

Introduction

This report provides a summary of the main points of interest for the identification of the priority training areas and potential skill delivery solutions. For a full analysis on the results of the survey please refer to the final reports from WP1 “*Identifying labour market needs (needs analysis)*” and WP2 “*Define generic skill gaps & identify vocational skill delivery solutions*” (available on the project website www.aqualabs.eu).

As part of WP1 an online questionnaire survey was designed to investigate researchers and stakeholders’ perceptions about, amongst other issues, which are the top generic skills to (a) move from academia to the private sector, and (b) to progress in the career.

Two surveys were undertaken under WP1. The first survey consisted of a long list of generic skills (66 options) and the interviewee had to choose the top 5 of importance. The questionnaires were carried out with researchers and stakeholders. The second survey consisting of a shorter list of generic skills (30 prioritised options from the first survey) collected information only from stakeholders.

Results from survey - Researchers

A total of 429 individuals responded. Interviewees were asked about the importance of each of the 66 generic skills in analysis for their career in research by rating each skill individually in a 5-point Likert-scale (ranging from strongly disagree to strongly agree). Table 1 provides information on interviewees replies.

Researchers mostly ‘strongly agreed’ or ‘agreed’ that, with the exception of web page design, all other generic skills under investigation were important for their career. In general, scientific methodology skills (such as experimental design, data management and critical review, etc.) were classified the highest. The majority of respondents were of the opinion that generic skills are as important as technical skills for aquaculture researchers to succeed in their career pathway. See Figures 1 and 2 for results.

Table 1. Results for the likert-scale statement “This skill is important for my career in research”. SA= Strongly agree, A= Agree, N= Neither agree or disagree; D = Disagree; SD = Strongly disagree.

LIKERT SCALE	%					
	Obs.	SA	A	N	D	SD
NUMERICAL, COMPUTATIONAL, STATISTICAL SKILLS:						
Mathematics	374	26.7	57.0	13.9	2.1	0.3
Statistical methods	388	63.7	30.7	4.6	1.0	0.0
Statistical software	386	53.1	36.3	8.3	2.3	0.0
Models and simulations	378	28.6	43.1	22.5	5.0	0.8
IT SKILLS:						
Office software (word processing, e-mail, spreadsheet, presentation)	391	76.5	21.5	2.0	0.0	0.0
Web page design	375	9.1	28.3	38.9	21.6	2.1

Information literacy (Endnote, SCOPUS etc)	381	38.6	39.4	17.6	3.9	0.5
IT communication (Skype, web forums)	379	25.6	43.0	24.8	5.0	1.6
SCIENTIFIC METHODOLOGY SKILLS:						
Philosophy of science (hypotheses, logic, induction, debating)	385	52.7	37.7	7.8	1.3	0.5
Experimental design	386	80.1	17.1	2.8	0.0	0.0
Data management	384	71.9	26.8	1.3	0.0	0.0
Research ethics	383	58.5	33.2	7.0	1.0	0.3
Critical review	381	64.6	32.5	2.1	0.3	0.5
BASIC MANAGEMENT SKILLS:						
Time management	385	55.3	42.3	1.8	0.5	0.0
Team management	385	52.7	42.3	4.7	0.3	0.0
Budget management	382	49.2	44.8	5.5	0.5	0.0
Laboratory skills (best practice)	384	62.2	31.5	4.4	1.6	0.3
Risk assessment (safety in lab and fieldwork)	381	49.3	39.1	9.4	1.8	0.3
Awareness of legal and procedural issues (licensing of animal research, health and safety, data protection, anti-discrimination)	382	41.6	43.7	12.0	2.6	0.0
BASIC COMMUNICATION SKILLS:						
Literacy in own language	380	55.3	36.6	6.8	1.3	0.0
Knowledge of other languages	387	50.6	38.0	8.0	3.1	0.3
Curriculum - Lecture planning and design	379	35.1	47.8	15.0	1.3	0.8
Pedagogical skills	378	25.1	46.8	24.3	2.6	1.1
Oral presentation	387	57.6	38.8	3.4	0.3	0.0
Thesis defence	385	47.5	38.4	11.7	2.1	0.3
Poster presentation	382	41.4	47.9	8.6	1.6	0.5
Effective behaviour in the workplace	382	47.4	46.3	5.5	0.8	0.0
Scientific writing (papers, theses, abstracts, essays)	383	71.8	25.1	3.1	0.0	0.0
Accredited Scientific report writing	382	52.9	39.3	6.5	1.3	0.0
Media communication	379	24.3	48.8	24.5	2.1	0.3
LANGUAGES						
Knowledge of English (if not first language)	336	54.2	15.5	3.0	2.4	25.0
CAREER AND LIFE SKILLS:						
CVs, job applications, interviews	386	39.6	51.3	7.8	1.0	0.3
Grant applications, research funding	384	58.1	37.0	4.2	0.8	0.0
Career development planning	383	36.6	44.6	17.0	1.3	0.5
SCIENCE FOR SOCIETY SKILLS:						
Interdisciplinary studies	388	40.2	50.0	8.5	1.0	0.3
Policy awareness	382	24.1	56.0	17.8	2.1	0.0
Entrepreneurship / business awareness / innovation	384	30.2	48.2	19.8	1.6	0.3
PRACTICAL LIFE SKILLS:						
Sector specific (Fish handling, survival at sea, boat handling, diving)	366	44.0	35.2	16.9	3.3	0.5

General (First aid, driving)	357	23.2	44.8	26.3	5.0	0.6
ANALYTICAL SKILLS:						
Legislation implication analysis	362	16.3	50.0	28.5	5.0	0.3
Technology screening skills (SWOT)	360	22.2	46.4	26.1	5.0	0.3
Market research analysis	359	18.7	39.8	32.9	7.5	1.1
Financial analysis skills	361	16.1	41.3	32.4	9.1	1.1
NEGOTIATION SKILLS:						
Internal negotiation with other teams	363	33.9	50.4	12.1	2.5	1.1
Debate skills	362	30.4	51.7	16.0	1.7	0.3
External negotiations with other organisations	358	34.1	47.8	14.5	2.8	0.8
PARTNERING SKILLS:						
Partnerships building	360	47.2	44.2	7.2	1.1	0.3
Networking capacity	359	47.6	44.3	7.0	0.8	0.3
Web social networking	360	21.1	42.8	27.8	7.2	1.1
TASK MANAGEMENT SKILLS:						
Organisation management skills	360	46.4	45.8	7.2	0.6	0.0
Project management	361	62.3	34.3	3.3	0.0	0.0
Experiment management	359	62.7	33.1	3.3	0.6	0.3
Expert reporting	356	48.3	42.7	8.1	0.6	0.3
TEAM MANAGEMENT SKILLS:						
Leadership skills	354	50.0	41.8	7.6	0.6	0.0
Team working skills	351	64.4	31.3	4.3	0.0	0.0
ADVANCED PRESENTATION SKILLS:						
Interview skills	355	31.3	49.3	17.5	1.7	0.3
Authority communication skills	351	29.3	47.0	22.5	1.1	0.0
KNOWLEDGE MANAGEMENT SKILLS:						
Data management	361	52.4	41.3	6.1	0.3	0.0
Gap analysis skills	359	27.9	48.5	23.4	0.3	0.0
FORESIGHT SKILLS:						
Future strategy development skills	359	44.3	46.0	9.2	0.6	0.0
Research prioritisation skills	360	48.3	44.2	6.7	0.6	0.3
ADVANCED MANAGEMENT SKILLS:						
Future research cost benefit analysis	361	32.7	50.7	12.7	3.6	0.3
Defending a research strategy	363	41.0	50.1	8.5	0.3	0.0
Future market opportunity evaluation skills	361	27.4	47.4	21.1	4.2	0.0
Interviewing and recruitment skills	361	23.3	43.2	29.4	4.2	0.0
Knowledge of employment legislation (i.e. Equality & Discrimination)	360	20.3	40.6	30.3	8.1	0.8

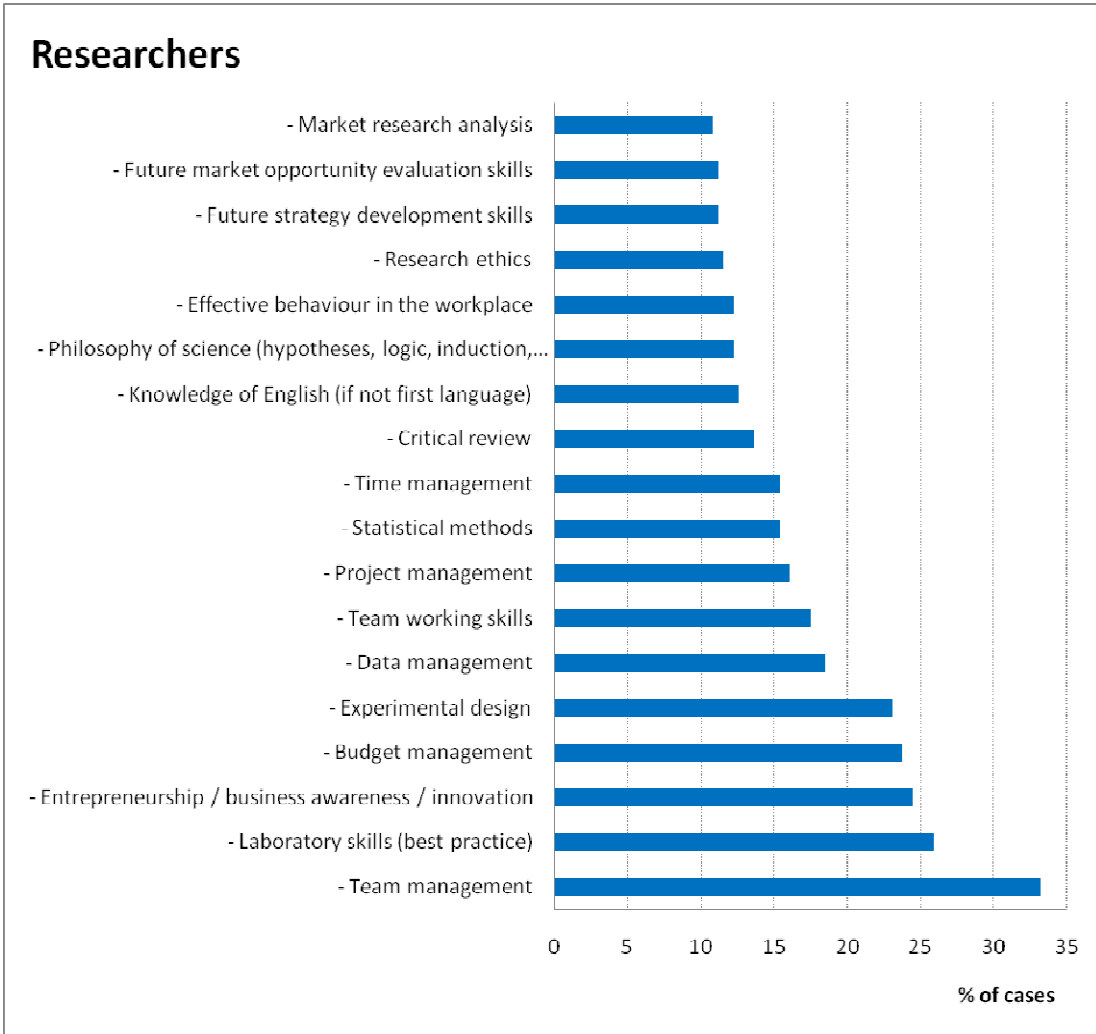


Figure 1. Researchers' reply to the question: "In your opinion, what are the top 5 generic skills for a researcher to effectively move from academia to the private sector?"

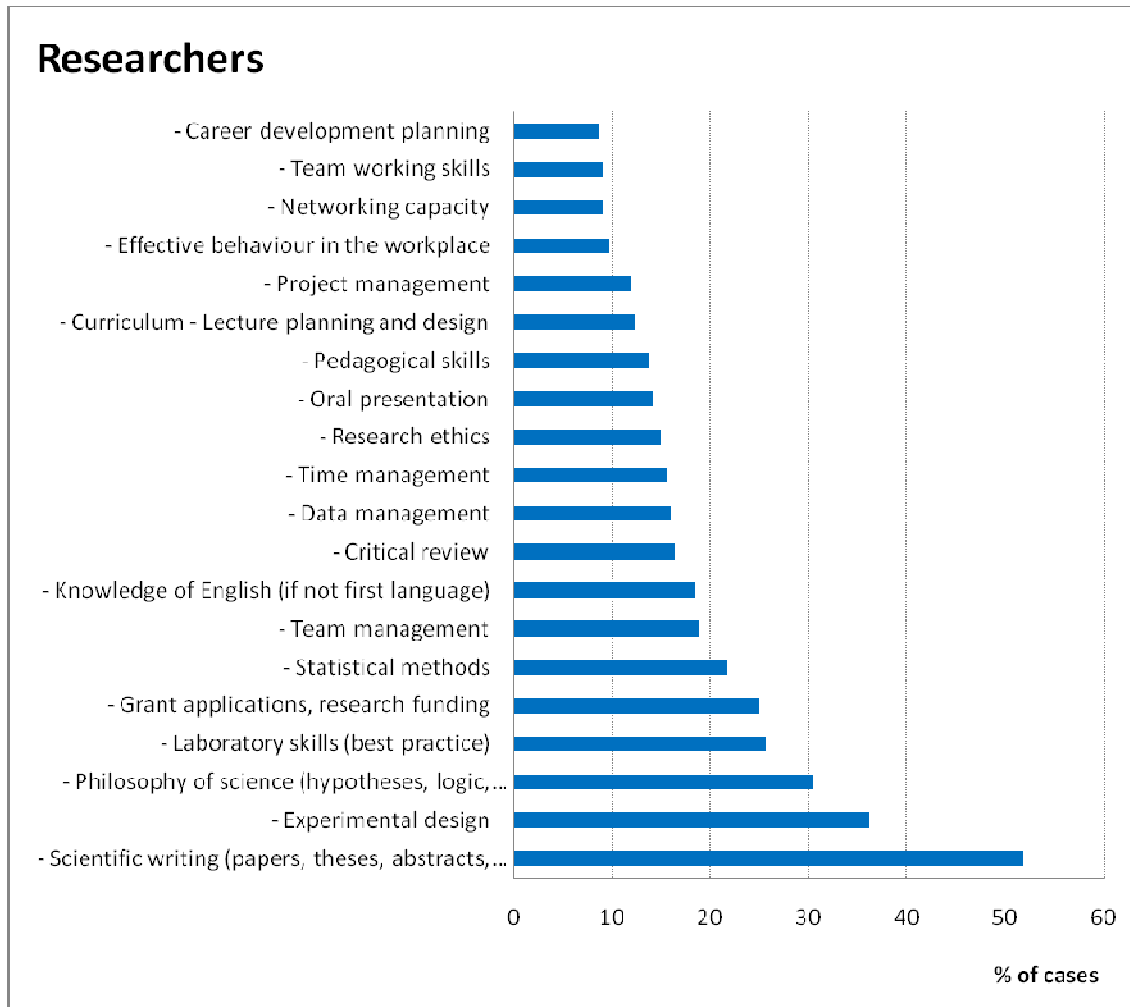


Figure 2. Researchers’ reply to the question: “In your opinion, what are the top 5 generic skills for a researcher to achieve a prominent career in academia?”

Teaching delivery methods: Researchers had a positive perception about the effectiveness of most teaching methods. However, they regarded practical exercises (laboratory and fieldwork), work experience and tutorials as the most effective teaching methods. Most researchers prefer the courses to be delivered as a mixture of face-to-face and online.

Results from survey - Stakeholders

A total of 139 individuals responded to the second survey to stakeholders (See Figure 3 for results).

Teaching delivery methods: Stakeholders regarded work experience, practical exercises and, to a lesser extent, tutorials and lectures as the most effective teaching methods. They regarded role

playing/games, video conferencing, video or podcasts of lectures and online discussion forums/blogs as the least effective delivery methods.

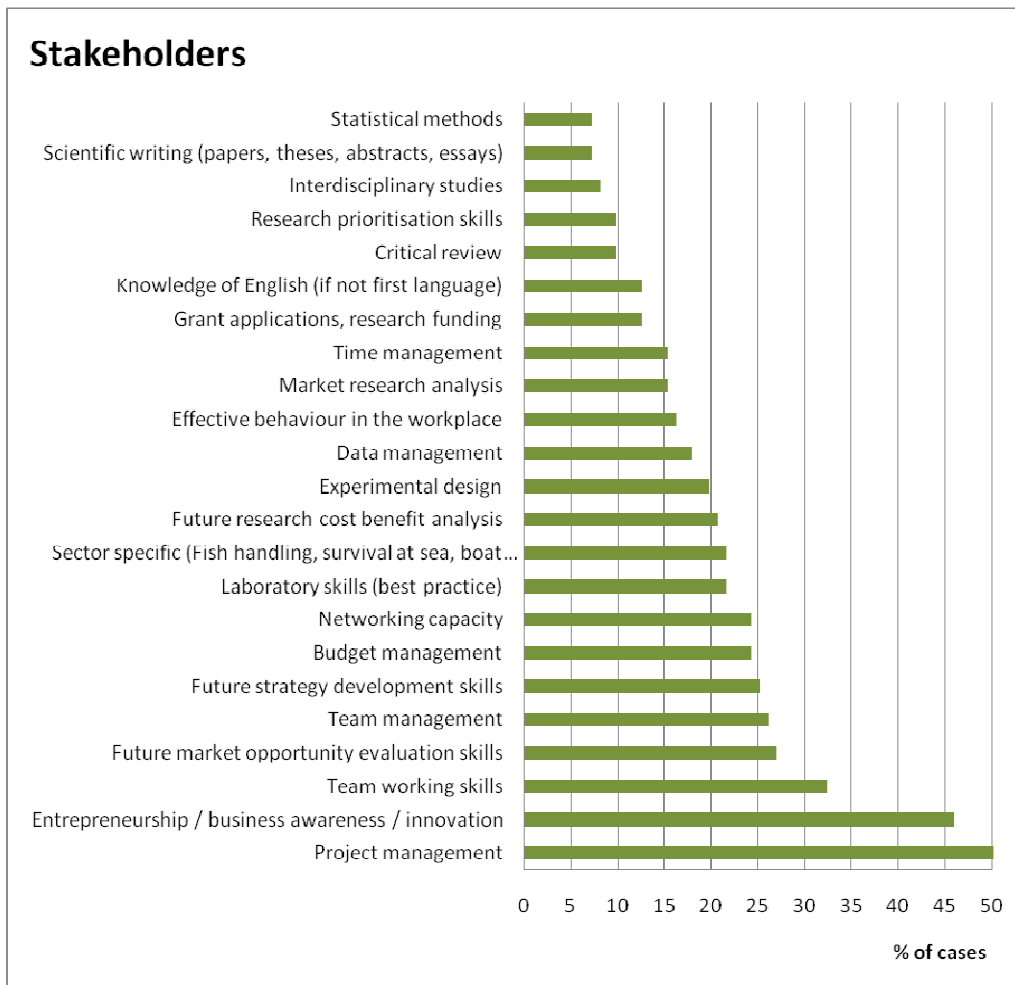


Figure 3. Stakeholders’ reply to the question: “In your opinion, what are the top 5 generic skills for a researcher to effectively move from academia to the private sector?” (From a revised list of 30 skills)

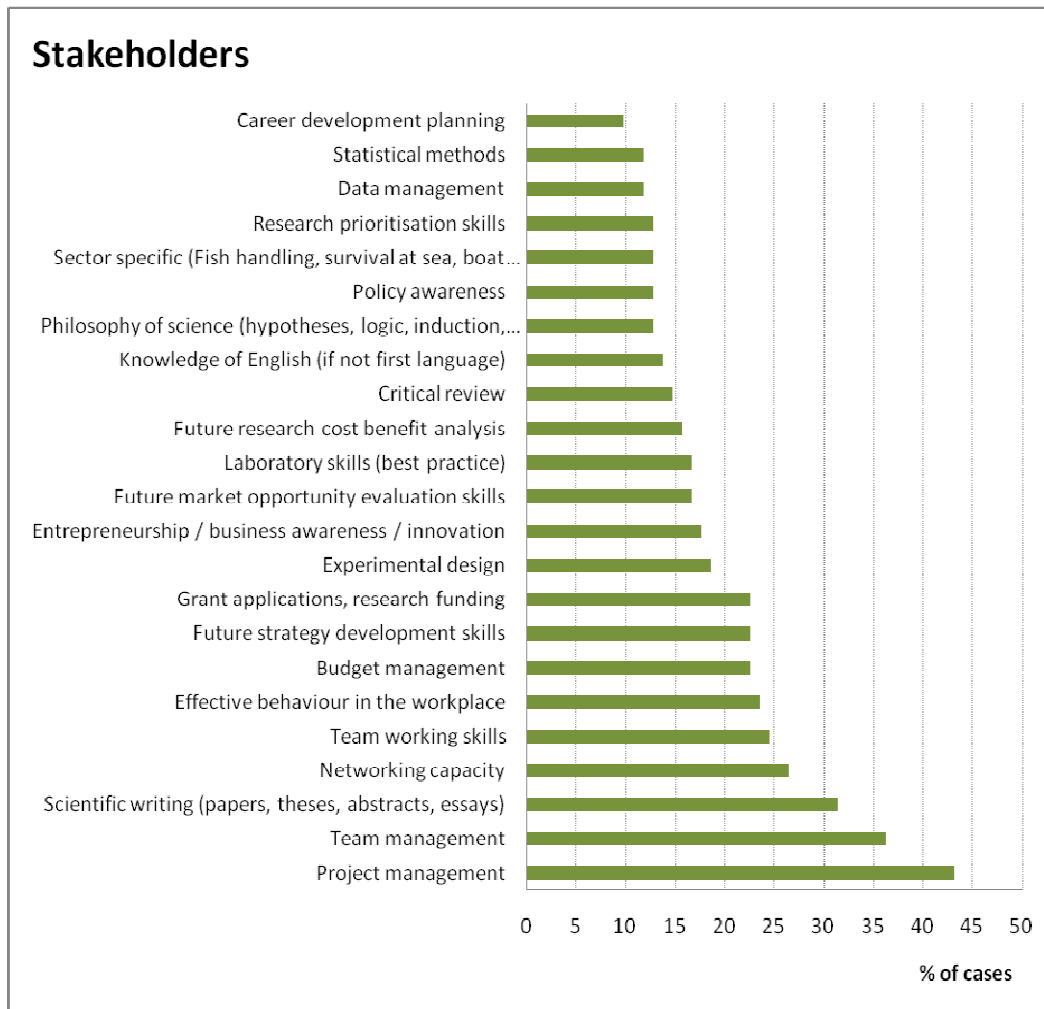


Figure 4. Stakeholders’ reply to the question: “In your opinion, what are the top 5 most important generic skills for an experienced researcher to have to achieve a senior position in your organisation?” (From a revised list of 30 skills)

Conclusions

Mostly, researchers and stakeholders perceive the same generic skills to be important for a researcher to effectively move from academia to the private sector. However, the order of importance was different between the two groups. While most stakeholder perceived the most important generic skills for a researcher to move to the private sector to be project management, entrepreneurship and team working skills, most researchers perceived these to be team management, laboratory skills and entrepreneurship. Also, stakeholders perceived a wider array of generic skills to be important when compared to researchers.

Regarding the most important generic skills for a researcher to achieve a prominent career in academia or to achieve a senior position within private organisations, stakeholders and researchers expressed quite different opinions about which should be the most important generic skills. This would be to expect since the two career paths are quite different.

Researchers regarded that the most important generic skills for a researcher to achieve a prominent career in academia were, by order of decreasing importance: scientific writing, experimental design, philosophy of science, laboratory skills, grant application/research funding and statistical methods.

Stakeholders regarded the most important generic skills that an experienced researcher should have in order to achieve a senior position within private organisations were, by order of decreasing importance: project management, team management, scientific writing, networking capacity, team working skills, effective behaviour in the workplace, budget management, future strategy development skills, and grant application/research funding.

Selected courses

The following seven courses will be developed by the consortium:

- Data management and statistical analysis of aquaculture data (covering the following generic skill gaps: Statistical Methods and Data Management)
- Scientific writing
- Business and Entrepreneurship (covering the following generic skill gaps: Entrepreneurship/business awareness/innovation, Future Market Opportunity Evaluation Skills, Future Research Cost-benefit Analysis and Future Development Skills)
- Experimental design (covering the following generic skill gaps: Experimental Design, Laboratory Skills and Philosophy of Science)
- Research Funding Procurement (rename of: grant applications, research funding)
- Project management
- Networking - key for a successful career (covering the following generic skill gaps: Career Development Planning, Networking Skills, Team Working Skills, Oral Presentation Skills, Effective behaviour in the Workplace)

For more information

Please visit www.aqualabs.eu or contact the Project Coordinator Prof. Dr. Hijran Yavuzcan Email: Hijran.Yavuzcan@ankara.edu.tr

For a full analysis on the results of the survey please refer to the final reports from WP1 “Identifying labour market needs (needs analysis)” and WP2 “Define generic skill gaps & identify vocational skill delivery solutions” (available on the project website www.aqualabs.eu)