Test Bidding Utility Computing Models

Report #4:
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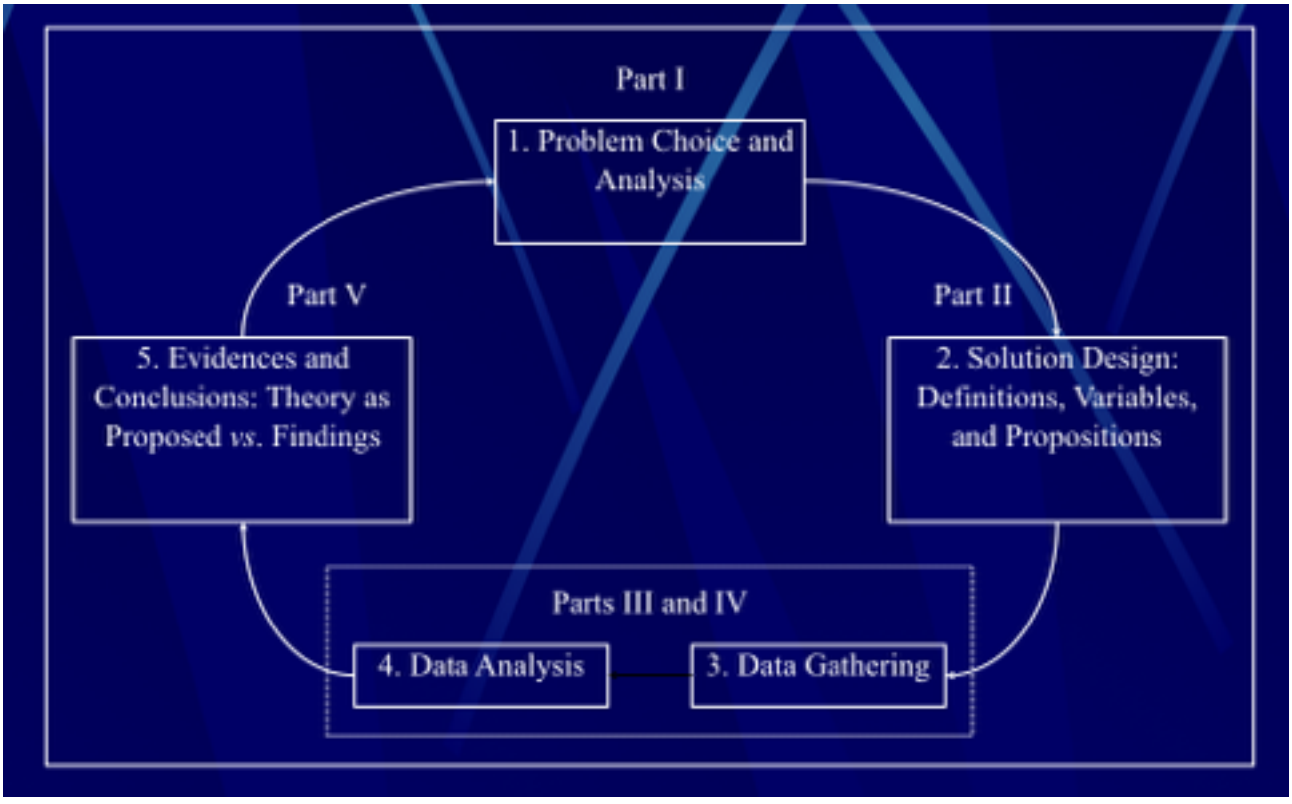
Agent-based computational economics(ACE):

"Agent-based computational economics is computational modelling of economic processes as open-ended dynamic systems of interacting agents." Here agent can refer to an entity in a particular set of things in a whole system. An example of this is can be an resident of a city. In terms of computation it can be a part of software that is used to hold the data together. Agent based computational economics is used when there are number of entities that interact with each other and also interact with the system. ACE is used when traditional analysis is not enough to get a thorough investigation of a system. It can be used when there is complexity in the model to be implemented and also numerical analysis is needed. The main features of ACE model are:

- Local interaction is more in ACE models
- It gives us heterogeneity in the implementation of models
- Bounded rationality and Limited information is another feature of ACE models.

Bounded Rationality:

Bounded Rationality is a term used where decisions are made by the limited information that is available. It can be explained by the following diagram.



There are five parts that can be used to implement Bounded Rationality are:

1. Problem Choice and Analysis: Decision analysis is to be done with the various analytical tools that are available while also undertaking the various risk possibilities that exists.
2. Solution Design: Fuzzy logic and various designs can be used to design a solution to explore the uncertainties in problems using the information that is available.
3. Data Gathering: Whatever data that is available should be used to propose a solution.
4. Data Analysis: Analysis of the data by taking into consideration various proposition is needed to implement bounded rationality.

5. Evidence and Conclusion: Evidence of the data that are used for finding have to be implemented to derive Conclusions.

Bidding Strategies:

Bidding strategies are used in utility computing to reach particular performance goals. It is a system to determine what to bid. It can be implemented by doing simulation and by observing what happens in the long run. Bidding strategies can be used in utility computing for the commodity market and Auctions. In Commodity Market a price is decided by another party rather than producers and consumers and there is bidding between them to reach an equilibrium point. In Auction a third party has all the resources. Then this resources are auctioned and the highest bidder get the resources on his bid. Bidding Strategies are implemented as to satisfy all bidders and sellers at a given time.

Trading Agent Competitions:

"Trading Agent Competition (TAC) is an international forum designed to promote and encourage high quality research into the trading agent problem." It can be explained by following example. Currently there is Power Trading Agent Competition going on. The competition is on to find sustainable energy systems for the future that will be efficient, clean, renewable energy source at low cost. A particular software is implemented for the game to be downloaded by the various agents where they can upload their research. The one with the best research wins the game. TAC can be used in utility computing where various competitors can produce their models like creating an equilibrium between producers and consumers on a particular resource. Thus TAC can be used to create flexibility in computational economics.

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