68.0	84.4	82.6
2003	49.0	47.6	69.3	68.0	84.1	82.7
2004	46.3	47.1	65.8	67.9	86.1	82.6
2005	45.1	47.5	74.8	68.4	82.6	82.7
2006	45.0	48.0	72.5	69.4	81.9	83.2
2007	45.6	48.6	71.7	70.3	85.1	83.9

Source: Eurostat, 2008

Eurostat data²⁰ shown in Table 11 presents the percentages of each age cohort of the population who have a low level of education attainment. A comparison is made between EU-27 countries and Malta.

TABLE 11: DISTRIBUTION OF PEOPLE WITH LOW EDUCATIONAL ATTAINMENT, BY AGE GROUP, 2000-2007

Year	Aged 25-64		Aged 25-34		Aged 35-44		Aged 45-54		Aged 55-64		Aged 65+	
	Malta	EU-27	Malta	EU-27	Malta	EU-27	Malta	EU-27	Malta	EU-27	Malta	EU-27
	%		%		%		%		%		%	
2000	81.9	35.6	69.7	25.7	80.4	30.7	87.6	39.1	90.8	51.9	92.6	70.4
2001	80.7	35.1	68.0	25.3	81.3	30.4	85.2	38.2	89.1	51.2	95.5	70.5
2002	81.6	34.2	71.2	24.5	79.2	29.9	86.5	36.9	91.0	49.7	92.1	69.5
2003	80.2	33.0	65.7	23.7	79.5	28.9	86.6	35.6	89.2	47.8	91.9	68.3
2004	76.4	31.6	59.6	22.5	74.8	27.5	84.9	34.1	87.0	45.8	92.5	67.3
2005	74.7	30.6	58.3	21.7	71.0	26.8	83.2	32.8	87.3	44.2	92.2	66.2
2006	73.9	30.0	56.6	21.3	70.2	26.3	82.8	32.1	86.1	42.9	90.9	65.0
2007	73.3	29.2	55.5	20.7	68.2	25.7	81.8	31.3	87.7	41.6	91.6	63.8

Source: Eurostat, 2008

All these statistics suggest that the workforce would have to achieve higher levels of qualifications altogether. Taking the 2008 labour supply as a basis and adding the 77,500 additional jobs which need to be created, would result in a demand for 55,700 more highly qualified graduates, 98,500 more medium qualified students, and 77,000 less low skilled workers and school leavers. This is necessary in the next seven years. These workings are shown in Table 12.

²⁰ Eurostat, Web link for persons with low educational attainment, by age group - http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,39140985&_dad=portal&_schema=PORTAL&screen=detailref&language=en&product=REF_TB_labour_market&root=REF_TB_labour_market/t_labour/t_employ/t_lfsi/t_lfsi_edu/tsdsc430

TABLE 12: INCREASE IN QUALIFICATIONS, 2008-2015

Qualifications	2008		2015		Difference
	%	Labour Supply	%	Labour Supply	
High	9.9	16,843	29.3	72,555	55,713
Medium	14.7	25,009	49.9	123,567	98,558
Low	75.4	128,277	20.8	51,507	(76,770)
Total	100.0	170,129	100.0	247,629	77,500

Source: National Commission for Higher Education, 2008

When comparing these figures to the education exit rates of Table 7, the following skills shortages can be envisaged:

- 21,000 highly qualified students will graduate in contrast to a potential demand for 55,700. 34,200 adults might need to update their skills to high qualification levels to retain employment.
- Applying the same analyses to medium qualified workers then 63,500 of the same active population would need to update their skills from low to medium levels.

FINANCIAL OUTLOOK OF EDUCATION

These targets have to be met by endeavour from the side of education policy and support in terms of capacity and infrastructure, resources and staffing, quality concerns and curricula updates. Looking at the financial aspect of investments in education, one finds that the amount devoted to further education approximated at around 0.55% in 2008 and is envisaged to grow to 0.6% in 2009 (holding the GDP at constant 2007 basic prices). These figures can be found in Table 13.

Expenditure on higher education will amount to 0.92% of GDP in 2009, whereas the European Union is demanding an investment equivalent to 2% of GDP, from both private and public sources, in order to raise participation rates and increase the quality of institutions²¹. Scholarships and stipends are apportioned around 0.4% of the GDP, equivalent to half that which is invested in higher education.

It is interesting to note that if the education participation rates mentioned earlier are met and the education system increases by around 40%, from 31,000 students aged 16-24 to 43,500 students, then the funding allocation towards further and higher education would also need to increase by around 40% (not factoring for economies of scale and efficiencies). Further and higher education would then cost around € 140 million more over the next seven years after which a decline in birth rates will start easing the capacity pressures on further and higher education systems as it has started easing on the schooling system at present.

The destiny of Malta's economy in the coming 40 years is being determined in today's schools, further and higher education institutions. The investment made today will determine if and how future workers will find employment and their future earning potential.

²¹ European Commission (2008), SEC(2008) 2719, Commission Staff Working Paper accompanying document to the report from the Commission to the Council on the Council Resolution of 23 November 2007 on Modernising Universities for Europe's competitiveness in a global knowledge economy, Brussels, European Commission.

TABLE 13: INVESTMENT IN EDUCATION, 2007-2009

	Actual 2007 €	App. Estimate 2008 €	Estimate 2009 €
Gross Domestic Product (a)	5,415,000,000	5,415,000,000	5,415,000,000
Total Further and Higher Education	76,590,316	92,470,000	105,211,000
Total Further and Higher Education as a % of GDP	1.41%	1.71%	1.94%
Total Further Education	22,688,819	29,626,000	32,516,000
Total Further Education as a % of GDP	0.42%	0.55%	0.60%
Total Higher Education	32,332,475	41,039,000	49,905,000
Total Higher Education as a % of GDP	0.60%	0.76%	0.92%
Total Student Support	21,195,023	21,315,000	22,242,000
Total Student Support as a % of GDP	0.39%	0.39%	0.41%
Total Policy	373,999	490,000	548,000
Total Policy as a % of GDP	0.01%	0.01%	0.01%

Note (a): GDP figure kept constant at 2007 values.

Source: Financial Estimates 2006-2008, Ministry of Finance.

“Labour markets send important signals about whether students are picking up the skills that society needs. The best [educational] systems are those that produce graduates who succeed in labour markets. ...education systems that produce large numbers of graduates who go to face unemployment, under-employment or difficulty in entering the labour market should ask themselves more directly if they are adequately fulfilling the role that society and citizens expect of them.”²²

The level of investment in education, the quality of education outcomes and the future prospects for Malta are inseparable.

²² Ederer, Schuller, Willms, (2008), University Systems Ranking: Citizens and Society in the Age of Knowledge, Lisbon Council Policy Brief

3. AREAS OF EXCELLENCE

The macro analyses of the previous chapter articulated the overall impact of structural economic changes on Malta's economy. The chapter made the observation that competition with developed economies and high standards of living depend on higher levels of skills in the workforce.

This chapter addresses the question of what sectors will require in terms of new skills, and attempts to present a conceptual framework of how the numbers, levels and types of skills required in the future can be estimated. The numbers need to be interpreted with caution and the lack of information or precision in the estimates should at best indicate the scope for more research and published information in this area. Notes, sources and assumptions taken for each sector can be found in Annex 3.

Changes in future skills requirements are a result of either industry effects or occupational effects: industry effects refer to changes in activity rates and retirement rates in the labour market as well as growth or decline scenarios within sectors; occupational effects on the other hand consist of changes in technology and other changes that effect the way work is organised and the tasks undertaken within jobs.

The next section provides an analysis of the demand and supply scenario of the seven sectors identified in the Government's Vision for 2015. The marine sector will also be addressed as a fast growth area as identified by many of the conference attendees and stakeholders.

The sectors promoted as Areas of Excellence and addressed in the next section include:

1. Tourism
2. Financial services
3. Health services
4. Education services
5. Communications and IT services
6. Manufacturing and related services
7. Gozo as an ecological island

The sector added after feedback was received is:

1. Marine

Each sector is represented by a table in the following pages, and for each sector an analysis of the sector's overall impact in the economy is made, followed by an estimate of the impact of this sector on the labour market. Wherever possible, the tables give an indication of the qualification levels within the sectors and the available or focused education institutions.

The final part of each table lists the vertical and transversal skills required in growing areas as identified through the various workshop presentations and discussions during the Conference on Skills for the Future as well as the reports received from *rapporteurs* of the workshops.

TOURISM SECTOR			
<i>The tourism sector comprises of hotels, restaurants, catering establishments and all other business activities which provide services or manufacture products for tourists. For the purpose of this report tourism sector is restricted to hotels, restaurants and catering establishments.</i>			
Sector	Contribution to Economy	5.43% of Gross Value Added - 2007 ¹ 24.3% of Gross National Product in 2007 ²	Sectoral growth potential 2.8% per annum ^{3, a}
	Share of total employment	8.3% in 2007 compared to 1% in EU27 ^{4, b} 13,000 people work in hotels and restaurants in 2007 ⁵	
	Job creation potential up to 2015	1,930 - retirees ^{6, c} 3,537 - new jobs ^{7, d} 5,467 - total job potential For every job created in the hotel and restaurants sector, 1.6 jobs are created in the economy ⁸	
Skills base	Education Level of Current Workforce	71% have a low level of qualification ⁹ 25% have a medium level of qualification ¹⁰ 135 students follow tourism related studies at the University of Malta ¹¹	
	Key Education Institutions	Institute of Tourism Studies University of Malta Malta Tourism Authority Employment and Training Corporation	

Skills Shortages	Vertical Skills for Growth Areas	Transversal Skills for All Areas
	Dynamic Packaging Green Holidays Heritage and Cultural Tourism Integrated Relational Tourism Health and Wellness Tourism Language Learning Agro-tourism	Operational skills, eg: Chef, receptionists ICT and Web Design Advanced Marketing and Sales Management Tourism Policy and Planning Service oriented skills Basic numeracy and language proficiency

Notes in Annex 3

FINANCIAL SERVICES SECTOR				
<i>The financial sector comprises of financial intermediation and related professional services, which include credit institutions, financial institutions, insurance companies and intermediaries, investment services companies and trust management companies, accountancy firms, law firms, corporate services companies and treasury management companies.</i>				
Sector	Contribution to Economy	12% of GDP in 2007 ¹ 4.37% of GVA in 2007 ²	Sectoral growth potential	30% per annum over the past 5 years ^{3, a}
	Share of total employment	5.07% of total workforce in 2008 8,000 people in August 2008 ⁴		
	Job creation potential up to 2015	1,072 - retirees ^{5, b} 5,000 - new jobs ^{6, c} 6,072 - total job potential 54% of vacancies are hard to fill		
Skills base	Education Level of Current Workforce ^{7, d}	40% have a low level of qualification 13% have a medium level of qualification 47% have a high level of qualification		
	Key Education Institutions	University of Malta Malta College for Arts, Science and Technology Institute of Financial Services Practitioners Institute of Financial Services Employment and Training Corporation Malta Institute of Accountants Malta Institute of Management Others		

	Vertical Skills for Growth Areas	Transversal Skills for All Areas
Skills Shortages	Islamic Banking	Communication skills
	Risk Management	Customer Handling skills
	Fund Management and Administration	Management skills
	Trust Administration	Language skills
	Report writing and data analysis for accounting profession	Team Working skills
	Accounting for insurance companies	Actuarial and Mathematical skills
	IT Professional skills	Problem Solving skills
	Insurance skills	Sales Techniques General business studies

Notes in Annex 3

HEALTH SERVICES SECTOR

The Health Sector includes all hospital activities, medical practice and dental practice activities, veterinary activities and social work activities.

Sector	Contribution to Economy	5.86% GVA in 2007 ¹	Sectoral growth potential ^{2a}	4.83% growth in elderly population between 1995-2003 18.3% growth in elderly population between 2007-2015
	Share of total employment ³	7.23% in 2007 11,311 people work in the health sector in 2007		
	Job creation potential up to 2015	2,555 - retirees ^{4, b} 2,070 - new jobs ^{5, c} 4,625 - total job potential		
Skills base	Education Level of Current Workforce	18.4% have a low level qualifications ⁶ 36.1% have medium level qualifications ⁶ 45.5% have high level qualifications ⁶ 97 students follow 'Health and Welfare' studies at a further education level ⁷ 1,290 students follow 'Health and Welfare' studies at a higher education level ⁷		
	Key Education Institutions	University of Malta Medical School Institute of Health Care, University of Malta Malta College for Arts, Science and Technology Employment and Training Corporation Ministry for Social Policy, Health and the Elderly		

	Vertical Skills for Growth Areas	Transversal Skills for All Areas
Skills Shortages	Allied health professions	Qualified Management
	Postgraduate general practitioners & trainers	Information and Communications Technology
	Nurse practitioners and trainers	Advanced Marketing and Sales
	Nurse specialists	Administrative skills
	Medical Tourism	Service oriented skills
	Operating department practitioners	Interprofessional knowledge
	Radiotherapists	Internationalisation
	Radiologists	Analytical skills
	Paramedics	Communication skills
	Care workers	'Non-routine skills'

Notes in Annex 3

EDUCATION SERVICES SECTOR				
<i>The Education Services sector includes services of primary, secondary education (including general education and technical and vocational education), tertiary education, as well as adult education and training.</i>				
Sector	<i>Contribution to Economy</i>	5.88% GVA in 2007 ¹	<i>Sectoral growth potential</i>	20% per annum ^{2,a}
	<i>Share of total employment</i> ³	8.66% in 2007 12,238 people working in education in 2007		
	<i>Job creation potential up to 2015</i>	3,318 - retirees ^{4, b} 1,012 - new jobs ^{5, c} 4,331- total job potential		
Skills base	<i>Education Level of Current Workforce</i> ^{6,d}	13.07% have low qualifications 29.6% have medium qualifications 57.2% have high qualifications 559 students are studying at the Faculty of Education at the University of Malta		
	<i>Key Education Institutions</i>	University of Malta		

	<i>Vertical Skills for Growth Areas</i>	<i>Transversal Skills for All Areas</i>
Skills Shortages	Language learning	Management skills
	Private tuition centres	Administrative and support skills
	Career guidance professionals	Marketing skills
	Professional Leadership	Service-oriented skills
	Psycho-social services	Problem-solving and analytical skills
	Science teachers	Communication skills
	Financial Services teachers	'Non-routine skills'
	ICT teachers	
	Primary school teachers	
	Adult educators	
Vocational subjects teachers		

Notes in Annex 3

COMMUNICATION AND IT SECTOR

The Communication and IT Sector comprises all those enterprises which provide services related to e-business, web design, software and programming.

Sector	Contribution to Economy ¹	14.09% of GVA in 2007 3rd highest % of GDP in EU27 Highest % of total exports in EU27	Sectoral growth potential	200 new companies to 2010 ²
	Share of total employment ³	5% (2004) 6880 people employed in ICT in 2004 4th highest in EU27 (EU27 average is 2.8%)		
	Job creation potential up to 2015	No retirees assumed 4,000 new jobs to 2010 ⁴		
Skills base	Education Level of Current Workforce ⁵	1,600 students follow 'Science, mathematics and computing' courses at a further education level 721 students follow 'Science, mathematics and computing' courses at a higher education level		
	Key Education Institutions	University of Malta Malta College for Arts, Science and Technology Ministry of Infrastructure, Transport and Communication		

	Vertical Skills for Growth Areas	Transversal Skills for All Areas
Skills Shortages	Specialised technical staff in:	Multiple programming languages
	graphics;	Marketing skills
	security and	Management skills
	software testing	Service-oriented skills
	Teaching and e-learning	Problem-solving and analytical skills
	Artistic and computer aesthetic skills	Communication skills
	Linguistics and computational linguistics	Language skills
	Neurology/psychology	Non-routine skills
Artificial Intelligence	Actuarial and mathematical skills	

Notes in Annex 3

MANUFACTURING AND RELATED SERVICES SECTOR

Manufacturing and related services includes all kind of processes through which production of goods is made possible, including also assembly and repairs.

Sector	<i>Contribution to Economy</i>	16.97% of GVA in 2007 ¹	<i>Sectoral growth potential</i>	Constant ²
	<i>Share of total employment</i> ³	16.68% in 2007 23,585 people employed in manufacturing in 2007		
	<i>Job creation potential up to 2015</i> ⁴	4,364 retirees new jobs N/A 4,364 total job potential		
Skills base	<i>Education Level of Current Workforce</i> ⁵	1,457 students follow 'Engineering, manufacturing and construction' courses at a further education level 786 students follow 'Engineering, manufacturing and construction' courses at a higher education level		
	<i>Key Education Institutions</i>	University of Malta Malta College for Arts, Science and Technology Employment and Training Corporation		

	<i>Vertical Skills for Growth Areas</i>	<i>Transversal Skills for All Areas</i>
Skills Shortages	Research and Development	Marketing skills
	Chemicals and man-made fibres	Management skills
	Electrical and optical equipment	Service-oriented skills
	Rubber and plastic manufacturing	Problem-solving and analytical skills
	Publishing and printing	Communication skills
	Environmental engineering	Language skills
		Non-routine skills
		Actuarial and mathematical skills
		Entrepreneurial skills

Notes in Annex 3

GOZO AS AN ECOLOGICAL ISLAND

Gozo as an ecological island implies a strategy which is made of Ecological Tourism, Ecological Research, ICT and other areas namely agriculture, processing of agri-products and health tourism.

Sector ¹	<i>Contribution to Economy</i>	This progress would provide Gozo with the right sustainable development which is in conformity with the natural characteristic environs of Gozo and it would also make up for the disparity in the socio-economic development of Gozo.
	<i>Needed Contribution to employment</i>	Employment in Gozo is on the decline, with a large proportion of Gozitans working in Malta. Also unemployment is highest in Gozo by region.
	<i>Main ideas</i>	<ol style="list-style-type: none"> 1. Transferring research activities related to this area to Gozo and not allowing Gozo to remain a back office centre 2. Direct support and specialists services should also be available on Gozitan island to support this strategy (such as web design, software development and PC support)
Skills base	<i>Potential Skills Base²</i>	<p>61 students follow 'Agriculture and veterinary science' courses at a higher education level</p> <p>74 students follow 'Agriculture and veterinary science' courses at a further education level</p>
	<i>Potential Key Education Institutions</i>	<p>University of Malta and Gozo Centre</p> <p>Institute of Tourism Studies</p> <p>Malta College for Arts, Science and Technology</p> <p>Malta Tourism Authority,</p> <p>Employment and Training Corporation</p>

Skills Shortages	<i>Vertical Skills for Growth Areas</i>
	Tourism
	Agricultural studies
	Experts in wine; citrus; olives; cheese; vegetables and fruits; new herbs; essential oils; medicinals; cosmetics and soaps
	Guides with environmental expertise
	Researchers in indigenous species
Researchers in renewable energy, bio-diversity and environmental planning and management	

Notes in Annex 3

MARINE SECTOR			
<i>The Marine Sector includes all activities involving the direct extraction of resources from the sea, services related to the global marine environment and products, operations related to the global marine environment and investment, infrastructural activities and capital formation.</i>			
Sector	Contribution to Economy	7.51% of GDP (2000) ^{1, a}	Sectoral growth potential 0.5% ^b
	Share of total employment	6.43% (2000) ^{2, c} 8,798 persons employed in the marine sector in 2000 ³	
	Job creation potential up to 2015	No retirees assumed 659 new jobs ^{4, d} 659 Total job creation	
Skills base	Education Level of Current Workforce	The level of qualifications of the current sectoral workforce is not available 56 students follow 'Maritime' courses at a further education level ⁵ Figures for students following courses at a higher education level are not available	
	Key Education Institutions	Department of Biology, University of Malta International Maritime Law Institute, University of Malta Department of Mathematics, S&T Department of Anatomy and Cell Biology, University of Malta Institute for Energy Technology, University of Malta Maritime Institute, MCAST	

	Vertical Skills for Growth Areas	Transversal Skills for All Areas
Skills Shortages	Researchers in marine science & technology	Qualified Management
	Researchers in applied culture fisheries research	Technology
	Researchers in marine biology and cell/molecular biology research	Bio-informatics
	Environmental education specialists	Marine Environmental Management
	Engineers	Marine service-oriented skills
	Technicians	Operational oceanography skills
	Ship building/repair personnel	Financial Management & Administration
	Port workers	HR Management Port Management

Notes in Annex 3

Overall the impact of the areas analysed in the previous section can be summarised by the following table.

TABLE 14: JOB CREATION POTENTIAL WITH VISION 2015

Sectors	Job Potential
Tourism	5,467
Financial Services	6,072
Health Services	4,625
Education Services	4,331
Communications and IT	4,000
Manufacturing and related services	4,364
Gozo as an ecological island	(N/A)
Marine	659
<i>Total Job Potential</i>	29,518

Source: National Commission for Higher Education workings

Table 14 shows how the eight sectors identified as priority areas could contribute to the creation of around 30,000 jobs in the coming decade. Moreover the tables above give an indication (which may be elaborated further by the sectors themselves) of those areas which students may be guided towards through better information, for their future training and education.

The analysis highlights the sustained importance towards developing programmes that address new specialisations that are required by various industries, but also the important balance between specific and generic skills required. These outcomes are food for thought for governing bodies of education institutions charged with the difficult task to develop strategies that anticipate the future needs of our country.

TABLE 15: OCCUPATIONAL ANALYSIS, 2006-2015

Occupations	2006	2006-2015	2006-2015	2006-2015
	Share of Labour Force	Expansion Demand	Replacement Demand	Total Demand
	%	No.	No.	No.
Armed forces	0.7	1,000	0	2,000
Legislators, senior officials, and managers	8.9	4,000	6,000	10,000
Professionals	11.7	(3,000)	8,000	5,000
Technicians and associate professors	16.8	4,000	11,000	15,000
Clerks	12.1	(2,000)	8,000	6,000
Service workers and shop	13.7	4,000	9,000	13,000
Skilled agricultural and fishery works	1.2	0	1,000	1,000
Craft and related trades workers	11.5	2,000	7,000	9,000
Plant and Machine operators and assemblers	10.4	(3,000)	7,000	4,000
Elementary occupations	13.0	6,000	8,000	14,000
Totals	100.0	14,000	65,000	80,000

Source: CEDEFOP, 2008

In parallel to these findings are the findings of CEDEFOP²³. Table 15 shows CEDEFOP projections for occupations in Malta up to 2015. Expansion demand for Malta between 2006 and 2015 is negative for a few occupations, these being, professionals, clerks and plant and machine operators and assemblers. In all cases replacement demand outweighs this growth and hence the total demand results positive. The total replacement up to 2015 is projected to be of 65,000 (replacement includes retirement, job migration and other flows). Expansion projections are made through extrapolations of past data and hence do not include the influences of policy or external circumstances.

Over the past few decades, employment figures have shifted away from the traditional primary sector and manufacturing towards services and knowledge-intensive jobs, this trend also features in CEDEFOP forecasts of the next decade.

CEDEFOP forecast figures for Malta show that employment in the primary sector was of 6,000 in 2006 and will fall to 5,000 in 2015; whilst employment in the manufacturing sector will fall from 29,000 to 28,000 for the same period. In contrast to the above, employment in the remaining sectors is expected to increase. Employment in the construction sector is thought to increase from 8,000 in 2006 to 10,000 in 2015, distribution and transport from 41,000 to 49,000, business and other services will increase by 5,000 to 34,000, whilst non-marketed services will increase by 1,000 to 38,000. Vide Annex 2 for classifications and aggregations of sectors used by CEDEFOP.

The report forecasts a phenomenon referred to as a 'polarisation of demand for labour'. This means that Malta may experience an increase in demand for high skills but also a concurrent increase in demand for low skills at the opposite end of the spectrum.

²³ CEDEFOP, 'Future Skill Needs in Europe, Medium-term Forecast, Synthesis Report', Luxembourg, Office for Official Publications of the European Communities, 2008

4. IDENTIFYING SKILLS GAPS

In the previous section of this report a number of potential growth areas have been identified. However, the constant changes occurring within sectors suggest that changes valid today are completely different in a very short time. More is required to ensure that feedback loops exist to identify and inform business and education leaders of changes at an early stage.

The responsibility for addressing skills shortages should be jointly shared between the specific sectors themselves, education and training organisations and government, with industry and employers taking a more proactive role. Surveys and consultations alone are not sufficient.

Organisations and their management need to dedicate more effort at structuring their internal approach towards identifying the necessary skills gaps and articulating this feedback through more structured dialogue.

AN ACTION PLAN FOR ORGANISATIONS TO ADDRESS THEIR FUTURE SKILLS REQUIREMENTS

In a white paper released by the American Society for Training and Development (ASTD) entitled “Bridging the Skills Gap” in 2006, the ASTD outlined a six point action plan for business leaders and learning professionals to use in identifying, addressing and taking charge of skills gaps affecting their organisations.

Table 16 highlights the six high level points of the action plan proposed. The following chapter outlines the possible actions which management can undertake to improve their internal skills assessments with the long term in mind.

TABLE 16: ACTION PLAN

Action Plan
1. Understand the organisation’s key strategies and performance drivers
2. Identify competencies that map to these strategies
3. Assess the skills gap
4. Set goals and prioritise the path to filling the gap
5. Implement learning solutions
6. Measure results and communicate the impact

Source: American Society for Training and Development, 2006

STEP 1: Understand the organisation’s key strategies and performance drivers

Organisations need to articulate the connection between their organisations strategy and objectives, their target markets and customers, and potential competition. Subsequently, they need to evaluate the performance of all the organisation against clear goals and identify those areas were different or more skills are required either when a change in direction is necessary or to sustain the long term needs of the business and its operation.

STEP 2: Identify competencies that map to these strategies

In response to the organisations’ long term direction and identified strengths and weaknesses, a clear outline of the core business functions and organisational strategies that depend on skilled talent for their execution is necessary. This should lead to a prioritisation of the skills required for the organisation to meet its growth trajectory – a matrix of competences for each job function or area within the business.



Step 3: Assess the skills gap

Apart from the competencies needed within an organisation, an understanding of factors such as the demographics of the workforce (e.g. will the business lose precious knowledge or experience if long-time employees leave?) is important.

A plan outlining expansionary and replacement requirements by job category or division at all levels (from entry-level to senior management), with prioritised areas of intervention which take into account the time necessary for new persons to acquire the required skills, leads to a better understanding of which areas the organisation needs to develop an internal learning environment and external alliances to attract the right profile of workers.

Step 4: Set goals and prioritize the path to filling the gap

Organisations need to set targets in advance for closing the gap between current skill sets and those needed to support the future goals of the organisation. A mix between internal development, external sourcing or outsourcing will determine to a great extent the subsequent actions and management process that need to be in place to manage change. Internal training, recruitment, and partnership processes need to be aligned to deliver the right portfolio of knowledge and skills required.

Step 5: Implement learning solutions

Organisations need to transform into learning environments. Many organisations today can afford deploying learning resources through a learning management system that can cater for individual learning plans and learning paths for employees. Tools and approaches include instructor-led classrooms, online instruction, informal learning, coaching, mentoring, job rotation, external programs and courses, tuition reimbursement, or a combination of some.

Career development support needs to be linked to addressing the organisations skills gaps. Additionally, seasoned and highly skilled workers need to stay involved in the organisation by being part of the skill development of others as mentors, coaches, and team leaders.

Step 6: Measure results and communicate the impact

An organisation needs to measure employees' progress on the learning plans against individual and organisational goals. Overtime, the entire organisation return-on-investment (ROI) for continuous learning – the financial and non-financial benefits to both the individuals and the organisation in the short and long-term. As organisations relate to these benefits a life long learning culture may start to emerge that makes organisations more resilient in the future.

A FRAMEWORK FOR DIALOGUE WITH BUSINESS

Organisations taking action on these lines are in a better position to articulate their needs when it matters, well in advance. This feedback serves to inform policy formulation and for critical long-term decisions to be made.

Education institutions and policy makers need information about future skills from the business sector – in particular from those innovative SMEs in fast growth sectors. Points in this section may lead to more reliable and structured information developed by business sectors for effective strategy formulation. A number of positive actions exist already and more can be made to improve this dimension.

5. A STRATEGY FOR SKILLS

Today's knowledge and service-based economy demands a different response to skills requirements than that of the industrial economy of past decades.

THE ROLE OF STUDENTS, WORKERS, EDUCATION PROVIDERS, BUSINESS AND OTHER ORGANISATIONS

The stakeholders — students, individual employees, education and training providers, business, other organisations, and government systems — are constantly struggling to keep up with new developments and with the training and retraining demands that those developments require. On the one hand, this has led some firms to close or relocate business, with serious consequences for workers and their families. On the other hand, organisations which have placed training at the heart of their strategy to remain competitive by committing substantial resources towards creating a learning environment in the workplace have thrived and continue to thrive. These organisations understand that employee-learning or student-learning, tied to their current and future business objectives gives them the necessary edge to respond quickly to change or emerging trends.

Is this sufficient? Can organisations alone sustain the necessary workforce education, training and re-training to keep up with the fast changes they face? Surely not. Having workers with the right skills is the key to success, and the responsibility lies jointly in the hands of individuals, unions who represent their interests, their employers, and government.

Individuals are empowered in an unprecedented way to seek and find opportunities that may determine their entire life, their well-being and their personal fulfilment. Opportunities to seek information and to access education and training are more available now than ever before. Individuals must share the responsibility for their own learning and development—throughout their lifetime— with their current or future employers.

THE ROLE OF GOVERNMENT

Government on the other hand, is responsible for ensuring adequate provision of educational services and an environment in which learning takes into account the future career requirements of its students and the future needs of business and other organisations. Government is responsible for the direct provision of practically all the post-secondary and tertiary education offered in Malta. The Employment and Training Corporation also assists persons seeking employment, mainly through its matching and training services. Also recently, an increasing emphasis on effective guidance services in schools and further education institutions has been called for.

Through the publicly-funded partnerships, several business and other organisations also receive assistance to train and upskill their workers. Additionally, through a number of institutions and fair policies (such as the maturity clauses at MCAST and the University of Malta), government contributes towards adult learning, and promotes the need to embrace a new mindset in which learning is seen as a continual process during the course of one's lifetime.

Despite the broad spectrum of educational and training services, students and workers who may benefit from participating in further education and training often do not participate either due to lack of awareness, lack of motivation or lack of means. Individuals may benefit substantially from existing skills gaps if only they had better information and guidance service. This alone can take Malta a very long way ahead.

Students' and workers' role:	
Take responsibility for their own skill development and career development.	Be proactive in acquiring skills, in furthering their education, and committing to lifelong learning.
Be committed to the quality of their studies and work.	Take the initiative to increase their knowledge and skills when their job or organisation requires it.
Be flexible, adaptable, and open to learn new skills quickly.	
Businesses' and other Organisations' role:	
Invest in employee development and commit resources to learning initiatives that support business goals and strategies.	Recognise and support and reward learning and development that support current and future skill needs.
Transform the workplace into an environment of continuous learning.	Provide flexible working conditions and an atmosphere that help retain mature workers, so that highly skilled and knowledgeable workers stay in the workforce.
Emulate best practices in other successful organisations.	Reframe retirement as an opportunity for experienced employees to help close the skills gap through mentoring, coaching, or other activities.
Education providers' role:	
Ensure quality in of educational provision.	Review their curricula.
Undertake research and innovation to sustain economic growth.	Reflect their response to changing social and economic needs through their renewed mission and strategy.
Conduct dialogue with industry.	Enable students to develop their capabilities to the highest potential.
Government's role:	
Provide support for programs that promote a highly skilled workforce.	Highlight and inform about the adoption of good practices that resolve training and workforce challenges, and understand how to replicate such practices in other organisations.
Provide a framework to link all stakeholders involved in economic development— government, education systems, employers, and workers.	Provide incentives for organisations to invest in employee learning and development.
Assist persons with special needs, and provide support to unemployed, underemployed, or dislocated workers, particularly through education and training.	Provide incentives for organisations to support teaching and research institutions financially and in a collaborative manner.

PUBLIC POLICY RECOMMENDATIONS

The NCHE recommends the following strategy for government to address skills gaps and development for skills in the future:

1. Undertake more research, provide better statistics and develop foresight capacity to identify trends and anticipate change;
2. Create synergies between education, business and government development agencies;
3. Professionalise the guidance services in schools and in further education institutions;
4. Develop a more responsive education sector ;
5. Address skills gaps identified.

The NCHE urges government to develop a more structured approach to understanding the need for different skills across different sectors of the economy, and to strive to do so in collaboration with the business community at large.

It also urges education providers to continue being responsive, helping students and workers develop the skills they need, and helping business and other organisations benefit from the broad public sector education and training programmes offered.

Following is a list of actions which can be adopted to implement this strategy:

1. Undertake more research, provide better statistics and develop foresight capacity to identify trends and anticipate change

Informed students and workers can make better educational choices with far reaching benefits for both themselves and the overall business sector at large. Governments are investing heavily in their forecasting and anticipation tools to be able to give reliable information on current trends and future opportunities. Adequate information underpins the entire set of recommendations listed hereunder.

An assessment of long-term supply and demand in the Malta labour market, broken down by sectors, occupations, levels of qualification, is necessary. A regular survey to collect information on present and future business needs is felt across all sectors.

Work is being done to deliver updated projections that are published every two years starting in 2010, along with ad-hoc early-warnings of potential labour market imbalances will be undertaken by CEDEFOP for an EU wide analysis. Malta's participation will require more co-ordination to integrate outcomes of such findings for local policy making and strategy formulation.

Actions which increase the methodological, analytical and mutual learning capacities for skills and jobs anticipation are required. Malta's participation under the PROGRESS and Lifelong Learning programmes to develop new ways of measuring competences could benefit in this regard.

Skills can be forecasted in several ways. The traditional way was to forecast future skill needs through supply-driven education and training. Methods which are more demand-led are found to be more successful.

In recent years, foresight methodology has improved and has led to some powerful insights into different scenarios for addressing or developing industrial sectors of a region or a country. Foresight events allow stakeholders and participants to extrapolate

futures from existing and foreseeable challenges, opportunities and threats. It brings the additional factor of analyses into the picture, which is not always possible to obtain solely from a statistical approach.

The NCHE in collaboration with MCST has participated in such exercise with MCAST, and some educational institutions like Sir. M. Refalo Higher Secondary in Gozo, MCAST and members of all Student unions in further and higher education including KSU have also participated in such exercises.

The recent publication of the European Foresight Monitoring Network²⁵ highlights the benefits of foresight activities. The EU Commission, in cooperation with EU institutions, social partners and EU agencies Eurofound and Cedefop, has already developed a foresight cross-sector methodology for the anticipation of sector skills needs, which delivers scenarios for the sectors' evolution and the impact on occupation and employment.

More training to develop similar skills and analyses in Malta is required.

2. Create synergies between education, business and government development agencies

Government continues to conduct an ongoing dialogue with different sectors of the economy, through its Ministries and respective authorities and agencies, each one of which is focused on developing policies to regulate and promote the development of their respective sector.

Additionally, Government is engaged through different structured in continuous dialogue with the business community and other stakeholders. More can be done to address skills requirements in the long term.

Engage the business community and the workforce

Actions to engage in a systematic and constructive dialogue with the business community need to be more focused. Organisations require a platform through which they can articulate their current and future skills requirements. The business community has a central role to play in the assessment of skills needed for the future and should be actively involved.

More can be done to create ongoing dialogue between business and education providers as a follow up to the initiative taken by the NCHE in 2008: partnerships between organisations and education providers; careers fairs; public lectures on developments of different sectors; and other initiatives that create a point of encounter.

Tax incentives for business to develop training initiatives or to support and partner with education providers need to be developed.

Additionally, business leaders and worker representatives need to strive to transform the future workplace into a continuous learning environment. The implications of this vision are far reaching for all stakeholders, and government needs to support initiatives in this direction.

Current work of the Malta Qualifications Council to support companies, training providers and sectoral authorities to jointly design targeted training courses that meet the competences required for different occupations, is to be further developed.

Create synergies between sectoral development agencies and the education system

The NCHE notices that various agencies are conducting a number of reviews of the skills for their sector's workforce. All require very much the same type of methodology, type of information, and analysis for the effective strategic formulation of their organisation. This said however, very few studies are eventually linked within a bigger pool of information where a bigger picture can be formed. An effort to share micro data into a common pool of information requires more co-ordination.

The strategies of sectoral development agencies in charge of attracting a certain profile of FDI (e.g. Malta Enterprise, Malta Financial Services Authority, Malta Tourism Authority, etc.) need to move in line with strategies of all state education and training institutions such as Sixth Form colleges, MCAST, ITS, UoM, and training agencies such as the ETC.

The education system must engage more proactively in this dialogue and confront their respective institutional missions with developments in related sectoral development agencies. If priorities in development agencies are set to areas such as ICT, Financial Services, or high value added manufacturing then key education institutions such as MCAST and the UoM must demonstrate their response to the prioritisation of these development agencies. If such priorities are not aligned, the result is a widening skills gap that is very hard to reduce in the short term.

3. Professionalise the guidance services in schools and in further education institutions

Imperfect information is one of the key factors which often cause students and workers not to obtain the right level of skills in the right areas. The educational and professional choices of students and workers continue to be influenced by traditional gender paths and to rely on peer advice.

Improvement of the current guidance services offered to students is required, one that is based on the availability of information that is structured, reliable and timely.

Furthermore, guidance services need to address choices students make at different stages of their education or work lifecycle. Students' choices at an early age can have significant implications on the choices available later on in life. At a further or higher education level students pose more articulated concerns on specific occupational requirements which need to be addressed by professional guidance.

Various universities extend their service to information encounters with industry representatives, offer basic matching services or promote vacancies of different companies on campus. Those universities that have invested in this function and have extended the reach of their career support offices worldwide, are also those universities that are most successful in attracting the best and brightest talent to their programmes (with all related reputation and financial benefits that entails).

4. Develop a more responsive education sector

The composition of skills emerging from Malta's education and training systems underpins Malta's economy.

Throughout the conference, the need for strengthening basic and generic skills in school-leavers was echoed in all interventions. All stakeholders emphasised the need for more occupational specialisations and higher levels of skills across the board.

The NCHE continues to address the need for action to ensure higher participation rates in further and higher levels of education, which also requires that success is made of the current education reforms planned at the compulsory school level.

This also implies that curricula, the portfolio of education programmes offered, and the performance of an institution need to be reviewed regularly. Constant training and research of academic staff to remain abreast of new developments is a prerequisite. Modern governance and funding policies need to be in place to allow education institutions to respond on time.

Government must also ensure that short training programs, such as those offered through the ETC, are linked directly to available jobs.

A private sector is gradually emerging in Malta. Successful providers have identified niche programmes in areas where either the demand exceeds the capacity of state institutions, or in areas where a growing international market exists. This sector has a role to play, and can support government's strategy in addressing short and long term skills requirements.

Ensure fair access to education and training

Access to skills is the key for prosperity, and will determine tomorrow's rich and poor – on both a country and a personal level. The best form of welfare is to ensure that people can adapt to change and avoid being cut off permanently from labour market opportunities²⁵

Support for low-skilled workers, migrants and disabled people needs to be reinforced, notably by fostering skills development. In this respect, fair access principles should be sustained in education and training. Student support systems in place need to be sustained with this in mind. Any new initiatives should focus on assisting primarily those who need it most.

Promote mobility of students, academics and workers

Mobility is seen as an important tool in addressing specific skills gaps. In certain instances new education and training programmes may not be available in Malta. The mobility of both academics and students speeds up the process of importing new knowledge and skills. Mobility of workers may also address immediate shortages in skills in certain sectors. Measures which continue to facilitate student, staff and worker mobility need to be sustained.

5. Address skills gaps identified

The findings outlined in Chapter 3, show that investment needs to be directed towards vertical skills which are sector-specific and towards transversal skills. Chapter 2 and 3 give a clear indication of the scale of effort requirement and the structural scale of investment in education required to address Vision 2015 through skills.

²⁵ European Commission (2008), The European Foresight Monitoring Network, April 2008, Collection of EFMN Briefs, Part 1

²⁶ The Leitch Review (2006), 'Prosperity for all in the global economy – world class skills', Final Report, December 2006

6. ANNEXES

ANNEX 1

Malta's National Qualifications Framework for Life Long Learning

8	DOCTORAL DEGREE		8
7	MASTER'S DEGREE POSTGRADUATE DIPLOMA POSTGRADUATE CERTIFICATE		7
6	BACHELOR'S DEGREE		6
5	UNDERGRADUATE DIPLOMA UNDERGRADUATE CERTIFICATE	VET HIGHER DIPLOMA	5
4	MATRICULATION CERTIFICATE ADVANCED LEVEL INTERMEDIATE LEVEL	VET DIPLOMA	4 (e)
3	GENERAL EDUCATION LEVEL 3 SEC Grade 1-5	VET LEVEL 3	3 (d)
2	GENERAL EDUCATION LEVEL 2 SEC Grade 6-7	VET LEVEL 2	2 (c)
1	GENERAL EDUCATION LEVEL 3 SCHOOL LEAVING CERTIFICATE	VET LEVEL 1	1 (a/b)

Source: Malta Qualifications Council, 2007

ANNEX 2

Classifications and aggregations of industries

	Industry [NACE]	Industry [NACE]
1	Primary sector and utilities [01-14, 40, 41]	Agriculture, etc.[01-05] Coal [10] Oil and gas, etc.[11, 12] Other mining [13, 14] Electricity [40.1, 40.3] Gas supply [40.2] Water supply [41]
2	Manufacturing [15-37]	Food, drink and tobacco [15, 16] Textiles, clothing and leather [17-19] Wood and paper [20, 21] Printing and publishing [22] Manufactured fuels [23] Pharmaceuticals [24.4] Chemicals nes [24(ex24.4)] Rubber and plastics [25] Non-metallic mineral products [26] Basic metals [27] Metal goods [28] Mechanical engineering [29] Electronics [30, 32] Electrical engineering and instruments [31, 33] Motor vehicles [34] Other transport equipment [35] Manufacturing nes [36, 37]
3	Construction [45]	Construction [45]
4	Distribution and transport [50-64]	Distribution [50, 51] Retailing [52] Hotels and catering [55] Land transport, etc.[60, 63] Water transport [61] Air transport [62] Communications [64]
5	Business and other services [65-74, 90-99]	Banking and finance [65, 67] Insurance [66] Computing services [72] Professional services [70, 71, 73, 74.1-74.4] Other Business services [74.5-74.8] Miscellaneous services [90-93,95,99]
6	Non-marketed services [75, 80, 85]	Public administration and defence [75] Education [80] Health and social work [85]

Source: CEDEFOP, 2008

ANNEX 3

Sources, Notes and Assumptions used in Sectoral workings

Tourism Sector:

Sources:

1. Ministry of Finance, the Economy and Investment (2008), Economic Survey, 2008
2. Quintano Alfred, (2008), Rapporteur Report on Tourism for Skills for the Future Conference (figure includes leisure & other tourism commerce)
3. Ibid
4. Eurostat (2008), Statistics in Focus, 90/2008, Industry, trade and services, European Commission, Brussels
5. Ibid
6. Ministry of Finance, the Economy and Investment (2008), Economic Survey, 2008; National Statistics Office (2007), Census of Population and Housing 2005, Volume 1
7. Ministry of Finance, the Economy and Investment (2008), Economic Survey, 2008
8. Quintano Alfred, (2008), Rapporteur Report on Tourism for Skills for the Future
9. Eurostat (2008), Statistics in Focus, 90/2008, Industry, trade and services, European Commission, Brussels
10. Ibid
11. National Commission for Higher Education statistics

Notes and Assumptions:

- a. This is done by forecasting bed nights to 2015 by extrapolating data on tourist arrivals of the last 10 years. It is relevant to note, however, that any growth scenario has to be subjected to an updated Carrying Capacity Assessment using the Limits
- b. Tourism accommodation only included
- c. Assuming a constant rate of 55-69 year olds working in hotels and restaurants as in 2005
- d. Assuming same growth in employment as that between 2007 and 2008 – 4.84% per annum

Financial Services Sector:

Sources:

1. Malta Financial Services Authority, Building on Success, Future Skills Requirements in the Financial Services Sector, August 2008
2. Ministry of Finance, the Economy and Investment (2008), Economic Survey, 2008
3. Malta Financial Services Authority, Building on Success, Future Skills Requirements in the Financial Services Sector, August 2008
4. Ibid
5. Ministry of Finance, the Economy and Investment (2008), Economic Survey, 2008; National Statistics Office (2007), Census of Population and Housing 2005, Volume 1
6. Malta Financial Services Authority, Building on Success, Future Skills Requirements in the Financial Services Sector, August 2008
7. Ibid

Notes and Assumptions:

- a. In insurance and investment spheres of the sector
- b. Assuming a constant rate of 55-69 year olds working in financial intermediation as in 2005

- c. MFSA research shows that over a period of 15 years the sector sustained an increase of 5,000 people given a growth rate of around 30% per annum; hence it is being assumed that up to the year 2015, the same number of people will join the sector.
- d. Assuming Managers and Senior Managers and professionals are highly qualified, technicians are medium qualified, and clerks and elementary occupations are low qualified

Health Services Sector:

Sources:

1. National Statistics Office (2008), National Accounts, Gross Domestic Product July-September, Malta
2. National Statistics Office, Demographic Reviews 2001, 2003 and 2006, Malta
3. National Statistics Office (2008), Labour Force Survey 2007, Malta
4. National Statistics Office (2007), Census of Population and Housing 2005, Volume 1
5. Ministry of Finance, the Economy and Investment (2008), Economic Survey, 2008
6. Ministry for Social Policy (Health, Elderly and Community Care)
7. National Commission for Higher Education workings

Notes and Assumptions:

- a. Sectoral growth potential is assumed to result from projections of growth of elderly population
- b. Assuming a constant rate of 55-69 year olds working in health and social care as in 2005
- c. Assuming same growth rates as those of the projected for the sector up to the year 2015

Education Services Sector:

Sources:

1. National Statistics Office (2008), National Accounts, Gross Domestic Product July-September, Malta
2. National Commission for Higher Education workings
3. National Statistics Office (2008), Labour Force Survey 2007, Malta
4. National Statistics Office (2007), Census of Population and Housing 2005, Volume 1; National Statistics Office (2008), Labour Force Survey 2007, Malta
5. Ministry of Finance, the Economy and Investment (2008), Economic Survey, 2008
6. Ministry of Education, Culture, Youth and Sports

Notes and Assumptions:

- a. Sectoral growth potential is assumed to result from a linear progression of a total growth of 40% over 7 years, equivalent to 20% per annum, if target participation rates are achieved. This is assumed for the further and higher education sector only, whilst the compulsory sector is assumed to have zero growth.
- b. Assuming a constant rate of 55-69 year olds working in education services as in 2005
- c. Assuming same growth rates as those projected for the sector up to the year 2015
- d. Qualifications levels were derived using scales as a proxy, whereby those employed in scales 16 to 20 were considered to have a low level of qualification, 11-15 as medium level of qualification and 1-10 as high, Persons employed within the Ministry of Education, Culture, Youth and Sports only were considered

Communications and IT Sector:*Sources:*

1. European Commission (2008), i2010 Mid-Term Review, Volume 3: ICT Country Profiles
2. The Smart Island: The National ICT strategy for Malta 2008-2010
3. European Commission (2008), i2010 Mid-Term Review, Volume 3: ICT Country Profiles
4. The Smart Island: The National ICT strategy for Malta 2008-2010
5. Ministry of Finance, the Economy and Investment (2008), Economic Survey, 2008

Manufacturing and related areas Sector:*Sources:*

1. Ministry of Finance, the Economy and Investment (2008) Financial Estimates 2009, Malta
2. Ibid
3. National Statistics Office (2008), National Accounts, Gross Domestic Product July-September, Malta
4. Ministry of Finance, the Economy and Investment (2008), Economic Survey, 2008; National Statistics Office (2007), Census of Population and Housing 2005, Volume 1
5. National Commission for Higher Education workings

Notes and Assumptions:

- a. Assuming a constant rate of 55-69 year olds working in health education services as in 2005. No information was available of the growth potential of employment in the sector; hence the constant overall sectoral growth rate was adopted

Gozo as an Ecological Island:*Sources:*

1. Skills for the Future Conference findings
2. National Commission for Higher Education workings

Marine Sector:*Sources:*

1. Malta Council for Science and Technology (2004). Building the best future for the marine sector in the Maltese Islands, 'A vision towards enhancing the marine sector's contribution to the Maltese economy in 2020'
2. Ibid
3. National Statistics Office (2004), Labour Market, Gainfully Occupied Population : December 2004, Malta
4. Ministry of Finance, the Economy and Investment (2008), Economic Survey, 2008
5. National Commission for Higher Education workings

Notes and Assumptions:

- a. Gross Domestic product does not include the tourism services which were included in the original research
- b. Assumed
- c. Employment figures do not include the tourism services which were included in the original document
- d. Assuming same growth rates as those of the projected for the sector up to the year 2015

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- Eurostat (2008), Data on employment rate, by highest level of education attained – web link: http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,39140985&_dad=portal&_schema=PORTAL&screen=detailref&language=en&product=REF_TB_labour_market&root=REF_TB_labour_market/t_labour/t_employ/t_lfsa/tsdec430
- Eurostat (2008), Data on persons with low educational attainment, by age group – web link: http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,39140985&_dad=portal&_schema=PORTAL&screen=detailref&language=en&product=REF_TB_labour_market&root=REF_TB_labour_market/t_labour/t_employ/t_lfsi/t_lfsi_edu/tsdsc430
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- European Commission (2008), Progress towards the Lisbon Objectives in Education and Training – Indicators and benchmarks (Brussels, European Commission)
- European Commission (2008), SEC(2008) 2719, Commission Staff Working Paper accompanying document to the report from the Commission to the Council on the Council Resolution of 23 November 2007 on Modernising Universities for Europe's competitiveness in a global knowledge economy, Brussels, European Commission
- European Commission (2008), The European Foresight Monitoring Network, April 2008, Collection of EFMN Briefs, Part 1
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“...a Smart Society is one which understands its intrinsic strengths and weaknesses; the opportunities and threats posed by its Context, creates the right aptitude and skills, and deploys the right technologies, to preempt, or at least to adapt rapidly to Change...”

..our future is about well-rounded quality education not a mindless drive for certification; it's about life-long learning and continuous professional development; it's about research and innovation to sustain socio-economic growth”

Prof. Juanito Camilleri
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