HTA50

Automated Excel-to-R Conversion of Health Economic Models using the REEEVR Tool: Results of Alpha Test

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Objective

- Perform alpha test of the Reliable and Efficient Estimation of the Economic Value of medical Research (REEEVR) Excel-to-R conversion software on models developed by academia, industry consulting and HTA agencies.
- Leverage alpha test results to remove bugs, add additional Excel functions, highlight areas of weakness, and update the user interface experience, with the aim of releasing a beta version for public testing.

Excel-to-R Converter Design

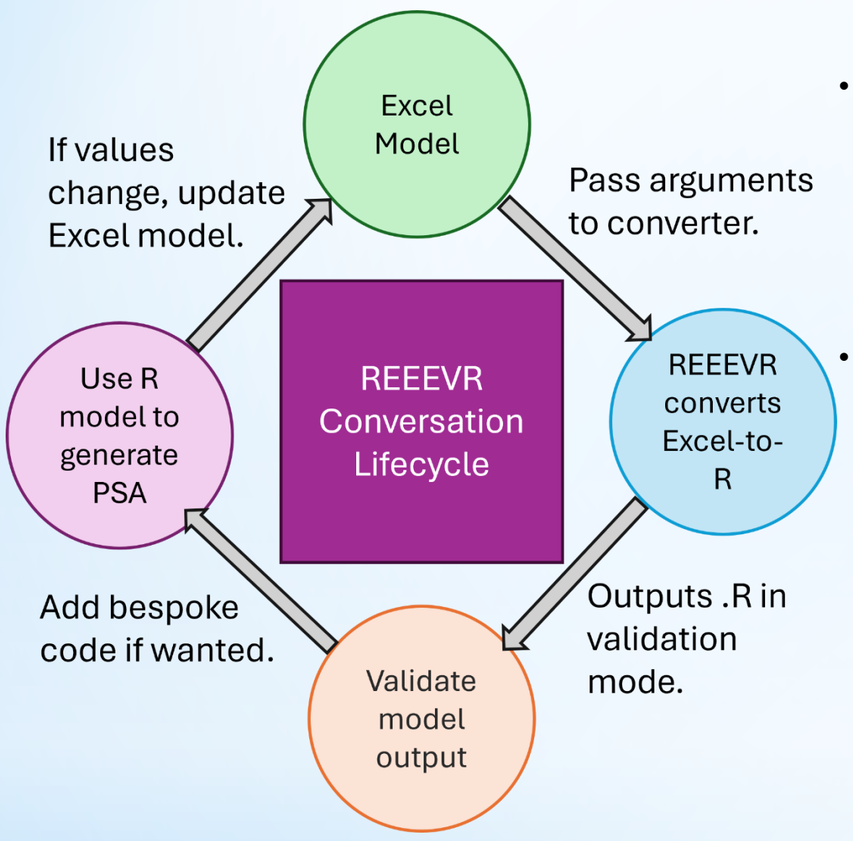

Fig 1: Circular flow of converter lifecycle

- Provide a tool to allow conversion of Excel models to R models with minimal knowledge of R.
- Assuming sufficient optimisation, we believe edits to the Excel document can be rapidly translated to the R program, allowing converter-in-the-loop construction of HTA models.

Methods

- Created ZIP folder containing: the converter, Excel Exemplar, R Exemplar, a preload file, user manual with worked examples
- Invited users via informal personal networks and LinkedIn. The intended users comprise industry, academia, consultancies and HTA bodies.
- Users were provided the ZIP folder, and were encouraged to first run the exemplar conversion to understand how the program works by following the worked examples.

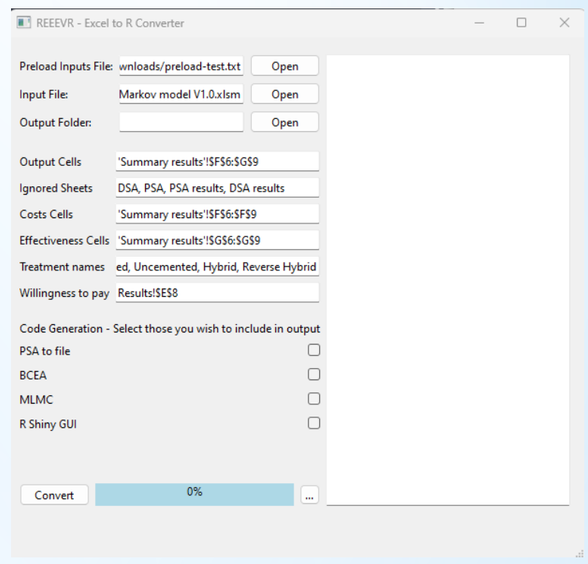

Fig 2: GUI for alpha test

- Users were then encouraged to test the converter on their own Excel models, with the understanding the converter may not succeed, but will attempt to generate logging files.
- Users were encouraged to return the logging files, so long as they did not contain confidential information, and provide feedback about: User interface, success/failure of the converter, type of model was being converted, unexpected errors or issues, additional feedback.

Results

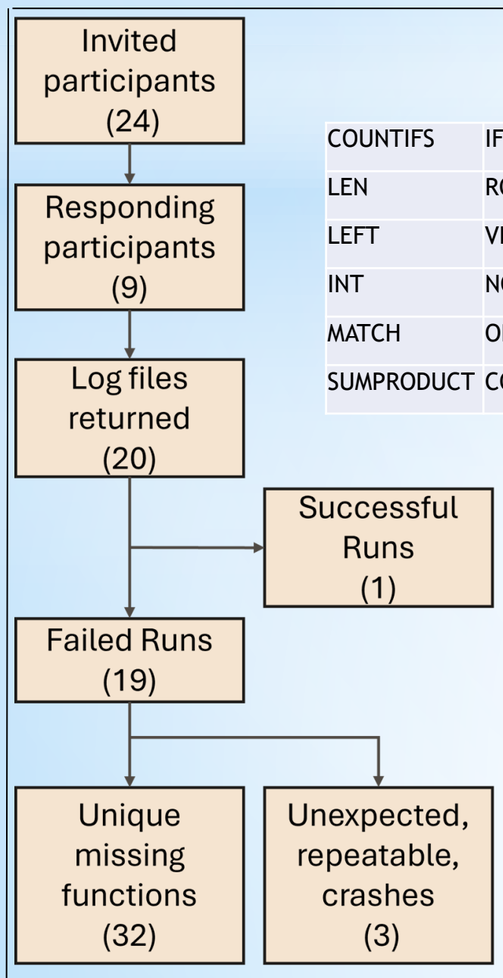

Fig 3: Flow path of participants and data

COUNTIFS	IFERROR	TRANSPOSE	ROUNDUP	ROUNDDOWN	LOWER
LEN	ROUND	N	MMULT	POWER	GAMMADIST
LEFT	VLOOKUP	ANCHORARRAY	TEXT	SORT	
INT	NORM.DIST	UPPER	NORMINV	PRODUCT	
MATCH	OR	FLOOR	AVERAGEIF	LOGNORM.DIST	
SUMPRODUCT	COUNT	NORM.S.DIST	DOLLAR	WEIBULL.DIST	

Fig 4: List of missing functions

- Reasons for unsuccessful conversion fall into three categories: Missing function implementations, Custom function implementation, Unexpected but consistent crash of the tool.
- We identified 32 unique functions which, if implemented, would likely allow successful conversion of most models included in the alpha test.

Feedback	Response
Is it possible to auto-detect the cells?	Locating the cells reliably for arbitrary models is beyond the scope of this project. A halfway point could be to attempt to identify the cells and then ask the user to check/amend.
Is it possible to open the spreadsheet in the program to select the cells?	This would be the best solution to the cell selection problem, but requires significant investigation into how to implement. We also would need to understand any licensing issues.
Could feedback be given for selecting illegal cells accidently?	This is certainly possible, and likely to be included in the Beta test. Feedback would likely be checking for cells not existing, illegal formatting, etc.
While a macro could be useful to retrieve cell data, many companies do not want external software embedded in the spreadsheet.	This is a good point, and discussions with others within the field have also suggested hesitancy for industry. However, academics have indicated few issues.
Suggested using an LLM to potentially annotate the output code to make it more readable	In a similar fashion to the macro, we believe this would have low uptake, as industry would be hesitant to offload to external LLMs.
Expressed the requirement for VBA to be able to be converted as several functions are handwritten.	This was an intentional choice in the creation of the converter to simplify the proof-of-concept model. However, a concept of how this could be implemented has been discussed.

Fig 5: Miscellaneous feedback, and our response

Conclusions

- **Significant interest** in the social media space and informal network
- Participation was **limited** to those with **time and inclination** to work with a tool with **known and unknown issues**.
- The feedback from the alpha test has allowed us to **pivot development** to adding the missing function and updating the GUI.
- **Beta test in November of 2025**. Aiming for **better conversion** ratios.

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