BIOMASS ENERGY SERVICE BASED RURAL ENERGY ENTREPRENEURSHIP: PART I

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Challenge of Rural Energy Entrepreneurship

Low energy demand per consumer

Low density of energy consumers

Low paying capacity of the consumers

High cost of reaching products/services to the consumers

Possible Solutions

Decentralised energy generation

Use local resource (mostly renewable)

Local entrepreneur

Pay-per-use (service) model

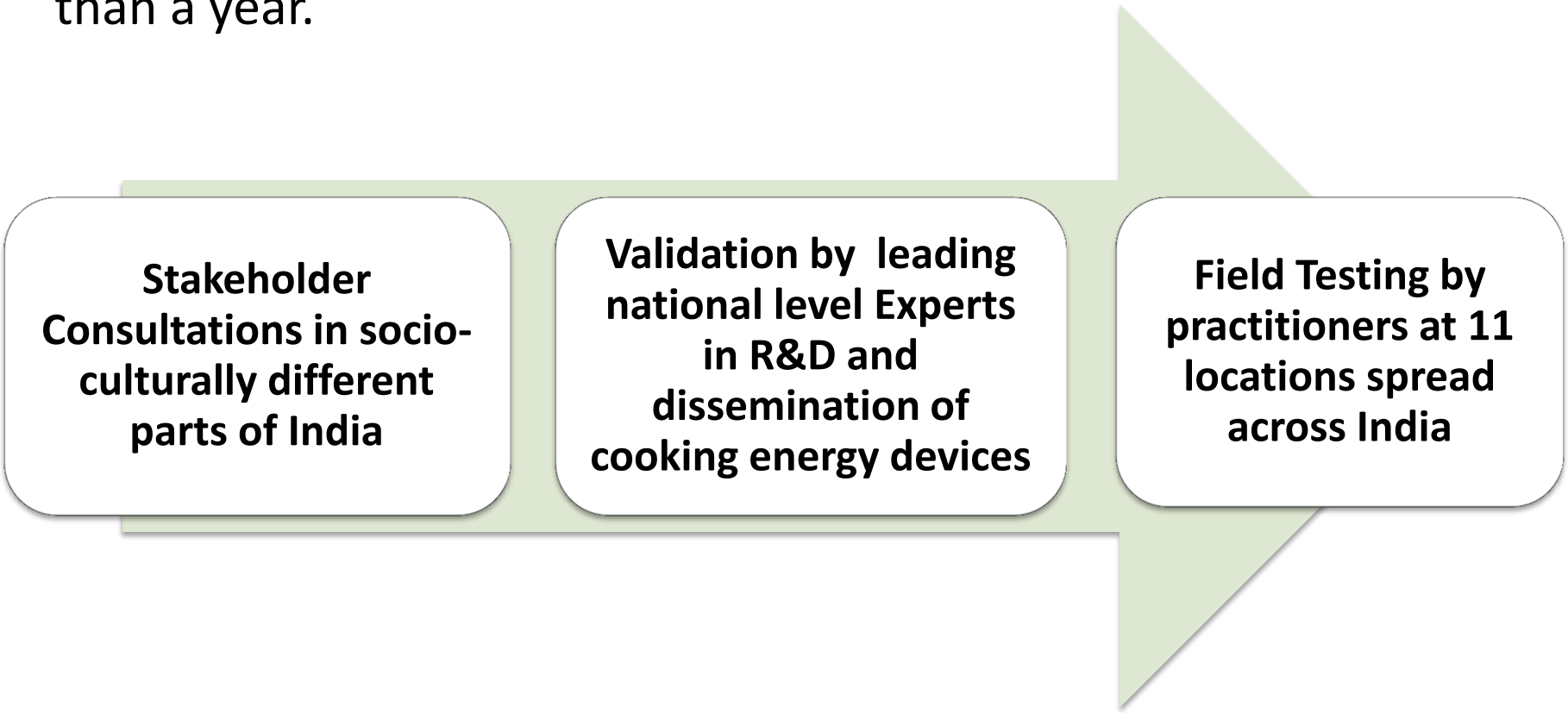
What energy services are valued by potential customers?

What cost are the potential customers willing to pay for the energy service?

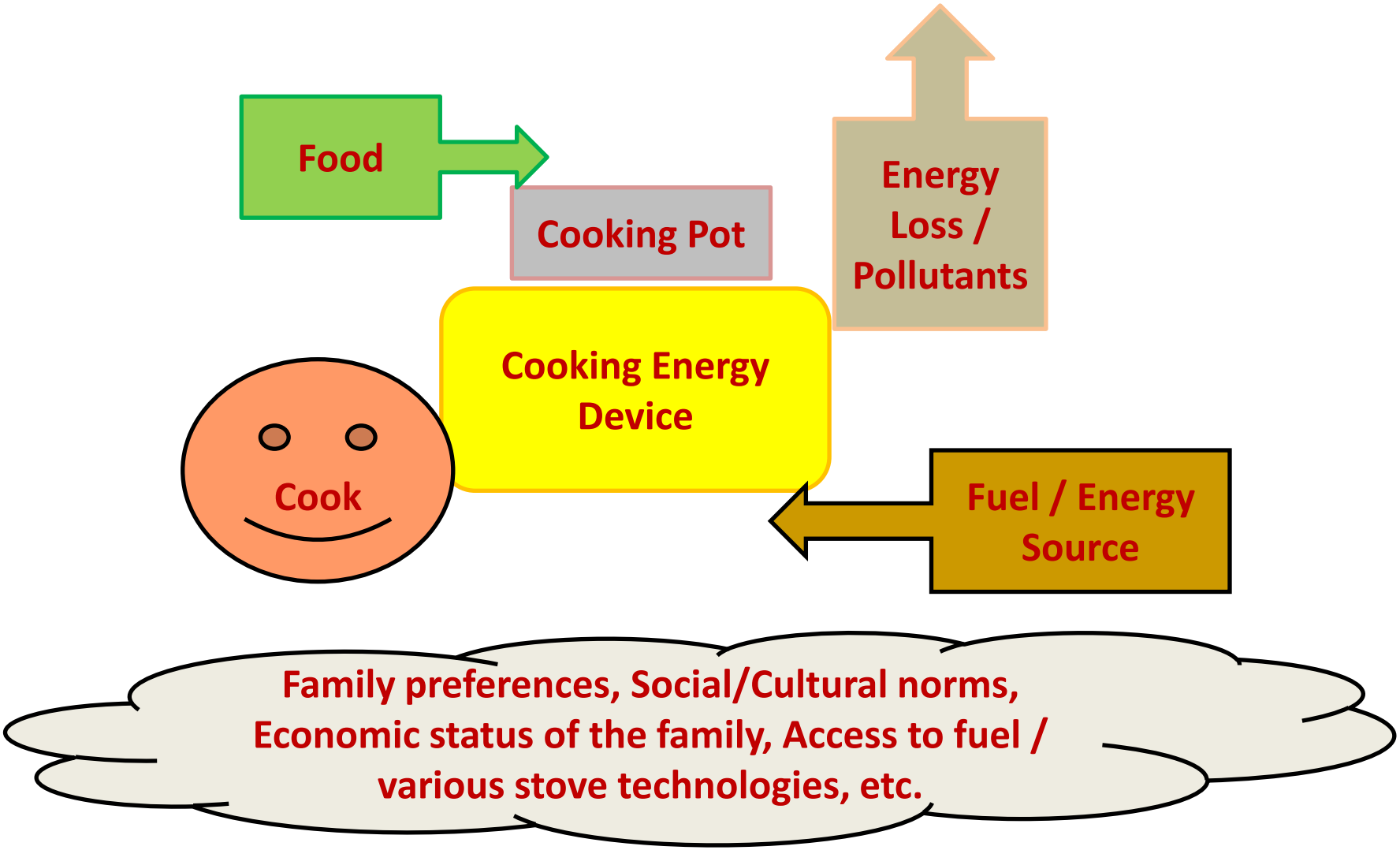
Example: AIREC Cooking Energy Service Decision Support Tool

Cooking Energy Service Decision Support Tool

- Open Source
- Hosted by: Ashden India Renewable Energy Collective (AIREC)
- Development funded by: GIZ
- Developed through a long but thorough process spread over more than a year.



Factors contributing to Cooking Energy Service Delivery



Who wants what?

- Fast cooking
- Flame control
- Ability to cook traditional dishes

Cook

- Low purchase price
- Low running cost
- Ability to cook traditional dishes

Buyer

- Climate change impact
- Indoor air pollution
- Deforestation

Regulator

- Zero cost
- Cooks traditional dishes
- Easy flame control
- No environmental benefits

Three stone fire

- Environmentally clean
- Easy flame control
- Fast cooking
- High cost
- Not able to cook some traditional dishes

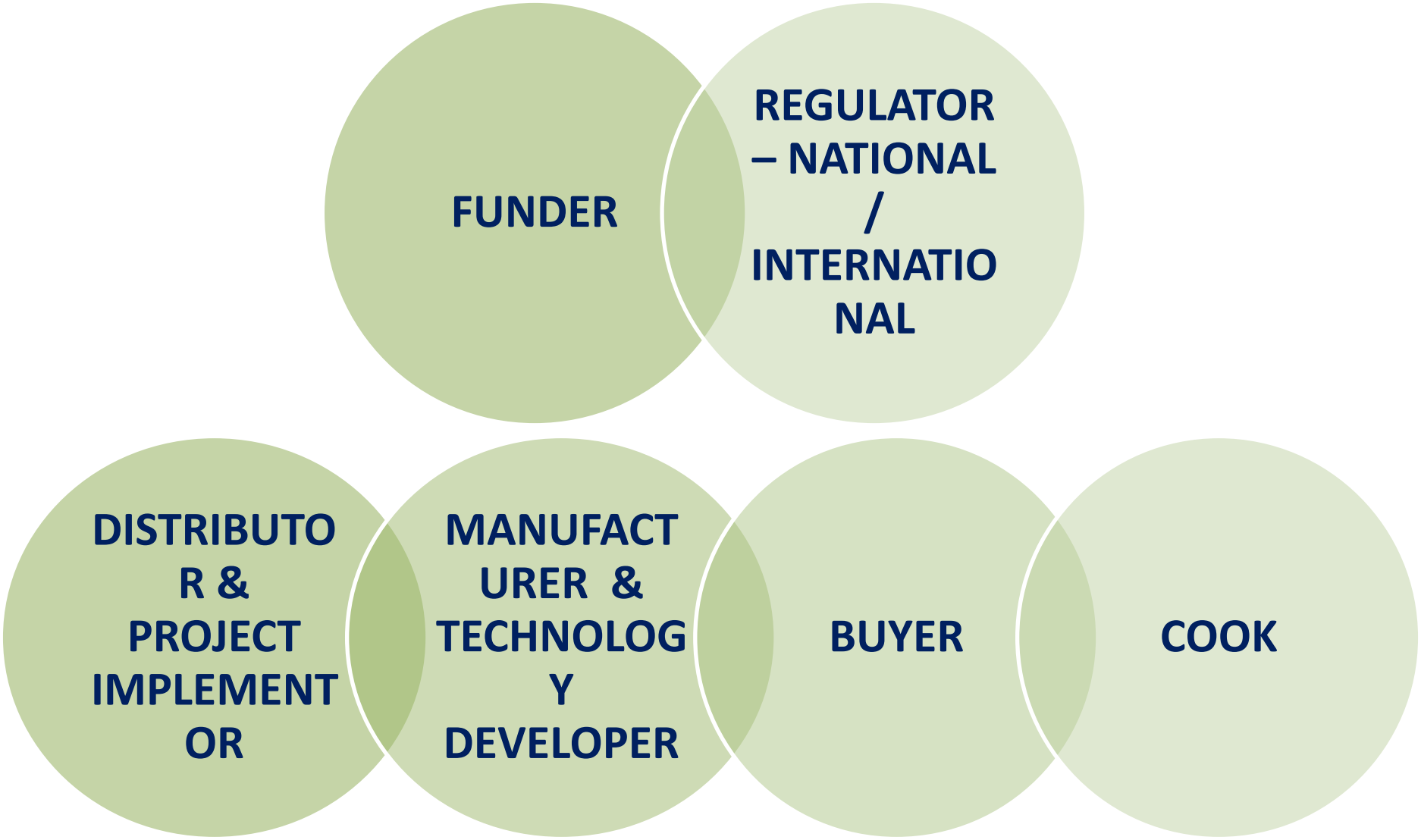
LPG stove

- Environmentally cleanest
- Zero running cost
- High purchase price
- New way of cooking
- Cannot cook some traditional dishes

Solar Cooker

What do products deliver?

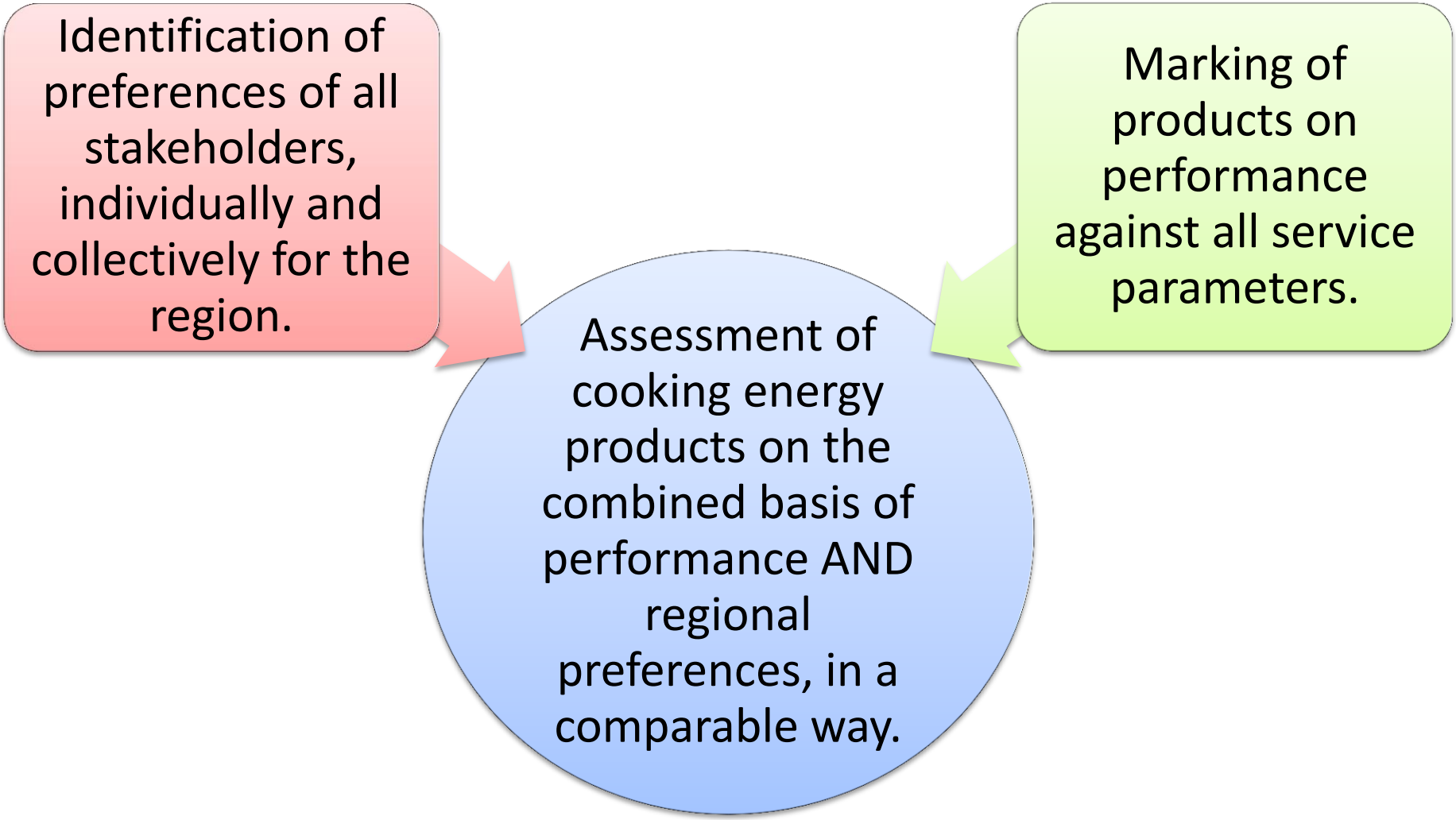
Stakeholders in Cooking Energy Sector



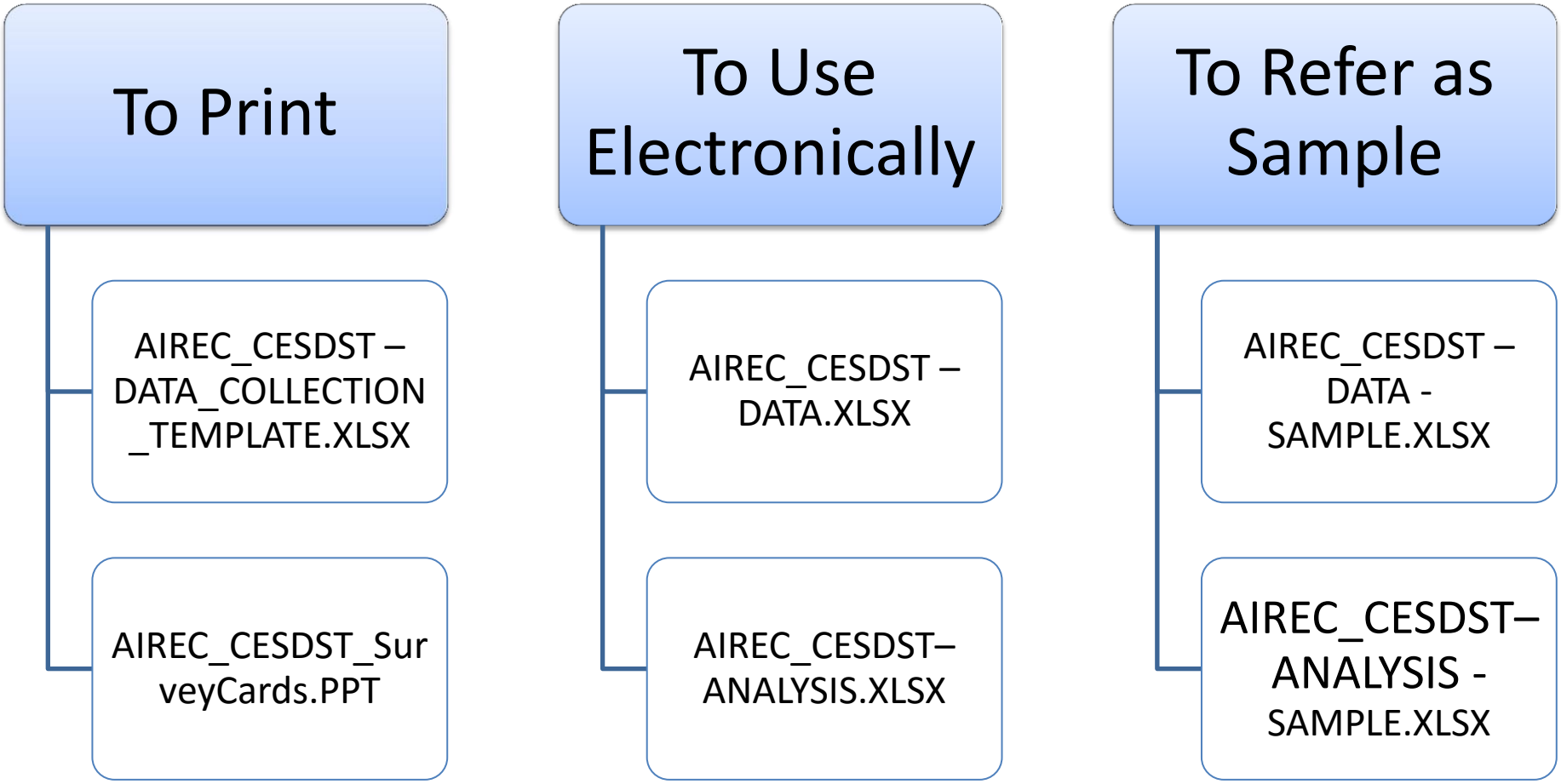
Cooking Energy Service Parameters

- **Versatility_1:** Boiling performance, Roasting performance, Frying performance
- **Versatility_2:** Ability to modulate heat input to cooking pot, Ability to cook multiple items simultaneously, Ability to deliver non-cooking thermal energy services
- **Economics:** Operating expense, Capital cost, Possible earning from use
- **Safety:** **Smoke and soot emissions**, Stability, Temperature of outer body
- **Device Supply & Support:** Durability as expected life in years, Support provided or not, Manufacturing capacity
- **Environmental Impacts:** **Energy efficiency**, Carbon emission reduction potential, Carbon Footprint over lifecycle
- **Fuel/Energy Source:** Multi-fuel or not, Availability of fuel/energy source locally, Fuel processing required by user or not

The Tool provides…



Contents of the Tool



How does the ‘Service’ approach work?

Stakeholder	Top Priority	Stove 1	Stove 2	Stove 3
COOK (rural woman)				
REGULATOR (Govt Dept)	CO and PM emissions	LOW	HIGH	HIGH

Regulator will provide equal incentive to Stove 2 and 3 because of its concern related to pollution.

Result in the field:

Enterprises/projects based on manufacture/promotion of Stove 2 will fail due to low customer demand, but in the market they will be able to create a competition against Stove 3 because of the common incentives.

The Cook will continue to use her traditional stove for roasting, even if Stove 2 is purchased and used for some other tasks – the problem of pollution will not be solved in these households. Part of the incentive will go waste.

How does the ‘Service’ approach work?

Stakeholder	Top Priority	Stove 1	Stove 2	Stove 3
COOK (rural woman)	Roasting performance	HIGH	LOW	HIGH
REGULATOR (Govt Dept)	CO and PM emissions	LOW	HIGH	HIGH

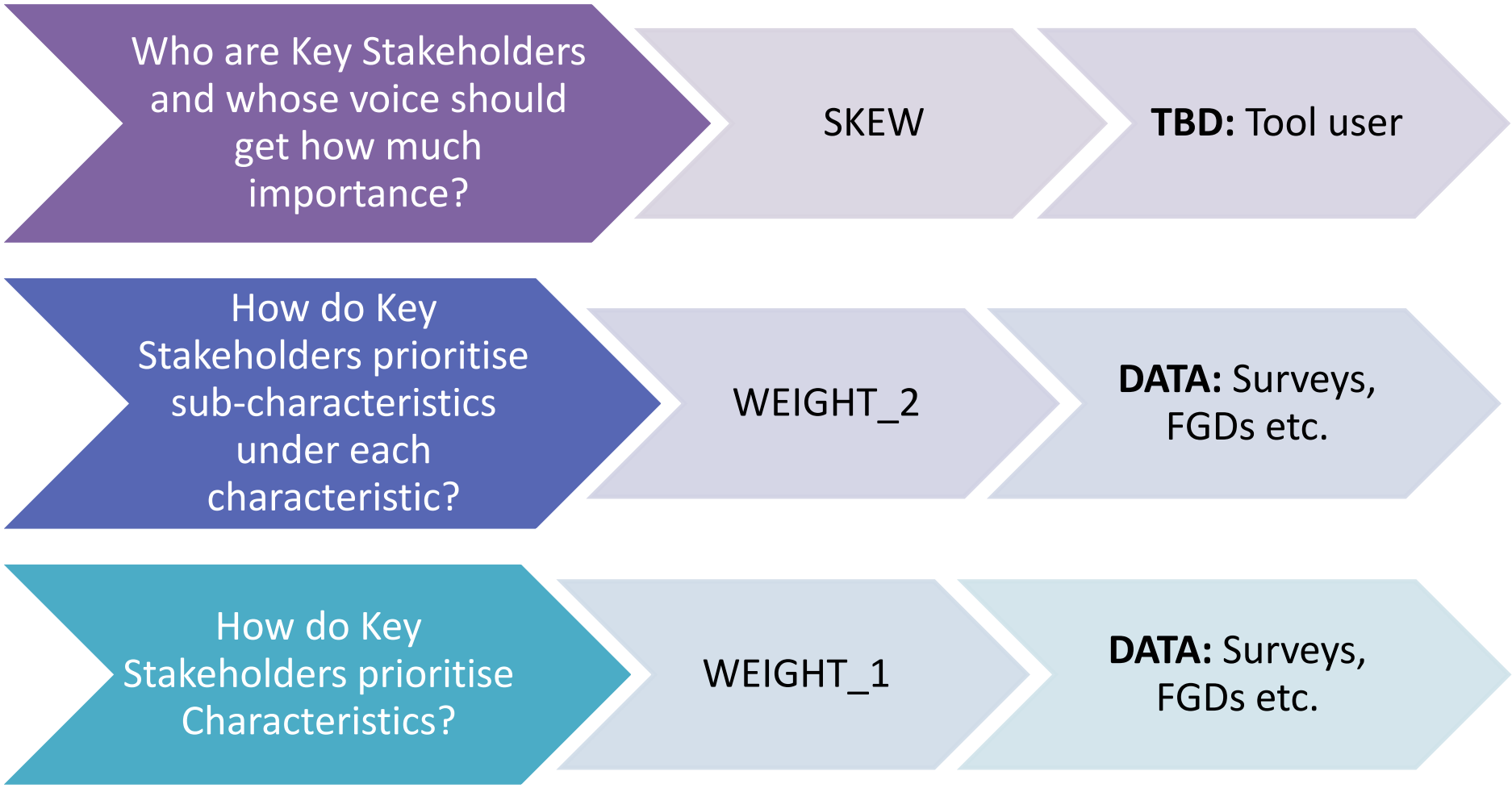
If the Tool is used, both stakeholder’s concerns will be taken into consideration, and only Stove 3 will be chosen for giving incentives.

Result in the field:

Enterprises will go in with a product that meets the policy goal and is also acceptable to the customer – increases the chances of success.

All the incentive is focused on a product that is more likely to be used by the end user – pollution issue will be dealt with more effectively.

Logic of the Decision Support Tool



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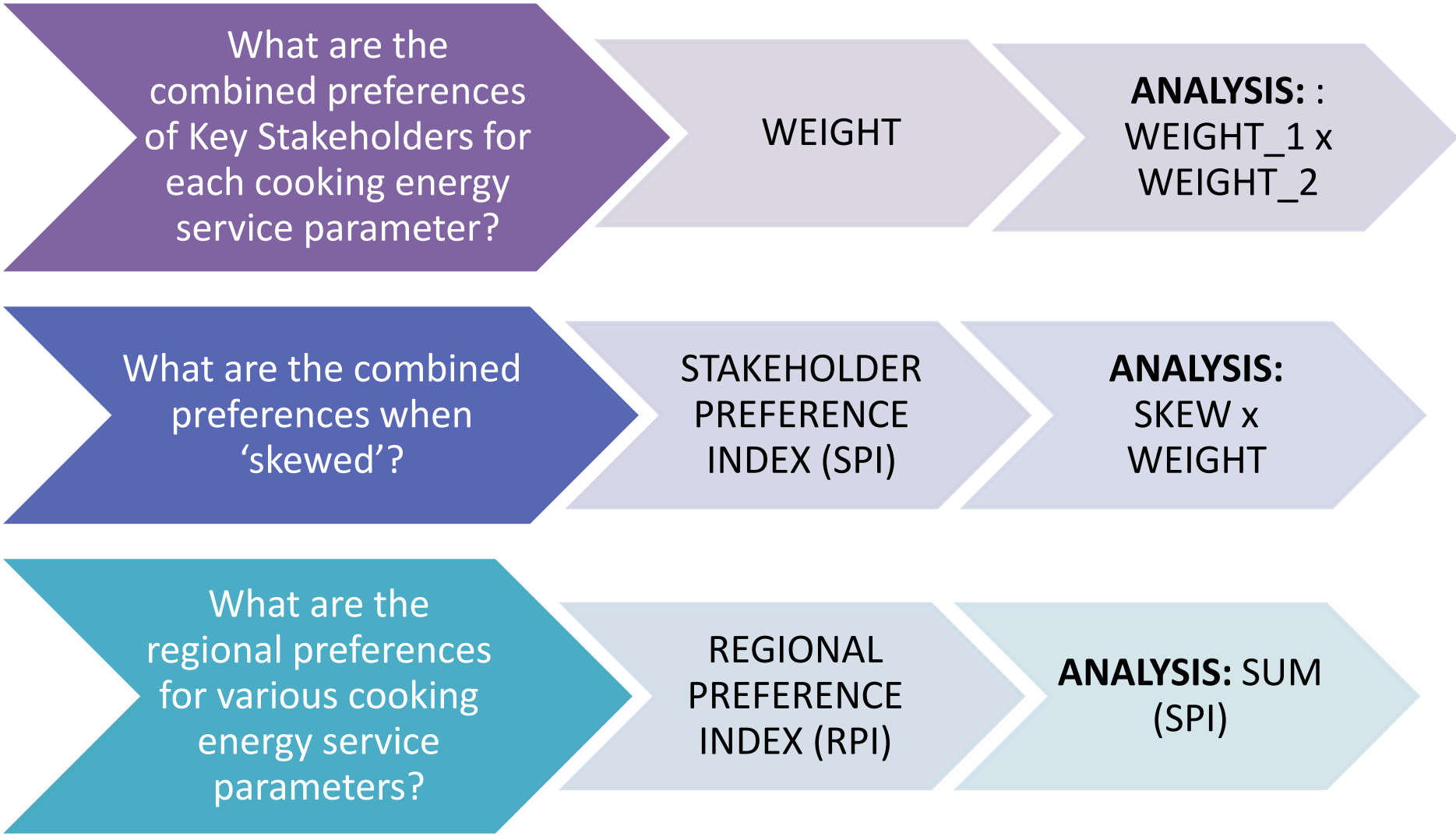
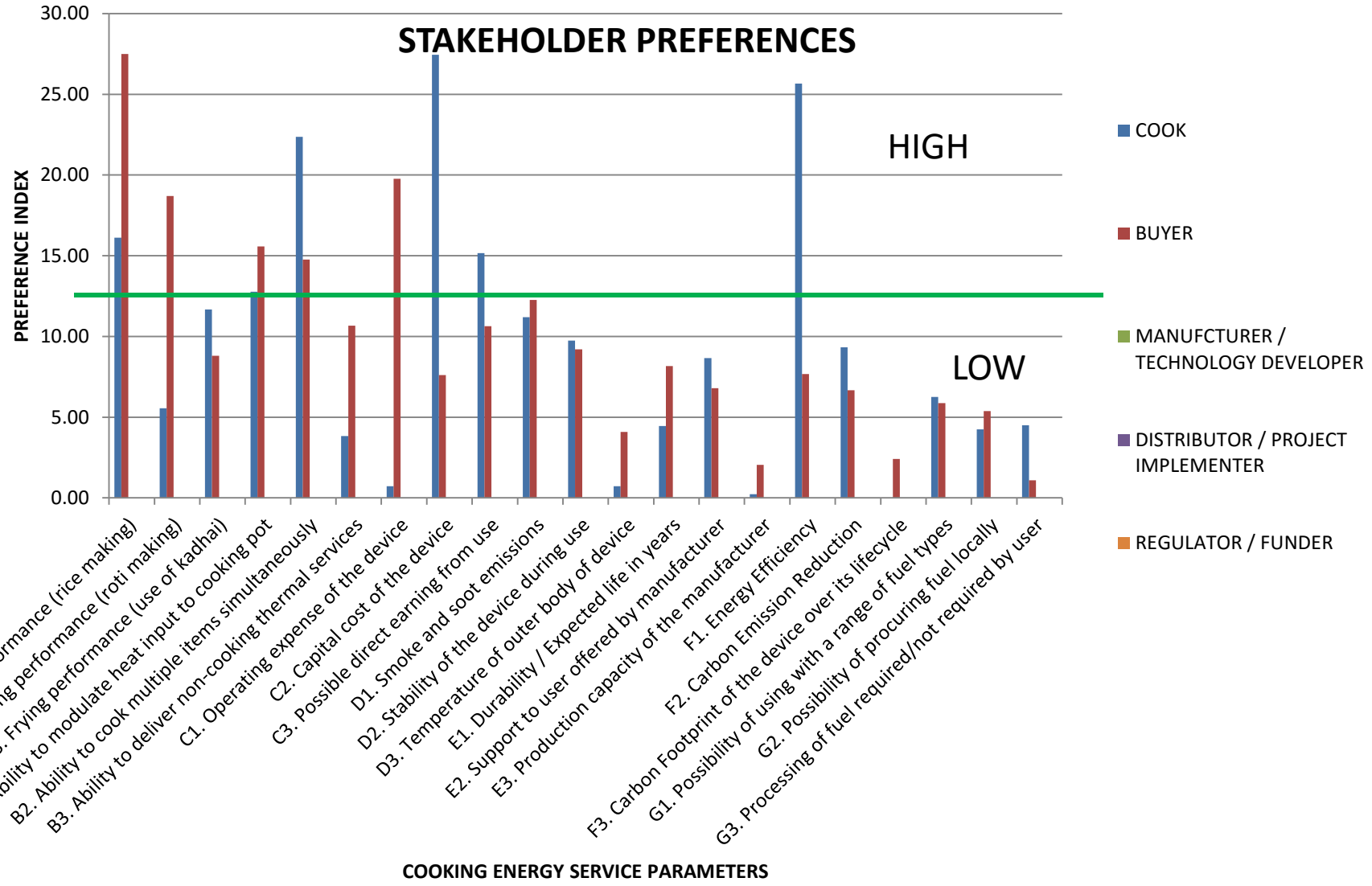


Example – Preference Mapping



Logic of Marking Scheme – Technology Neutral

One of the specific criteria PLUS specific conditions of the region/project for which the Tool is being used. (e.g., marking against the daily cost of cooking is based on prevalent local conditions).

Comparison with traditional wood stove, considering the wood stove in a negative light. (e.g., a product scores higher, the more carbon emission reduction it achieves in comparison with traditional wood stove).

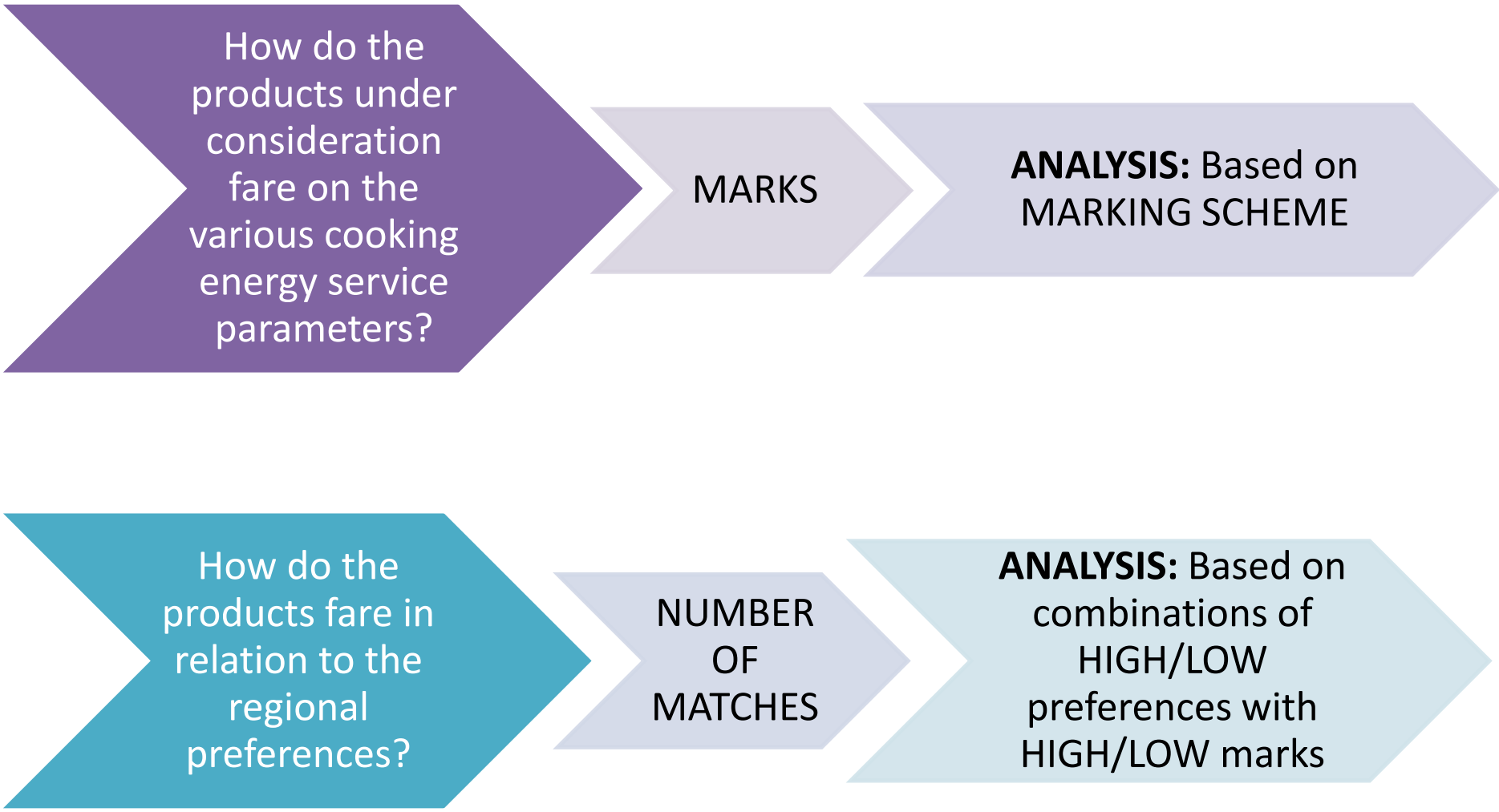
Performance of the product against existing standards (e.g. Fuel use efficiency).

Comparison with LPG as the ideal (e.g., all the Versatility parameters).

Comparison with LPG in the negative light. Thus, for example, a product scores higher if its lifecycle carbon emissions are less compared to a typical LPG stove.

Certain desirable features being present or not (e.g. Potential of monetary benefit on use).

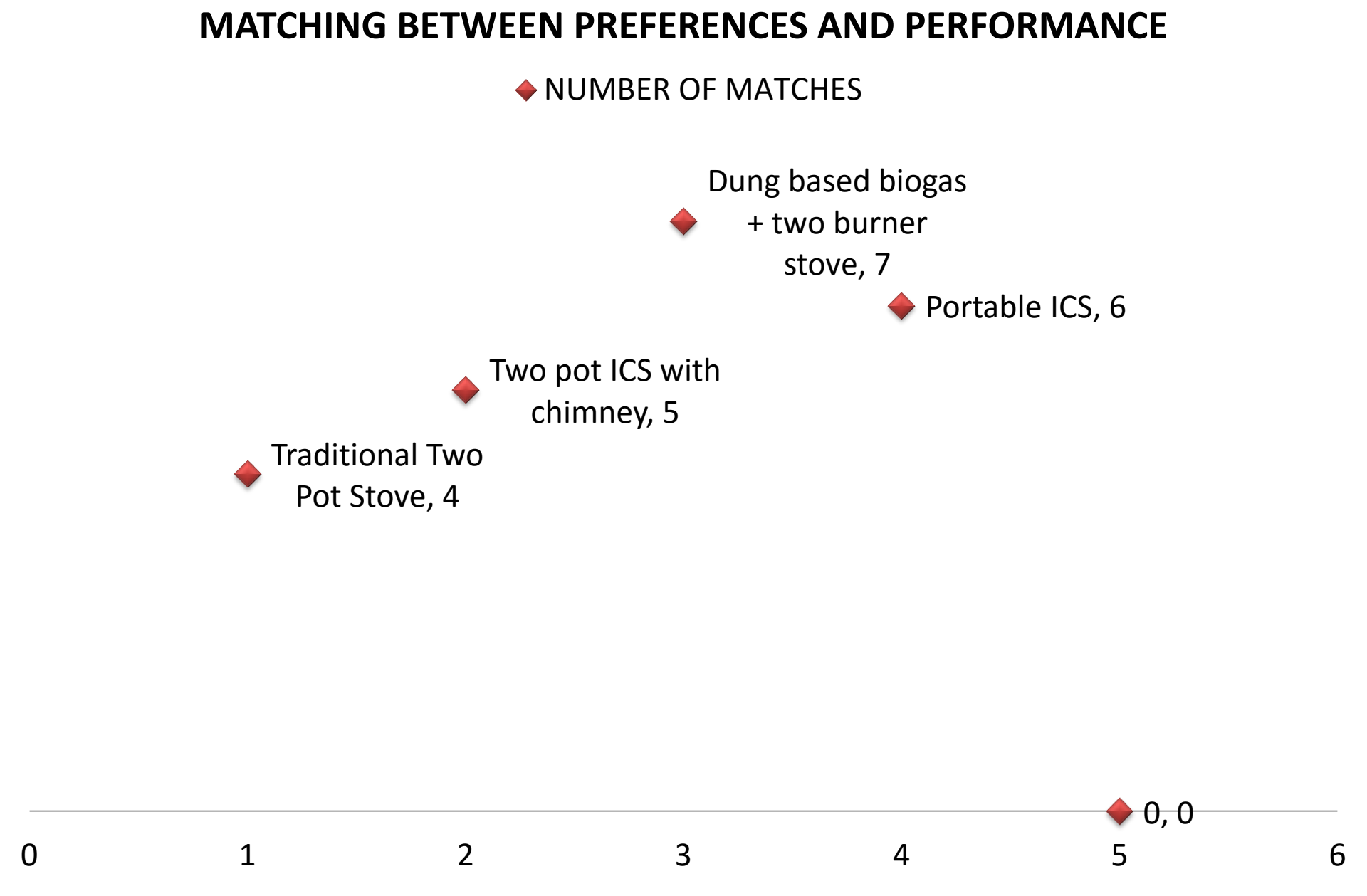
Logic of the Decision Support Tool



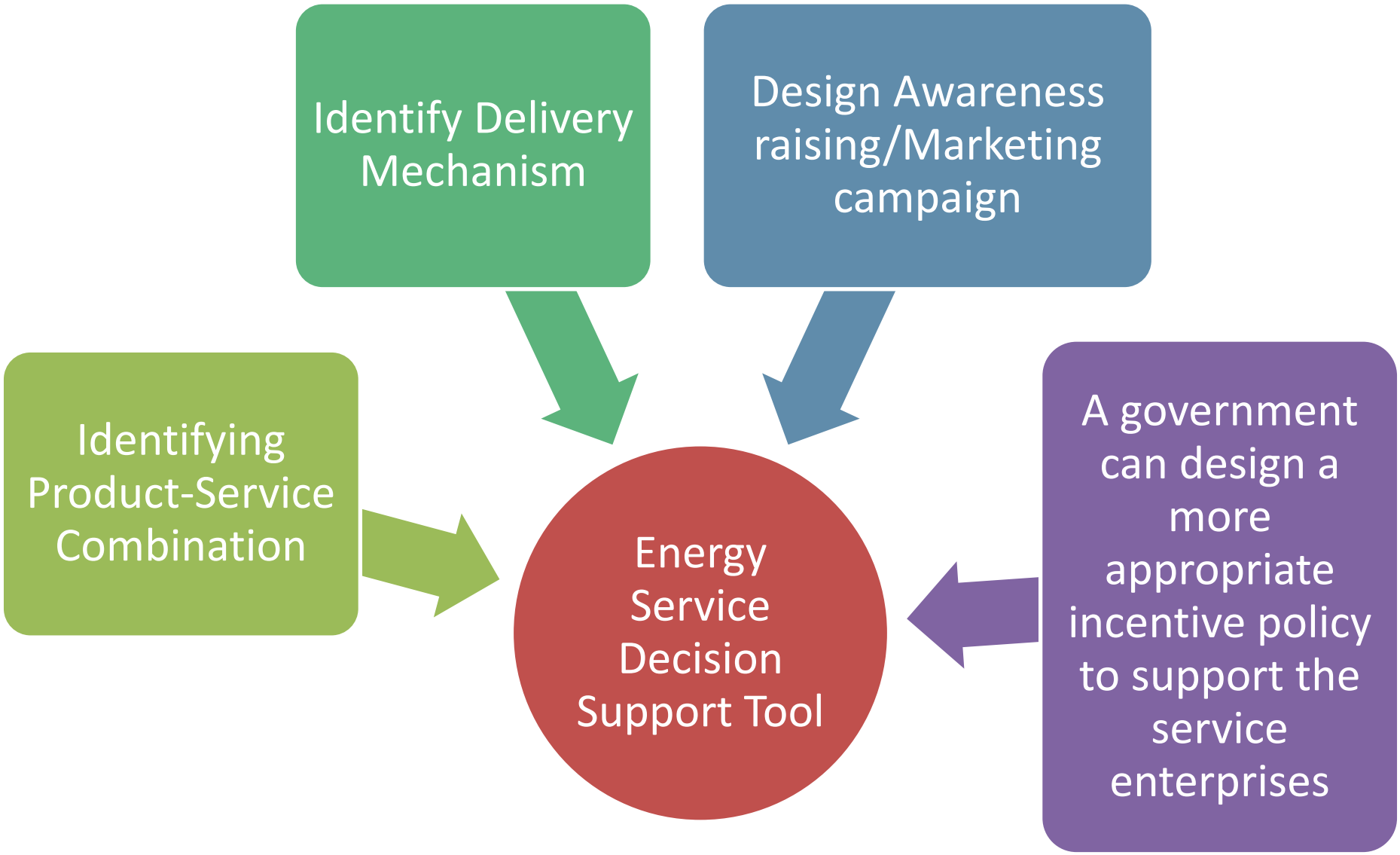
Matching of Preferences and Performance

Preference	Performance	Interpretation
HIGH	HIGH	Match – The product can be successfully marketed on the basis of this parameter.
HIGH	LOW	Need for R&D in technology to improve its performance for the valued parameter.
LOW	HIGH	Product possesses the attribute but its value for the stakeholder is low – addressed through awareness raising and advertising.
LOW	LOW	Unimportant.

Example – Preference-Performance Matching



Conclusion


Identify Delivery Mechanism
Design Awareness raising/Marketing campaign
Identifying Product-Service Combination
Energy Service Decision Support Tool
A government can design a more appropriate incentive policy to support the service enterprises