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Background

- In many countries, health technology assessments (HTA) have traditionally relied on cost-effectiveness analysis (CEA) to evaluate the (added) value of an intervention based on a trade-off between costs and health benefits.
- The structured nature of CEA offers a quantitative and reproducible method of analysis standardized across different disease areas and technologies for decision-makers but fails to capture the more holistic aspects of health value elements beyond traditional measures of clinical and economic value, such as quality-adjusted life years (QALY) and incremental cost-effectiveness ratios (ICER).

Objective

- This study aimed to critically review the recent modelling attempts to expand the traditional CEA approach by incorporating additional elements of value in HTA.

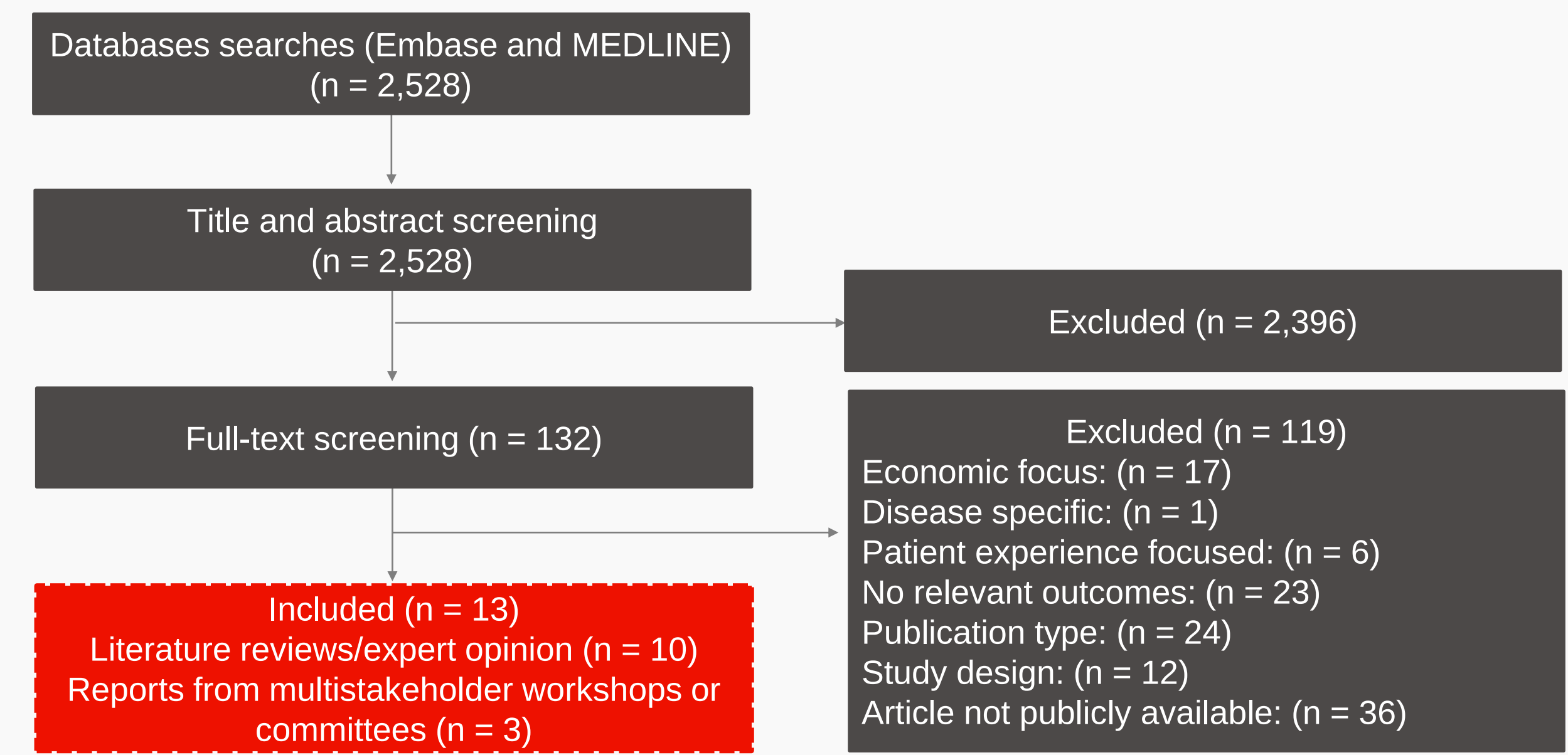
Methods

- A pragmatic literature review was conducted in Embase and MEDLINE (via Ovid) for articles published in English since 2012 reporting CEAs including value aspects beyond clinical and cost-effectiveness estimates. Searches were originally conducted on September 7, 2022 and updated on March 24, 2023.
- Screening of titles/abstracts and full-text articles was carried out by a single reviewer with a second reviewer conducting a quality check of 15% of excluded articles.
- Eligible studies were required to discuss current HTA value frameworks in the context of CEA; provide new or expanded definitions of value; and discuss new modelling approach(es) to HTA. Studies that focused on disease-specific frameworks, patient experiences, or strictly on economic modelling with no reference on how additional value elements can be incorporated were excluded.
- Data extraction of included studies was carried out in a pre-specified template by a single reviewer and validated by a second reviewer. The results were summarized qualitatively using thematic analysis.

Results

- Thirteen articles were included in the review (Figure 1).

Figure 1. Literature attrition flow diagram



Results (cont.)

Figure 2. The “Value Puzzle” — existing aspects of CEA and the main aspects missing from the current system

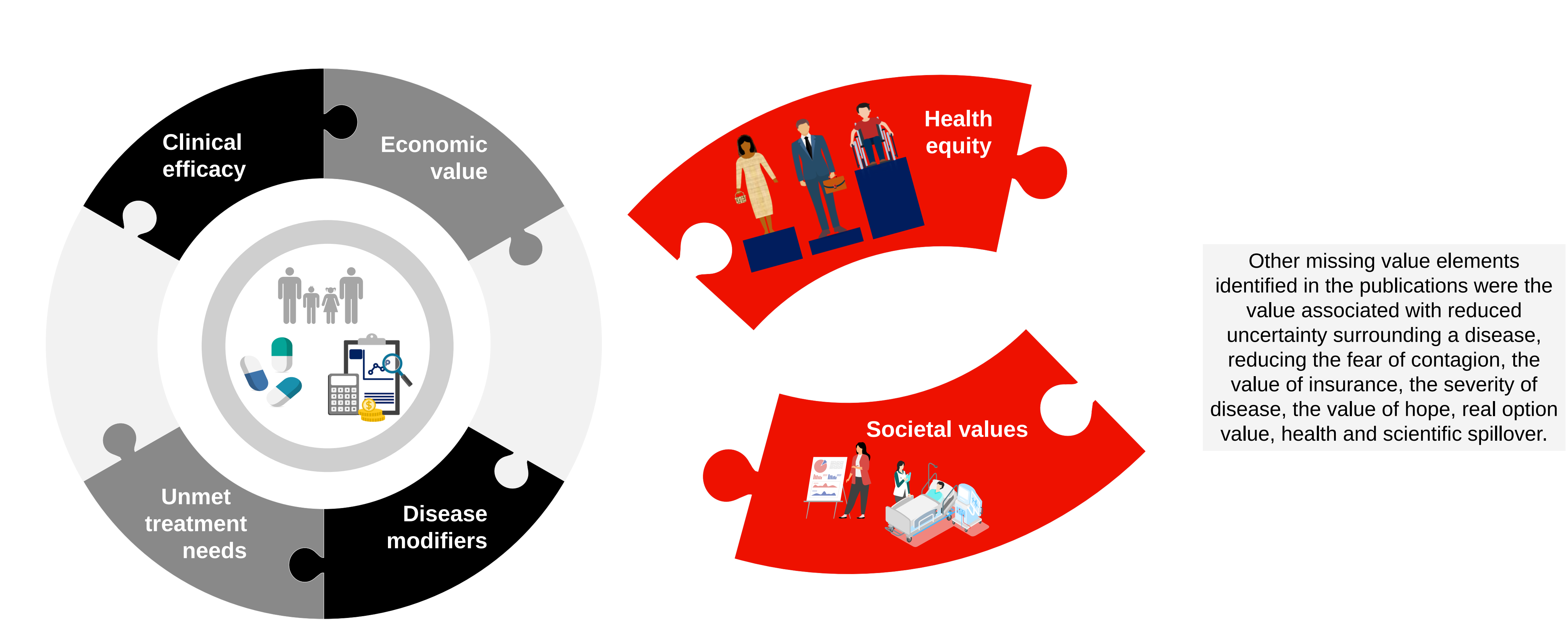


Figure 3. Three main approaches advocated as methods to incorporate additional elements of value in CEA

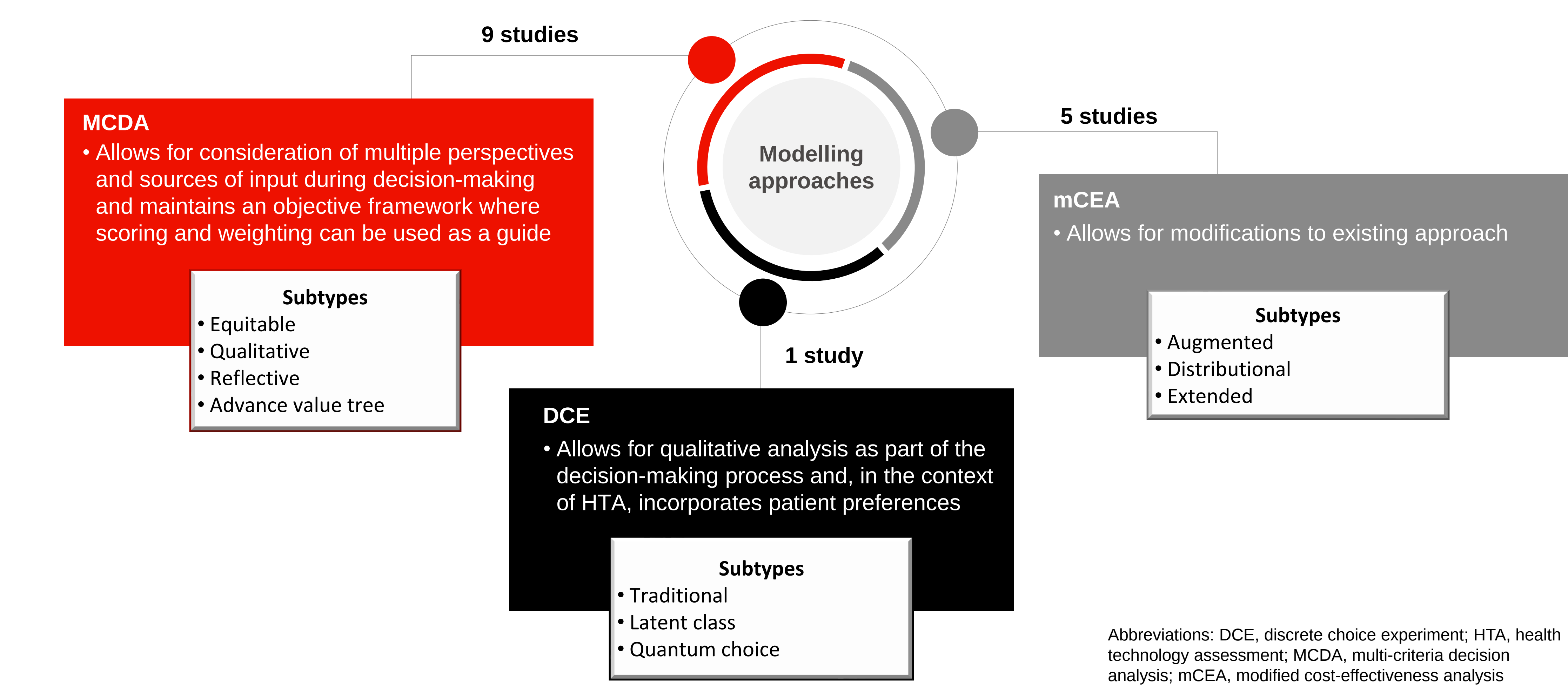


Figure 4. Challenges and opportunities associated with the identified modeling methods

**mCEA**

- This approach was associated with the strongest argument for adoption—for example, The Professional Society for Health Economics and Outcomes Research Special Task Force considered the augmented CEA method as a way to combine the known (and widely accepted) clinico-economic aspects of traditional CEA with a comprehensive list of qualitative elements reflecting the various definitions of value.
- This represents a more moderate step forward in expanded CEA types, as the basic methodology is familiar to HTA agencies and therefore does not require a fundamental methodological shift or invalidate or weaken the evidence gathered in the literature over the past decades.

**MCDA**

- This approach, while objective in nature and well-established, requires a more foundational shift and would represent a paradigm change in CEA. It could also create challenges in comparing past and new assessments, as the basis for comparison could be weak.

**ACEA**

- This approach offers the flexibility needed to incorporate qualitative aspects of value into the current CEA approach without compromising the existing CEA literature and infrastructure.

**Key conclusions**

- This review found that several modelling approaches have been tested and proven useful in expanding the current CEA approach to include additional value elements in the context of HTA submissions.
- Although the methods differ, a consensus exists on the need for HTA agencies to redefine “value” with a wider lens that looks at more than just the clinical and economic benefits of a new technology.
- Implementation of new methods will need, regardless of methodology, to balance the desire for incorporation of an expanded definition of value with methods that can create results that are comparable with historical findings.