

SCENARIOS FOR RENEWABLE ENERGY ADOPTION

1. DATABASE DETAILS

Before collecting data from expert participants, the researcher created a database (named xxxx_scenario, where xxxx represents the researcher's username on the cloud service being used) and the relevant tables to store participant data. The database consists of three tables:

- EXPERTS: This has 2 fields:
 - o expert_id: Stores a unique identifier for each expert, consisting of the letter "E" followed by a counter value.
 - o criteria: Stores a string of "Y" (yes) and "N" (no) values, indicating whether the expert meets the corresponding criteria.
- FACTORS_ENERGY : This table contains three fields:
 - o factor: Stores the factor number (e.g., 1, 2, 3, etc)
 - o f_desc: Stores the factor name, which will be used in the questions presented to participants.
 - o f_explain: Provides a more detailed explanation of each factor, displayed as tooltip text in the online tool.
- RELATIONSHIPS: This table has 2 fields:
 - o H-relationship: Stores the string of judgments submitted by experts for the "high" state of the independent factor on all other dependent factors.
 - o L-relationship: Stores the string of judgments for the "low" state of the independent factor on all other dependent factors.

The EXPERTS and RELATIONSHIPS tables are populated as experts complete the surveys.

The FACTORS_ENERGY table is populated by the researcher before releasing the link to the online tool. This is done using a researcher-developed PHP script (getfactors.php) and the relevant Excel .csv file (energyfactors.csv) as input. The algorithm behind this process is detailed in Chapter 3, section 3.4.3.1).

The PHP code and associated Excel .csv files are available at https://github.com/robyn-thompson/RE_Adop_files.

The .csv file contains the names and descriptions of each factor, which are aligned with those presented in Table 13 of the thesis. These descriptions are used to populate the tooltip text, which appears on each judgment entry screen for the factors.

2. FIGURES AND SCREENSHOTS

The screenshot shows a web browser window with the address bar displaying 'scenario.biz.ht/welcome.php'. The page has a light blue background. At the top, the title 'Scenarios for renewable energy adoption' is centered. Below it, a message says 'Thank you for showing an interest in contributing to this Phd study.' followed by two paragraphs explaining the study's purpose and duration. A button labeled 'View Letter of Information and Consent' is centered. Below this, another message says 'Before completing the survey, please consent to being a participant.' A white box with a black border contains the question 'Do you agree to take part in the survey?' with 'Yes' and 'No' buttons. At the bottom, there is a small text line about the study being part of a PhD project at DUT, followed by the DUT logo.

scenario.biz.ht/welcome.php

Scenarios for renewable energy adoption

Thank you for showing an interest in contributing to this Phd study.

The purpose of the study is to construct consistent scenarios.
To accomplish this expert participants will provide evaluations
of the impacts that 7 factors have on each other.

The survey should take about 15-20 minutes of your time.

[View Letter of Information and Consent](#)

Before completing the survey, please consent to being a participant.

Do you agree to take part in the survey?

Yes No

This survey forms part of a PhD study being conducted at Durban University of Technology by Mrs RC Thompson
To contact the researcher please email robnt@dut.ac.za

DUT
DURBAN UNIVERSITY OF TECHNOLOGY
DRIVING THE FUTURE THROUGH TECHNOLOGY

Figure 1: Welcome page for RE study application (Source: Researcher developed tool, available at: <https://scenario.biz.ht/welcome.php>)

The screenshot shows a web browser window with the address bar displaying 'scenario.biz.ht/exit.php'. The page has a light blue background. At the top, the title 'Scenarios for adoption' is centered. Below it, a white box with a green border contains the message 'Thank you for your time.' At the bottom, there is a small text line about the study being part of a PhD project at DUT, followed by the DUT logo.

scenario.biz.ht/exit.php

Scenarios for adoption

Thank you for your time.

This survey forms part of a PhD study being conducted at Durban University of Technology by Mrs RC Thompson
To contact the researcher please email robnt@dut.ac.za

DUT
DURBAN UNIVERSITY OF TECHNOLOGY
DRIVING THE FUTURE THROUGH TECHNOLOGY

Figure 2: Exit page (Source: Researcher developed tool, available at: <https://scenario.biz.ht/welcome.php>)

The screenshot shows a web browser window with the address bar displaying 'scenario.biz.ht/expertinfo.php'. The page has a light blue background. At the top, the title 'Background Information' is centered. Below it, a message says 'Complete the checklist to determine if you are a suitable participant.' A white box with a black border contains a checklist titled 'Check all that apply to you' with seven items, each followed by a checkbox. At the bottom of the box are 'Back' and 'Save and Continue' buttons. At the bottom of the page, there is a small text line about the study being part of a PhD project at DUT, followed by the DUT logo.

scenario.biz.ht/expertinfo.php

Background Information

Complete the checklist to determine if you are a suitable participant.

Check all that apply to you

- I have worked in the energy sector for 5 or more years ☐
- I have authored a book, published an article, or presented at a conference in the energy field ☐
- I have been invited to speak at an event in the energy field (in the last 3 years) ☐
- I have been the leader of a corporate team in the energy field ☐
- I am actively involved in energy policy making and decisions ☐
- I am a member of a committee in the field of energy ☐
- I am a point of contact for the media for energy matters ☐
- None of the above are applicable to me ☐

[Back](#) [Save and Continue](#)

This survey forms part of a PhD study being conducted at Durban University of Technology by Mrs RC Thompson
To contact the researcher please email robnt@dut.ac.za

DUT
DURBAN UNIVERSITY OF TECHNOLOGY
DRIVING THE FUTURE THROUGH TECHNOLOGY

Figure 3: Participant background information page for RE study application (Source: Researcher developed tool available at: <https://scenario.biz.ht/welcome.php>)

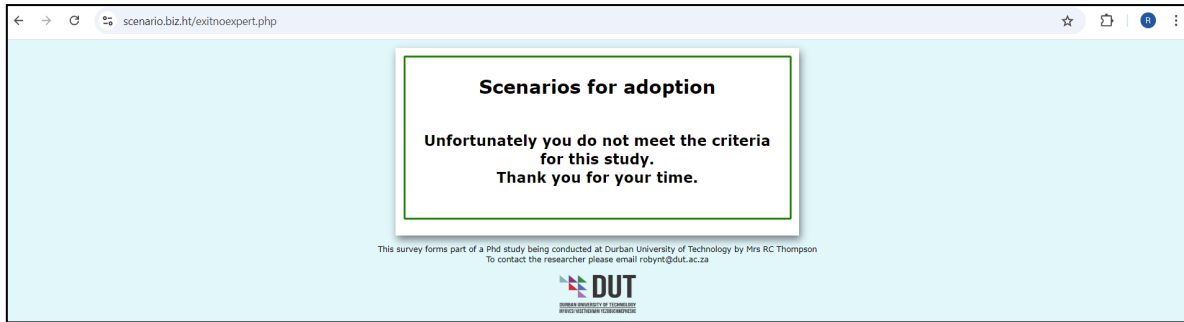


Figure 4: Non-expert exit page (Source: Researcher developed tool available at: <https://scenario.biz.ht/welcome.php>)

Figure 5: Judgement page for renewable energy application on PC (Source: Researcher developed tool available at: <https://scenario.biz.ht/welcome.php>)

14:42

When considering the adoption of renewable energy in the future...

If there exists a HIGH expectancy in terms of the performance of renewable energy systems, how will that influence a HIGH expectancy in terms of user friendliness?

☐ strong restrictive influence
 ☐ weak restrictive influence
 ☒ no significant influence
 ☐ weak promoting influence
 ☐ strong promoting influence

If there exists a LOW expectancy in terms of the performance of renewable energy systems, how will that influence a HIGH expectancy in terms of user friendliness?

☐ strong restrictive influence
 ☐ weak restrictive influence
 ☒ no significant influence
 ☐ weak promoting influence
 ☐ strong promoting influence

[View Glossary of Terms](#)

0% of 100%

[Back](#) [Next...](#)

This survey forms part of a Phd study being conducted at Durban University of Technology by Mrs RC Thompson To contact the researcher please email robynt@dut.ac.za

NIIT

AA scenario.biz.ht

Figure 6: Judgement page for renewable energy application on mobile device (Source: Researcher developed tool available at: <https://scenario.biz.ht/welcome.php>)

Question 1

When considering the adoption of renewable energy in the future...

[Hover over underlined text]

The extent to which individuals believe that renewable energy technologies or systems can enhance their performance or achievements.

If there exists a HIGH expectancy in terms of the performance of renewable energy systems, how will that influence a HIGH expectancy in terms of user friendliness?

Figure 7: Tooltip for RE application on PC (Source: Researcher developed tool available at: <https://scenario.biz.ht/welcome.php>)

Glossary	
Term	Definition
Environmental awareness	The extent of an individual's awareness and concern regarding the resolution of issues that relate to the environment.
Expected performance of renewable systems	The extent to which individuals believe that renewable energy technologies or systems can enhance their performance or achievements.
Renewable energy awareness	The extent to which individuals understand renewable energy technology, including its benefits and drawbacks, and to some extent how it works and what problems it can solve.
Resource support available	The extent to which an individual believes that resources, technical support, and organizational readiness are available to help them achieve their usage goals.
Social pressure	The sensed societal influence to engage in or refrain from a certain behaviour.
User friendliness	An individual's perception of the expected level of difficulty associated with using a tool or technology.
Value for money expectancy	An individual's expectations of the expenses associated with acquiring, using, or maintaining a product, service or technology versus the benefits and value it provides.

Figure 8: Glossary of terms pop-up (Source: Researcher developed application)


scenario.biz.ht/finished.php

Scenarios for adoption

Many thanks for your contribution and your time.

**For results of the study please email
robtynt@dut.ac.za**

This survey forms part of a Phd study being conducted at Durban University of Technology by Mrs RC Thompson
To contact the researcher please email robtynt@dut.ac.za



DUT
DURBAN UNIVERSITY OF TECHNOLOGY
DRIVING THE FUTURE THROUGH TECHNOLOGY

Figure 9: Final page for RE application (Source: Researcher developed tool available at: <https://scenario.biz.ht/welcome.php>)

SCENARIOS FOR AI ADOPTION IN HIGHER EDUCATION

1. DATABASE DETAILS

Before collecting data from expert participants, the researcher created a database (named xxxx_ai, where xxxx represents the researcher's username on the cloud service being used) and the relevant tables to store participant data. The database consists of three tables:

- EXPERTS: This has 2 fields:
 - expert_id: Stores a unique identifier for each expert, consisting of the letter "E" followed by a counter value.
 - criteria: Stores a string of "Y" (yes) and "N" (no) values, indicating whether the expert meets the corresponding criteria.
- FACTORS_AI : This table contains three fields:
 - factor: Stores the factor number (e.g., 1, 2, 3, etc)
 - f_desc: Stores the factor name, which will be used in the questions presented to participants.
 - f_explain: Provides a more detailed explanation of each factor, displayed as tooltip text in the online tool.
- RELATIONSHIPS: This table has 2 fields:
 - H-relationship: Stores the string of judgments submitted by experts for the "high" state of the independent factor on all other dependent factors.
 - L-relationship: Stores the string of judgments for the "low" state of the independent factor on all other dependent factors.

The EXPERTS and RELATIONSHIPS tables were populated as expert participants completed the survey. Meanwhile, the FACTORS_AI table was pre-filled with factor details and descriptions before data collection commenced. This was automated by the researcher-developed PHP script, getfactors_ai.php, which read data from a .csv file (aifactors.csv) containing factor names and descriptions. This data was then used to generate tooltip fields in the data collection tool, improving clarity for participants. All PHP scripts, along with the Excel .csv files used, are available in the researcher's GitHub repository: https://github.com/robyn-thompson/AI_Adop_files.

2. FIGURES AND SCREENSHOTS



Figure 10: X post for distribution of survey link for AI in education data collection

Scenarios for artificial intelligence adoption

Thank you for showing an interest in contributing to this Phd study.

The purpose of the study is to construct consistent scenarios. To accomplish this expert participants will provide evaluations of the impacts that 7 factors have on each other.

The survey should take about 15-20 minutes of your time.

[View Letter of Information and Consent](#)

Before completing the survey, please consent to being a participant.

Do you agree to take part in the survey?

Yes No

This survey forms part of a Phd study being conducted at Durban University of Technology by Mrs RC Thompson. To contact the researcher please email robint@dut.ac.za

DUT
DURBAN UNIVERSITY OF TECHNOLOGY
DRIVING INNOVATION IN EDUCATION

Figure 11: Welcome page for AI in higher education application (Source: Researcher developed tool, available at: <https://scenario.biz.ht/welcome.php>)

Background Information

Complete the checklist to determine if you are a suitable participant.

Check all that apply to you

- I have worked in the AI sector for 5 or more years ☐
- I have authored a book, published an article, or presented at a conference in the AI field ☐
- I have been invited to speak at an event in the AI field (in the last 3 years) ☐
- I have been the leader of a corporate team in the AI field ☐
- I am actively involved in AI policy making and decisions ☐
- I am a member of a committee in the field of AI ☐
- I am a point of contact for the media for AI matters ☐
- None of the above are applicable to me ☐

[Back](#) [Save and Continue](#)

This survey forms part of a Phd study being conducted at Durban University of Technology by Mrs RC Thompson. To contact the researcher please email robint@dut.ac.za

DUT
DURBAN UNIVERSITY OF TECHNOLOGY
DRIVING INNOVATION IN EDUCATION

Figure 12: Participant background information page for AI in higher education application (Source: Researcher developed tool, available at: <https://scenario.biz.ht/welcome.php>)

scenario.biz.ht/getdata_ai.php

Question 9

When considering the adoption of AI in higher education in the future...

[Hover over underlined phrases for extra clarification]

If there exists a HIGH expectancy in terms of user friendliness in higher education, how will that influence a HIGH level of AI awareness in higher education?

☐ strong restrictive influence
 ☐ weak restrictive influence
 ☒ no significant influence
 ☐ weak promoting influence
 ☐ strong promoting influence

If there exists a LOW expectancy in terms of user friendliness in higher education, how will that influence a HIGH level of AI awareness in higher education?

☐ strong restrictive influence
 ☐ weak restrictive influence
 ☒ no significant influence
 ☐ weak promoting influence
 ☐ strong promoting influence

19% of 100%

Back Next...

This survey forms part of a PhD study being conducted at Durban University of Technology by Mrs RC Thompson
To contact the researcher please email robyn@du.ac.za

DUT
DURBAN UNIVERSITY OF TECHNOLOGY
DRIVING THE FUTURE OF TECHNOLOGY

Figure 13: Judgement page for AI in higher education application (Source: Researcher developed tool, available at: <https://scenario.biz.ht/welcome.php>)