

 <b>Hyacinth</b>	<b>FCH-JU-2013-1</b> Hydrogen acceptance in the transition phase HYACINTH (621228) SP1-JTI-FCH.2013.5.3	 <b>FCH</b> <small>FUEL CELLS AND HYDROGEN JOINT UNDERTAKING</small>
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	<p>FCH-JU-2013-1 Hydrogen acceptance in the transition phase HYACINTH (621228) SP1-JTI-FCH.2013.5.3</p>	
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### Disclaimer

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## CONTENTS

EXECUTIVE SUMMARY .....	4
ABBREVIATIONS .....	5
1. INTRODUCTION .....	6
2. PILOT TESTING.....	7
2.1. Aberdeen Bus Project Feedback .....	7
3. WORKSHOPS .....	8
3.1. UK workshop .....	8
3.2. Spanish workshops.....	13
3.3. Slovenian workshop .....	14
4. INFLUENCE ON SAMT OPERATION AND STRUCTURE .....	14
5. SUMMARY .....	15
6. FIGURES.....	15

 <p>Hyacinth</p>	<p>FCH-JU-2013-1 Hydrogen acceptance in the transition phase HYACINTH (621228) SP1-JTI-FCH.2013.5.3</p>	 <p>FCH FUEL CELLS AND HYDROGEN JOINT UNDERTAKING</p>
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## EXECUTIVE SUMMARY

The report summarizes the feedback received by the development team of the Social Acceptance Management Toolbox (SAMT) from pilot studies carried out within an existing project and a sample of the workshops carried out to demonstrate the SAMT and provide stakeholders with the opportunity to use the toolbox for themselves.

In general, the toolbox was well received with stakeholders feeling confident that it raised issues that they had not thought of and provided advice to assist them in overcoming these issues. The toolbox proved simple to use and provided clear advice and guidance to the user.

## ABBREVIATIONS

CA	Consortium Agreement
CNG	Compressed Natural Gas
CSA	Coordination and Support Action
EC	European Commission
EU	European Union
DX.Y	Deliverable X.Y
FCH	Fuel cell and hydrogen
FCH-JU	Fuel Cell and Hydrogen – Joint Undertaking
GA	Grant Agreement
QFD	Quality Function Deployment
LNG	Liquefied Natural Gas
SAMT	Social Acceptance Management Toolbox
SMEs	Small and Medium Enterprises
WP	Work Package
WPL	Work Package Leader

	<p>FCH-JU-2013-1  Hydrogen acceptance in the transition phase  HYACINTH (621228)  SP1-JTI-FCH.2013.5.3</p>	
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## 1. INTRODUCTION

The overall purpose of HYACINTH is to gain a deeper understanding of the social acceptance of hydrogen technologies across Europe combining the implementation of qualitative and quantitative methods with samples of European citizens and stakeholders. The work programme of the HYACINTH project is structured around the development of two studies: one on public awareness and acceptance of fuel cell and hydrogen (FCH) technologies and another on stakeholder views and expectations;

Social acceptance is the case of different studies more than 20 years (Rogers, 1995). The term ‘social acceptance’ includes the two concepts ‘social’ and ‘acceptance’ with potentially quite different understandings and approaches. ‘Social’ refers to the whole society and its different groups (consumers, producers, etc.). ‘Acceptance’ can range between a rather passive consent and an active approval in form of an active involvement (Williams, R., Mills, 1986).

To this end the Social Acceptance Management Toolbox (SAMT) has been developed to assist stakeholders in making the leap from demonstration project to mass market acceptance.

In this report the trials and workshops of the SAMT are reported on. In addition, the influence that these studies have had on the development of the finished tool is reported.

## 2. PILOT TESTING

### 2.1. Aberdeen Bus Project Feedback

The beta version of the SAMT was sent to five stakeholders in the Aberdeen Bus Project in order to:

- a) Receive their feedback on the usability of the tool box and,
- b) Gather their thoughts as to whether or not the tool box accurately identified the issues that they were faced with.

Of the five stakeholders, the project team were able to obtain two full responses. The results are shown in Figure 1 below.

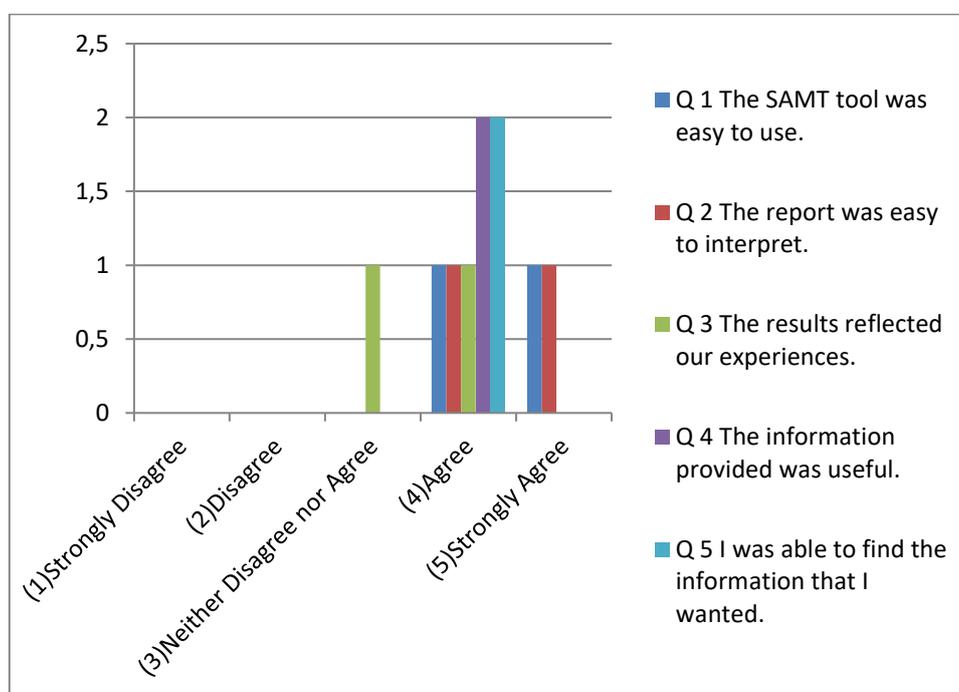


Figure 1: Feedback from Stakeholders in Pilot Study

As may be seen the stakeholders in the pilot study were generally happy with the tool. In addition, both respondents indicated that the tool highlighted all of the issues they had experienced and they could not identify any that the tool did not.

One comment that was received was *“I found the report to highlight some good information. The only criticism I would have is that though the industry mapping was useful it did not suggest which way the industry/public were swayed, only that there was a correlation/difference in their opinion.”* This comment prompted the team to refine the classification of the correlations between stakeholder and public responses to use the positive/positive, positive/negative, negative/positive, and negative/negative classifications. These in turn were linked to clearer

	<p>FCH-JU-2013-1  Hydrogen acceptance in the transition phase  HYACINTH (621228)  SP1-JTI-FCH.2013.5.3</p>	
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statements that better reflected the nature of the correlation or otherwise. This may be seen in the finished SAMT which looks for plus/plus (positive/positive) relationships, minus/minus (negative/negative) relationships and those where the stakeholders and public disagreed. The beta/pilot version did not have all of this functionality so this was a useful improvement to the SAMT.

### 3. WORKSHOPS

#### 3.1. UK workshop

The UK workshop was attended by only two delegates. However, a further five indicated interest and were sent the link to review the tool box without attending the workshop. As these did not receive the benefit of attending a guided workshop their feedback has not been included in this report. The two attendees were from different backgrounds. One worked in education, specifically hydrogen safety and use and the other worked in fuel development for internal combustion engines, specifically co-burning of alternative fuels with diesel or gasoline. Between them they had a total of 15 years' experience in FCH technologies.

The workshops consisted of an introduction to the project, a description of the SAMT and its operation. This was followed up with an opportunity for delegates to gain "hands on" experience of using the SAMT via a guided worked example/case study. This allowed the delegates to experience using the SAMT and interpreting the results obtained. Following the workshop, the delegates were asked to provide feedback on the SAMT itself and the experience of using it.

When asked about their understanding of the tool the following answers were received.

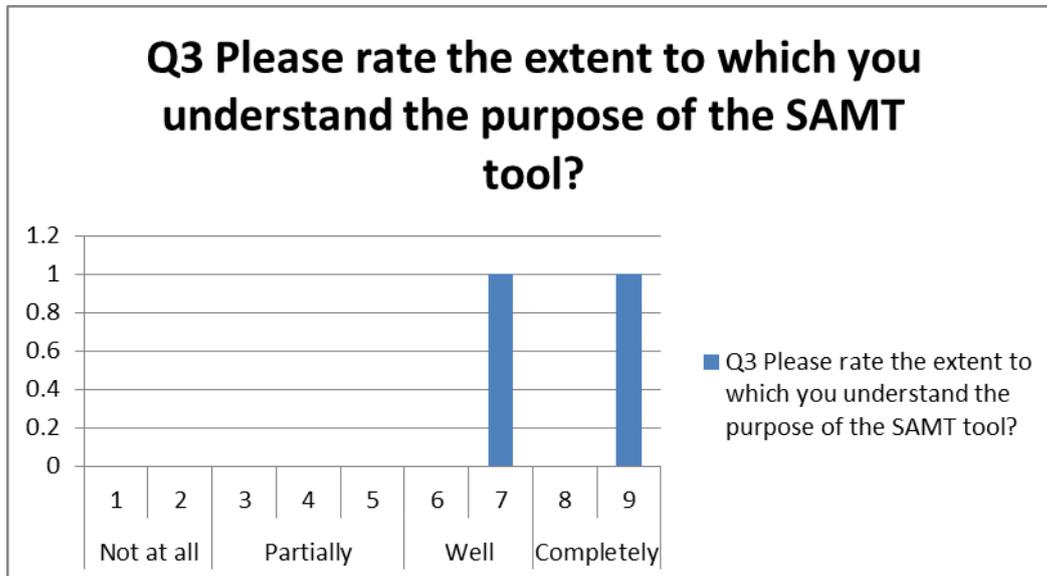


Figure 2: Understanding the purpose of SAMT

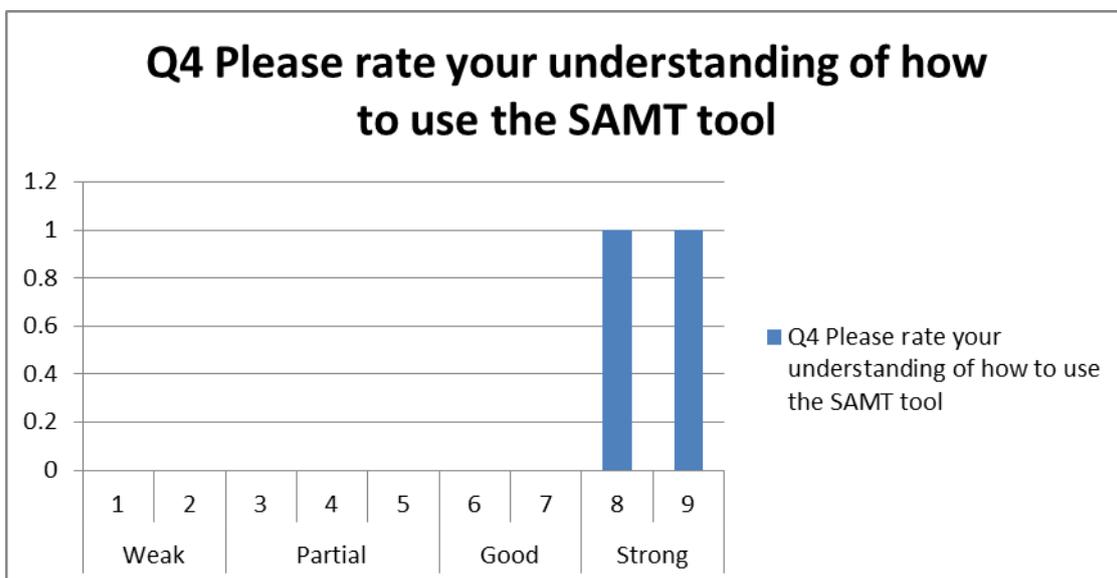


Figure 3: Understanding how to use SAMT

The answers to these questions indicate that delegates gained a good understanding of what the project was trying to achieve through SAMT and a very clear understanding of how to use the tool.

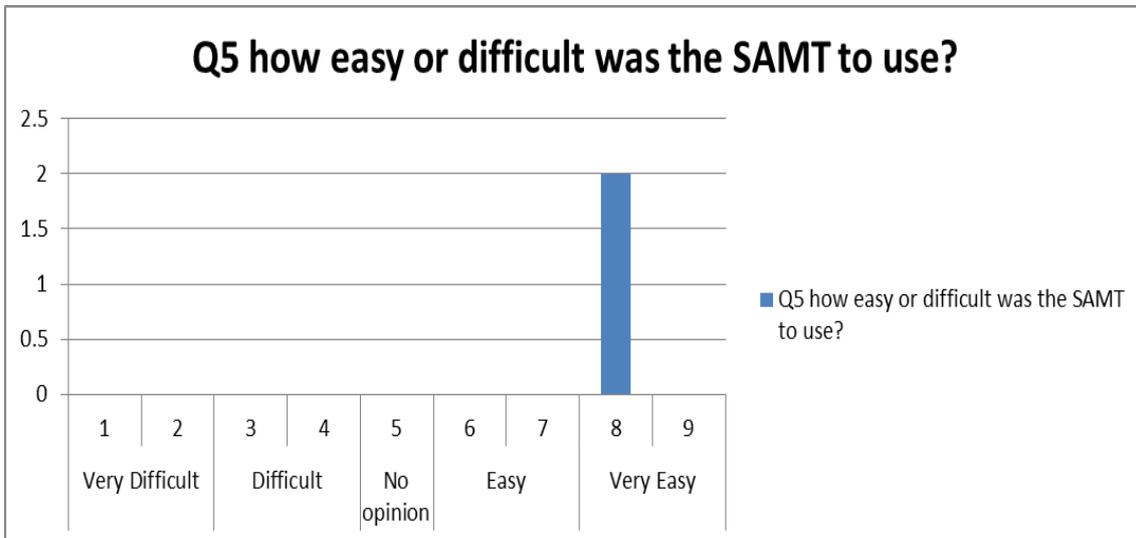


Figure 4: Ease of Use of SAMT

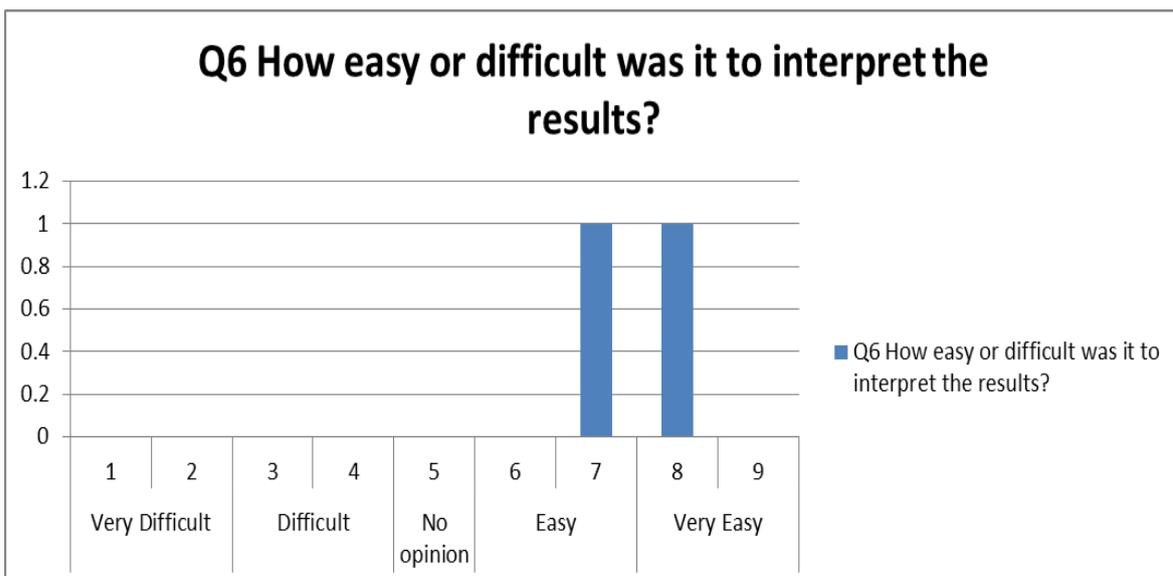


Figure 5: Ease of result interpretation

The answers to questions 5 and 6 support this as delegates found the tool very easy to use and the results easy to interpret.

When asked whether the information presented was what they were expecting and whether or not it would be useful, the feedback was interesting. Both delegates were not fully expecting the information obtained to be so detailed and it appeared to challenge some of their views.

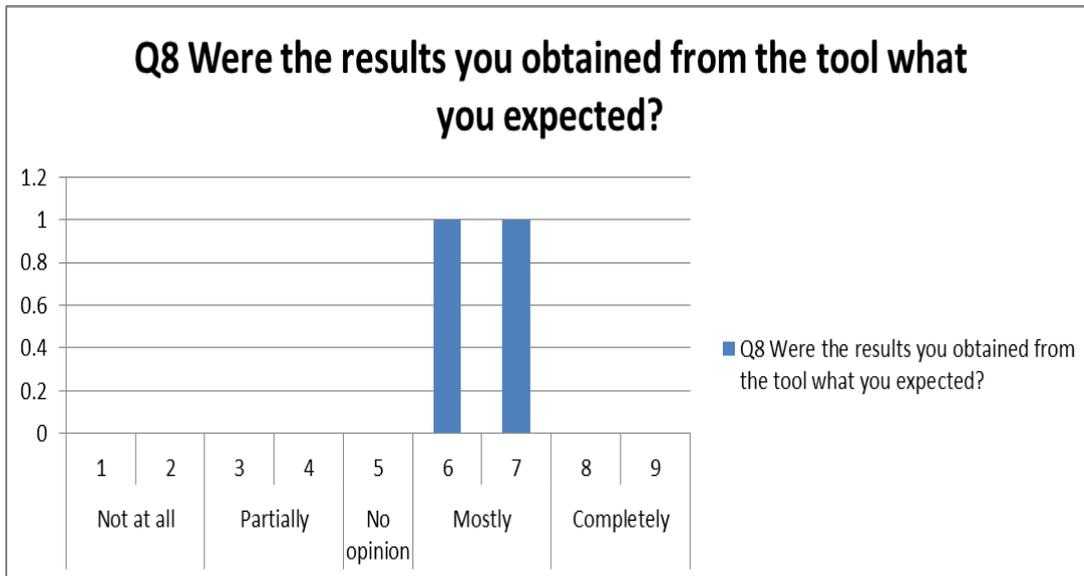


Figure 6: Expectation of the results

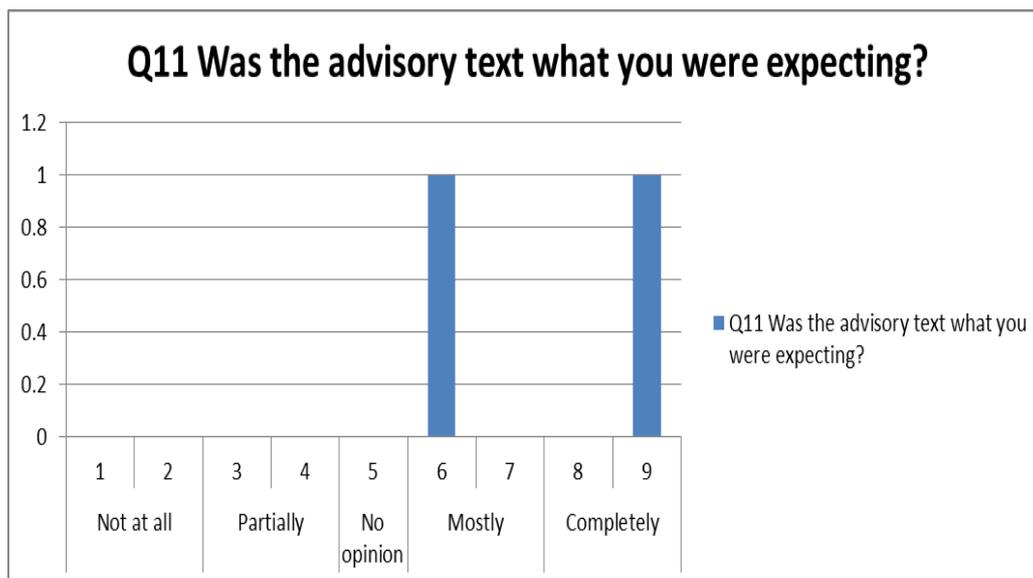


Figure 7: Expectation of Advisory Text

The feedback, albeit from a very small sample, indicates that the tool is raising points and issues that the delegates had previously not anticipated or thought about. Part of the tool’s role is prompt stakeholders to begin asking the right questions in order to gain a deeper understanding of social acceptance issues. It is interesting to see the divergence of views regarding the advisory text between an industrial stakeholder (rating it at 6) and the educational stakeholder (rating it at 9). Both were positive but it does indicate that the educational stakeholder had a clearer understanding of the accepted views regarding how to intervene with the public in order to positively influence public opinion and social acceptance.

### Q10 Do you think that the results provided by SAMT will be useful in helping you understand potential problems related to FCH technology acceptance?

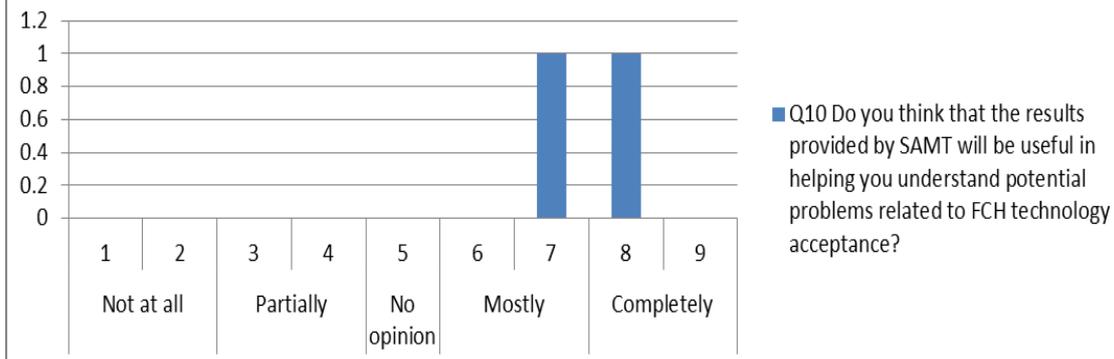


Figure 8: Usefulness in helping to understand social acceptance problems

### Q12 How useful do you think the advisory text will be in helping you to address potential problems?

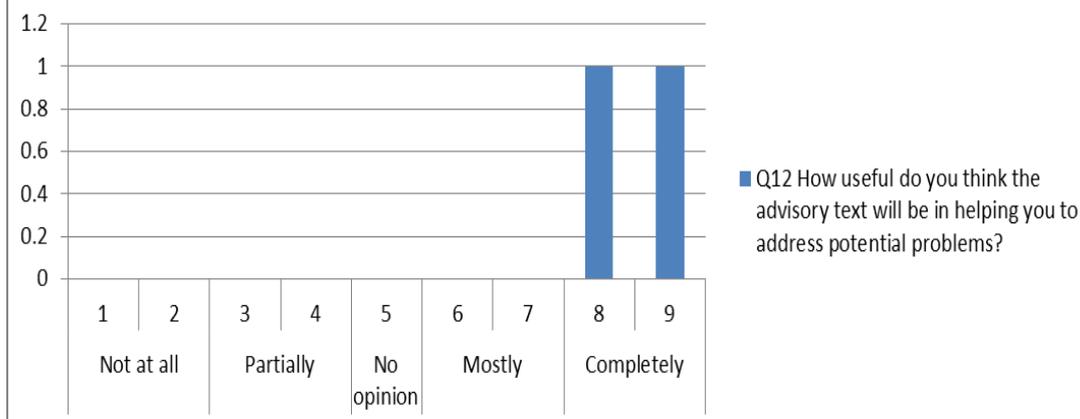


Figure 9: Usefulness of the Advisory Text

Both delegates felt that the tool would be useful in helping them to understand potential social acceptance problems associated with FCH technologies and that the Advisory Text provided useful advice and insight into potential ways in which to solve these.

Both delegates were impressed with the large data pool upon which they could draw. One commented that the interpretation, although seemed straightforward, required a thorough reading of quite a long report. However, both agreed it would provide an extremely useful toolkit providing clear pathways to develop and map out hydrogen solutions.

The industrial stakeholder expressed a wish to see the SAMT extended to other fuels besides hydrogen as his company also used compressed natural gas (CNG) and liquefied natural gas (LNG) as co-fuels.

### 3.2. Spanish workshops

There were two workshops held in Spain each attracting over 50 delegates. One of which was attended by a member of the University of Sunderland team responsible for developing the SAMT. The structure of these workshops was different to the UK workshops in that more emphasis was put upon the project objectives and research findings and there was no opportunity for any “hands on” or interactive experience of the SAMT.

Nevertheless, the SAMT was demonstrated on both occasions by a member of the University of Sunderland team, once in person and once via web link, with an interpretation of the results provided to delegates. Whilst the formal feedback taken at these workshops differed from that taken during the UK workshop, the feedback on the tool was positive and indicated that this was a tool that was required and delegates were pleased that they would have an opportunity to use it.

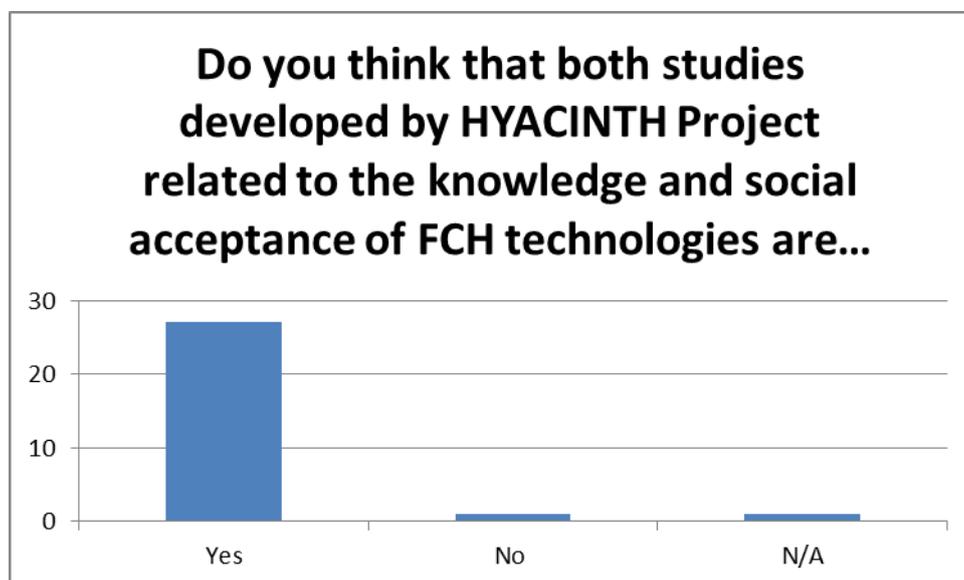


Figure 10: Interest in the studies carried out by the Hyacinth Consortium

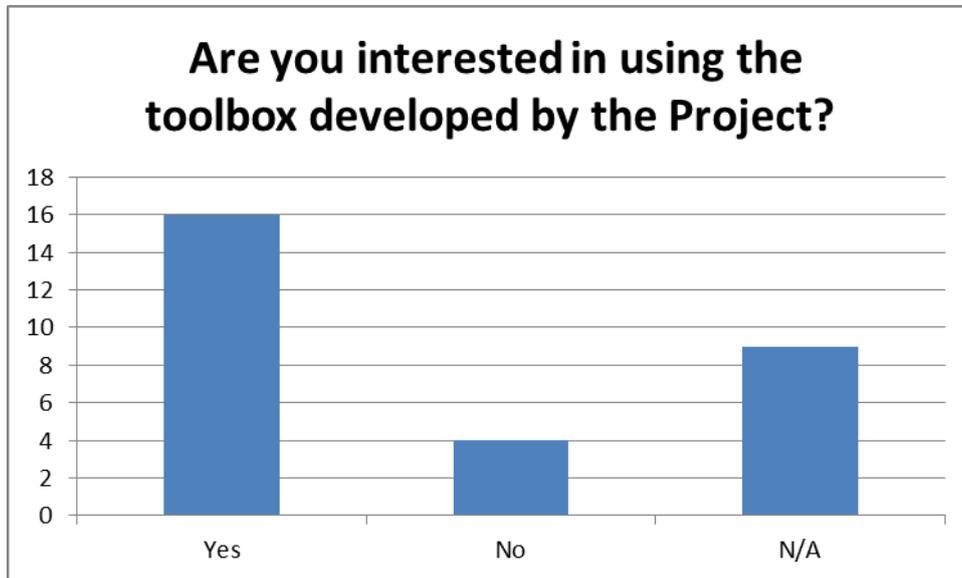


Figure 11: Interest in using the SAMT

### 3.3.Slovenian workshop

The purpose of this workshop, which had more than 50 attendees, was to reunite a group of experts from the hydrogen industry to present them the most relevant conclusions of the analysis on social acceptance of H2 technologies across Europe. In addition, the SAMT toolbox was demonstrated to these stakeholders.

In addition, at the end of the workshop, a questionnaire was provided to all stakeholders for analysing their interest in the project, results and toolbox. The results of the questions asked regarding the toolbox showed that 80% (24 from 30 responses) of delegates stated a strong desire to use the SAMT.

## 4. INFLUENCE ON SAMT OPERATION AND STRUCTURE

The pilot study provided the development team with a useful insight into how the tool might be used by stakeholders and confirmed the basic operation. The team were able to refine the wording of the output documents to better explain the situation. For example, delegates at the pilot sessions noted that it was difficult to understand the nature of any “correlation” between stakeholders’ views and those held by the public. Thus, the development team refined the wording of the advisory text and reclassified the types of correlation indicated to improve understanding using the positive/positive, positive/negative, negative/positive, and negative/negative classifications. This was found to greatly improve understanding during the

UK workshop and provided a better understanding of any differences of opinion between the public and stakeholders.

The workshops were used to confirm that the work carried out had successfully introduced the desired changes to the SAMT and optimised its operation. Some further work might be considered within a future project to automate some of the outputs and simplify the report presented to the stakeholders as it was felt by those who provided formal feedback that the report was somewhat lengthy and detailed. However, it should be noted that the sample size was very small and may not represent the opinions of a larger group of stakeholders.

## 5. SUMMARY

New and developing technologies are always faced by the question of acceptance. The SAMT has been developed to help stakeholders address these issues. It prompts the stakeholder to challenge their perceptions and ask the right questions regarding the problem being addressed. In addition, it raises issues that may not have been considered by stakeholders potentially avoiding costly mistakes.

The optimised SAMT is ready for use by stakeholders and is free of charge. It can be found at the following address:

<https://hyacinth.sunderland.ac.uk>

## 6. FIGURES

Figure 1: Feedback from Stakeholders in Pilot Study .....	7
Figure 2: Understanding the purpose of SAMT.....	9
Figure 3: Understanding how to use SAMT .....	9
Figure 4: Ease of Use of SAMT .....	10
Figure 5: Ease of result interpretation .....	10
Figure 6: Expectation of the results .....	11
Figure 7: Expectation of Advisory Text.....	11
Figure 8: Usefulness in helping to understand social acceptance problems .....	12
Figure 9: Usefulness of the Advisory Text.....	12
Figure 10: Interest in studies carried out by the Hyacinth consortium .....	13
Figure 11: Interest in using the SAMT .....	13