

Training Evaluation Report

EINSTEIN II ADVANCED TRAINING IN THERMAL ENERGY AUDITING

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EINSTEIN II

**EXPERT SYSTEM FOR AN INTELLIGENT SUPPLY OF THERMAL ENERGY IN
INDUSTRY AND OTHER LARGE SCALE APPLICATIONS**

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1 Introduction

As part of the Intelligent Energy Europe funded project, EINSTEIN II, a series of training courses in thermal energy auditing was undertaken in 2011.

Introductory four-day courses were held in 10 countries in the Spring of 2011, while two day advanced courses were carried out during the Autumn of 2011. Following attendance at the introductory and advanced courses, and successful completion of project work, trainees are being certified by the consortium as EINSTEIN auditors.

This report provides feedback from the individual trainees in the advanced training courses, as garnered through an evaluation questionnaire handed out at the end of each training course. The introductory courses were performed on EINSTEIN release 2.0. The feedback from trainees in the introductory courses was used to improve the release for the advanced course, EINSTEIN release 2.1.

This report is arranged as follows:

- The summary results from all trainees that completed the training evaluation questionnaire are presented in chapters 1 to 10 for each individual country: Austria, Bulgaria, France, Germany, Ireland, Italy, Luxembourg, Spain, and the UK.
- An overall compilation of the feedback from all 10 countries is contained in chapter 11.

The training material used is available for downloading on www.einstein-energy.net/training-activities/training-materials. This material includes: the training programme and slides for the advanced course. The training materials are translated into Bulgarian, French, German, Italian, Slovakian, and Spanish versions.

2 Individual Country Results

1 Austria

1.1 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants.

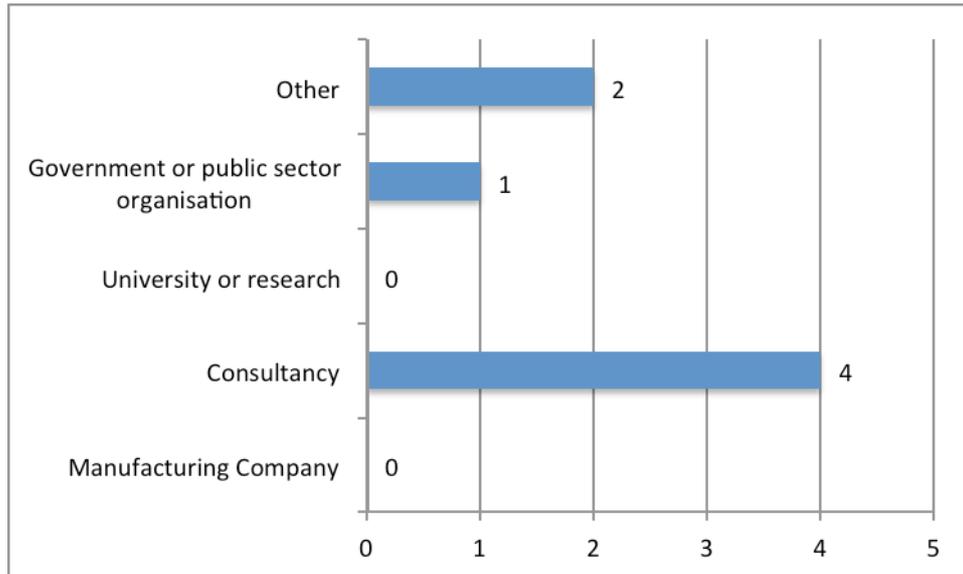


Figure 1. Sectors represented at the training event

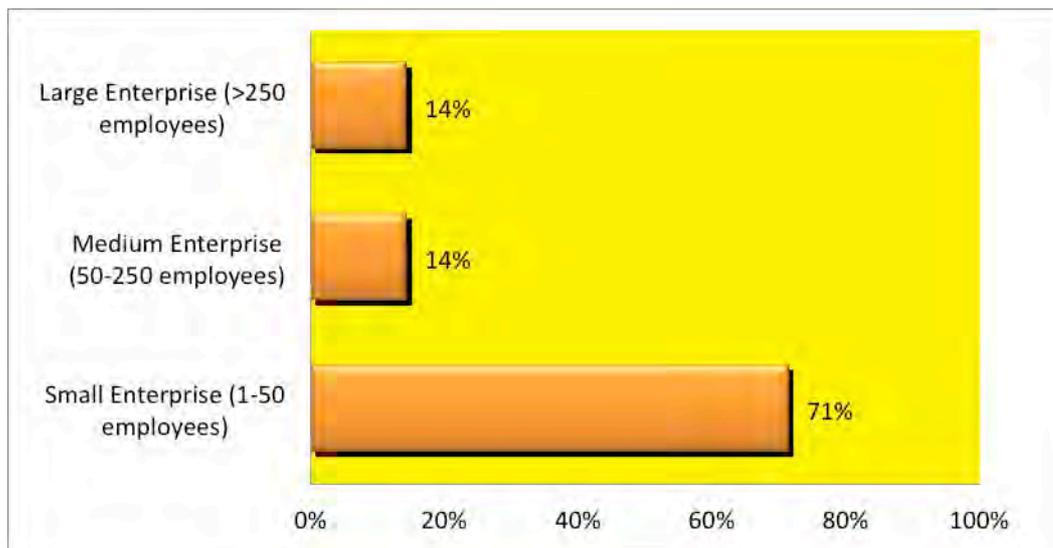


Figure 2. Structure of participants

Table 1. Current role of participant in their company or organisation

| |
|--------------------------------------|
| Occupation |
| Engineering, Installation |
| Project development |
| Head of Department Energy Efficiency |
| Customer consultant, energy provider |
| CEO |

1.2 GENERAL ISSUES

This section provides information as to whether participants attended earlier EINSTEIN courses and some general overall feedback on the course.

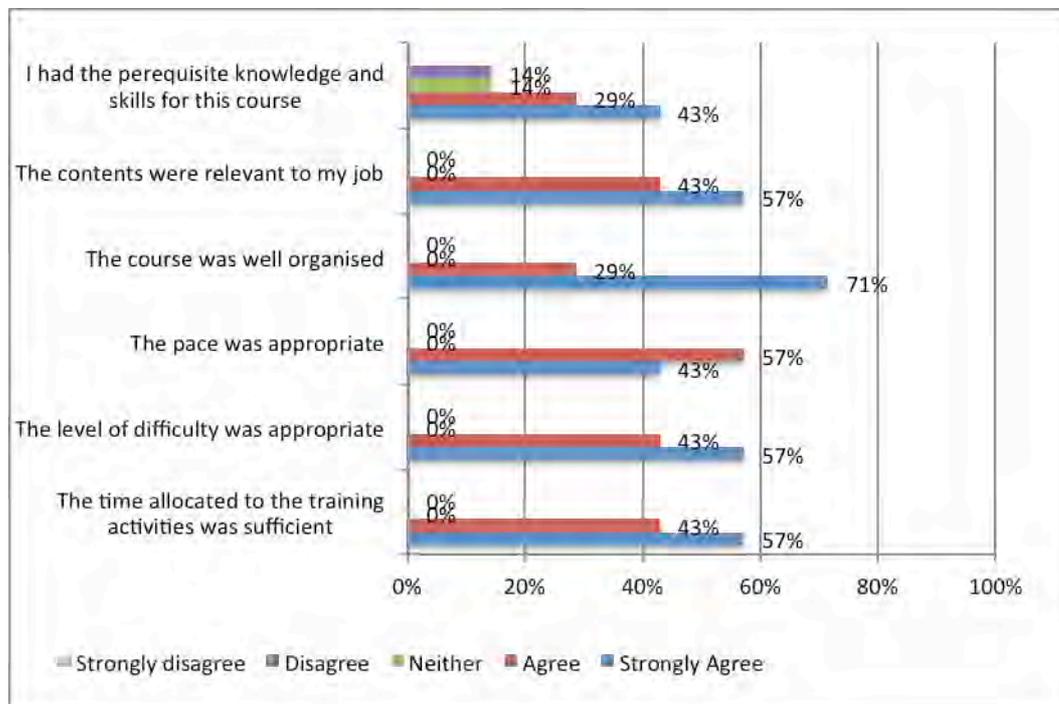


Figure 3. Questionnaire results on general issues

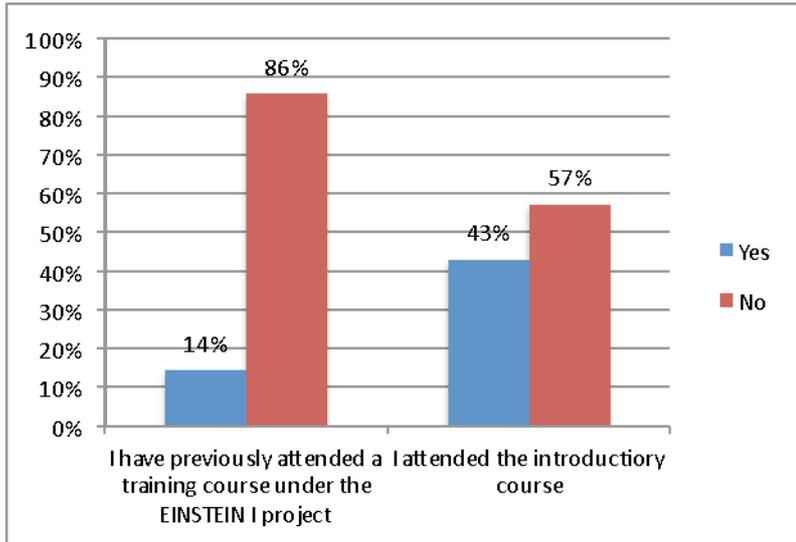


Figure 4. Previous attendance of EINSTEIN course.

1.3 TRAINING MODULES, MATERIALS AND TRAINERS

This section provides feedback regarding the training materials and the trainers.

Suggestions for improvement of the course

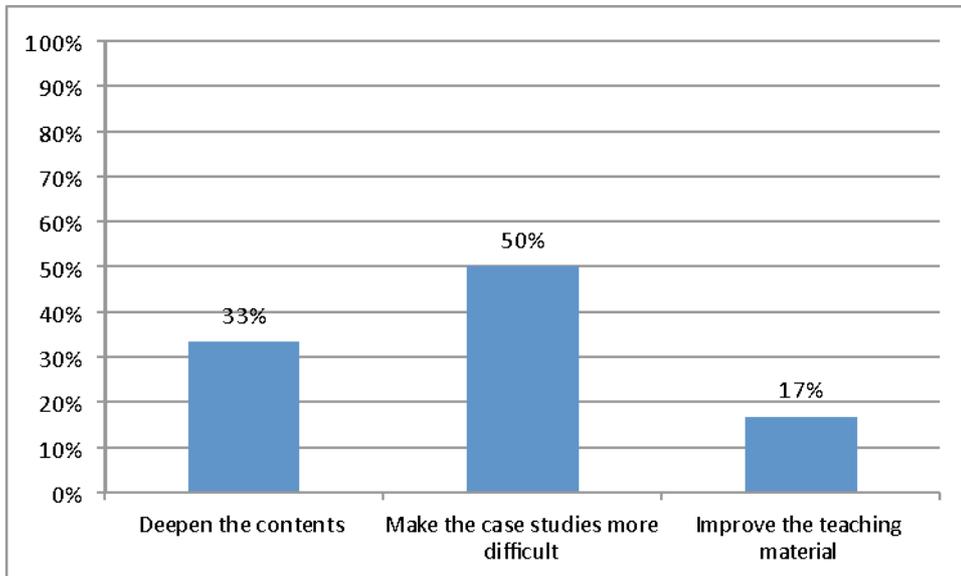


Figure 5. Suggestions for improvement of the course

Table 2. Other suggestions/comments on improving the course

| Comments |
|---|
| Second Course much more helpful than first course, a lot of good examples |

1.4 THE EINSTEIN TOOL

This section deals with feedback on various aspects of the EINSTEIN tool itself.

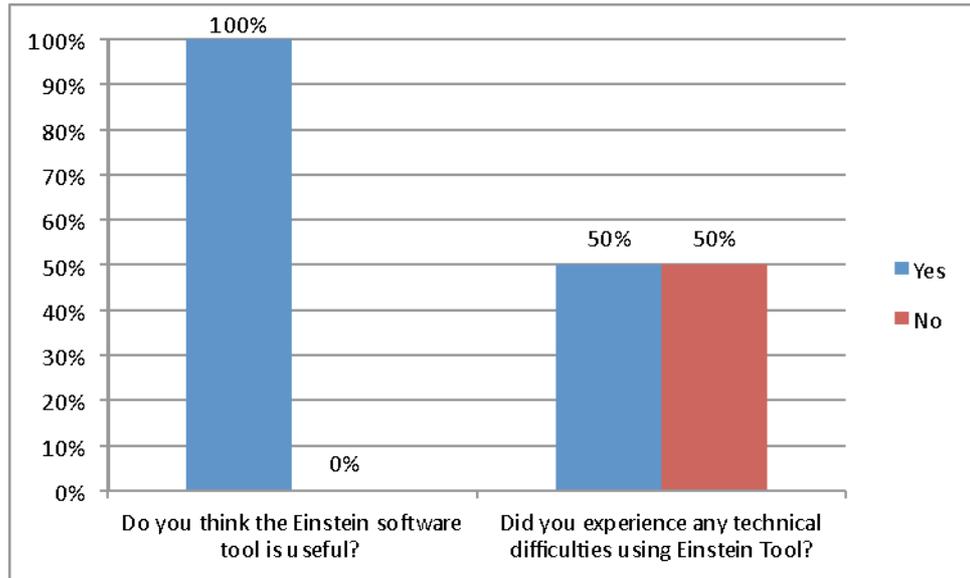


Figure 6. Share of participants satisfied with the EINSTEIN tool and share of participants who experienced technical difficulties using EINSTEIN tool.

Table 3. Comments from participants as to why they found the EINSTEIN tool useful

| Comments |
|---|
| Structured audit process |
| Rough estimate possible |
| Usability cannot be evaluated because of lack of experience |
| Good overview on heat area |
| Practice oriented |
| Software is able to do a lot - helps during the audit because of process implementation |

Table 4. Comments from the attendees relating to the technical difficulties they encountered while using the EINSTEIN tool

| |
|--|
| Comments |
| Processes, connection, numbers |
| Partly not visible on laptop (small display) |
| Installation Windows 7: right of administration |
| C-Check: Orange signal message; as soon as another menu button was pressed the window disappears |
| Some things are cumbersome: windows cannot be changed |
| Somebody should check all masks: typos and english/german |
| Some calculations are not obvious (CHP) |

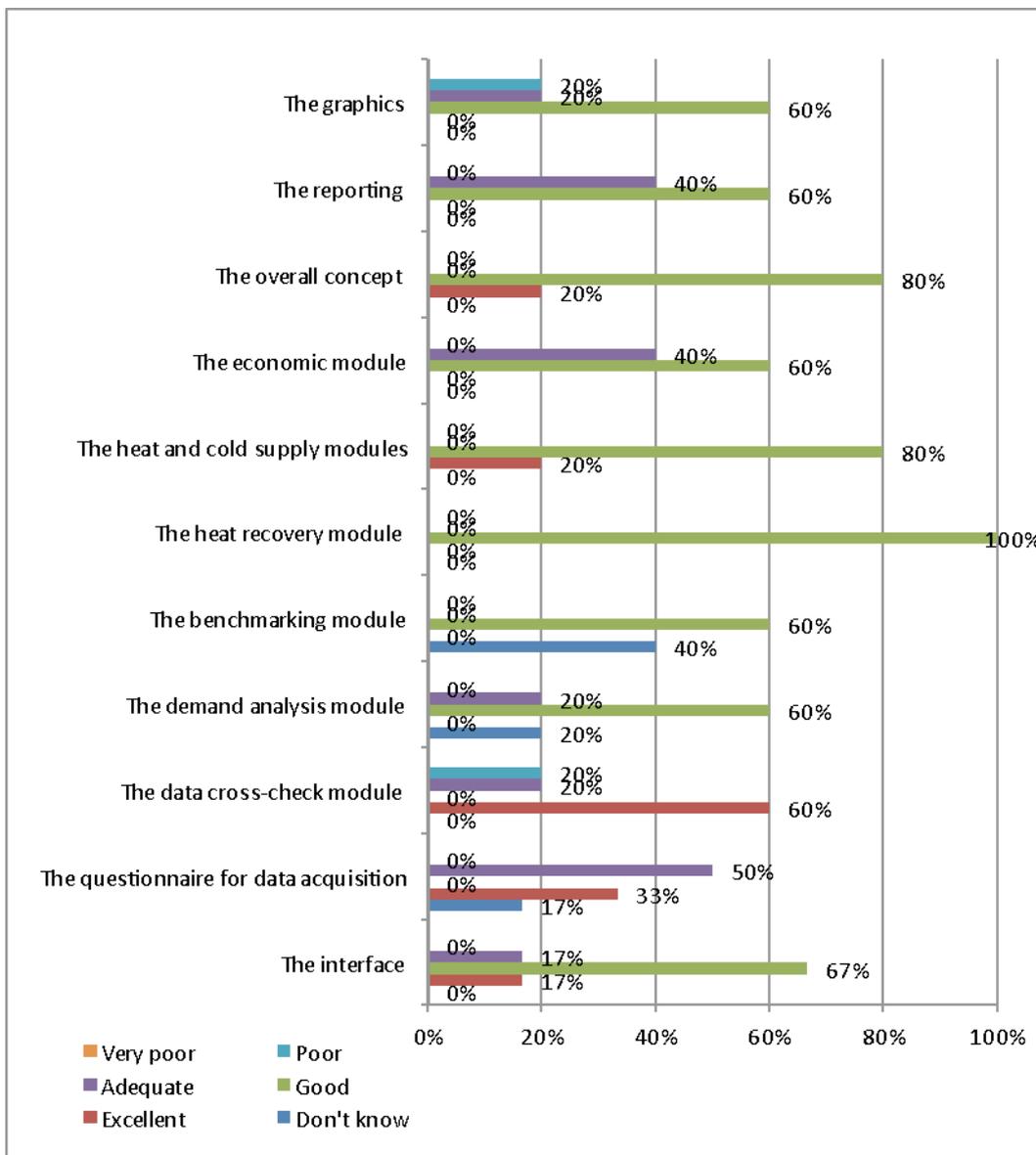


Figure 7. Participants' ratings of parts of the EINSTEIN tool

Table 5. 'Which important feature and/or functions are missing?'

| |
|---|
| Comments |
| Heat Storage, |
| Heat Exchanger Cascades |
| Quick print-out of parameters, status quo |
| System connections: show HX, print function, view temperature |
| Check: nobody understands error messages |
| Connection: from HX to HX |
| View on which menu button immediately calculation process starts |
| Message with time stamp or message indicating which calculation check started |

1.5 TRAINING RESULTS

This section deals with the outcome of the training for the individual trainees.

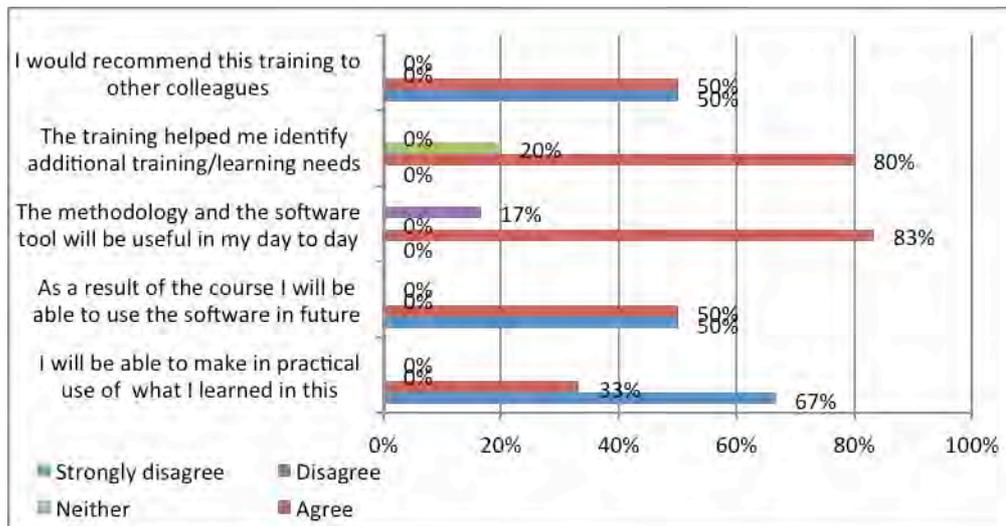


Figure 8. Results of EINSTEIN training course

Table 6. 'What was most valuable about this training?'

| |
|--|
| Comments |
| Examples, interactive |
| Examples, understand principle and function volume |
| Good Examples |
| Practice with software |

Table 7. 'What was least valuable about this training?'

| |
|--|
| Comments |
| How to start a project |
| How to define a process |
| Mostly only overall energy consumption available |

Table 8. Other comments

| Comments |
|---------------------------------|
| As a whole very good workshops |
| Travel to Vienna was worthwhile |

1.6 FEEDBACK FROM TRAINING ORGANISERS AND TRAINERS

Table 9. Comments from the training organisers regarding the course

| Comments |
|--|
| Very good! (unfortunately, no university students from the introductory course attended, therefore a lot of participants from the first course were lost, on the other hand new persons with high interest in EINSTEIN attended the course); the training activities were very good - short presentations and short practising |

2 Bulgaria

2.1 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants.

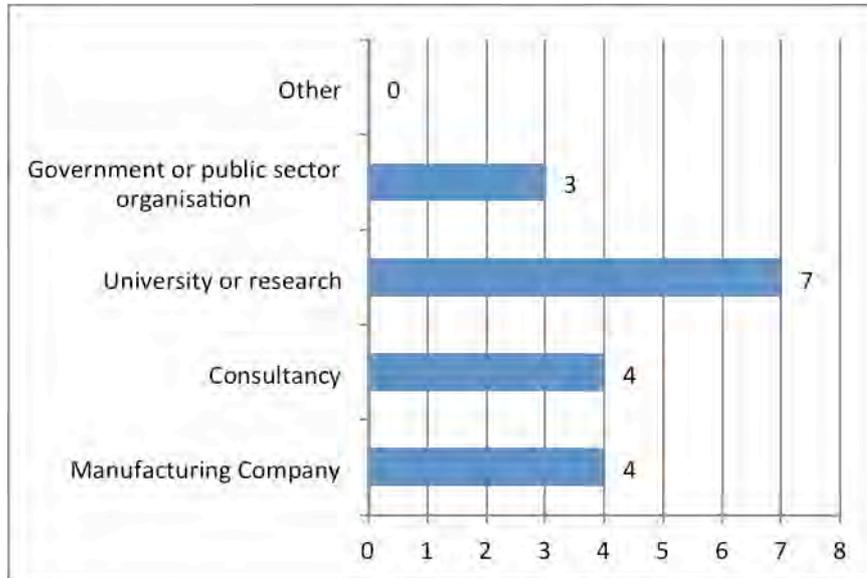


Figure 9. Sectors represented at the training event

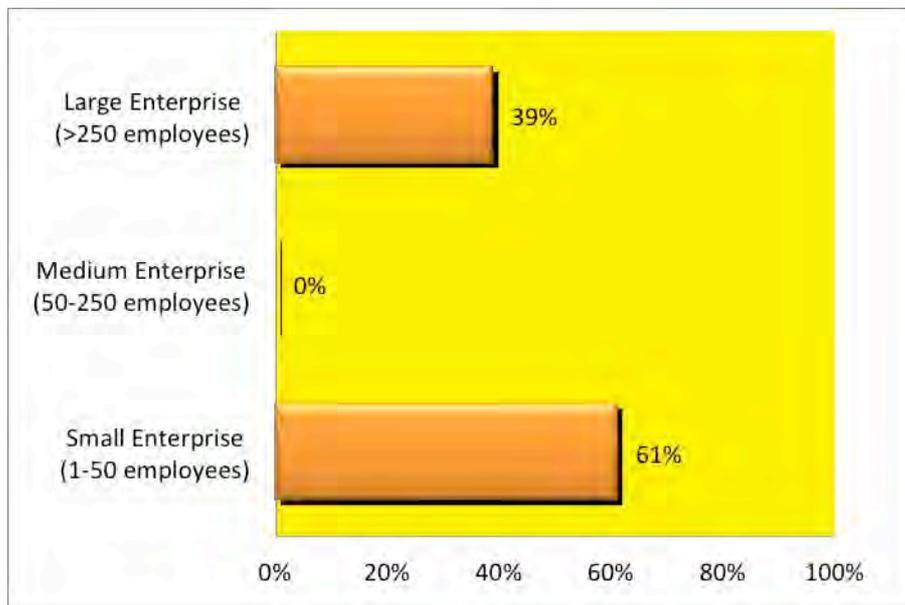


Figure 10. Structure of participants

Table 10. Current role of participants in their company or organisations

| Occupation | Number |
|-------------------|---------------|
| Teacher | 5 |
| PhD student | 2 |
| Manager | 3 |
| Expert | 7 |

2.2 GENERAL ISSUES

General comments on the course are listed below. A full survey of participants is not available.

2.3 TRAINING MODULES, MATERIAL AND TRAINERS

General comments on the course are listed below. A full survey of participants is not available.

2.4 THE EINSTEIN TOOL

General comments on the course are listed below. A full survey of participants is not available.

2.6 FEEDBACK FROM TRAINING ORGANISERS AND TRAINERS

Table 11. Comments from the training organisers regarding the course

| Occupation |
|--|
| I think there were no problems with the organisation or the installation of the software. Jürgen Fluch from AEE organised his lectures and training examples perfectly. About the translation I also think there were no significant problems. There were some problems with the IT skills of some participants and some minor bugs with the software. |

Table 12. Comments from the course trainers (feedback to trainers from trainees)

| |
|---|
| Problems encountered using the Einstein tool |
| Data entering |
| Understanding the way the software works |
| On what was least valuable about the training |
| The trainees' summarised opinion on the trainings was that the time given for the examples could be greater so they can get more familiar with the software tool. |
| The main problem for all is getting used to entering the data in the way the software wants it and to understand and correct errors, from the error message. |
| On what was most valuable about the training |
| Generally everyone liked the Tool, the EINSTEIN concept and the general idea of the project very much. The new features like the flowchart diagram for data input was very well received. |

3 France

3.1 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants.

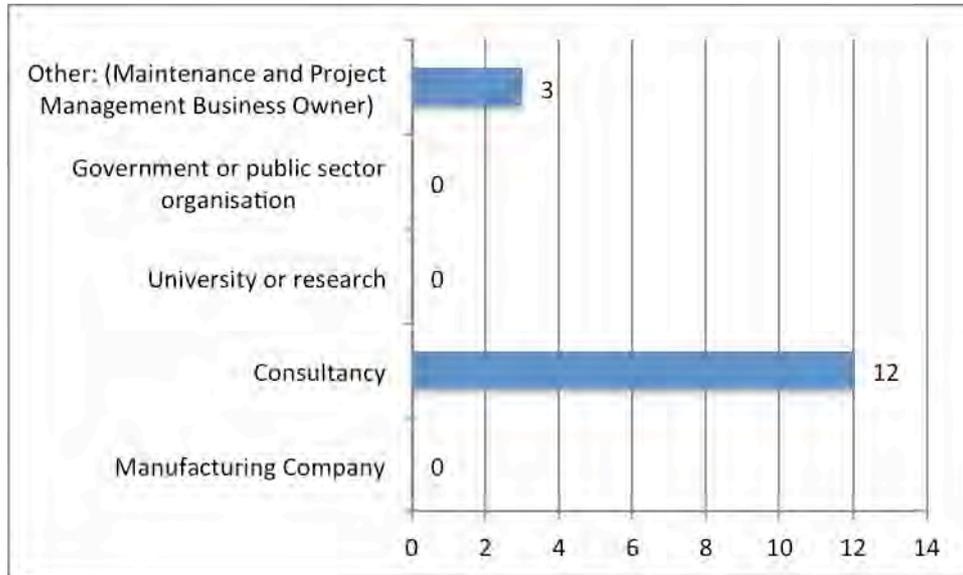


Figure 11. Sectors represented at the training event

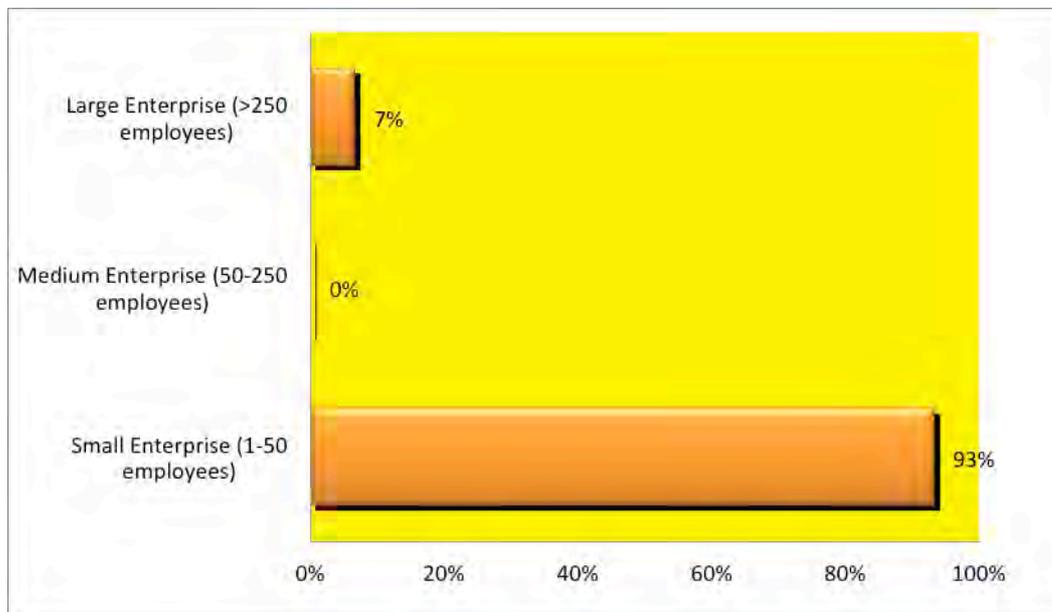


Figure 12. Structure of participants

Table 13. Current role of participants in their company or organisation

| Occupation | Number |
|-----------------------------------|----------|
| Engineer | 3 |
| Associate | 1 |
| Project Manager - Quality Manager | 1 |
| Consultant | 2 |
| Business Manager | 1 |
| Total | 8 |

3.2 GENERAL ISSUES

This section provides information as to whether participants attended earlier EINSTEIN courses and some general overall feedback on the course.

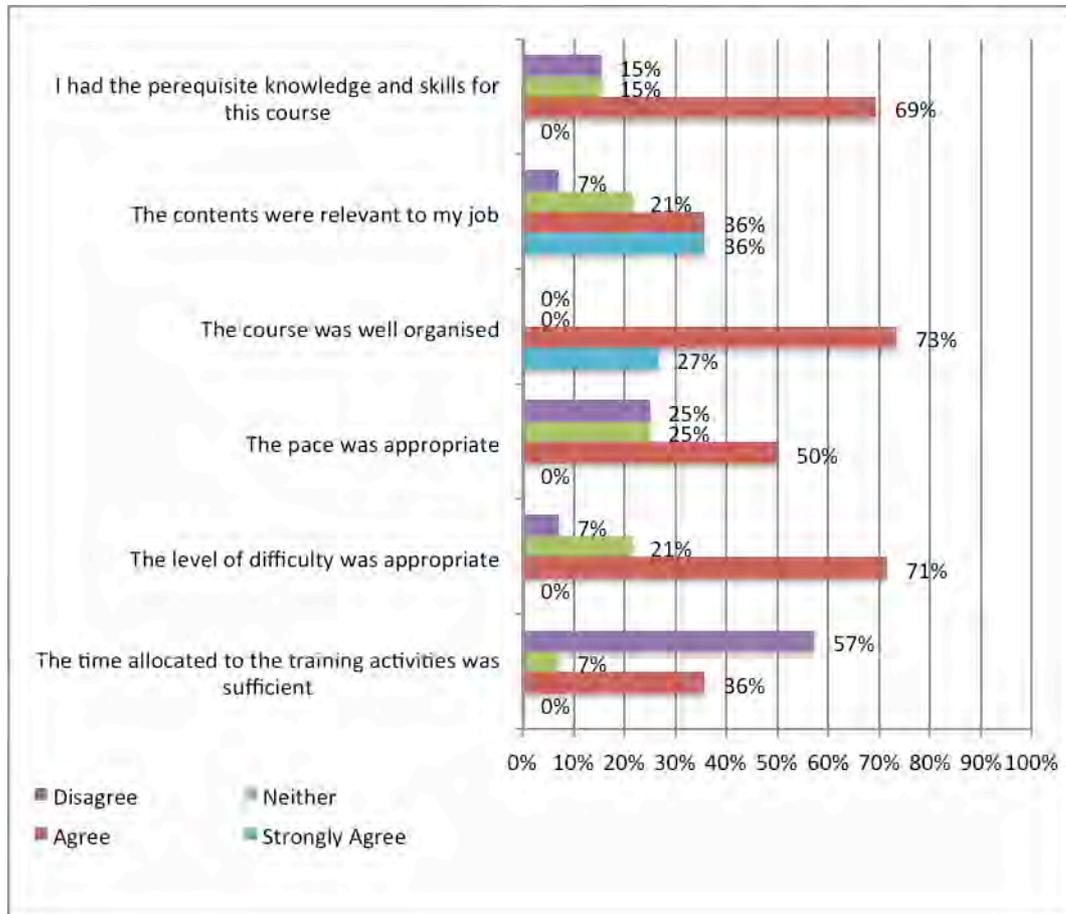


Figure 13. Questionnaire results on general issues

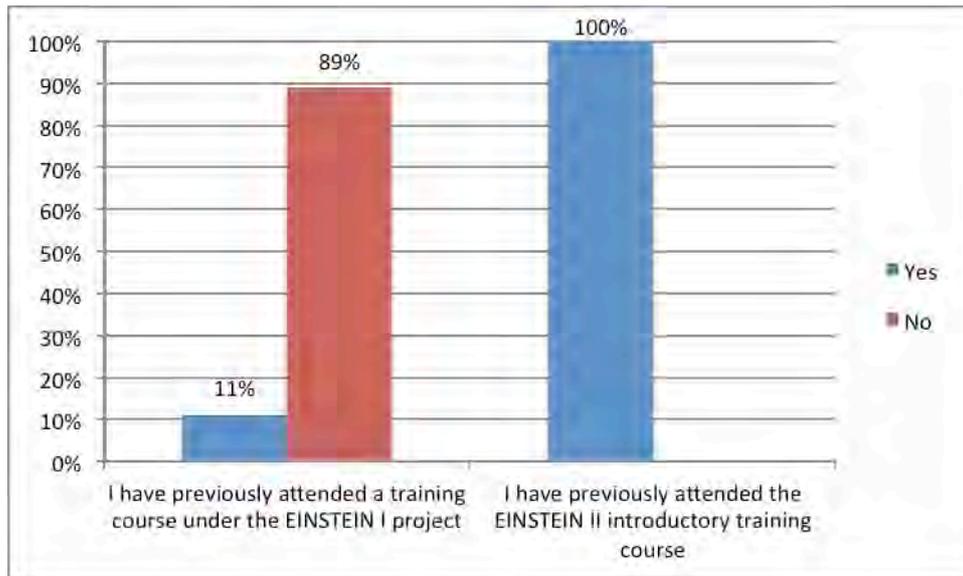


Figure 14. Previous attendance of EINSTEIN courses

3.3 TRAINING MODULES, MATERIAL AND TRAINERS

This section provides feedback regarding the training materials and the trainers.

Suggestions for improvement of the course

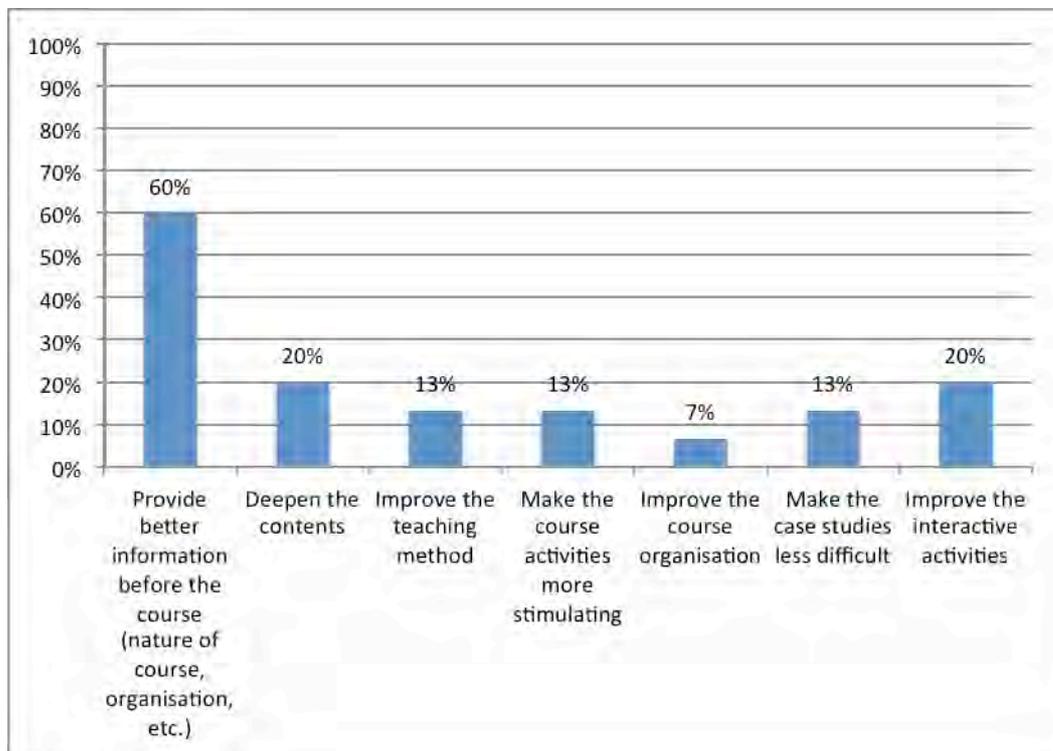


Figure 15. Suggestions for improvement of the course

Table 14. Other suggestions/comments on improving the course

| Comments |
|---|
| Case studies of increasing difficulty |
| Increase the preparation before the course |
| Supply scheme exercises |
| I suggest the development of interactive learning tools for the online learning tool, with an information base, in order to master the fundamentals (paraphrased) |
| Create a user tutorial (paraphrased) |
| Upload a tutorial |
| Have more time to look into the cases studied |
| More time on the manipulation of the tool |
| 1 or 2 exercises could be given in advance to prepare before the training session, in order to move more rapidly on the exercises and get to the critical points more quickly (paraphrased) |

3.4 THE EINSTEIN TOOL

This section deals with feedback on various aspects of the EINSTEIN tool itself.

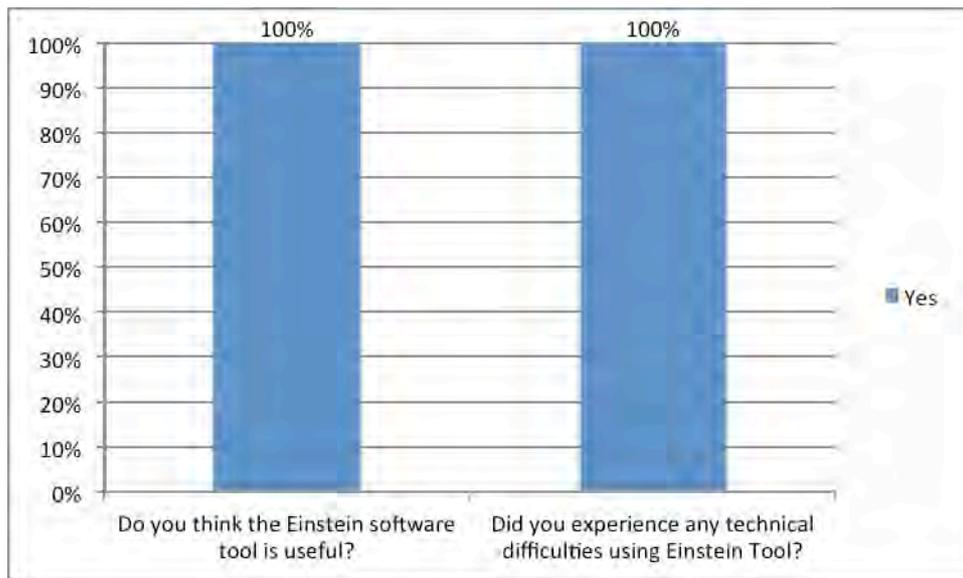


Figure 16. Share of participants satisfied with the EINSTEIN tool and share of participants who experienced technical difficulties using EINSTEIN tool.

Table 15. Comments from participants as to why they found the EINSTEIN tool useful

| Comments |
|---|
| Energy saving |
| Quickly provides optimisations for energy producing items (paraphrased) |
| Meets a need on the audit market for industrial SMEs |
| Will become a reference |
| Incorporates energy saving and monetary saving (paraphrased) |
| Adapted to specialists who make it their business |
| Software has become more user friendly |
| The only tool I know for industrial processes |
| Can detect information inconsistent with regard to energy balance |
| Helps design alternatives with unfamiliar equipment (solar thermal) |
| Poorly adapted "all electric" processes |

Table 16. Comments from the attendees relating to the technical difficulties they encountered while using the EINSTEIN programme

| Comments |
|--|
| Interpretation of results and graphs (energy performance) |
| Use and impact of the "estimate data" |
| Very inadequate documentation. No documentation oriented form (how to fill the pages) |
| Time display of tooltips is too short, no time to read or to understand sentences |
| Building /Airhandling does not work on French |
| Always use the same words for the same things eg "cooling the building" - "conditioning period": always use "cooling" |
| Always ask for information in the same order eg first "heating" and after "cooling" |
| I left with the impression that, in the alternatives that are built with the design assistant "Run", it does not distinguish between the parameters that were originally input to launch the tool, from those calculated by the tool (paraphrased) |
| Language |
| Import/export of projects |
| Consistency check |
| Lack of practice due to time, manipulation of basic functions not mastered |
| Complex exploitation of results |
| Lack of tutorial |
| Not always clear as to whether data is required or optional (paraphrased) |
| Sometimes difficult to understand the mistakes of the consistency check |
| Should indicate the name of the process involved and not just its number |
| Should stipulate more precisely the two values in conflict |
| Problem with the latent heat at 100 ° C (pressure less than atmospheric pressure): the options for heat recovery are not taken into account (paraphrased) |

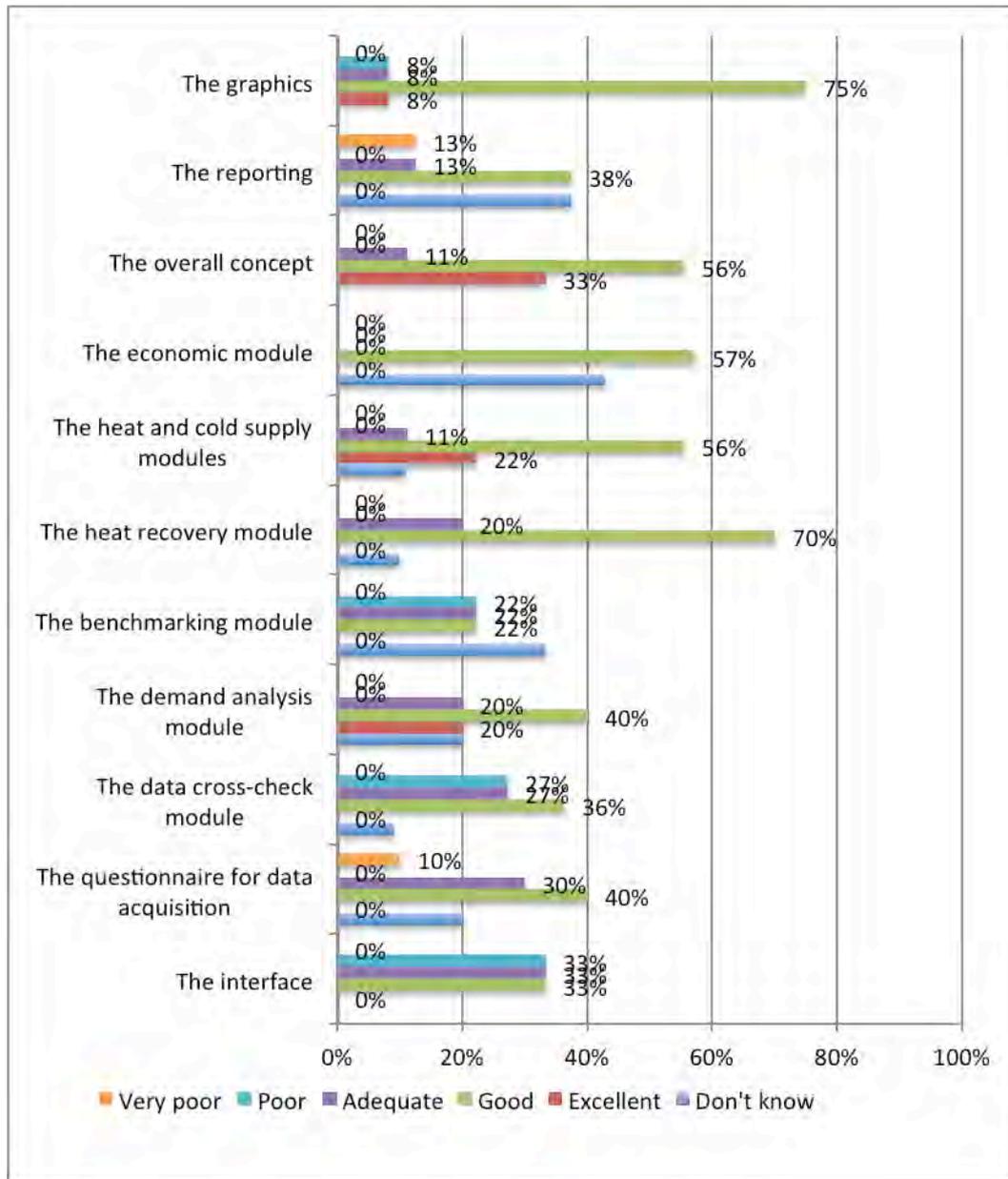


Figure 17. Participants' ratings of parts of the EINSTEIN tool.

Table 17. 'Which important features and/or functions are missing?'

| Comments |
|---|
| Building: air handling unit m3 / h |
| Understanding the information (data interpretation) |
| Computing time takes too long (paraphrased) |

3.5 TRAINING RESULTS

This section deals with the outcome of the training for the individual trainees.

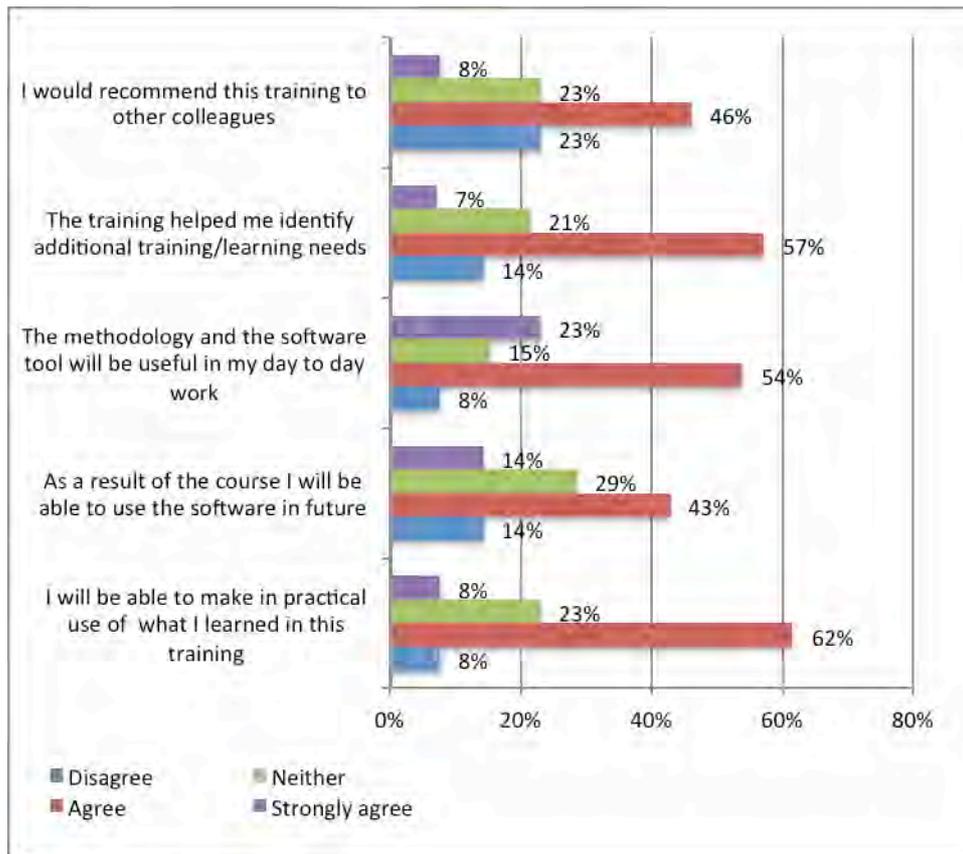


Figure 18. Results of EINSTEIN training course

Table 18. ‘What was most valuable about this training?’

| Comments |
|--|
| Practical cases (exercises) |
| Practical applications and description of different approaches to model Pinch analysis |
| Practical aspects (study cases) |
| Economic evaluation module treated unfortunately too quickly |

Table 19. Other comments

| Comments |
|---|
| Congratulations to the trainers for their attentiveness |
| We must find a tool to customise the training and make it available on the Internet |
| Must work in networks with this tool and as a team. Avoid solo studies. |
| Need documentation |
| Translation of the tool should be reviewed (paraphrased) |
| Response time to questions by email too long |

4 Germany

4.1 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants.

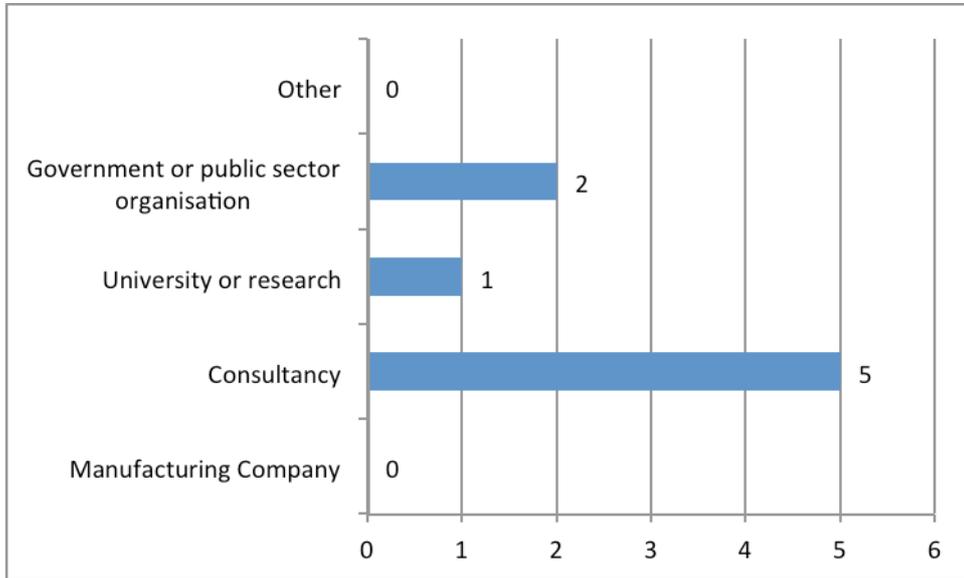


Figure 19. Sectors represented at the training event

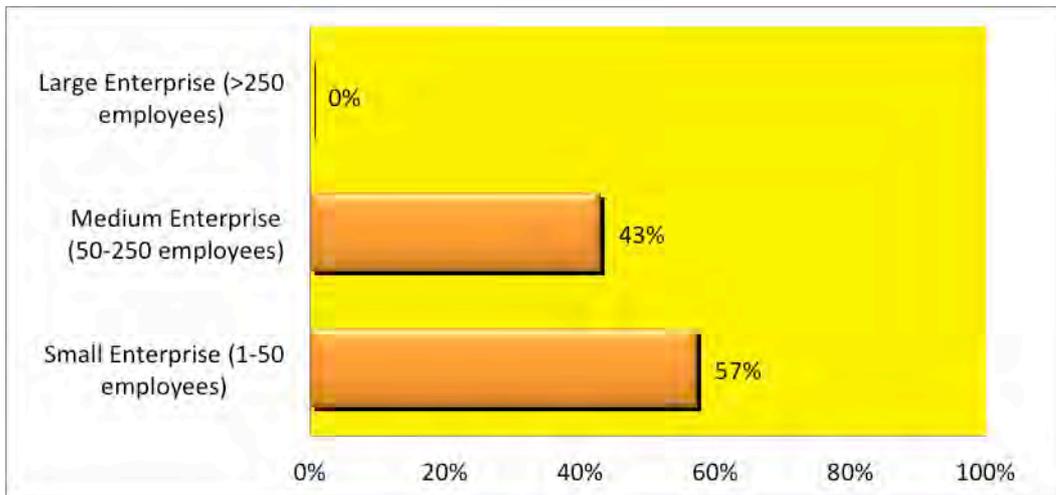


Figure 20. Structure of participants

4.2 GENERAL ISSUES

This section provides information as to whether participants attended earlier EINSTEIN courses and some general overall feedback on the course.

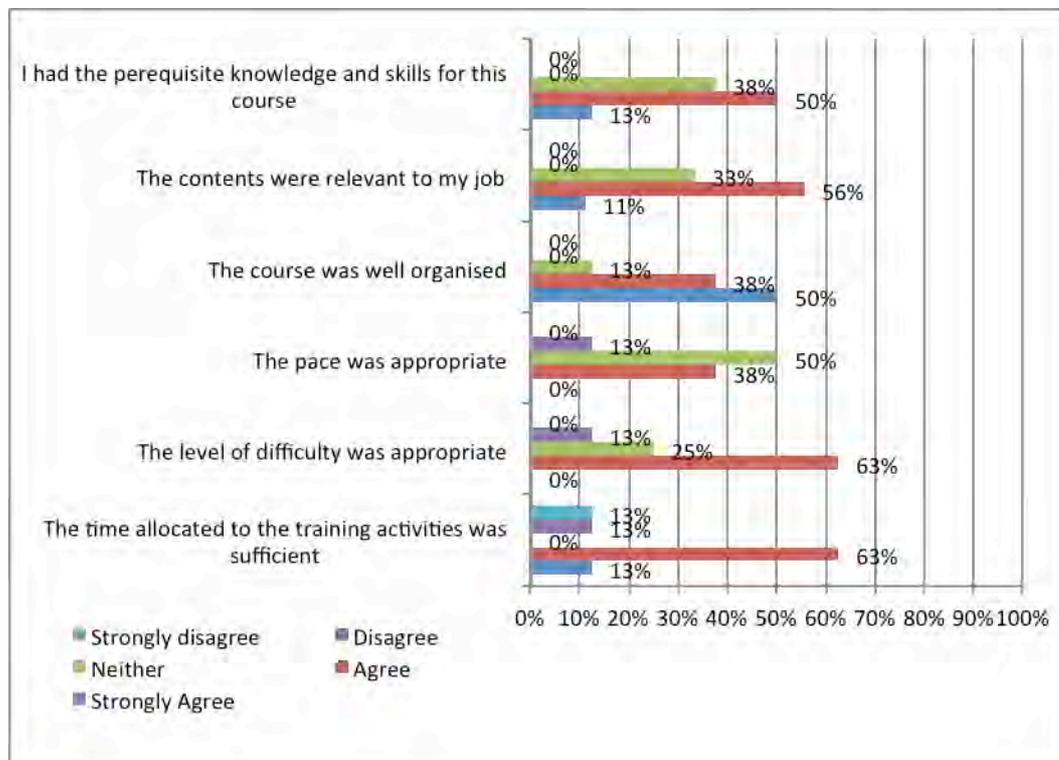


Figure 21. Questionnaire results on general issues

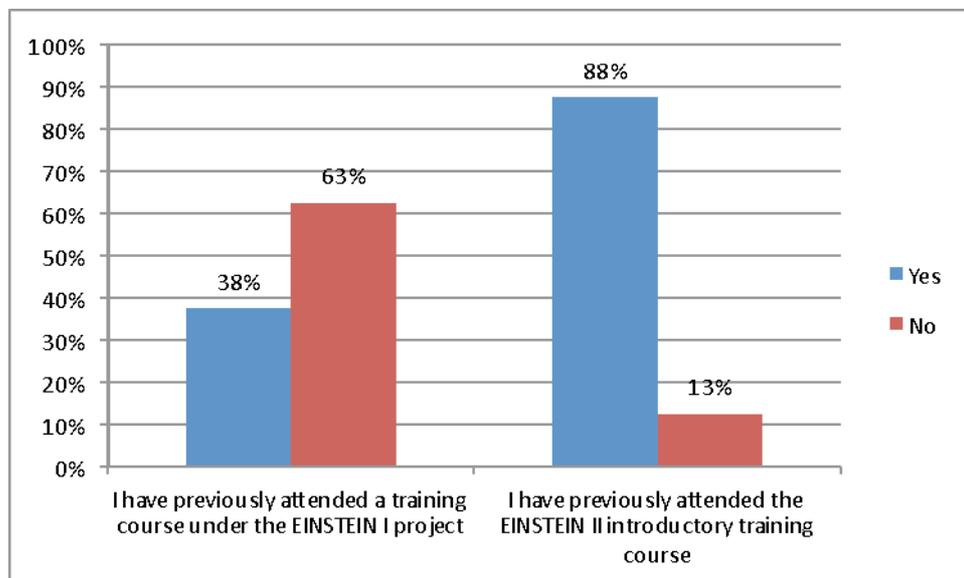


Figure 22. Questionnaire results on general issues

4.3 TRAINING MODULES, MATERIAL AND TRAINERS

This section provides feedback regarding the training materials and the trainers.

Suggestions for improvement of the course

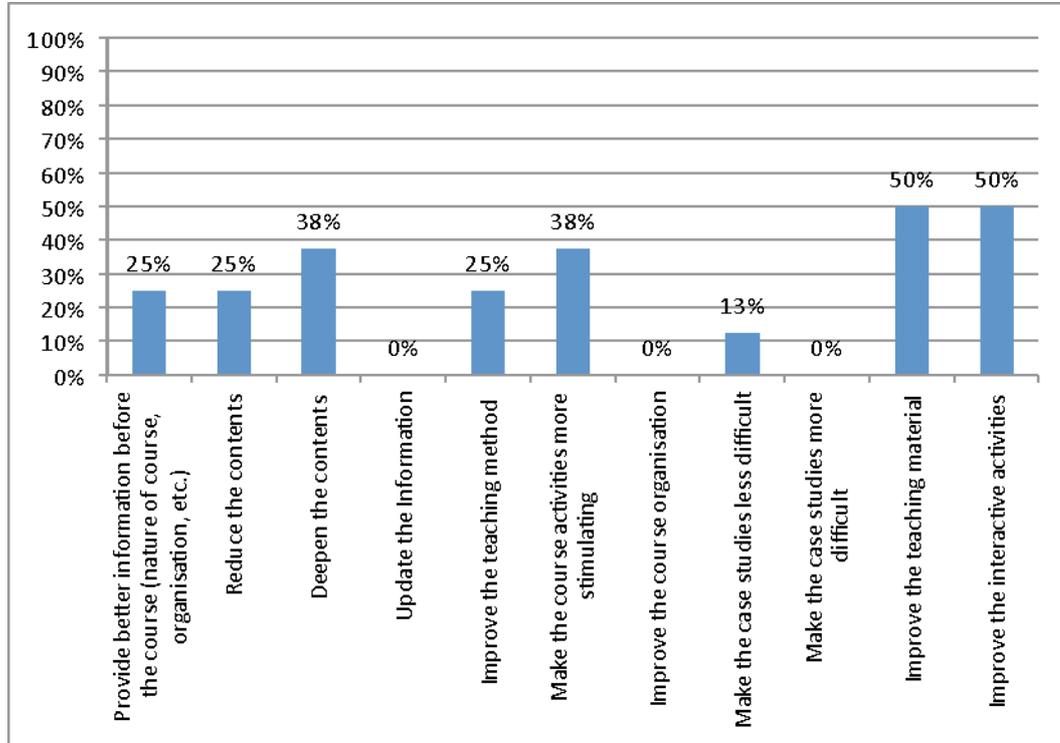


Figure 23. Suggestions for improvement of the course

4.4 THE EINSTEIN TOOL

This section deals with feedback on various aspects of the EINSTEIN tool.

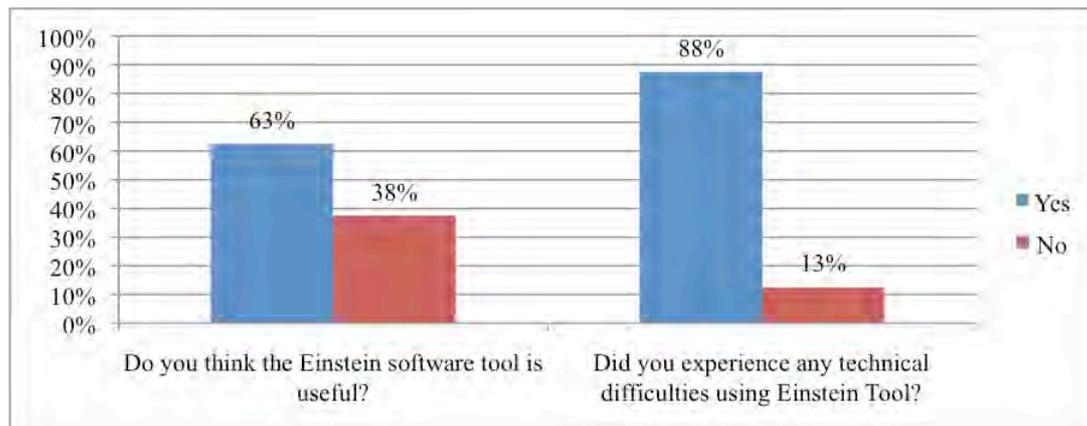


Figure 24. Share of participants satisfied with the EINSTEIN tool and share of participants who experienced technical difficulties using the EINSTEIN tool

Table 20. Comments from participants as to why they found the EINSTEIN tool useful

| Comments |
|---|
| Support in the job |
| For processes |
| There seems to be no similar software in that field |

Table 21. Comments from the attendees relating to the technical difficulties they encountered while using the EINSTEIN tool

| Comments |
|--|
| Installation problems, problems with the running of the software |
| Too little experience with the tool |
| Data Input |
| Confusing user interface |
| Not manageable |
| More user-friendliness is necessary |
| The user should be able to understand the error messages and to correct errors |
| Too confusing |
| Too many possibilities for input errors |

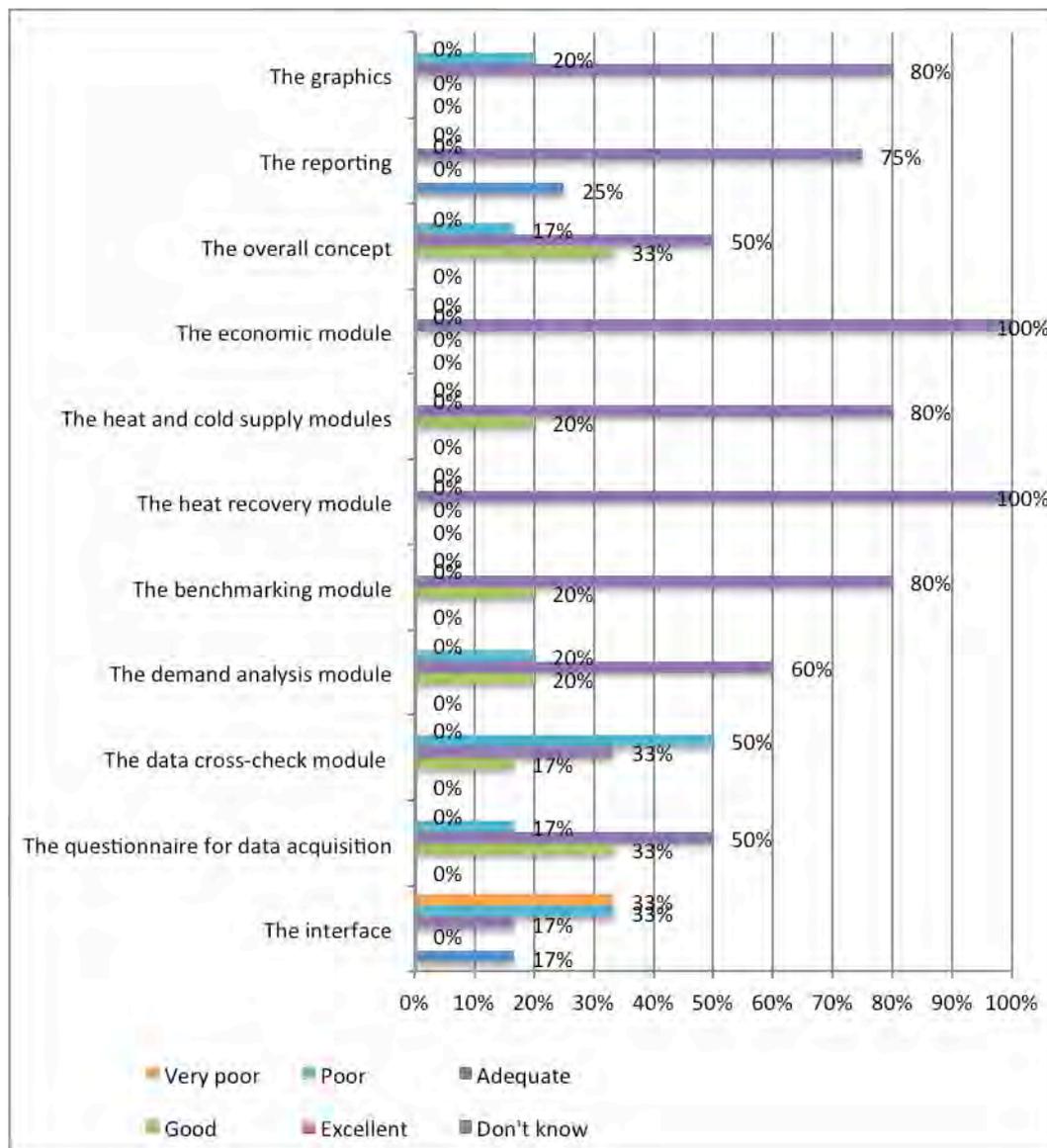


Figure 25. Participants' ratings of parts of the EINSTEIN tool

Table 22. 'Which important features and/or functions are missing?'

| Comments |
|----------------------------------|
| Better structure of the explorer |

4.5 TRAINING RESULTS

This section deals with the outcome of the training for the individual trainees.

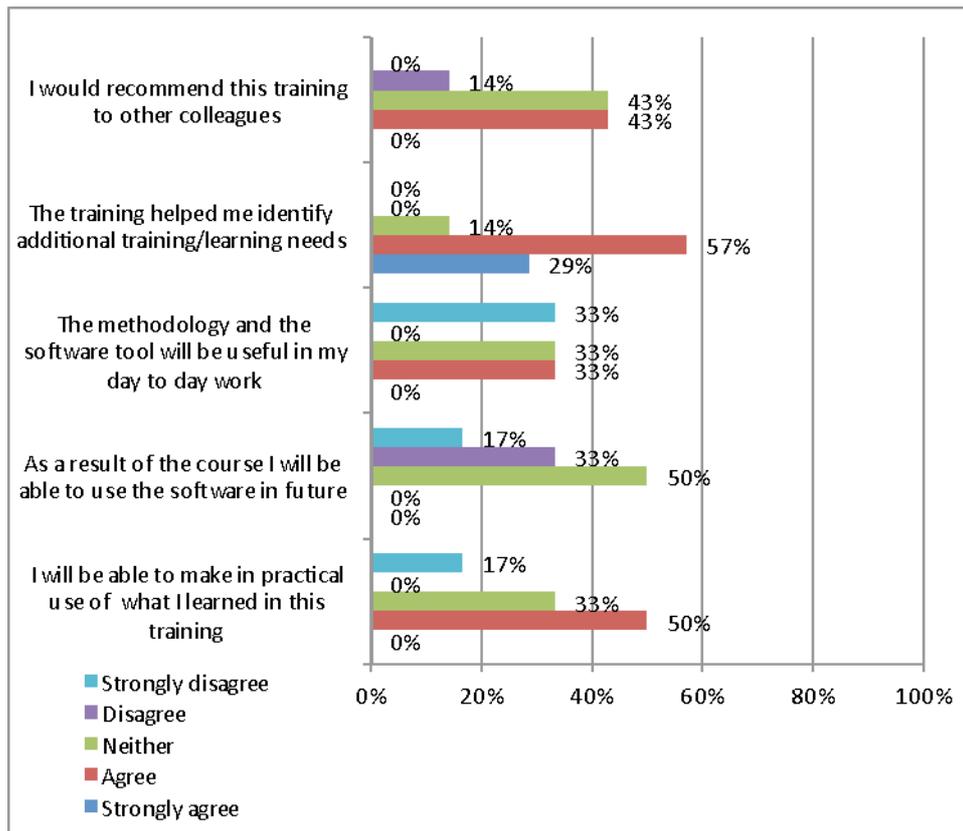


Figure 26. Results of EINSTEIN training course

Table 23. 'What was most valuable about this training?'

| Comments |
|----------|
| The idea |

Table 24. 'What was least valuable about this training?'

| Comments |
|---|
| Difficult user interface |
| System requirements of PC are not sufficient - EINSTEIN crashes |

Table 25. Other comments

| Comments |
|-----------------------|
| More use of databases |
| More structuring |

5 Ireland

5.1 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants.

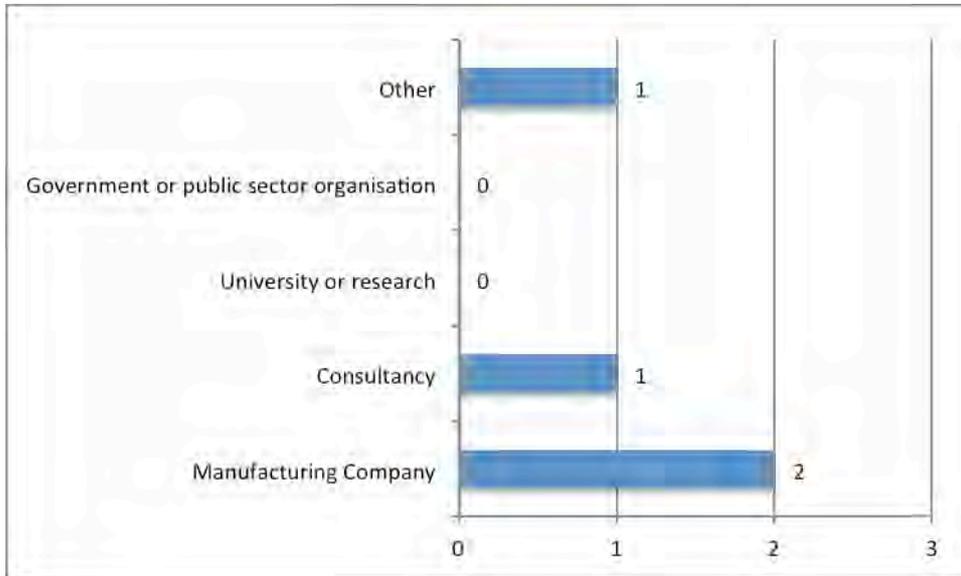


Figure 27. Sectors represented at the training event

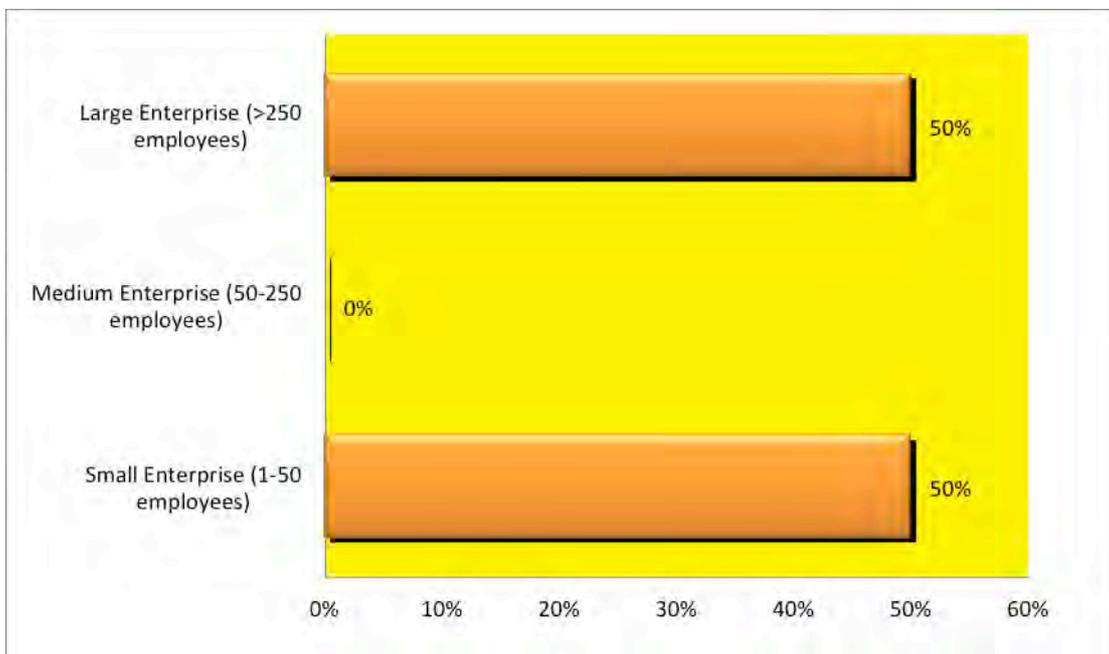


Figure 28. Structure of participants

5.2 ORGANISATIONAL ISSUES

This section provides information as to whether participants attended earlier EINSTEIN courses and some general overall feedback on the course.

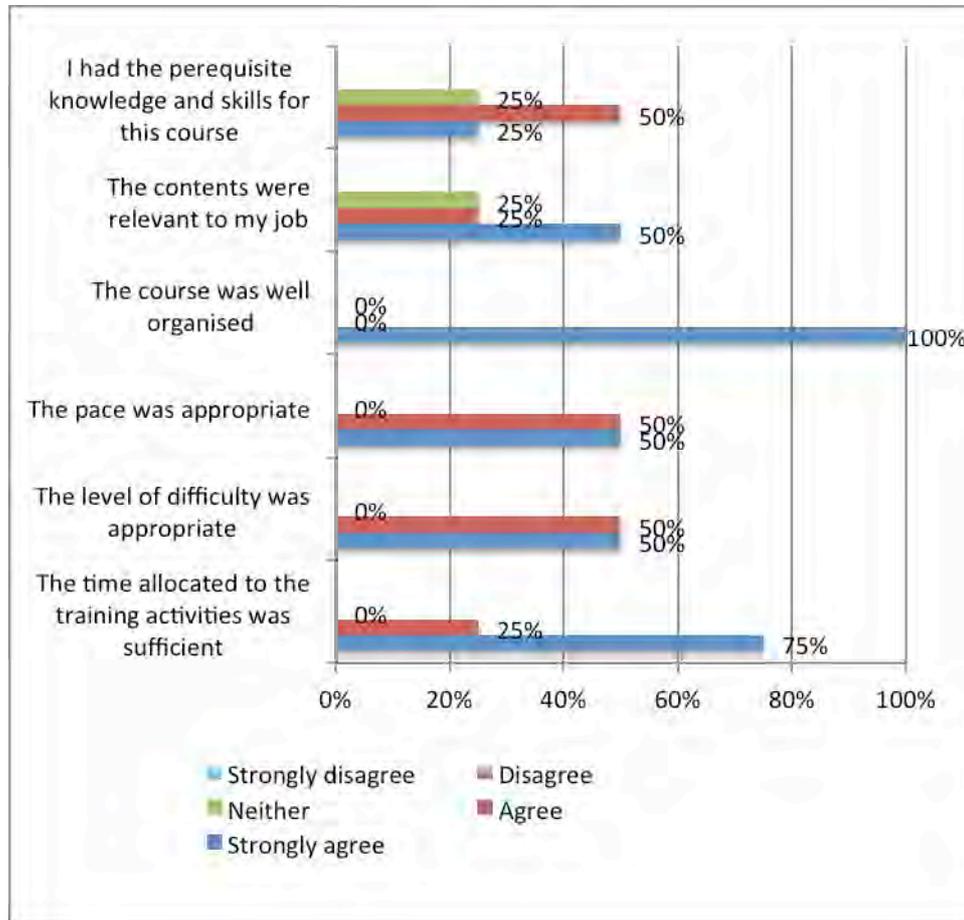


Figure 29. Questionnaire results on general issues

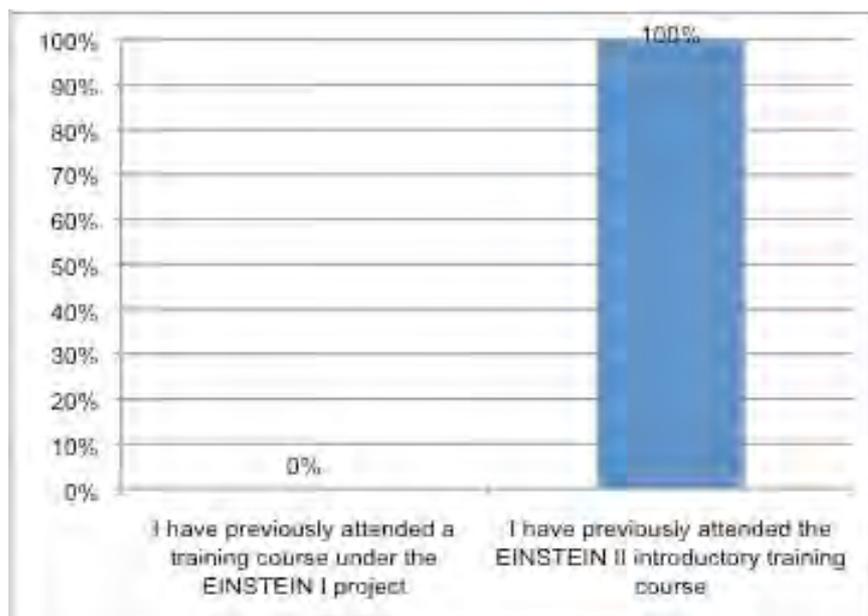


Figure 30. Previous attendance at EINSTEIN courses

5.3 TRAINING MODULES, MATERIAL AND TRAINERS

This section provides feedback regarding the training materials and the trainers.

Suggestions for improvement of the course

Table 26. Suggestions/comments on improving the course

| Comments |
|--|
| Generally course was very well presented and organised |
| No suggestions |

5.4 THE EINSTEIN TOOL

This section deals with feedback on various aspects of the EINSTEIN tool.

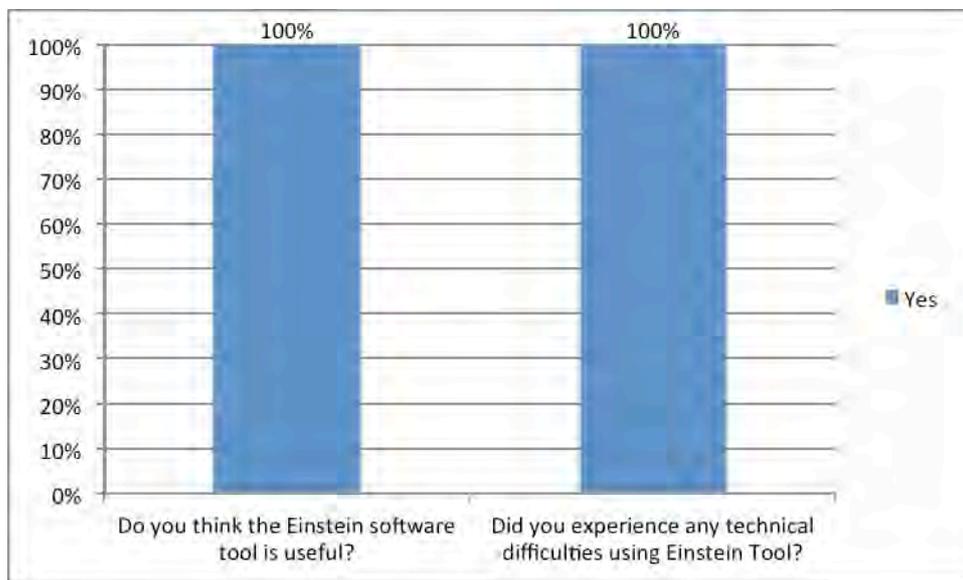


Figure 31. Share of participants satisfied with the EINSTEIN tool and share of participants who experienced technical difficulties using the EINSTEIN tool

Table 27. Comments from participants as to why they found the Einstein tool useful

| Comments |
|---|
| It has the ability to standardise Energy Auditing |
| Very helpful to perform an Energy Audit |

Table 28. Comments from the participants relating to the technical difficulties they encountered while using the EINSTEIN tool

| Comments |
|--|
| Main technical difficulty was familiarity with the data input. It was hard to tell what data was essential and what is not. |
| Stalls while computing data - but not very often |
| Generally I am not very familiar with the tool/the software and thermal energy modelling. It will hopefully improve with practice. |

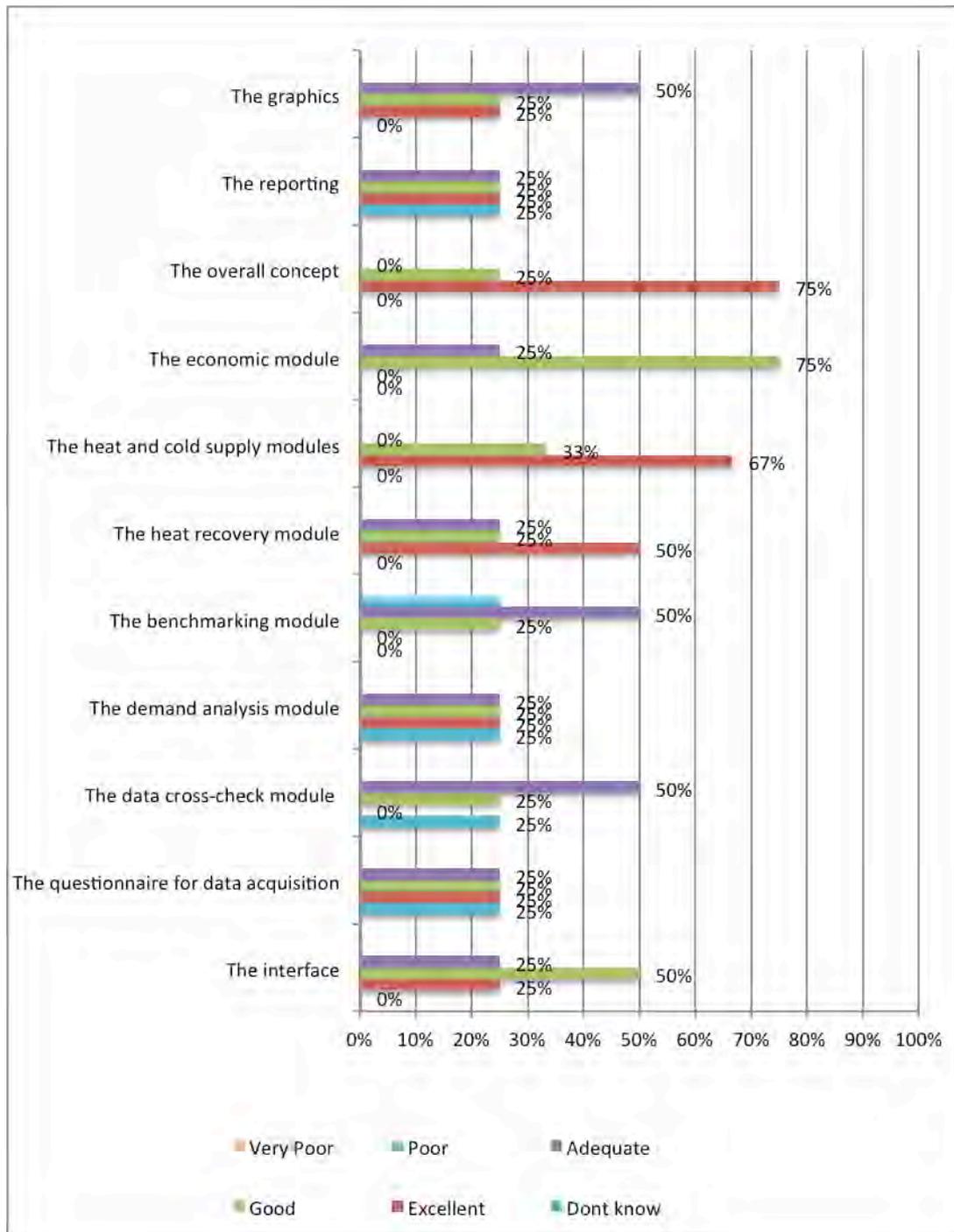


Figure 32. Participants' ratings of parts of the EINSTEIN tool.

Table 29. 'Which important features and/or functions are missing?'

| Comments |
|--|
| Further improvement to the graphical representation of process and heat distribution would be welcome. |

5.5 TRAINING RESULTS

This section deals with the outcome of the training for the individual trainees.

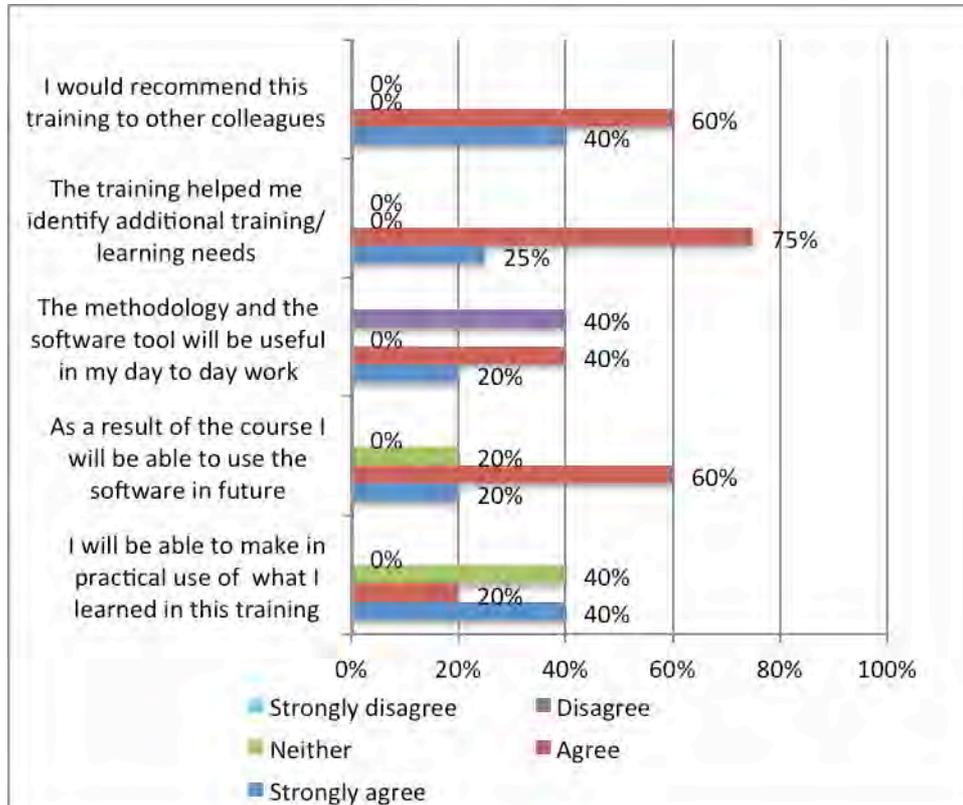


Figure 33. Results of EINSTEIN training course

Table 30. 'What was most valuable about this training?'

| Comment |
|--|
| Becoming more familiar with the software and more comfortable with its use. |
| Experience in using the Einstein Tool |
| I now feel more comfortable with the software interface and will try to tackle the project work. Previously I found it too confusing to make any progress on the exercise. |

Table 31. Other comments

| Comments |
|--|
| Overall very well presented course delivered by experts in the field. Very well organised. |
| Well delivered training. Very knowledgeable instructor. |

6 Italy

6.1 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants.

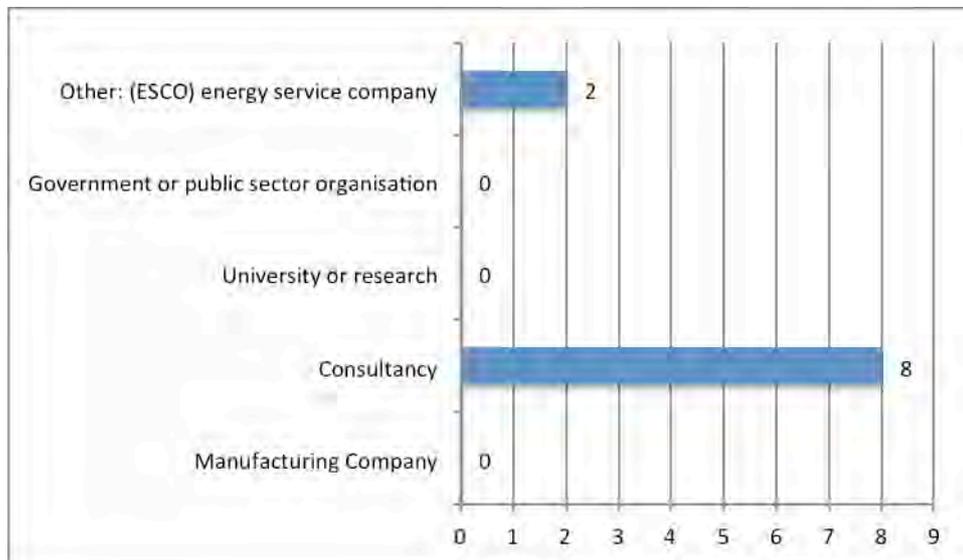


Figure 34. Sectors represented at the training event

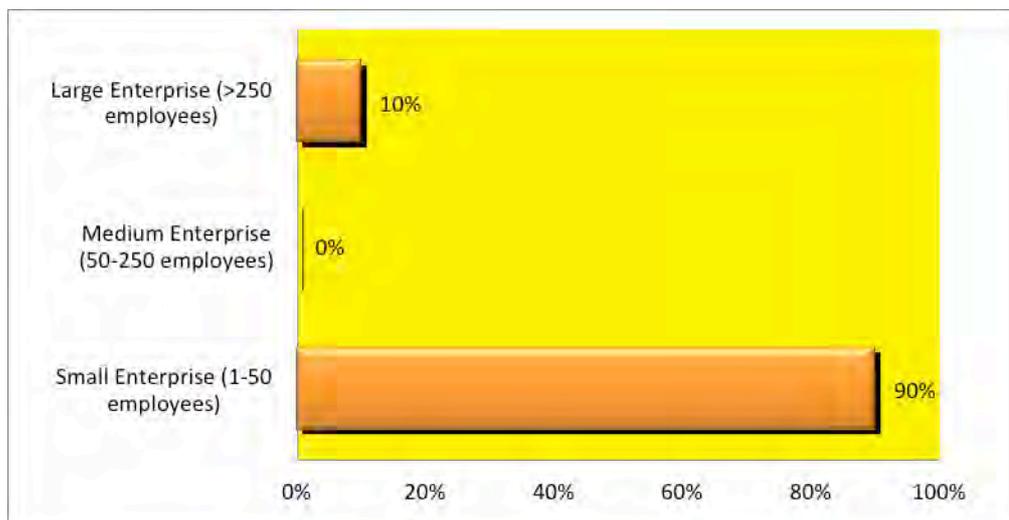


Figure 35. Structure of participants

Table 32. Current role of participants in their company or organisation

| Occupation |
|---------------------------|
| Administrator |
| Freelance consultant |
| Responsible for contracts |
| Energy expert |

6.2 GENERAL ISSUES

This section provides information as to whether participants attended earlier EINSTEIN courses and some general overall feedback on the course.

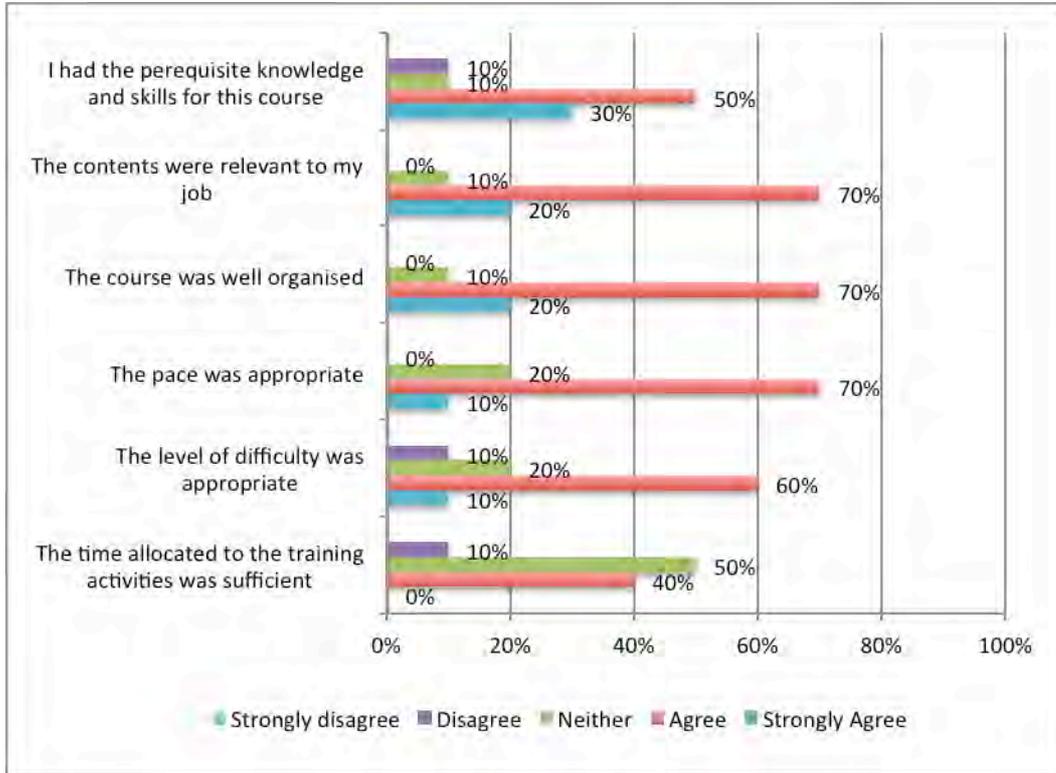


Figure 36. Questionnaire results on general issues

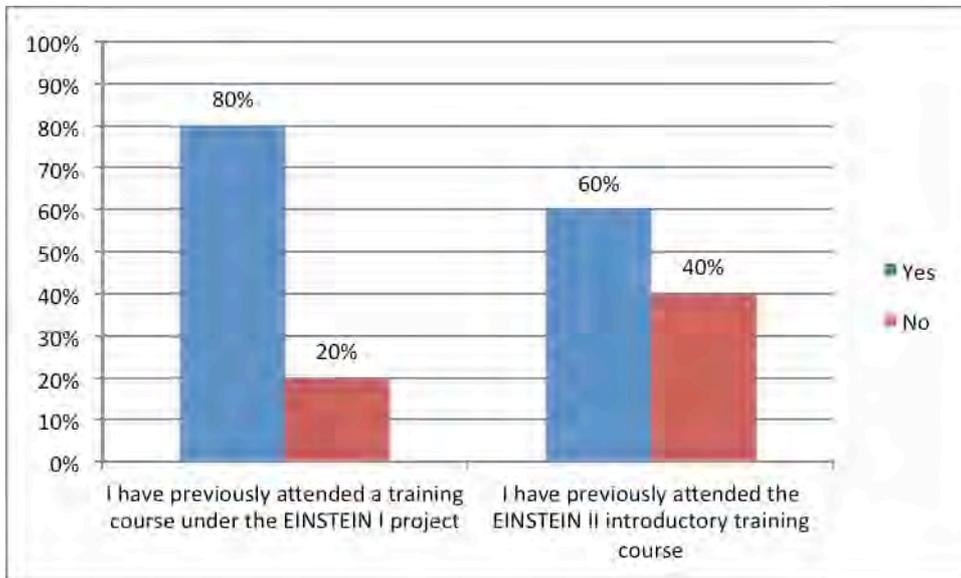


Figure 37. Previous attendance at EINSTEIN courses (note the high response to the first question is possibly a mis-interpretation of the question)

6.3 TRAINING MODULES, MATERIAL AND TRAINERS

This section provides feedback regarding the training materials and the trainers.

Suggestions for improvement of the course

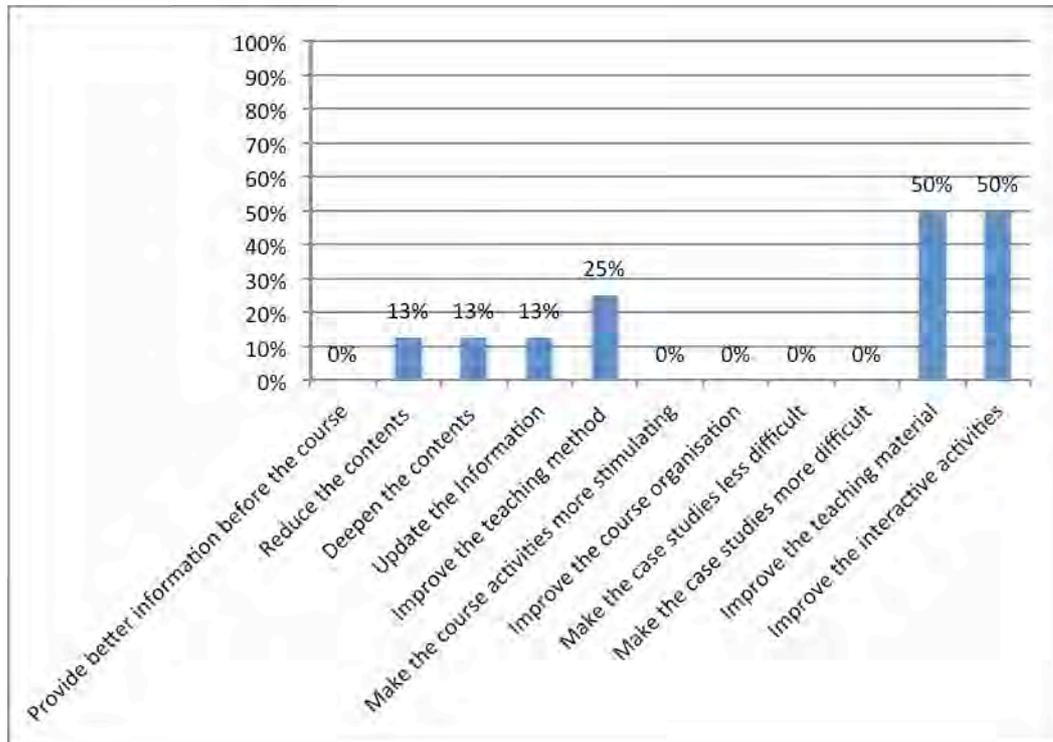


Figure 38. Suggestions for improvement of the course

Table 33. Other suggestions/comments on improving the course

| Comments | No. of opinions |
|--|-----------------|
| Simulation of a real case | 2 |
| Provide advance compulsory exercises with guide / help | 3 |
| Create a manual with meaning of each field | 1 |

6.4 THE EINSTEIN TOOL

This section deals with feedback on various aspects of the EINSTEIN tool.

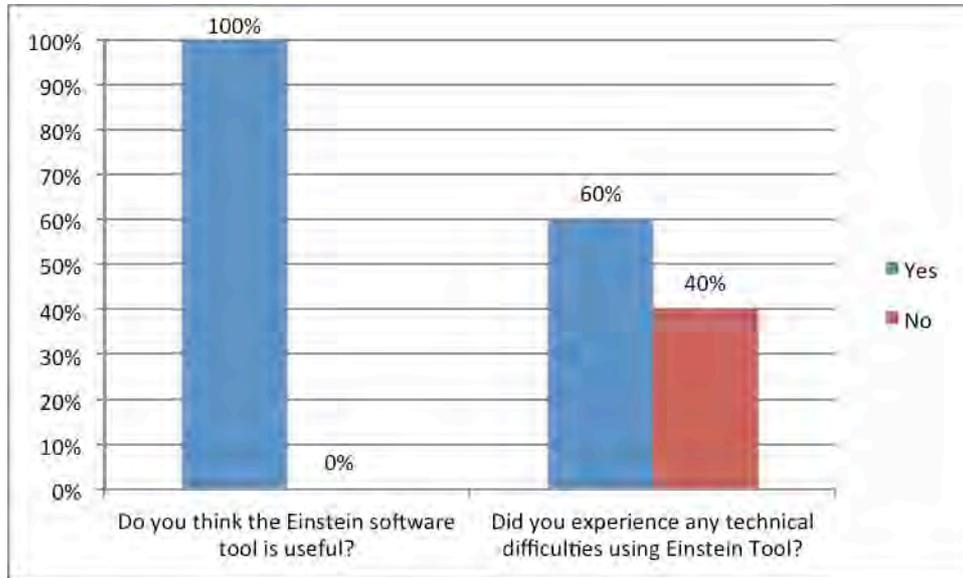


Figure 39. Share of participants satisfied with the EINSTEIN tool and share of participants who experienced technical difficulties using the EINSTEIN tool.

Table 34. Comments from participants as to why they found the EINSTEIN tool useful

| Comments | No. of opinions |
|--|-----------------|
| A comprehensive and powerful tool | 4 |
| Very useful for retrofit | 1 |
| Provides global overview of the energy flow of a process | 1 |
| Addresses issues not yet addressed by other tools | 1 |
| Tool is relatively simple to use | 1 |

Table 45. Comments from the participants relating to the technical difficulties they encountered while using the Einstein programme

| Comments | No. of opinions |
|-----------------------------|-----------------|
| Interface is not intuitive | 3 |
| Very complicated | 1 |
| Some bugs | 1 |
| Improve graphical interface | 1 |
| Eliminate redundant data | 1 |

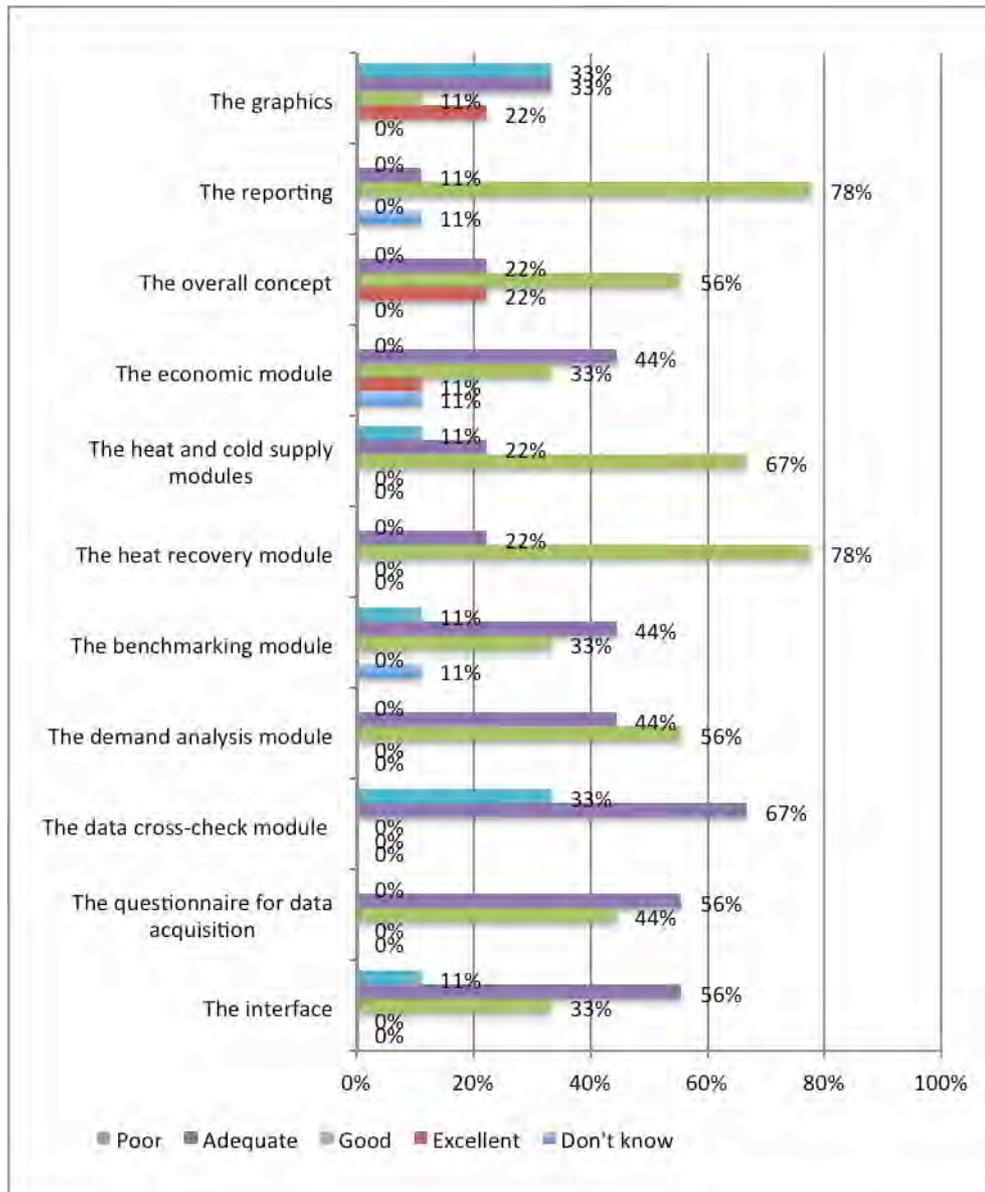


Figure 40. Participants' ratings of parts of the EINSTEIN tool.

Table 36. 'Which important features and/or functions are missing?'

| Comments | No. of opinions |
|--|-----------------|
| Provide an alert as a reminder to click "ok" to confirm data | 1 |
| Improve graphical interface | 2 |
| Full commercial machines database | 1 |
| Links between the processes | 1 |
| Connection between input parameters and results | 1 |

6.5 TRAINING RESULTS

This section deals with the outcome of the training for the individual trainees.

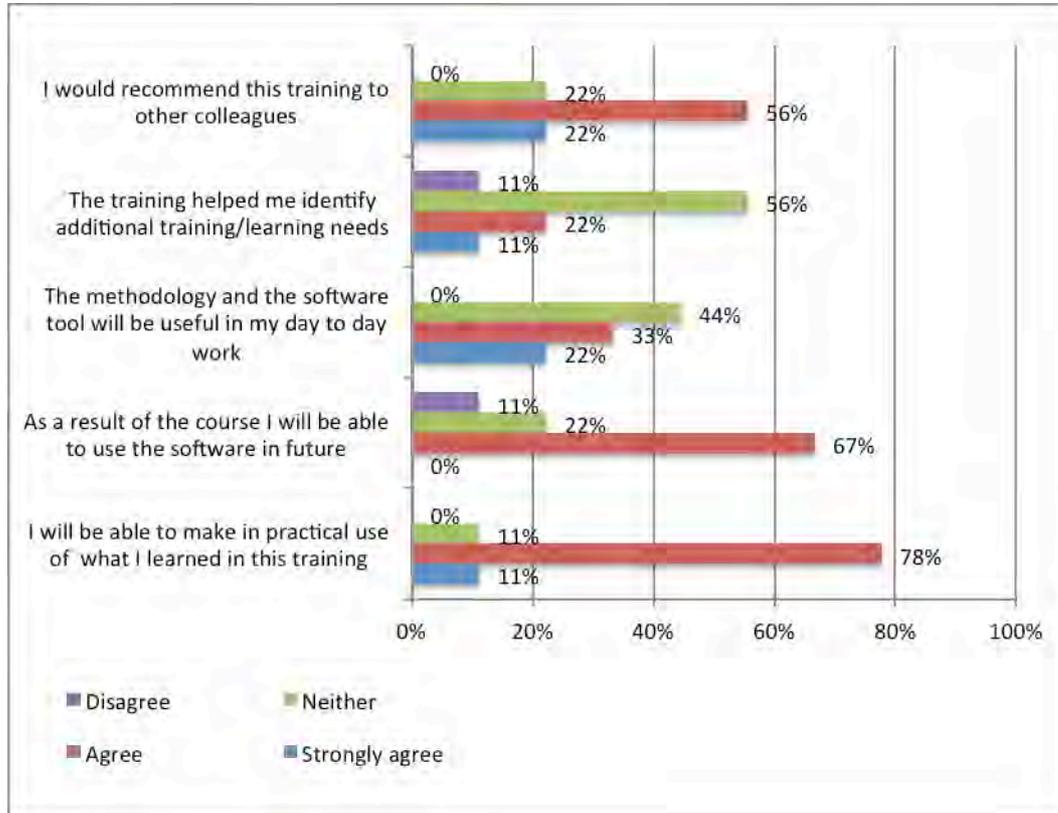


Figure 41. Results of EINSTEIN training course

Table 37. 'What was most valuable about this training?'

| Comments | No. of opinions |
|--|-----------------|
| Highlight and emphasize the importance of heat recovering before generation of heat from alternative sources | 2 |
| Having understood more clearly what is useful and what is not useful of the Einstein tool | 1 |

6.6 FEEDBACK FROM TRAINING ORGANISER AND TRAINERS

Table 38. Comments from the course trainers (feedback to trainers from participants)

| |
|--|
| Feedback – general |
| Complex but interesting since it offers many possibilities of application |
| The new graphical interface for pipes and processes was very appreciated. |
| Lobby to include the EINSTEIN software tool among those to be used at national and EU level to perform certified energy audits. EINSTEIN is useful and requires an investment of time to be understood therefore it would be important to maintain the methodology and the tool alive and used in the medium/long term. |
| For non-technicians, it is useful to model companies e.e. in order to highlight the energy cost units etc. |
| Using EINSTEIN is time consuming but companies have complex systems, therefore, in order to make a reliable proposal this time has to be considered as necessary. |
| |
| Technical feedback and feature requests |
| |
| It would be useful for the trainees to have a library of case studies/processes/equipments to be used as reference |
| The graphical support has been a big help |
| The GUI could be improved – still confusing due to the huge amount of parameters, part of which are not necessary |
| The difference between 0 and none (empty field) in the data entry is not clear enough |
| To enumerate the processes to make the ‘c-check’ message clearer |
| To obscure the unnecessary fields and/or to highlight the necessary fields according to the type of technology/equipment/process/pipe etc |
| To remove the negative start-up temperature after c-check |
| OK button – EINSTEIN should give advice if changes are not saved |
| C-check is difficult for beginners in general. Small relative errors shouldn’t be shown among the c-check message |
| The error’s tolerance should be increased |
| Economics/TCA – to add non-reoccurring costs after, e.g. 2000 working hours and to add specific amortization periods for each equipment. |
| |
| Further feedback from one trainee after the course was completed |
| |
| Recommend making some detailed example excercises that guide trainers/trainees step-by-step during the Einstein input, compiling with explanation of every single step (why we have selected this temperature, which kind of number is important and which is not etc.). It would be interesting in order to understand much more the making of a dynamic simulation. Example excercises must be both on standard and particular case history. I only tested the program on a case study, as so far do not have an interesting or successful case history. |

7 Luxembourg

7.1 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants.

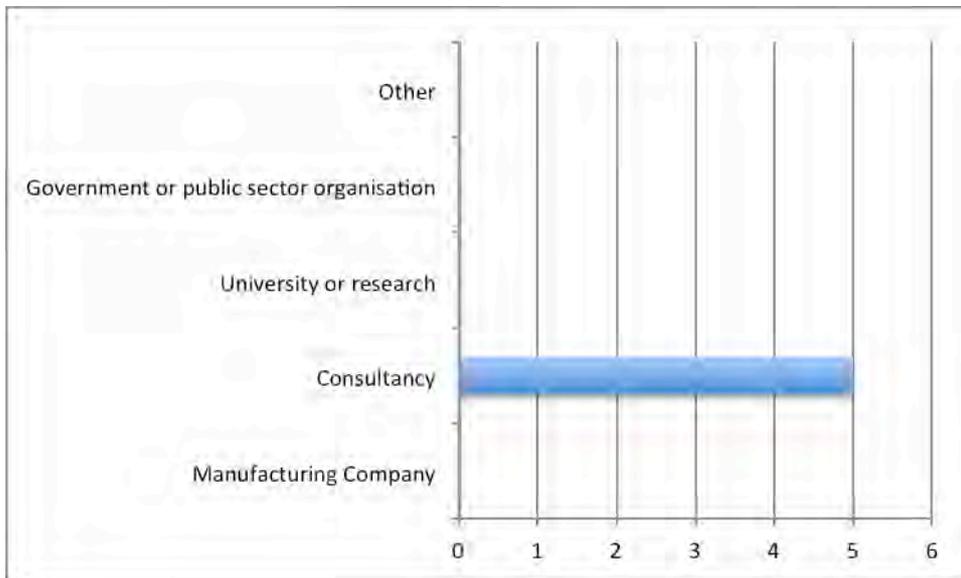


Figure 42. Sectors represented at the training event

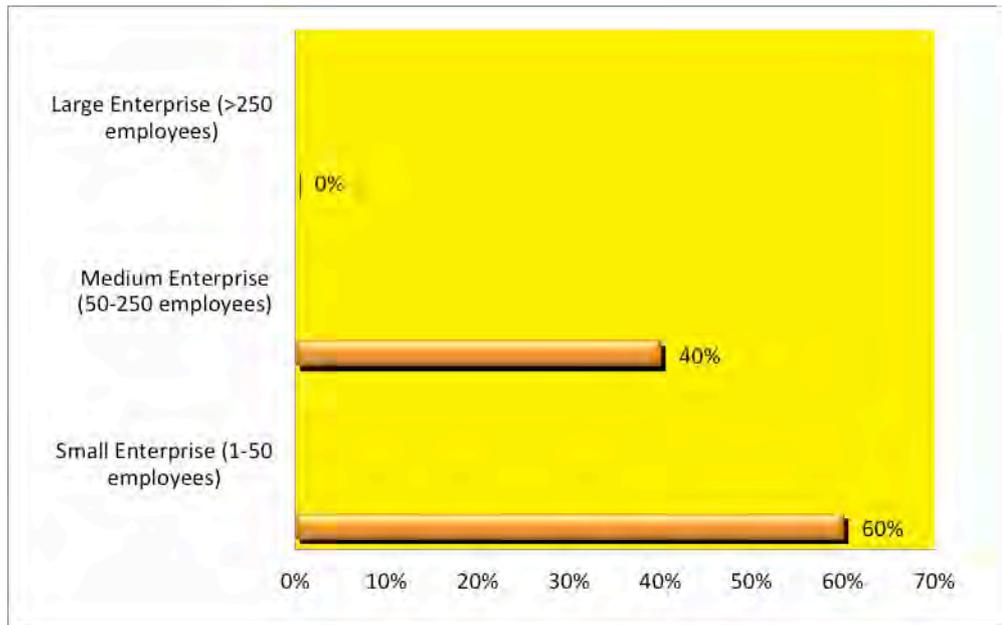


Figure 43. Structure of participants

7.2 GENERAL ISSUES

This section provides information as to whether participants attended earlier EINSTEIN courses and some general overall feedback on the course.

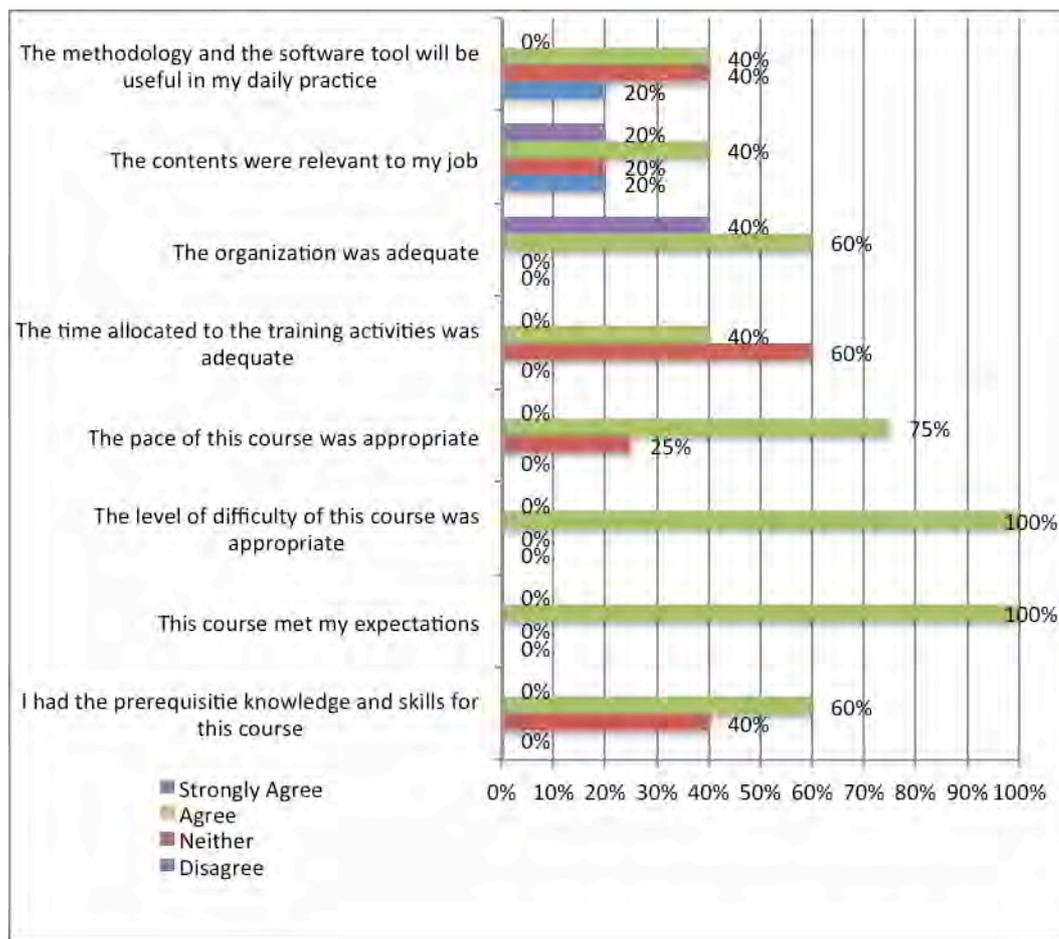


Figure 44. Questionnaire results on general issues

7.3 TRAINING MODULES, MATERIALS AND TRAINERS

This section provides feedback regarding the training materials and the trainers.

Suggestions for improvement of the course

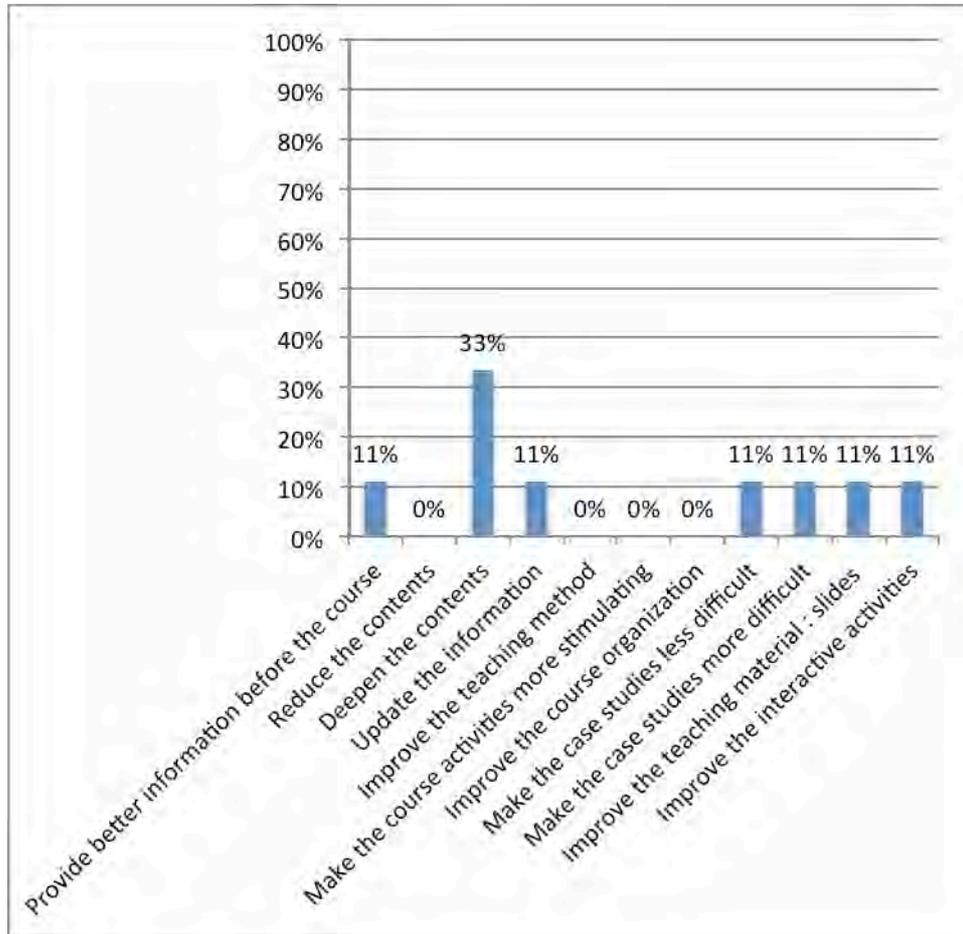


Figure 45. Suggestions for improvement of the course

Table 38. Other suggestions/comments on improving the course

| Comments |
|--|
| To spend more time on exercises with corrections |

7.4 THE EINSTEIN TOOL

This section deals with feedback on various aspects of the EINSTEIN tool.

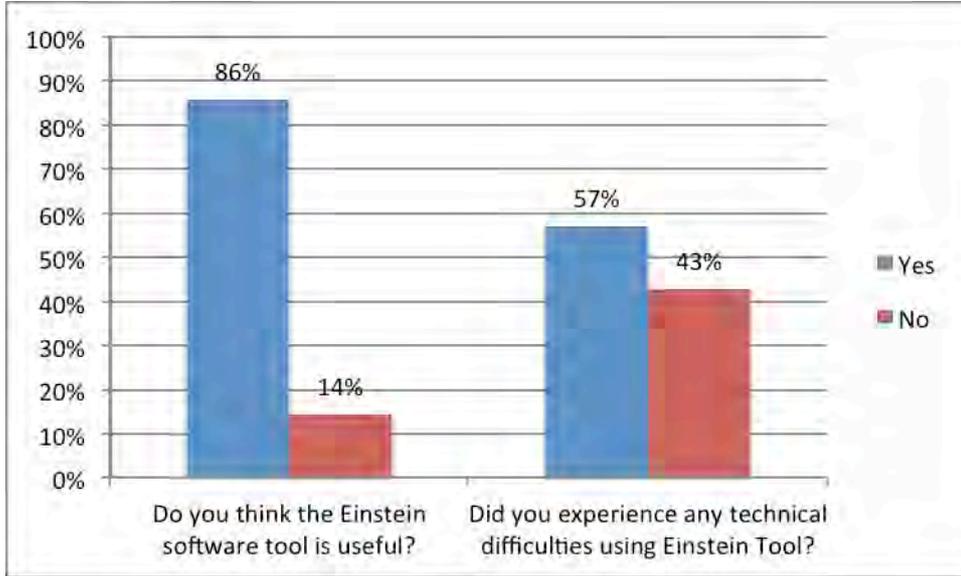


Figure 46. Share of participants satisfied with the EINSTEIN tool and share of participants who experienced technical difficulties using the EINSTEIN tool

Table 39. Comments from participants as to why they found the EINSTEIN tool useful

| Comments |
|---|
| In energy audits |
| Optimise Energy generator/distributing process |
| If we are used to manipulate the tool - quick and precise calculations. |

Table 40. Comments from the participants relating to the technical difficulties they encountered while using the EINSTEIN tool

| Comments |
|---|
| Significance of some parameters |
| Bugs |
| The error messages are not clear, or understandable |

Figure 47. Participants' ratings of parts of the Einstein tool – not asked at this training session

Table 41. 'Which important features and/or functions are missing?'

| Comments |
|---|
| Graphical input of a full process + link to pipes & sources/sinks |
| Air conditioning unit with humidity control |

7.5 TRAINING RESULTS

This section deals with the outcome of the training for the individual trainees.

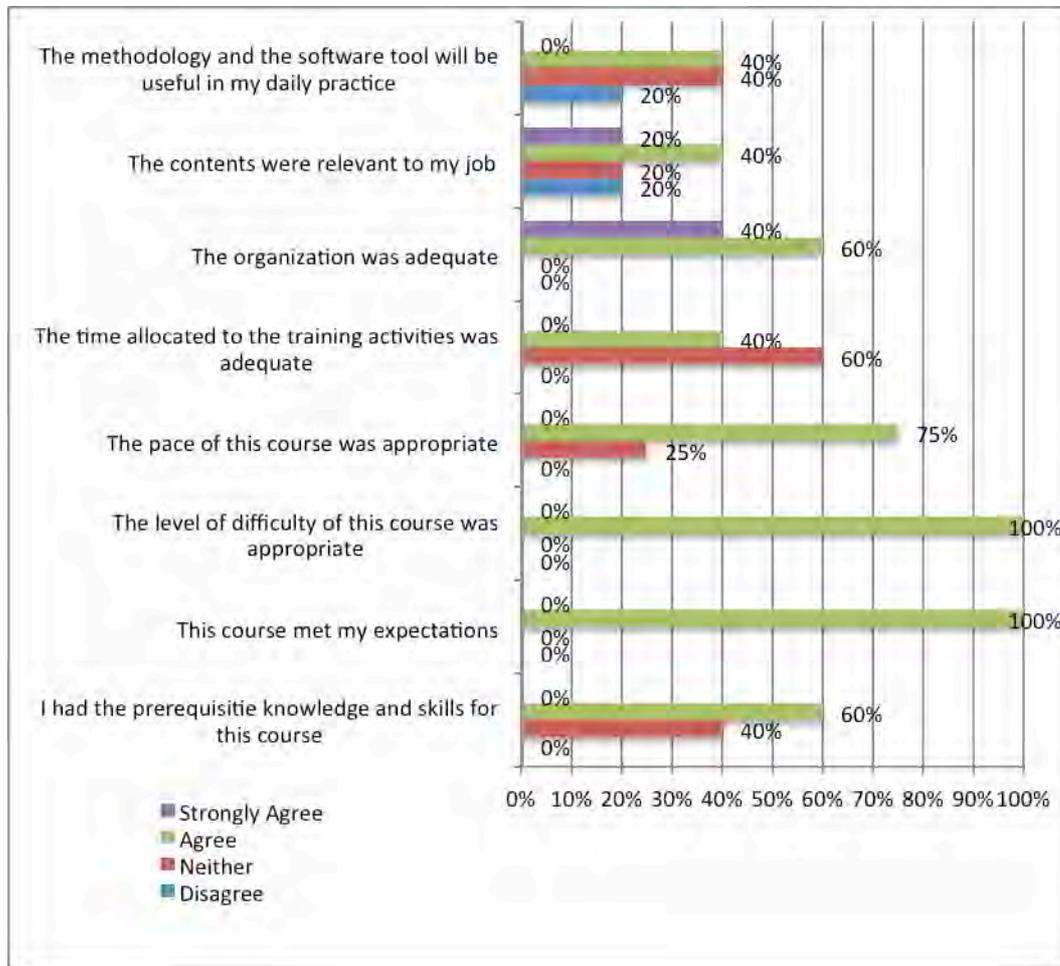


Figure 48. Results of Einstein training course

Table 42. 'What was most valuable about this training?'

| Comments |
|----------------------------|
| New features for buildings |
| Practical exercises |

Table 43. 'What was least valuable about this training?'

| |
|-----------------------|
| Everything was useful |
|-----------------------|

7.6 FEEDBACK FROM TRAINING ORGANISERS AND TRAINERS

Table 44. Comments from the course trainers (feedback to trainers from trainees)

| Feedback from trainees |
|---|
| Tutorials and documentation still need to be greatly improved |
| Not clear what is under development[paraphrased], what is in the finalised version in the tool. Trainees still unsure about the results because of that |
| C-Check should still be improved, because it is a major loss of time |
| Nice evolution of the tool – more stable. |
| Automatic start of calculation is frustrating |
| Trainees proposed online training to follow at own speed |
| Information (user guide, help etc.) not up to date |
| Do second session much earlier. |
| Graphical interface – interesting, but misleading (especially concerning the external HX) |
| Logic of EI different from that of trainees |
| |
| Feedback from course trainer |
| Some tricky modules are much too difficult for the trainees' level |
| Some aspects that are relevant for trainees were missing or not detailed enough (e.g. possibility to change the process in alternatives) |
| The necessary user manuals should be available before such complex cases are presented |
| Workarounds for known problems should have been presented to simplify the use of the tool. |

8 Slovakia

8.1 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants

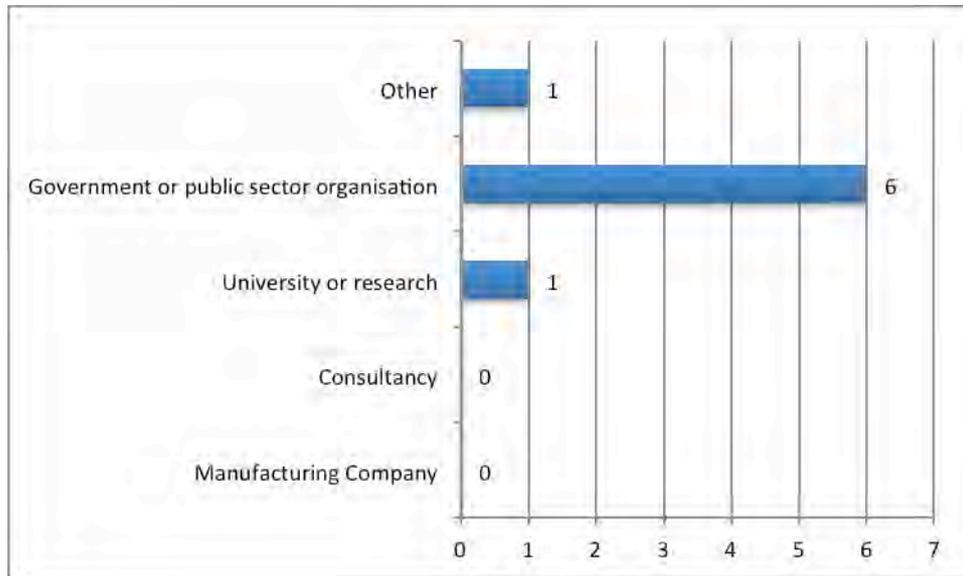


Figure 49. Sectors represented at the training event

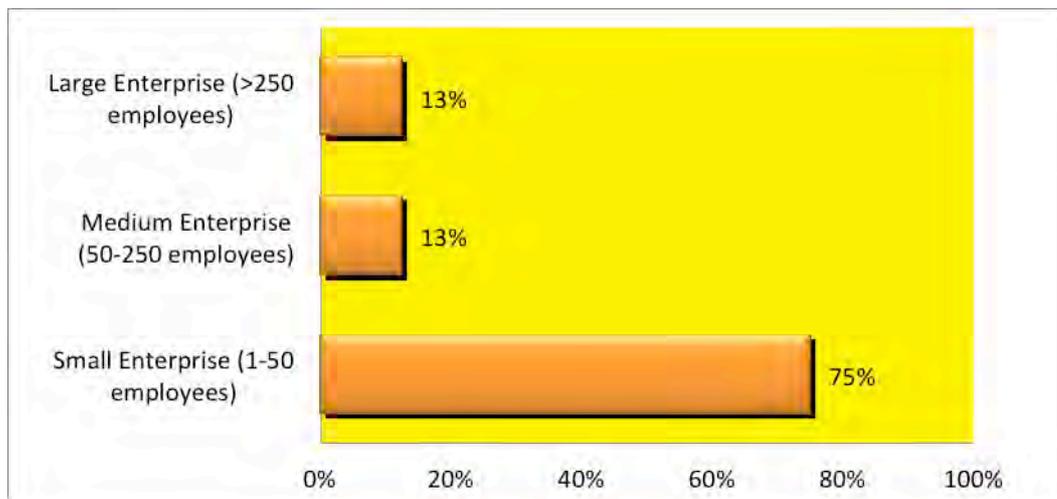


Figure 50. Structure of participants

8.2 GENERAL ISSUES

This section provides information as to whether participants attended earlier EINSTEIN courses and some general overall feedback on the course.

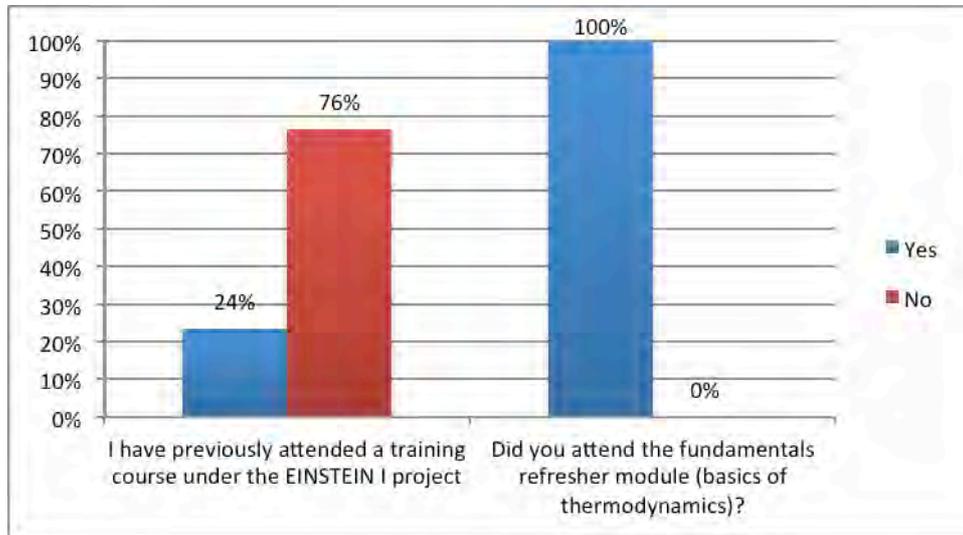


Figure 51. Previous attendance at EINSTEIN courses (first question may have been misinterpreted as attending the intro course under Einstein II)

8.3 TRAINING MODULES, MATERIAL AND TRAINERS

This section provides feedback regarding the training materials and the trainers.

Suggestions for improvement of the course

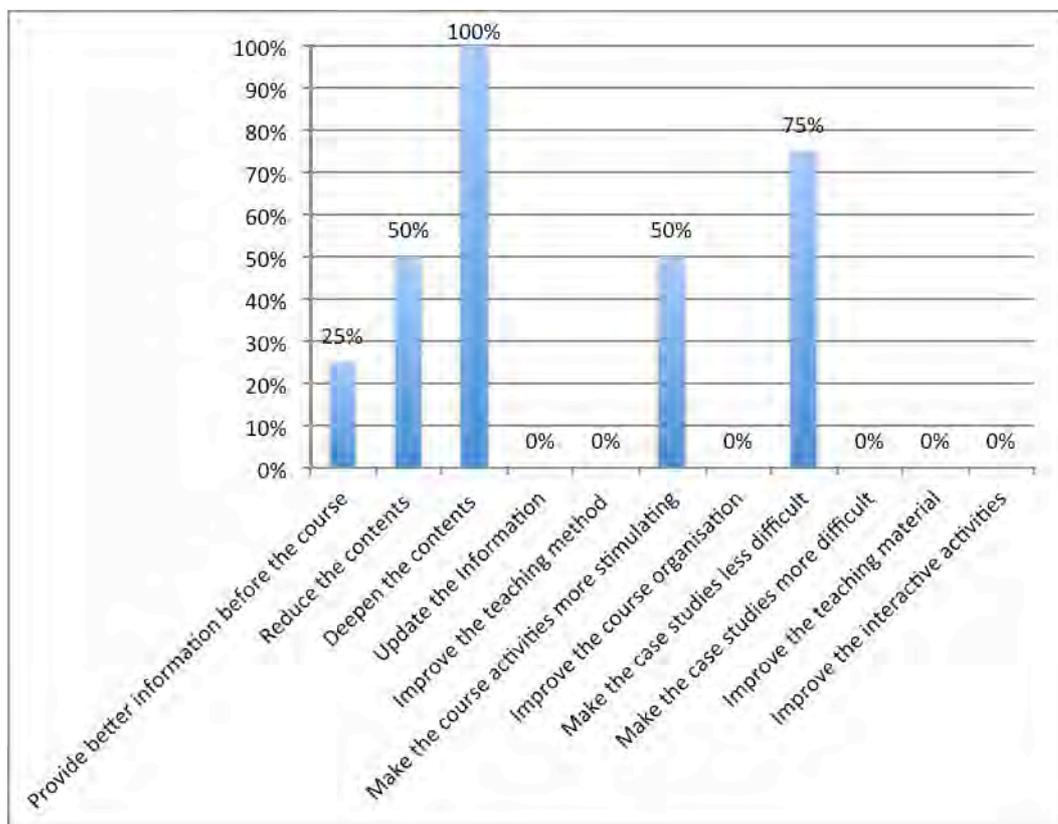


Figure 52. Suggestions for improvement of the course

Table 45. Other suggestions/comments on improving the course

| Comments |
|-----------------------------|
| Slow the pace of the course |

8.4 THE EINSTEIN TOOL

This section deals with feedback on various aspects of the EINSTEIN tool.

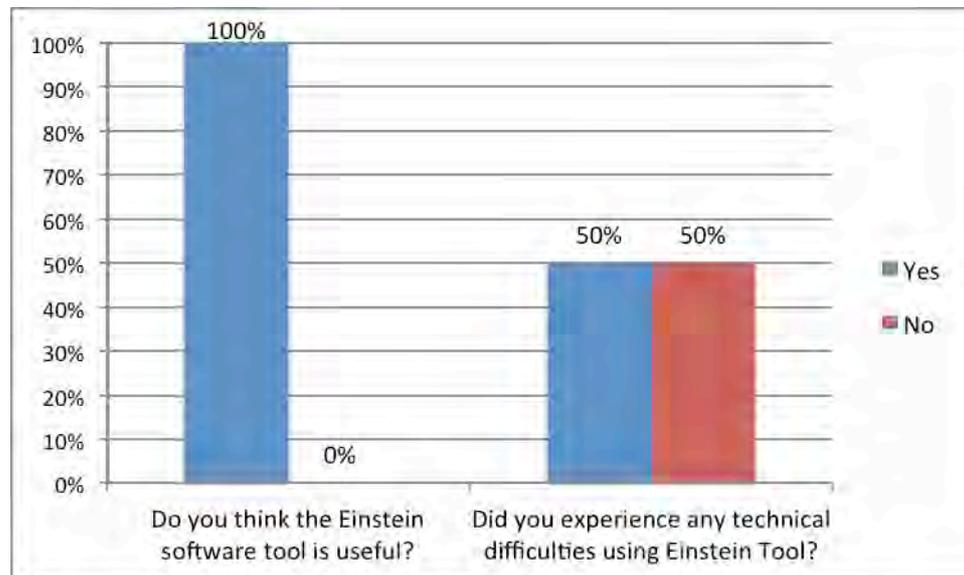


Figure 53. Share of participants satisfied with the EINSTEIN tool and share of participants who experienced technical difficulties using the EINSTEIN tool

Table 46. Comments from participants as to why they found the EINSTEIN tool useful

| Comments |
|---|
| Can make some audits faster |
| Quickly assesses the situation in the company |

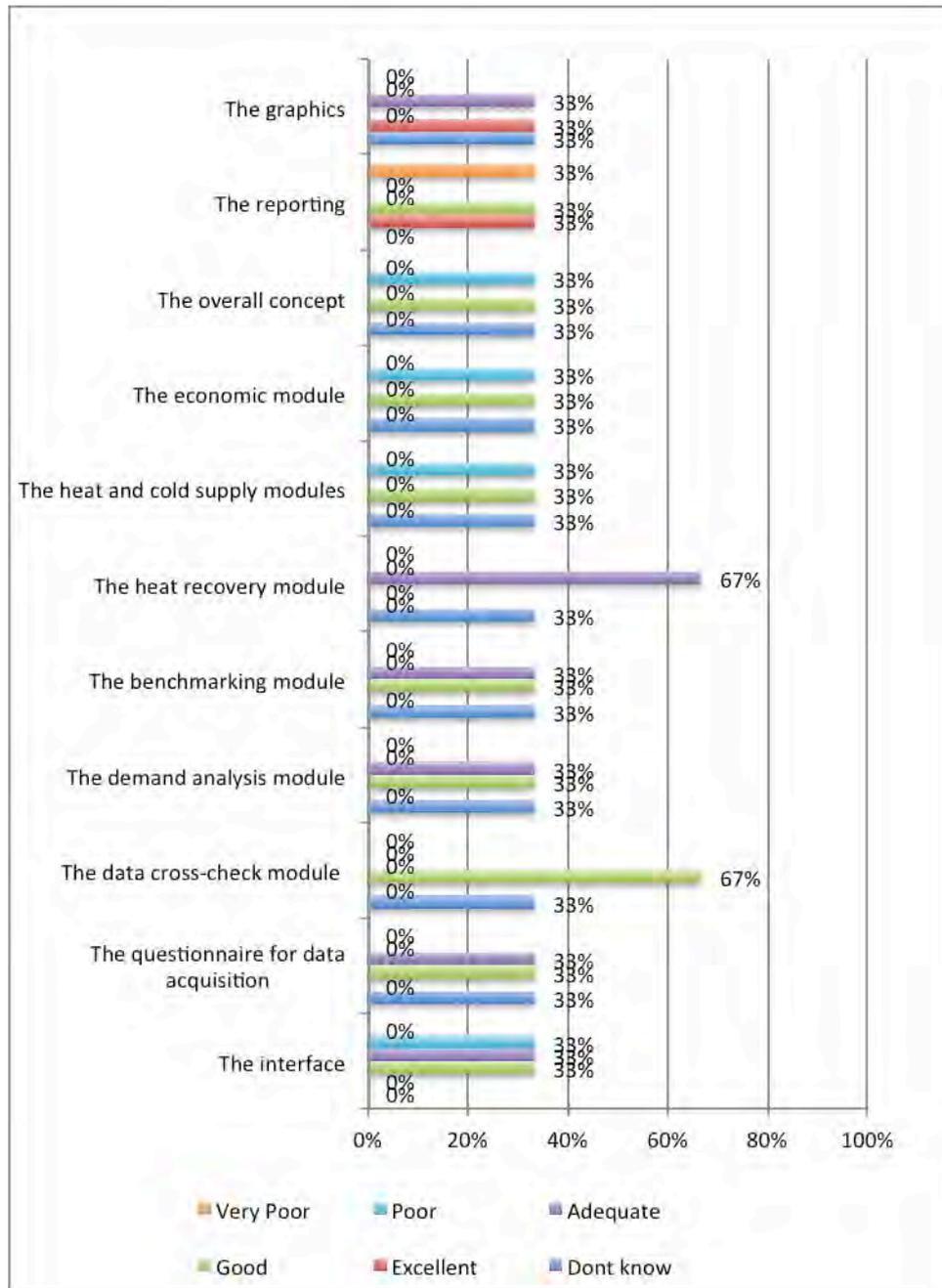


Figure 54. Participants' ratings of parts of the EINSTEIN tool

8.5 TRAINING RESULTS

This section deals with the outcome of the training for the individual trainees.

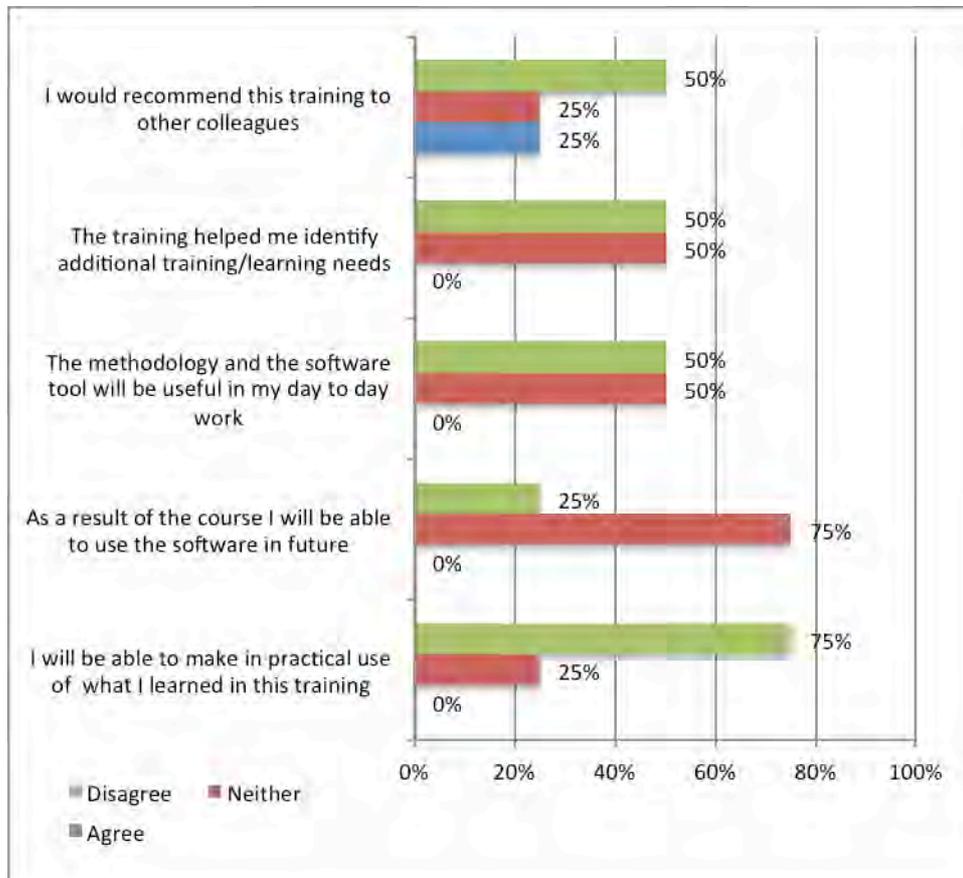


Figure 55. Results of EINSTEIN training course

Table 47. 'What was most valuable about this training?'

| Comments |
|---|
| The trainers put in a lot of effort (paraphrased) |
| Presentations |
| Very nice and helpful trainers |
| New information and EINSTEIN II software |

Table 48. 'What was least valuable about this training?'

| Comments |
|--|
| Lots of information, but too little time |
| Lots of information |

9 Spain

9.1 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants

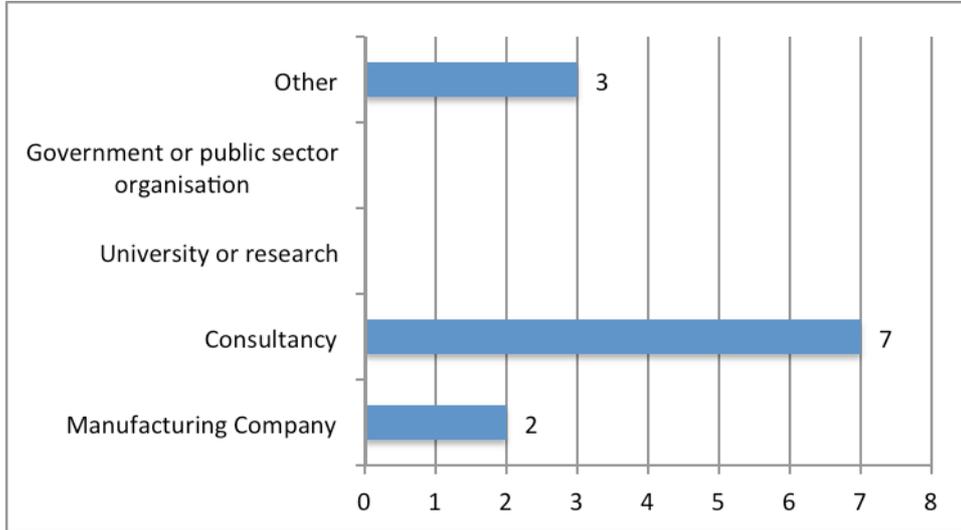


Figure 56. Sectors represented at the training event

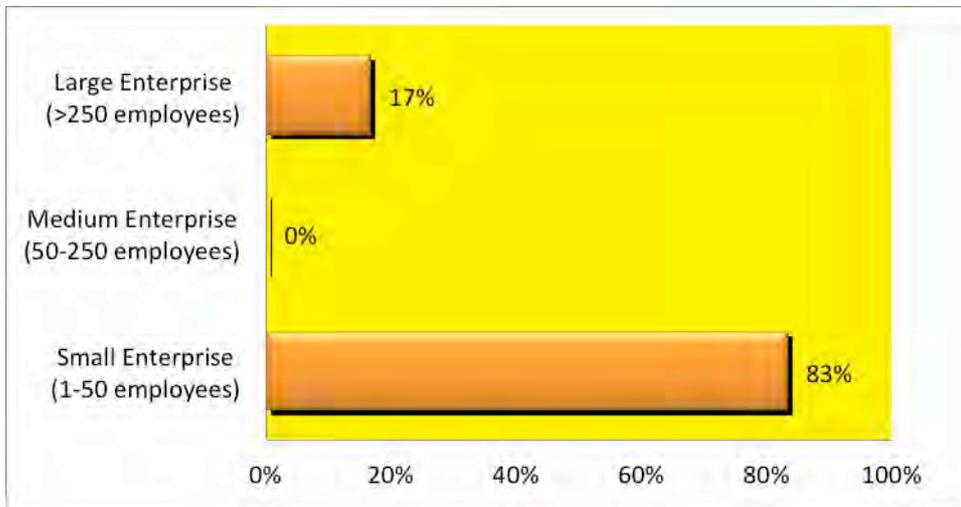


Figure 57. Structure of participants

Table 49. Current role of participants in their company or organisation

| Occupation | No. of participants |
|---|---------------------|
| Freelance | 4 |
| Partner | 1 |
| Energy Technical | 1 |
| Energy Auditor | 1 |
| Technical Manager | 1 |
| Responsible for energy services | 1 |
| Inspector | 1 |
| Technical Manager of thermal and refrigeration facilities | 1 |
| Technical Manager | 1 |

9.2 GENERAL ISSUES

This section provides information as to whether participants attended earlier EINSTEIN courses and some general overall feedback on the course.

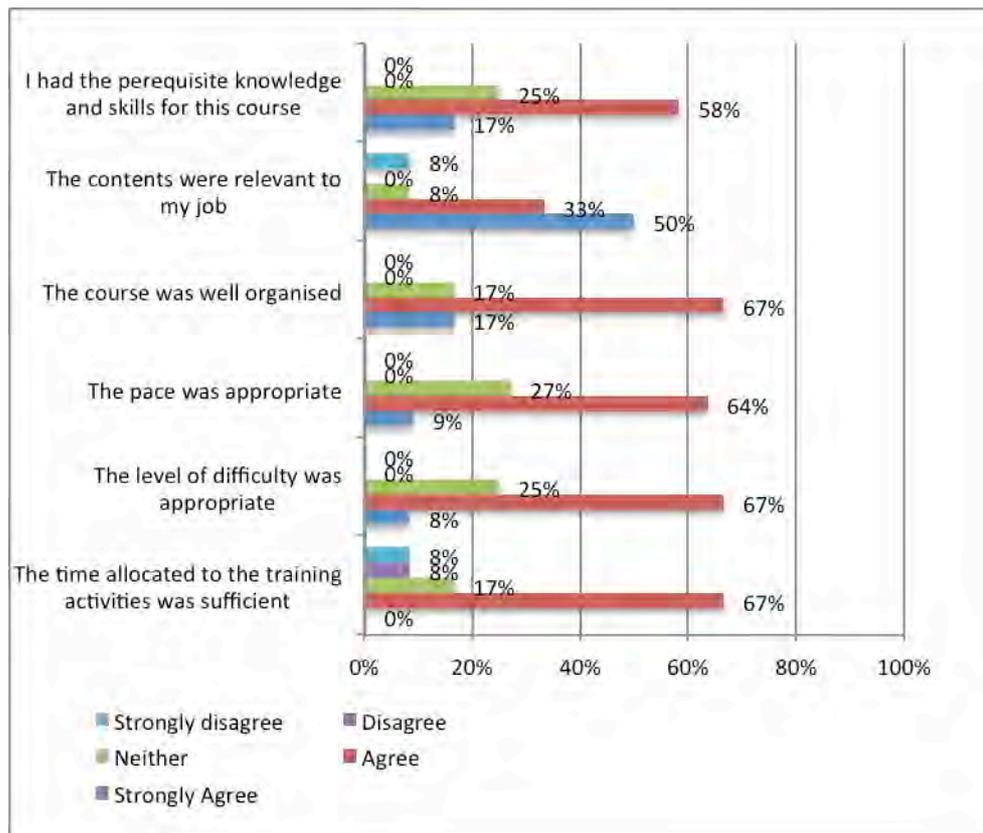


Figure 48. Questionnaire results on general issues

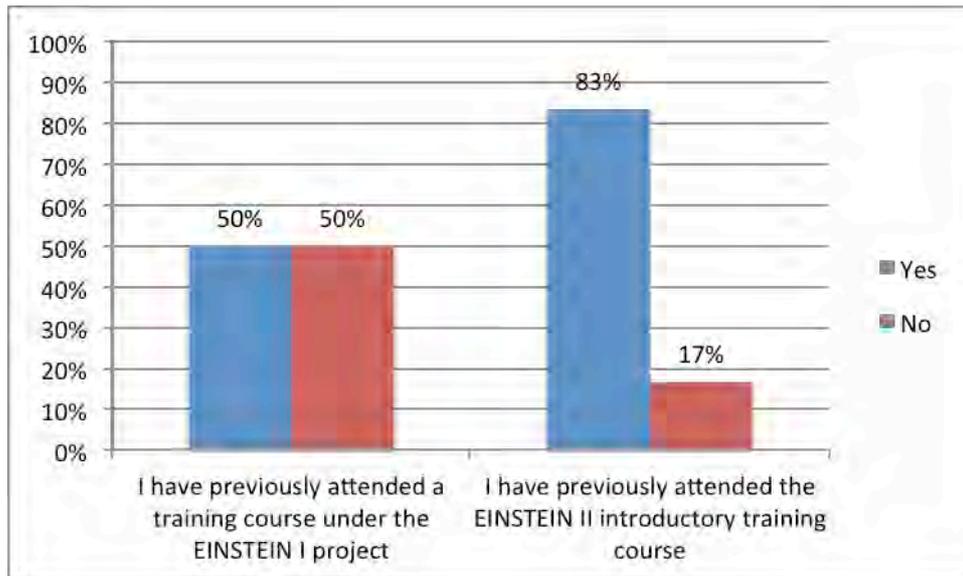


Figure 59. Previous attendance at EINSTEIN courses

9.3 TRAINING MODULES, MATERIAL AND TRAINERS

This section provides feedback regarding the training materials and the trainers.

Suggestions for improvement of the course

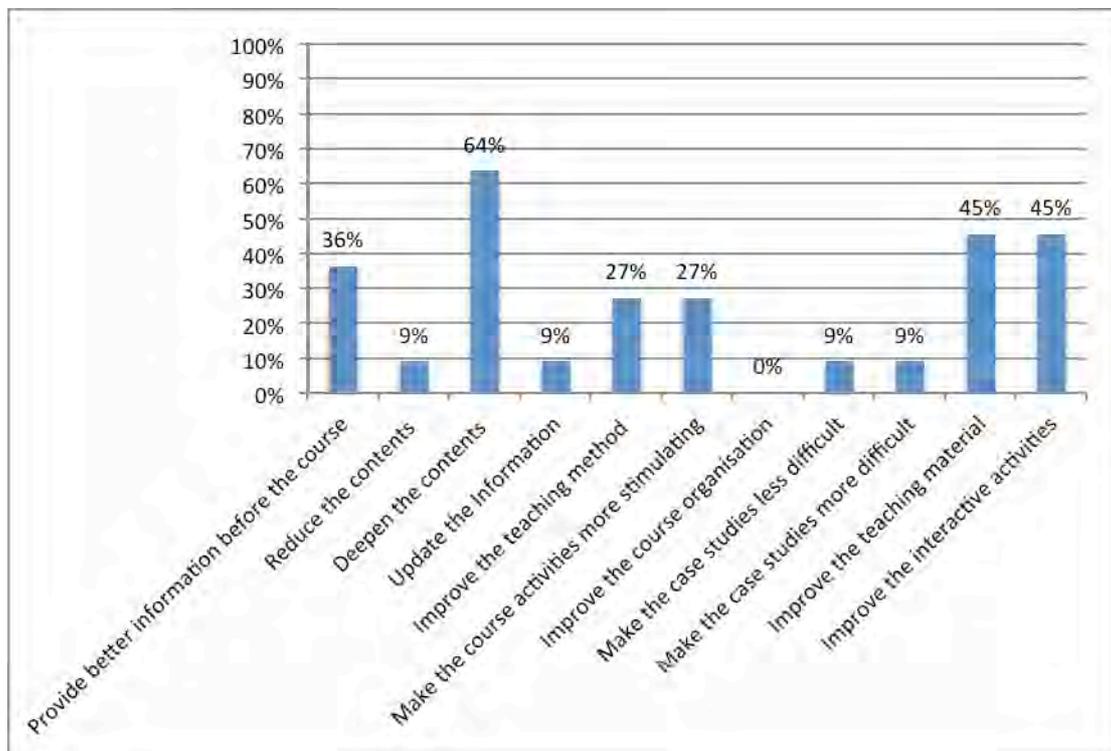


Figure 60. Suggestions for improvement of the course

Table 50. Other suggestions/comments on improving the course

| Comments | No. of opinions |
|---|-----------------|
| We lacked information on any of the modules when they were teaching | 1 |
| Extend training time | 2 |
| Include a third training course. Continued specialization. Another possibility is to include a common final exercise that should be present in a third final day. | 2 |
| Explain more dynamically | 1 |

9.4 THE EINSTEIN TOOL

This section deals with feedback on various aspects of the EINSTEIN tool.

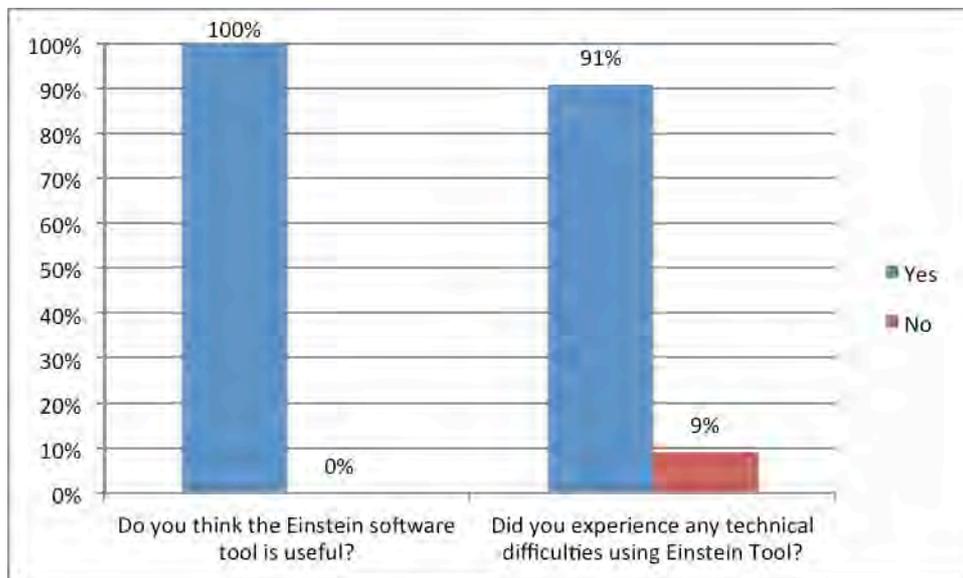


Figure 61. Share of participants satisfied with the EINSTEIN tool and share of participants who experienced technical difficulties using EINSTEIN tool.

Table 51. Comments from participants as to why they found the EINSTEIN tool useful

| Comments | No. of opinions |
|--|-----------------|
| For a rapid assessment | 1 |
| It allows a quick estimate of the potential for energy savings in thermal processes | 1 |
| Systematic approach to efficiency in heating systems | 1 |
| Is an expert system that can model and generate alternatives to thermal processes, which is unique in the market and grateful that it is free software | 2 |
| Facilitates tasks | 1 |
| Save time job | 1 |
| Displays the status of energy consumption and performs calculations | 1 |

| | |
|------------------------|---|
| quickly | |
| It has great potential | 1 |

Table 52. Comments from the participants relating to the technical difficulties they encountered while using the Einstein tool

| Comments | No. of opinions |
|--|------------------------|
| To manage well the application needs a lot of work, or someone to help you but is very complicated. | 1 |
| Difficulties in the interpretation of data, how to introduce them into the tool | 1 |
| The tool is under development. | 2 |
| The program sometimes crashes | 1 |
| Primarily, the difficulty of knowing if modelled correctly after the project is done. Some inconsistencies not resolved. | 1 |
| Version use 2,1 beta and sometimes crashes in XP system | 1 |
| Errors tool development | 1 |
| Ignorance of the meaning of the parameters | 1 |

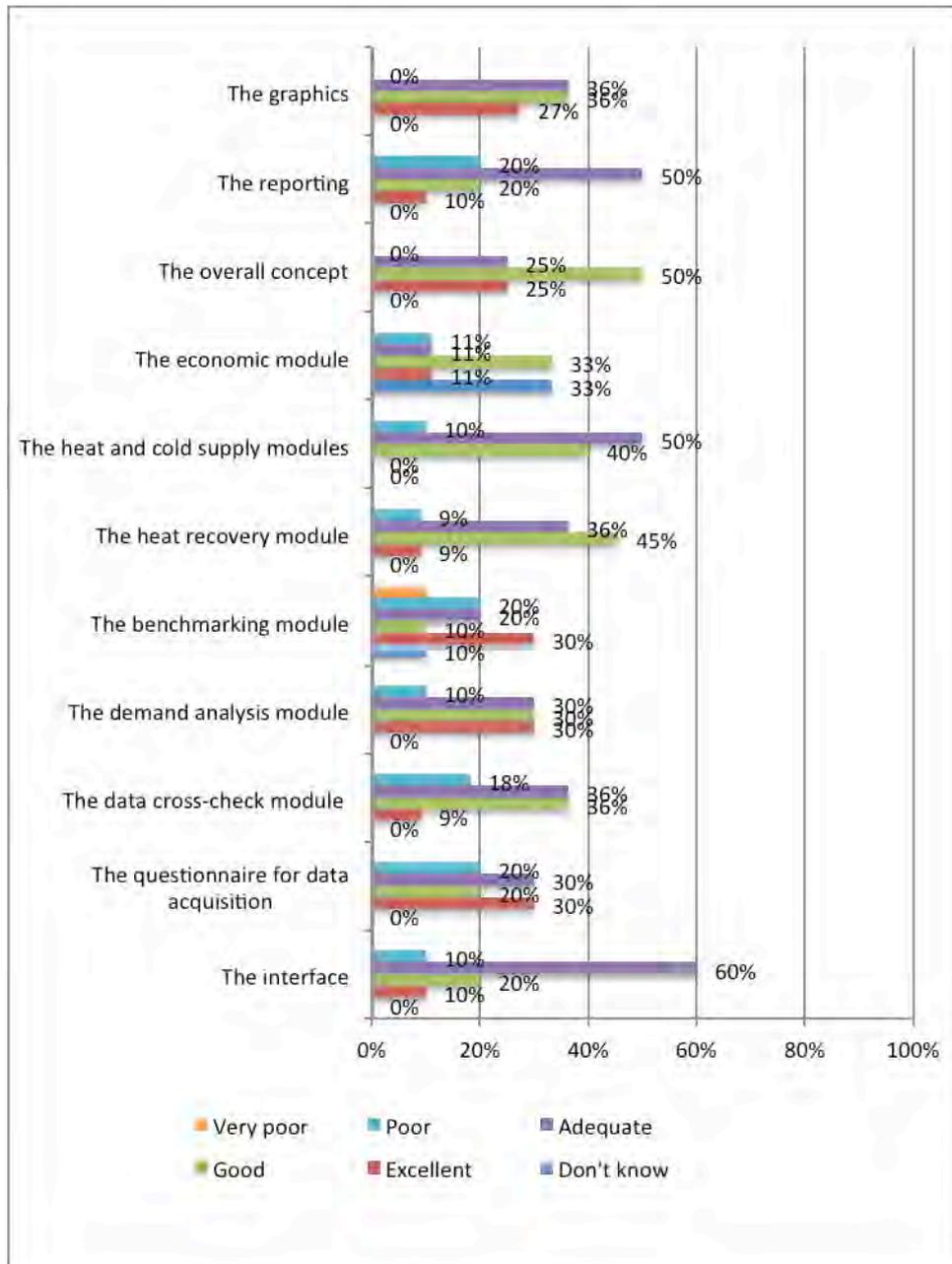


Figure 62. Participants' ratings of parts of the EINSTEIN tool

Table 53. 'Which important features and/or functions are missing?'

| Comments |
|--|
| Think it's far more comprehensive and ambitious than initially thought. You can not ask for a computer program that does it all. |

9.5 TRAINING RESULTS

This section deals with the outcome of the training for the individual trainees.

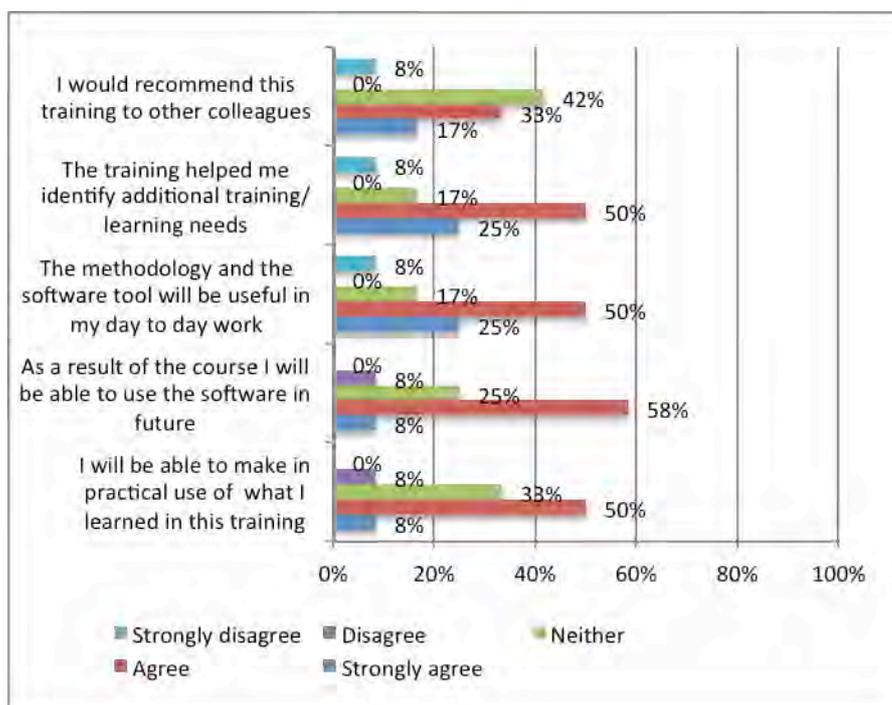


Figure 63. Results of EINSTEIN training course

Table 54. 'What was most valuable about this training?'

| Comments | No. of opinions |
|--|-----------------|
| Trainers are very involved | 3 |
| There are many resources that are explored and subsequently developed professionally helps us in performing energy audits. | 1 |
| Knowledge of a tool with great potential | 2 |
| Training is the way to get accustomed to the program as it is complex to use | 1 |

Table 55. 'What was least valuable about this training?'

| Comments |
|---|
| There is a pedagogical tool to use in my current job. I believe that the tool should be more complete. |
| This course is very dense, with lots of information and working with the computer and following explanations at the same time is very difficult |
| Little training time |
| Showing more case studies from the beginning |
| The knowledge should be better explained |

Table 56. Other comments

| Comments | No. of opinions |
|---|------------------------|
| Not useful tool in the development work currently | 1 |
| Propose a broader program of blended learning, relying on the teacher who participated in the initial course of the Universidad Juan Carlos | 1 |

10 United Kingdom

10.1 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants

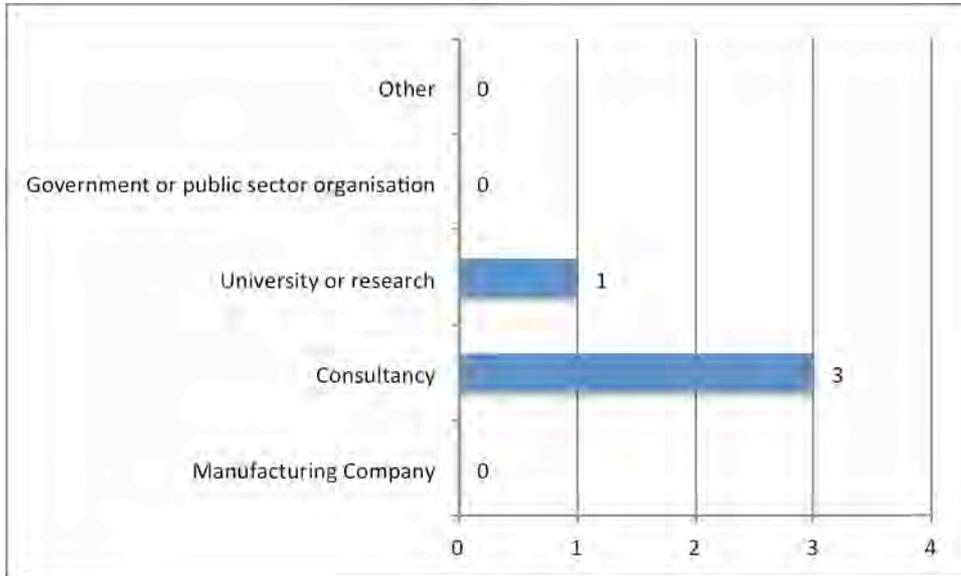


Figure 64. Sectors represented at the training event

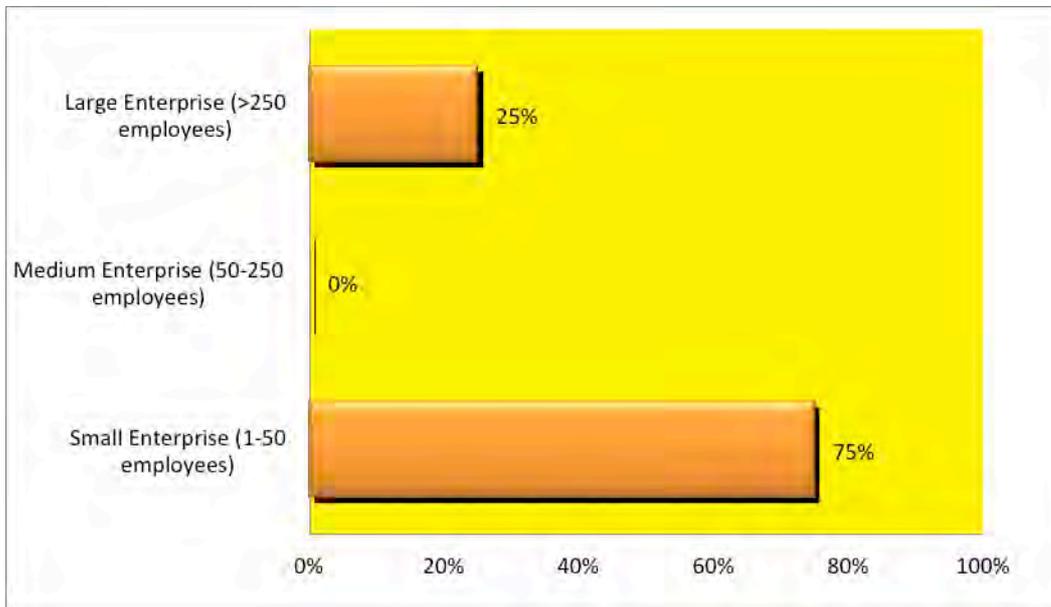


Figure 65. Structure of participants

10.2 GENERAL ISSUES

This section provides information as to whether participants attended earlier EINSTEIN courses and some general overall feedback on the course.

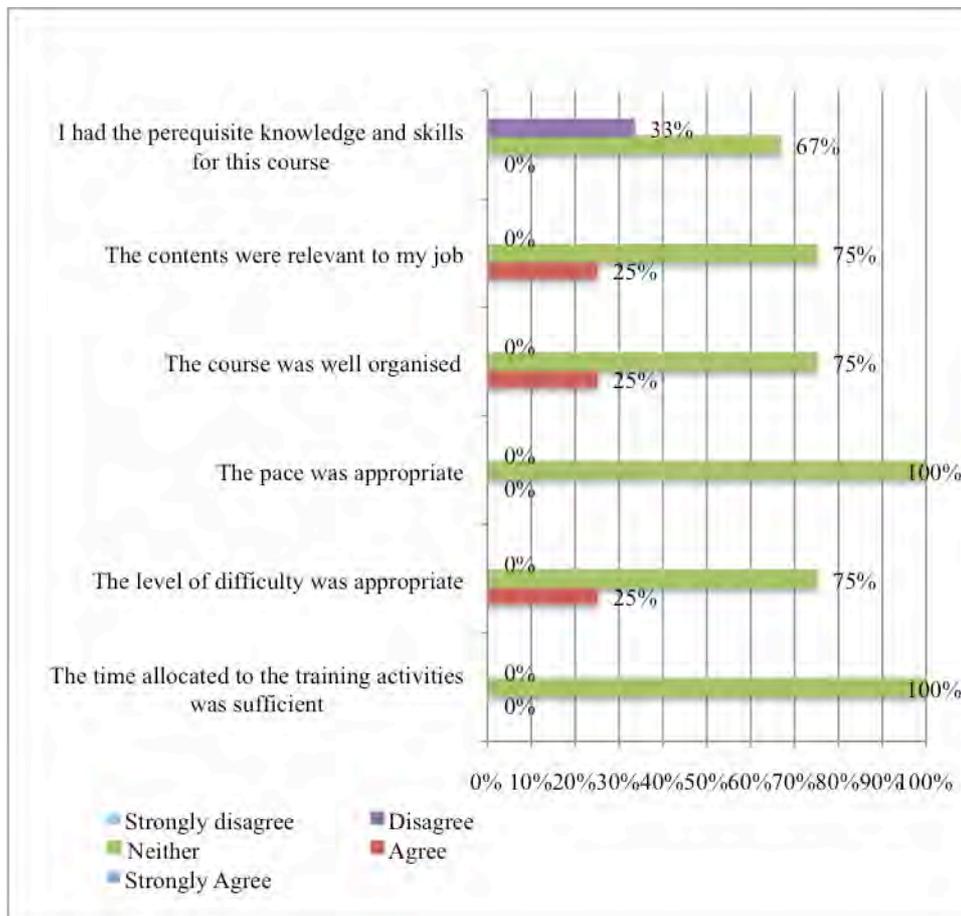


Figure 66. Questionnaire results on general issues

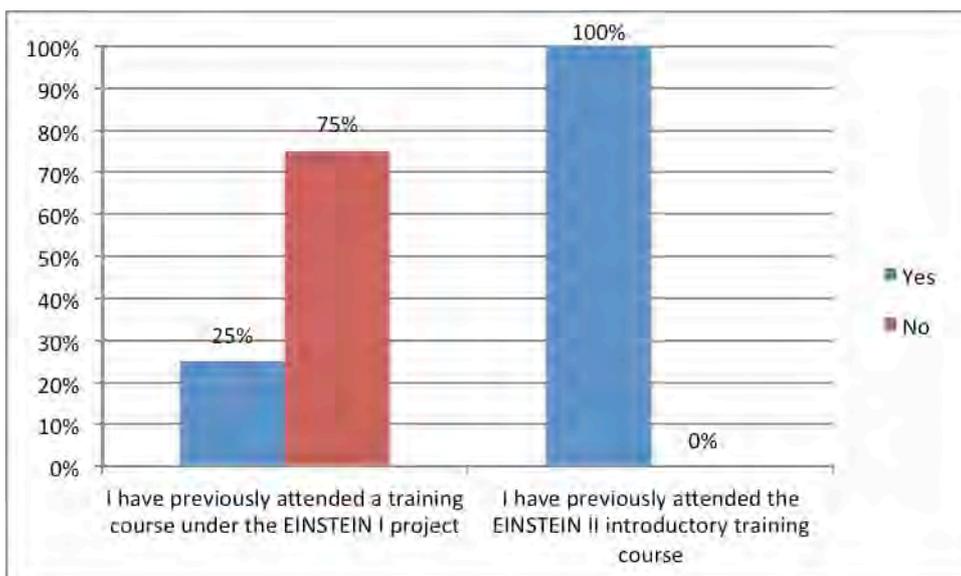


Figure 67. Previous attendance at EINSTEIN courses

10.3 TRAINING MODULES, MATERIAL AND TRAINERS

This section provides feedback regarding the training materials and the trainers.

Suggestions for improvement of the course

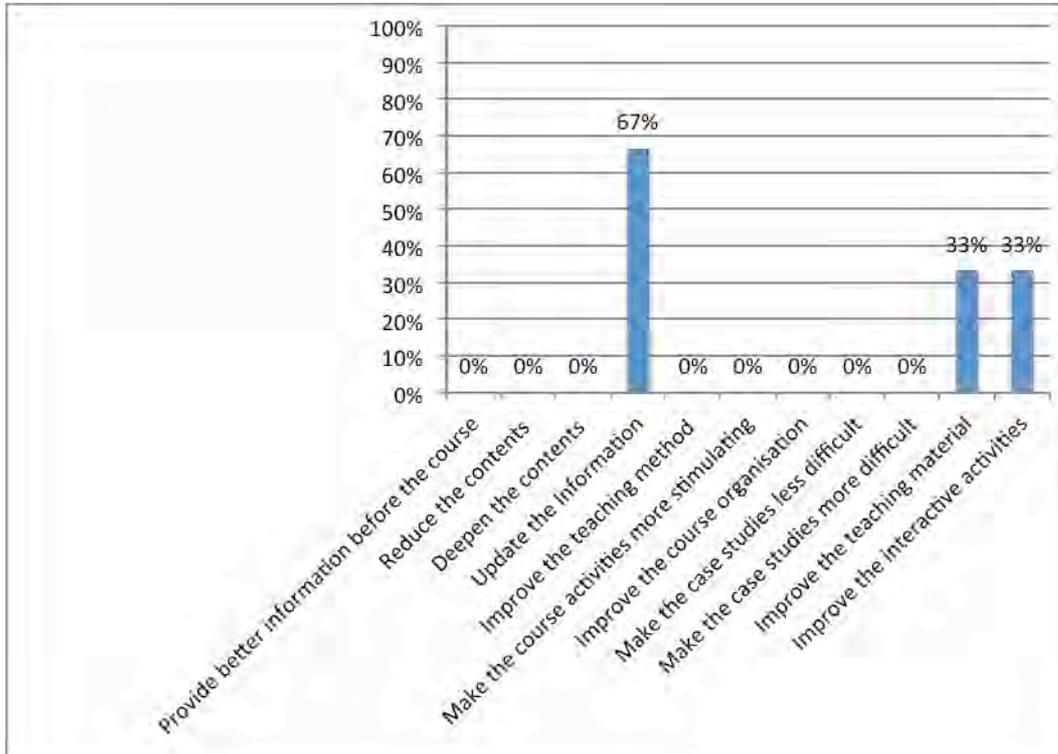


Figure 68. Suggestions for improvement of the course

Table 57. Other suggestions/comments on improving the course

| Comments |
|--|
| A more detailed guide for using the software (screen by screen) would be helpful |
| More visual powerpoint or screen shots to show How/What/Where |

10.4 THE EINSTEIN TOOL

This section deals with feedback on various aspects of the EINSTEIN tool.

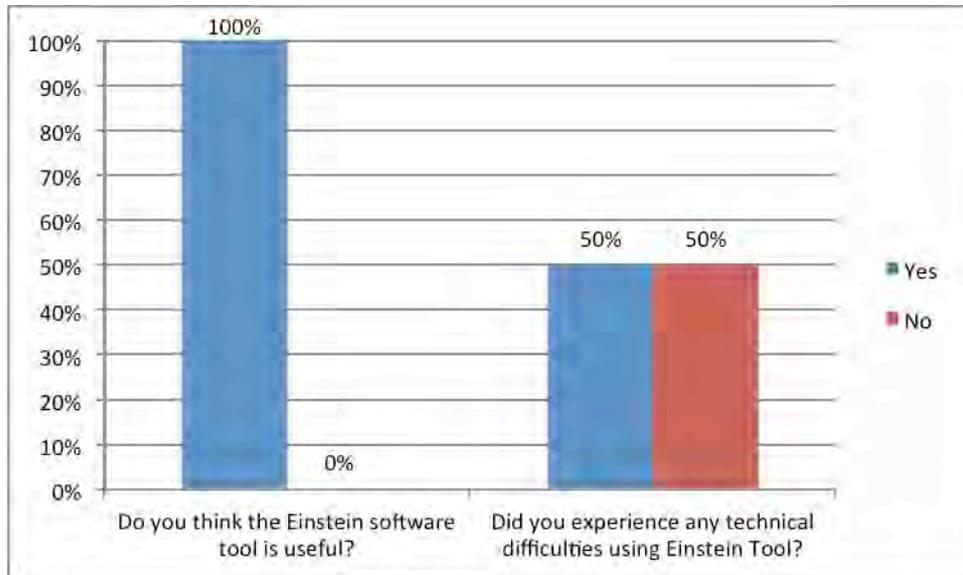


Figure 69. Share of participants satisfied with the EINSTEIN tool and share of participants who experienced technical difficulties using the EINSTEIN tool

Table 58. Comments from participants as to why they found the EINSTEIN tool useful

| Comments |
|--|
| It will be used within my organisation for saving energy and improving our carbon foot print |
| Seems to be the only integrated software providing this function |
| It achieves the need to quantify thermal energy use |
| Allows a professional and consistent approach to assessing energy savings/use |

Table 59. Comments from the participants relating to the technical difficulties they encountered while using the Einstein tool

| Comments |
|---|
| It is not easy to decipher consistency check errors |
| Understanding different descriptions for supply and process |

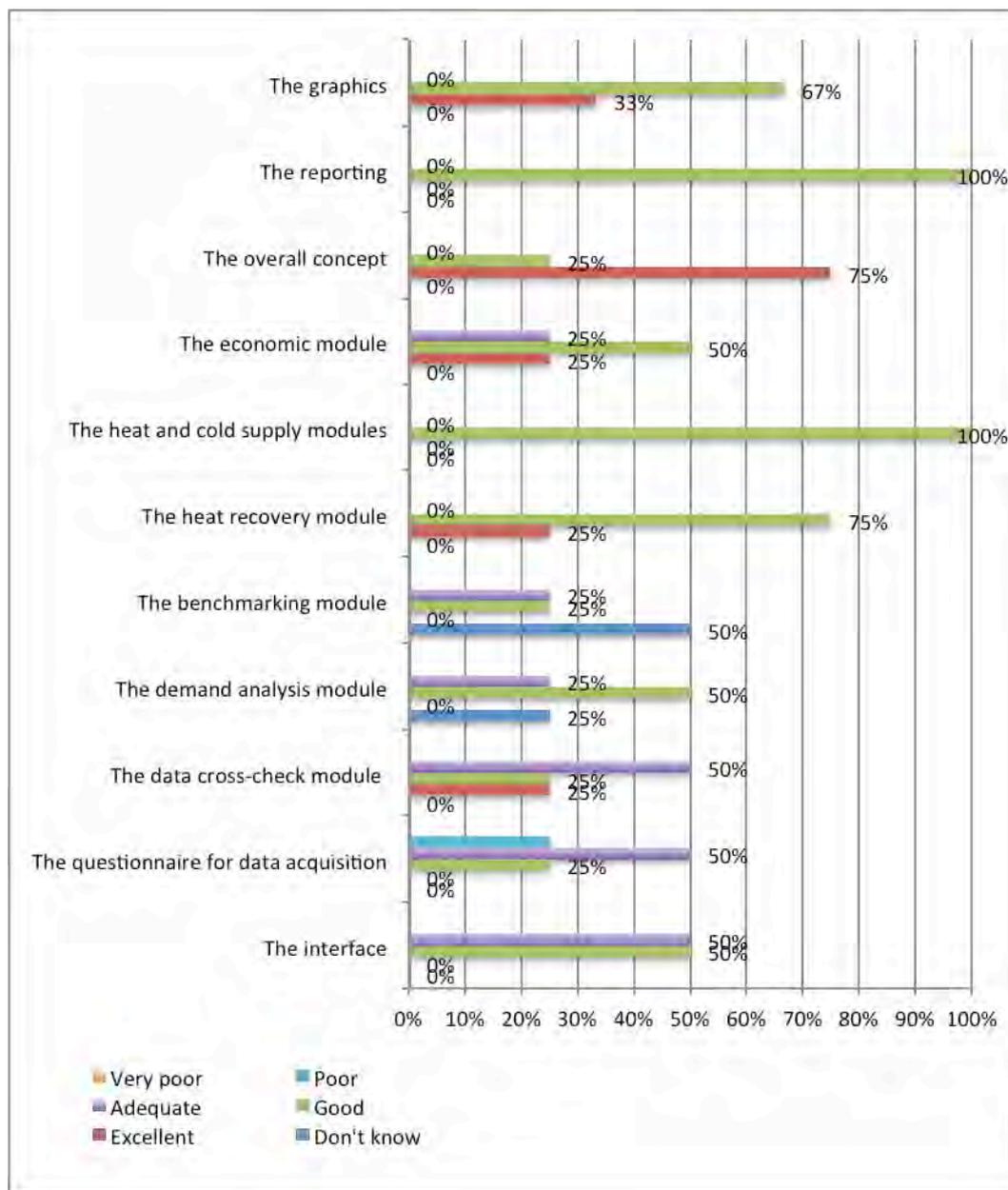


Figure 70. Participants' ratings of parts of the EINSTEIN tool

Table 60. 'Which important features and/or functions are missing?'

| Comment |
|---|
| More practical cut down examples for data input |
| Better description of required data |

10.5 TRAINING RESULTS

This section deals with the outcome of the training for the individual trainees.

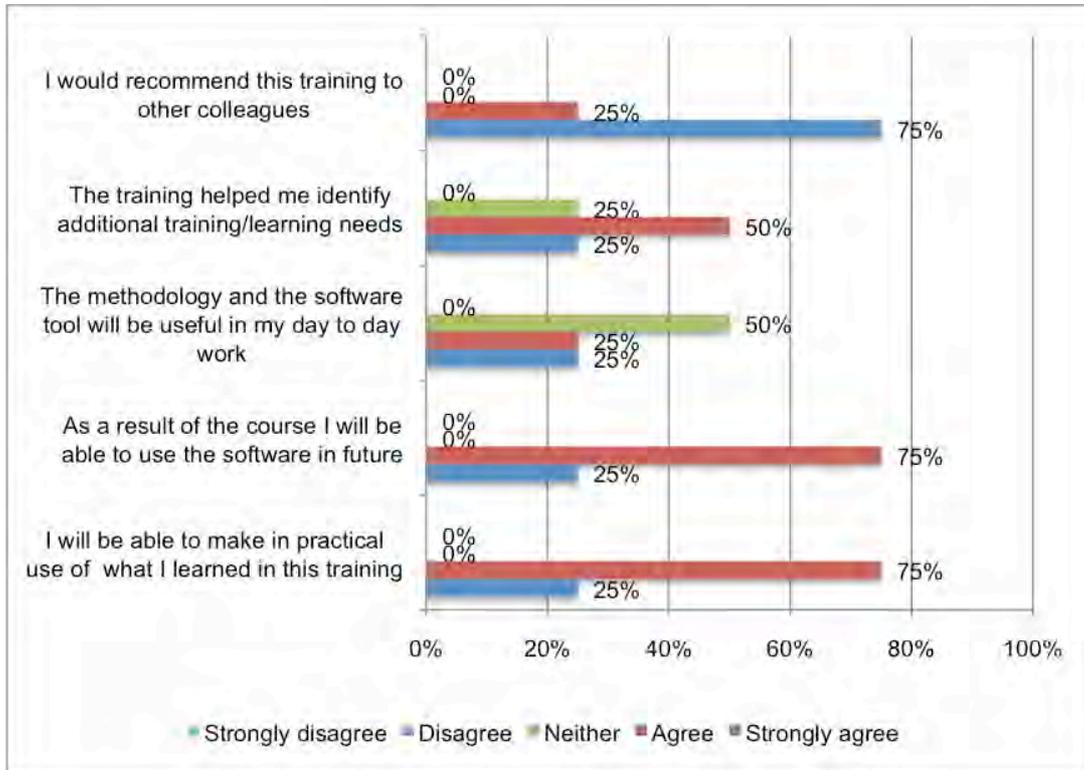


Figure 71. Results of EINSTEIN training course

Table 61. 'What was most valuable about this training?'

| Comments |
|---|
| Ability to practice and explore error generation |
| Developing a better understanding and refreshing the basic training |

Table 62. 'What was least valuable about this training?'

| Comments |
|--|
| Paper handouts, too small, poor quality |
| Quite fast for 2 days of advanced training |

11 Overall result

11.1 OVERALL EVALUATION OF RESPONSES FROM TRAINEES FOR ALL COURSES

The largest proportion of trainees attending the training courses were those from the consultancy sector. The large number from SMEs would also indicate that those involved were often self employed consultants.

The feedback from trainees can be summarised as follows:

- Nearly all participants found the EINSTEIN tool useful and greatly admired the concept. It was regularly noted that the tool is unique for the industrial sector.
- Many participants requested that more time be given to the practical use of the tool, as it required time to understand and work through the examples, get familiar with the terminology and the tool interface. In general, many felt that too much was being fitted into the time allocated.
- The participants found the trainers very helpful and experienced.
- In terms of improving the tool, participants frequently referred to the following:
 - An improvement to the interface is required to make the tool more user friendly.
 - Consistency check was unclear and needs greater explanation.
 - It isn't always clear which data is required to be input - this could be made more apparent in the cases of specific types of equipment.
- Some participants requested a clearer user guide and updated supporting documentation to be made available. On-line training materials were also suggested.

11.2 ORGANISATIONAL ISSUES

This section outlines background information on the nature of participants

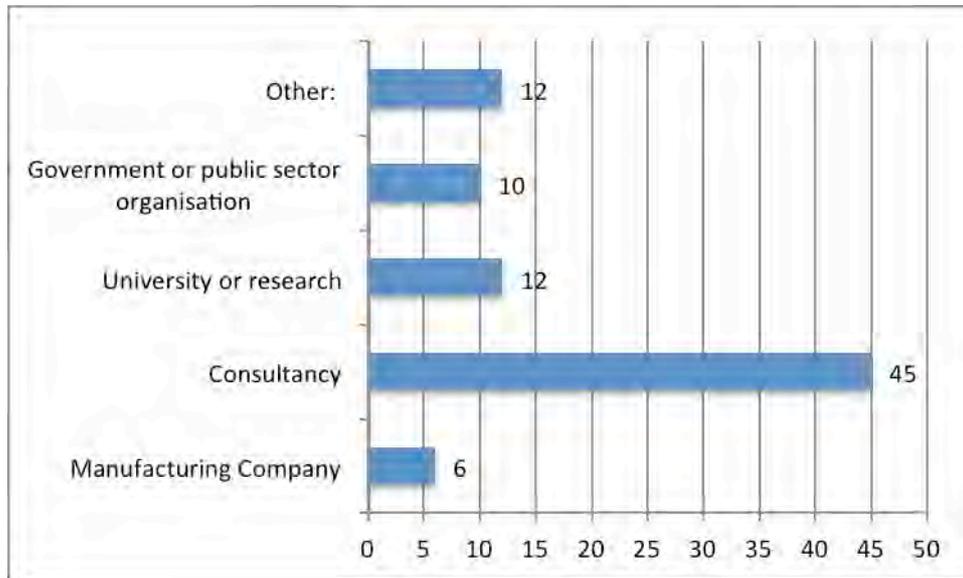


Figure 72. Sectors represented at the training event

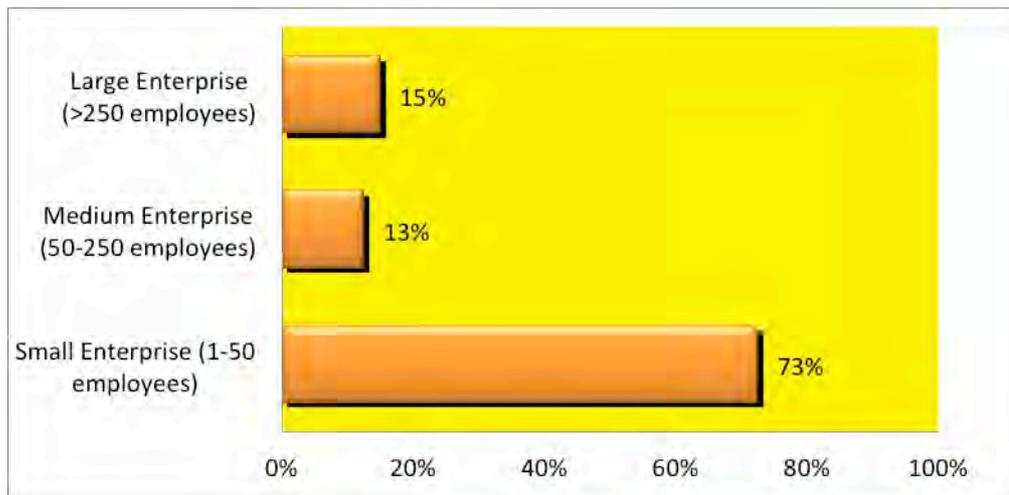


Figure 73. Structure of participants

11.3 GENERAL ISSUES

This section provides information as to whether participants attended earlier EINSTEIN courses and some general overall feedback on the course.

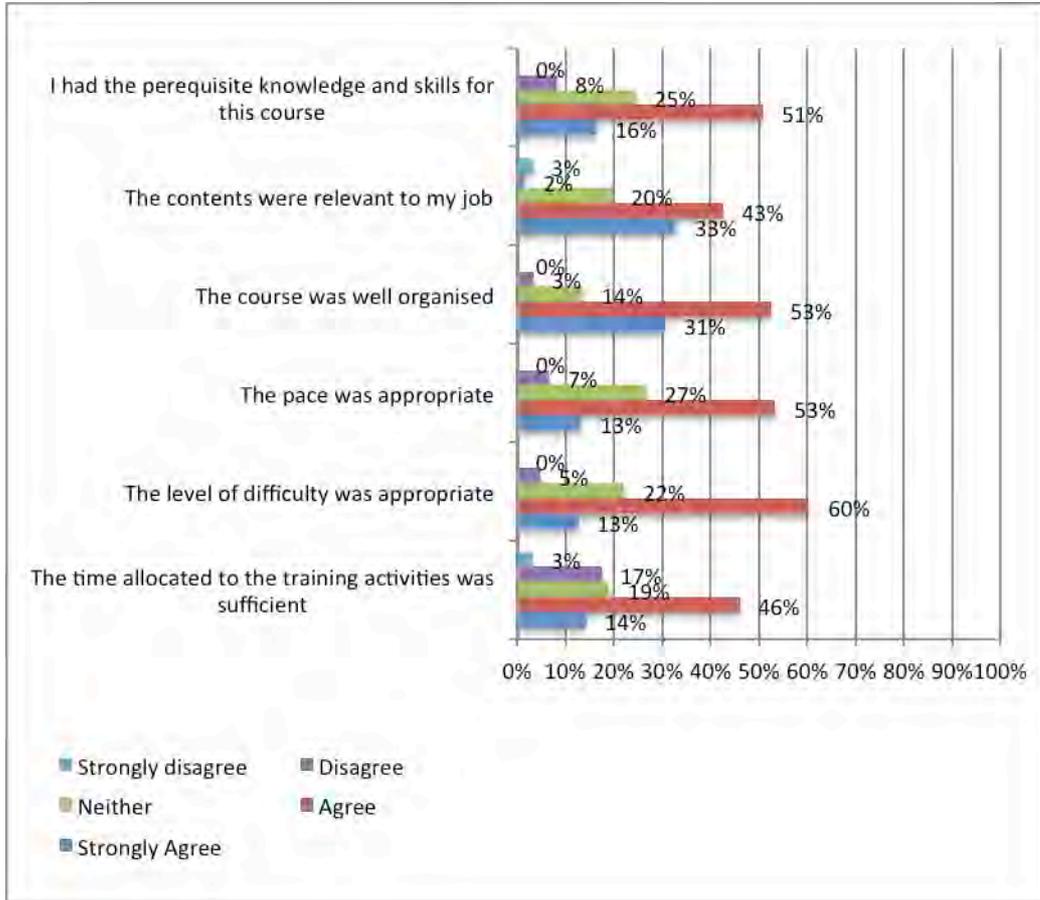


Figure 74. Questionnaire results on general issues

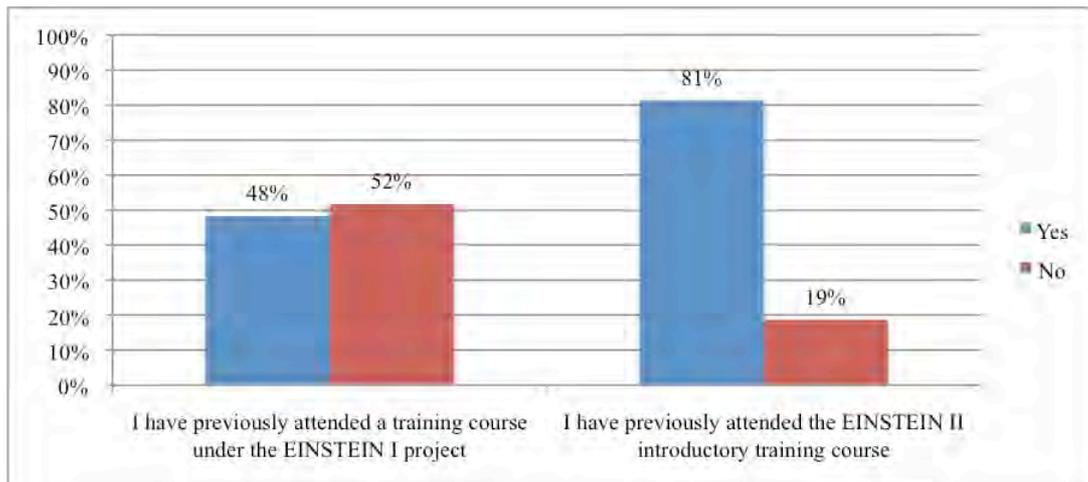


Figure 75. Previous attendance at EINSTEIN courses (note the “yes” response to the first question may be artificially high due to possible mis-interpretation of the question by respondents in some countries).

11.4 TRAINING MODULES, MATERIALS AND TRAINERS

This section provides feedback regarding the training materials and the trainers.

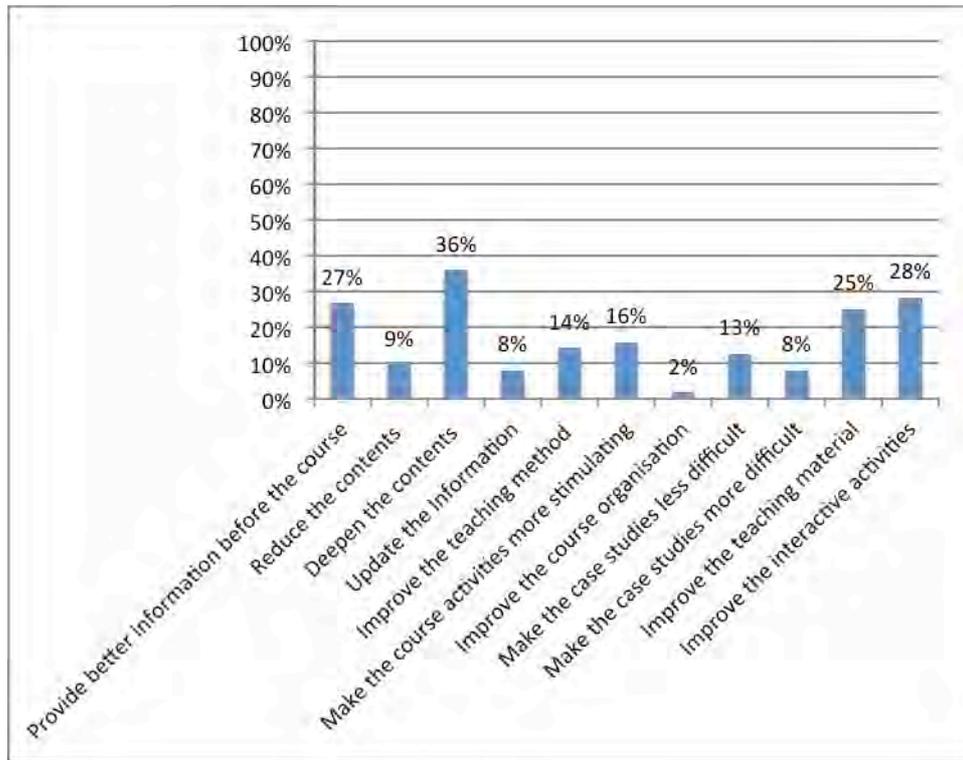


Figure 76. Suggestions for improvement of the course

11.5 THE EINSTEIN TOOL

This section deals with feedback on various aspects of the EINSTEIN tool.

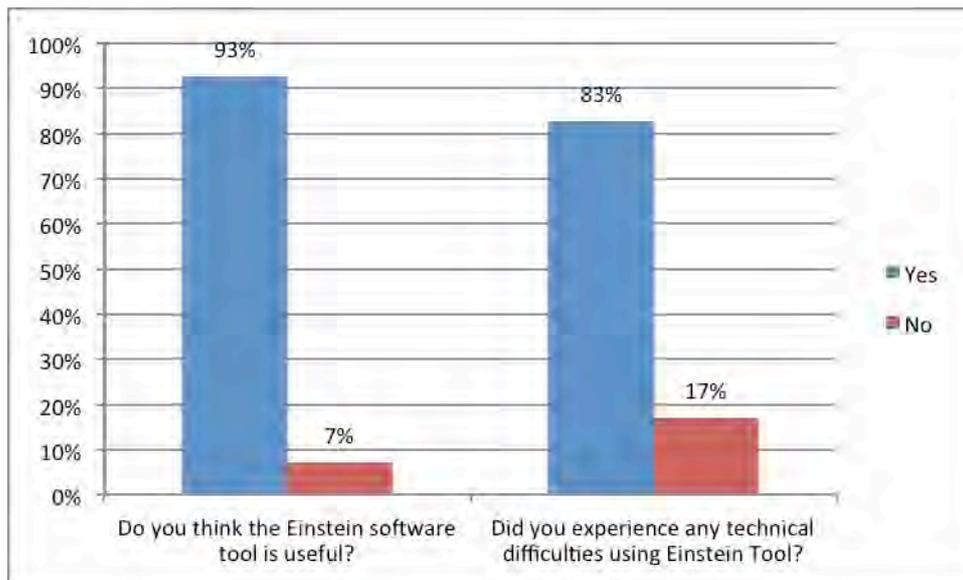


Figure 77. Overall share of participants satisfied with the EINSTEIN tool and share of participants who experienced technical difficulties using the EINSTEIN tool

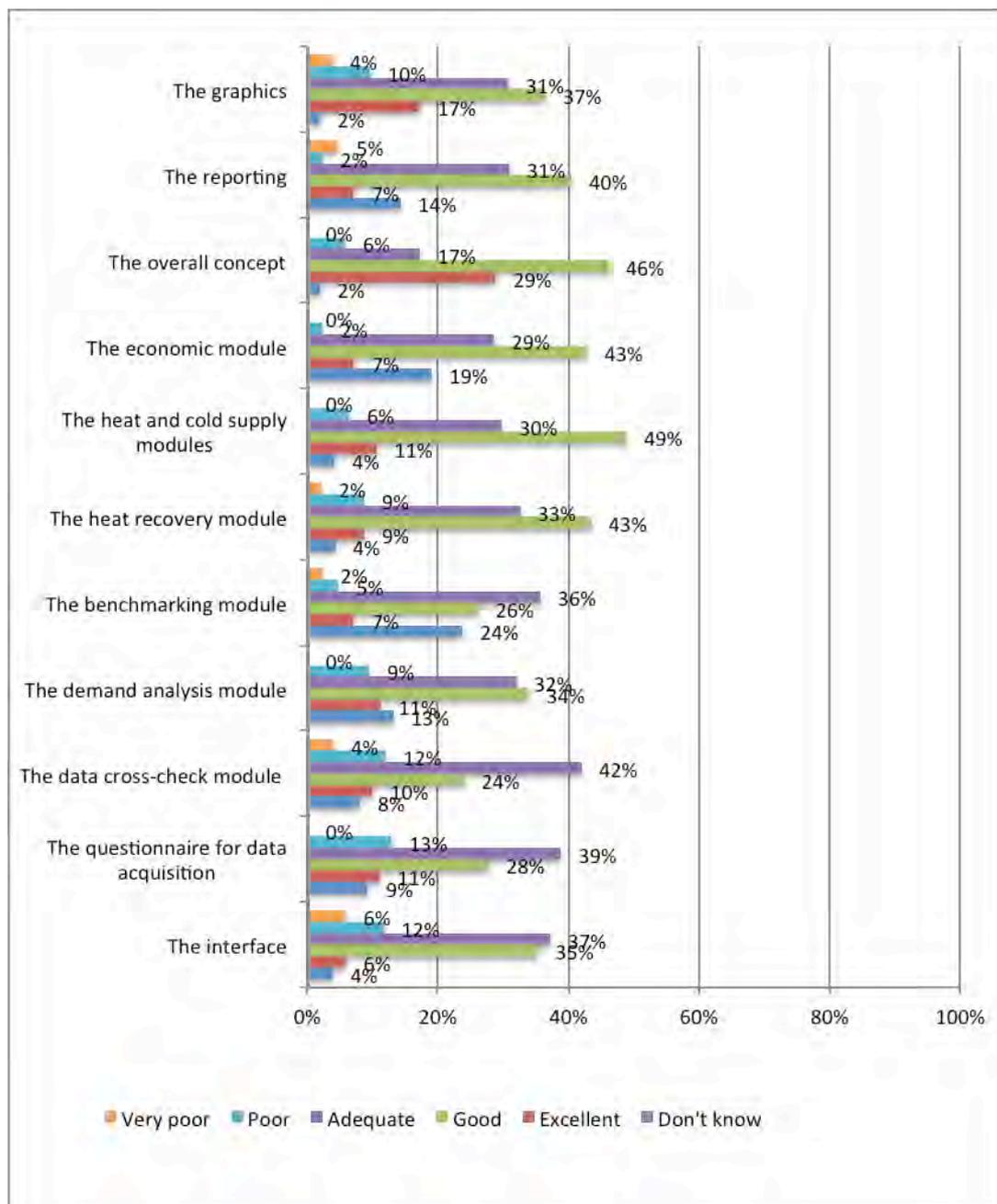


Figure 78. Overall participants' ratings of parts of the EINSTEIN tool

11.6 TRAINING RESULTS

This section deals with the outcome of the training for the individual trainees.

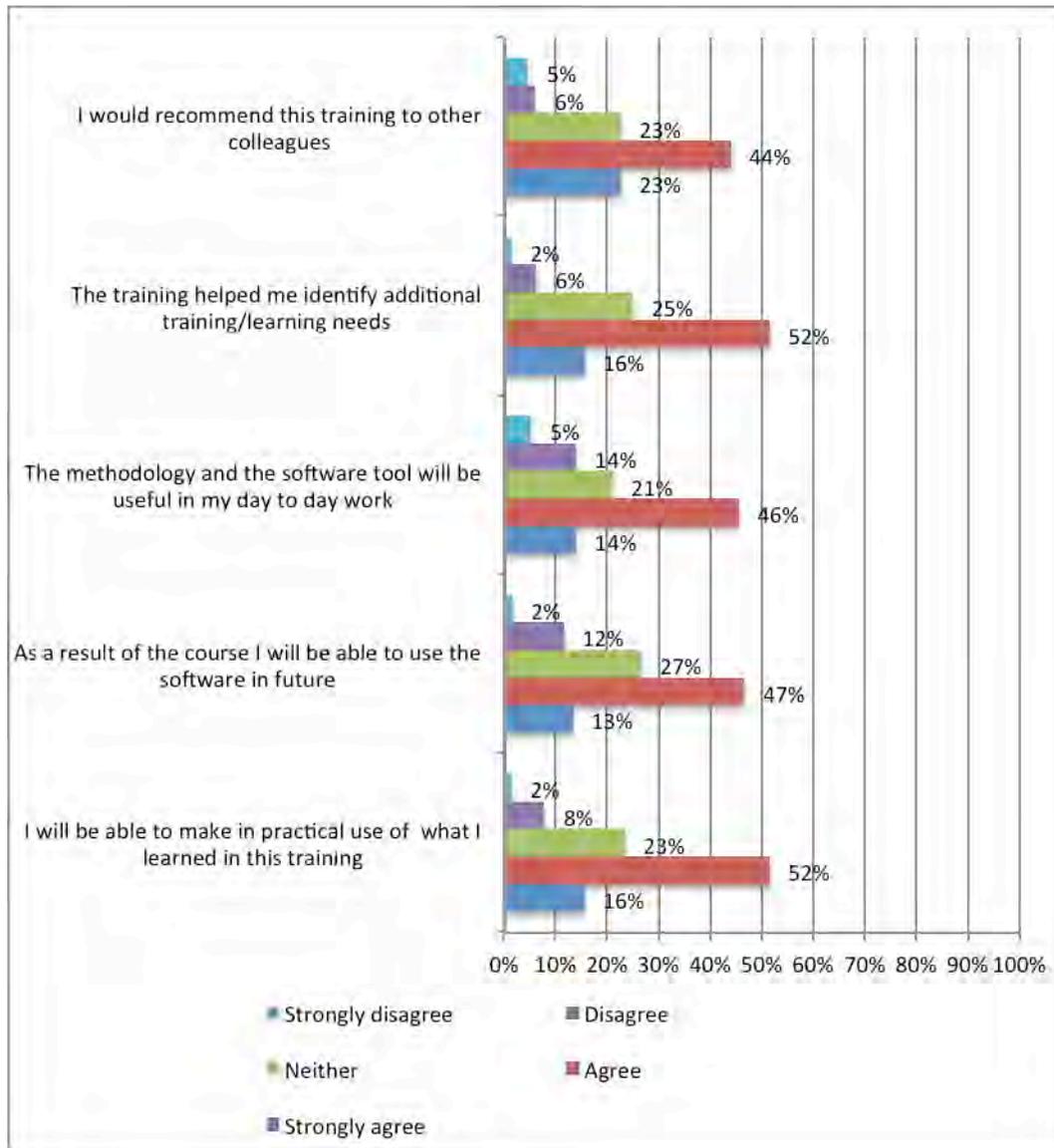


Figure 79. Results of EINSTEIN training course.