

THE HOMA FILES

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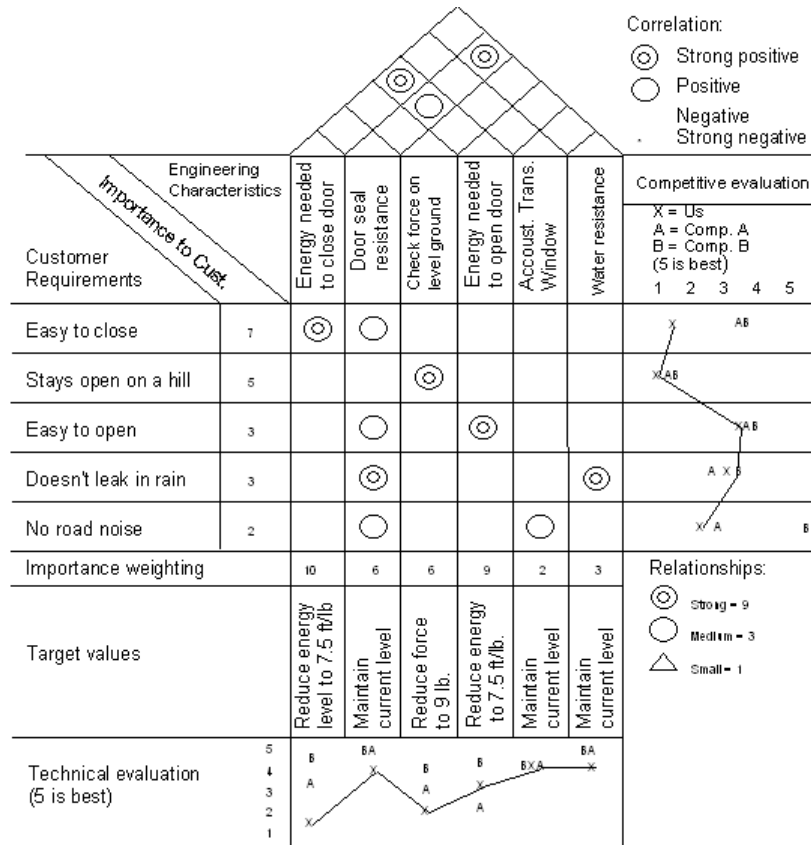


QFD: From 'Reqs' to 'Specs'

Proprietary Material

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Quality Function Deployment



“House of Quality”, Hausing & Clauser, HBR, 1988

Quality Function Deployment



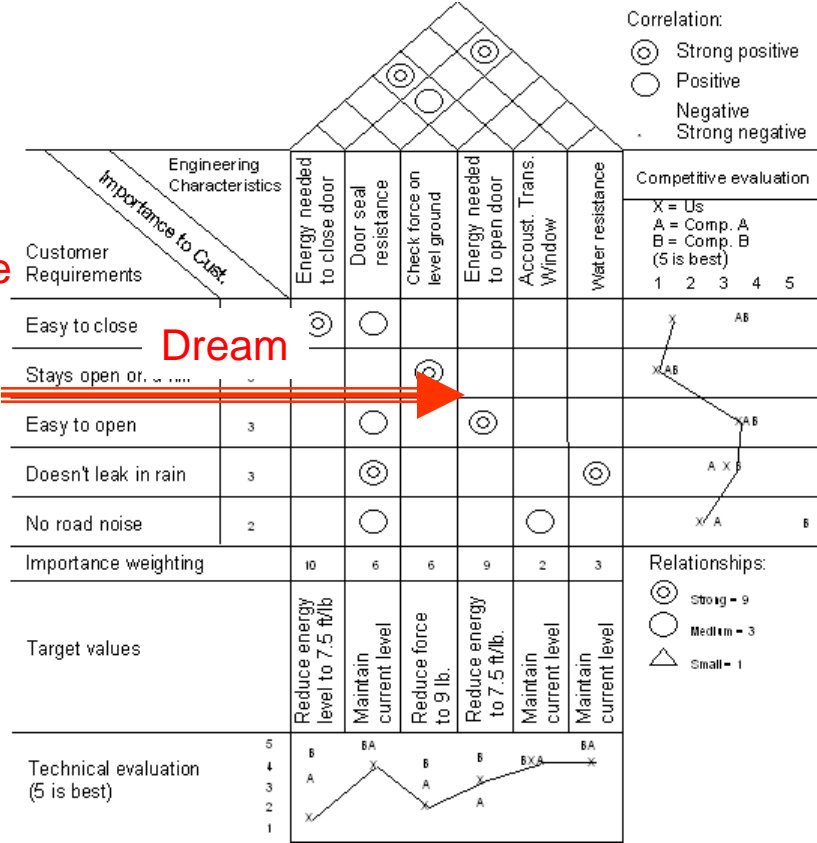
Product
Deliver benefits at 'right' cost



Deliver benefits at 'right' cost

“Voice of the Customer”
Reqs

Dream

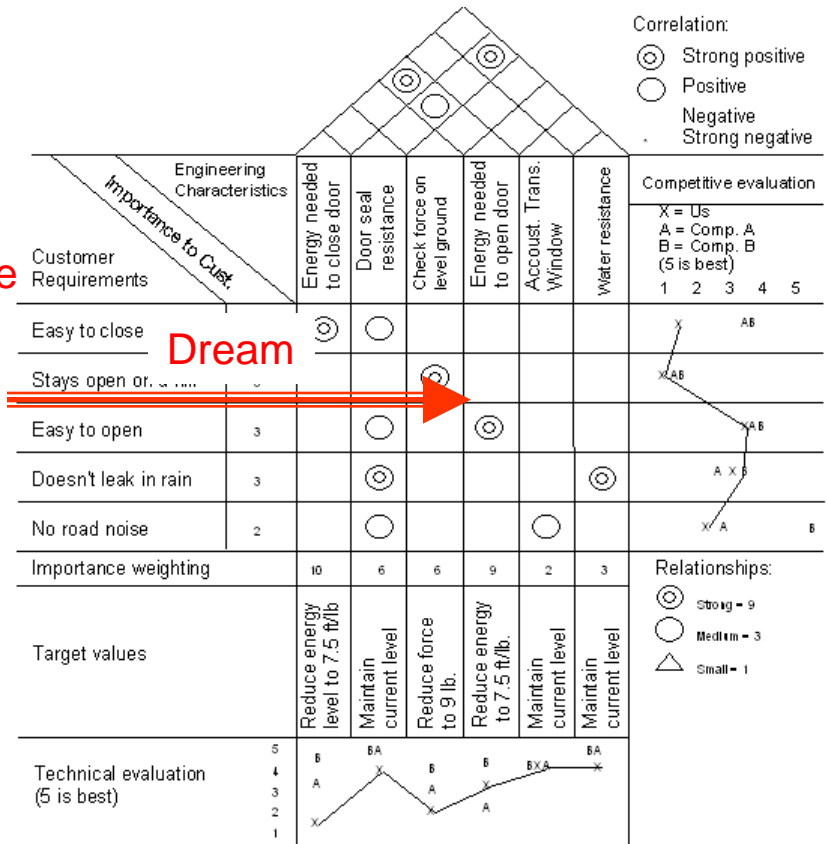


Starts with the Customer

Quality Function Deployment

“Voice of the Customer”
 Reqs

Dream



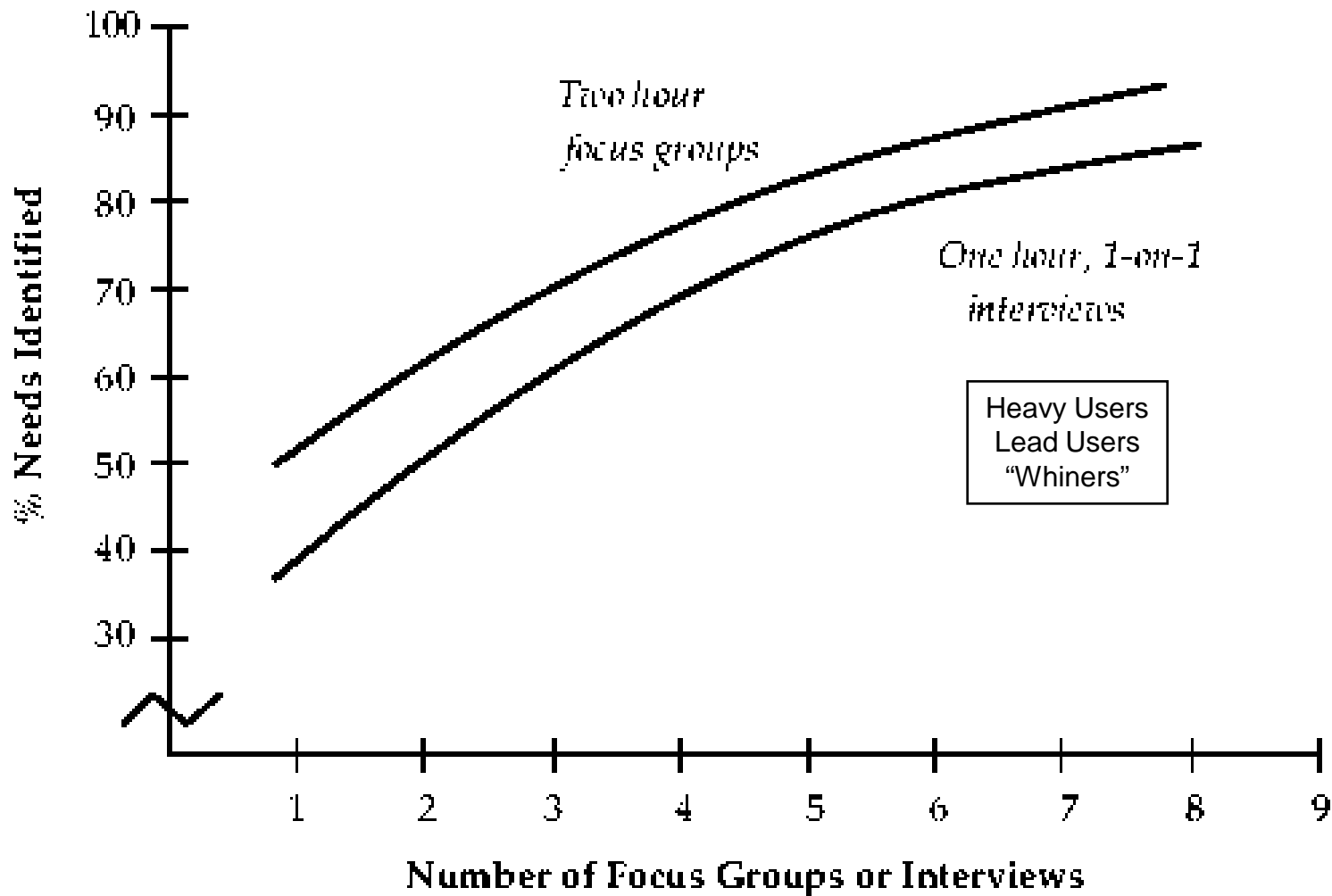
Hot trend: anthropological “empathic research”

In Depth Interviews

“Personally, I would rather talk with three housewives for 2 hours each on their feelings about, say, washing machines than conduct a 1,000 person survey on the same topic. I get much better insight and perspective on what they are really looking for.”

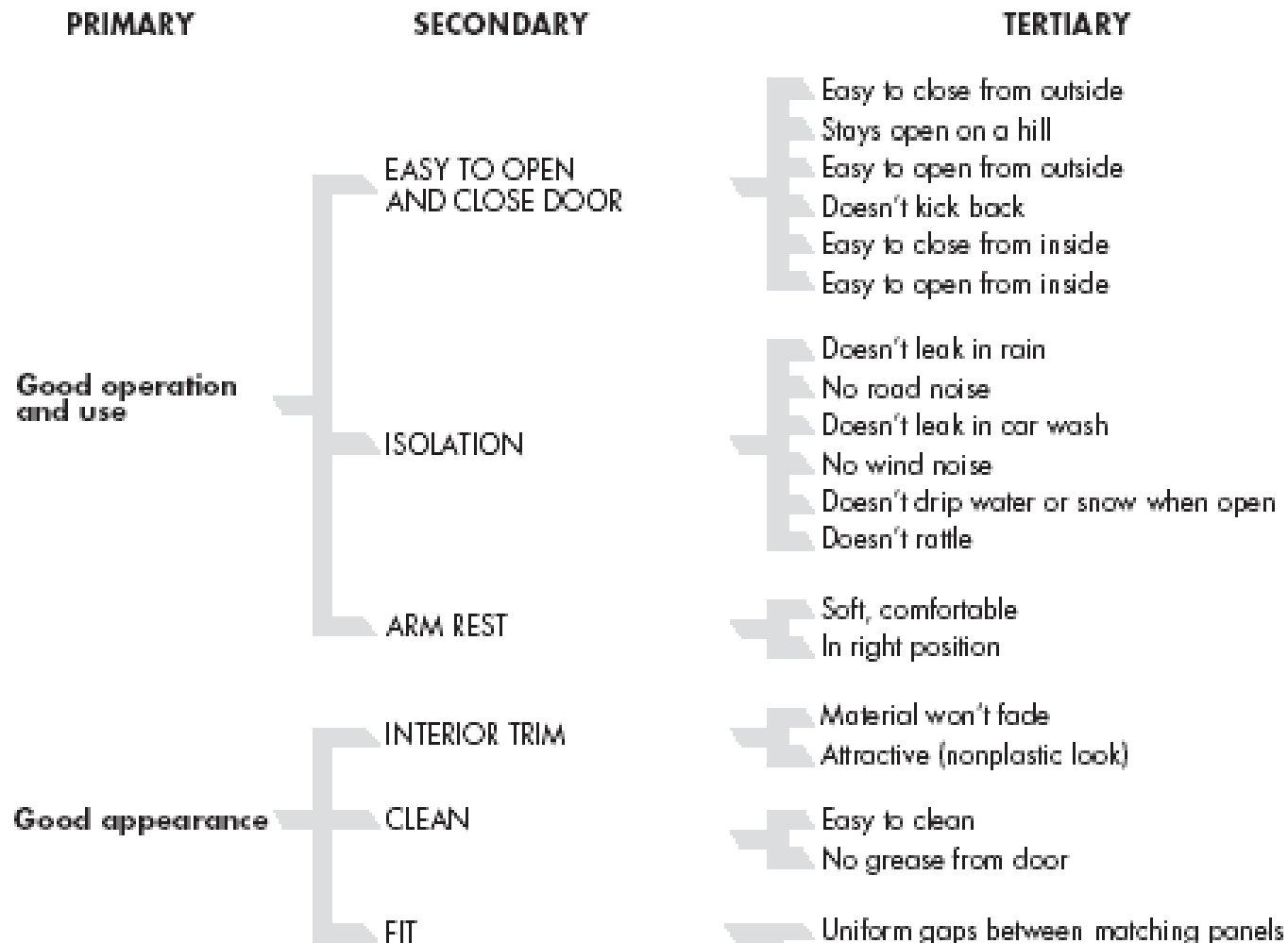
Kenichi Ohmae, McKinsey

In Depth Interviews



Identifying & Clustering Attributes

Customer attributes and bundles of CAs for a car door



Determining Attribute Importance Weights

Relative-importance weights of customer attributes

BUNDLES	CUSTOMER ATTRIBUTES	RELATIVE IMPORTANCE
EASY TO OPEN AND CLOSE DOOR	Easy to close from outside	7
	Stays open on a hill	5
ISOLATION	Doesn't leak in rain	3
	No road noise	2

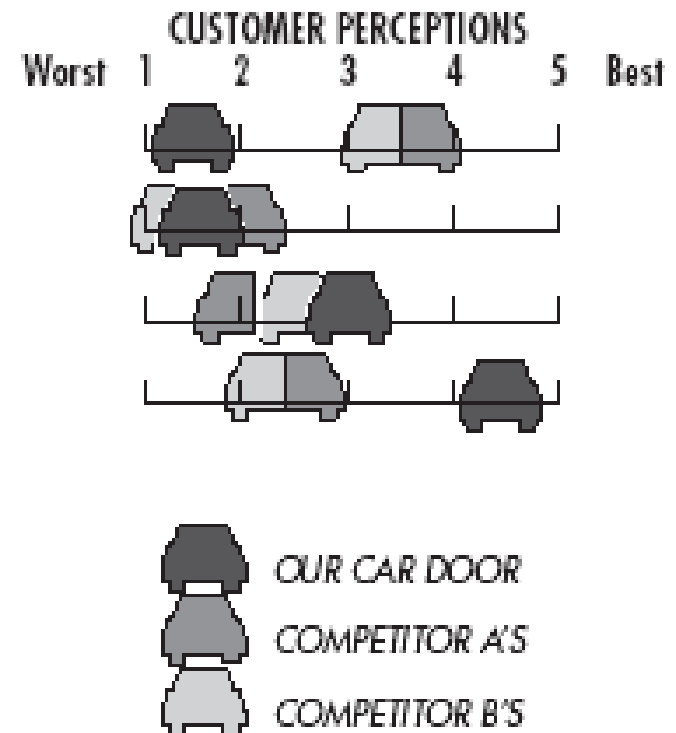
A complete list totals 100

More sophisticated method : **conjoint measurement**

Comparative Benchmarking

Customers' evaluations of competitive products

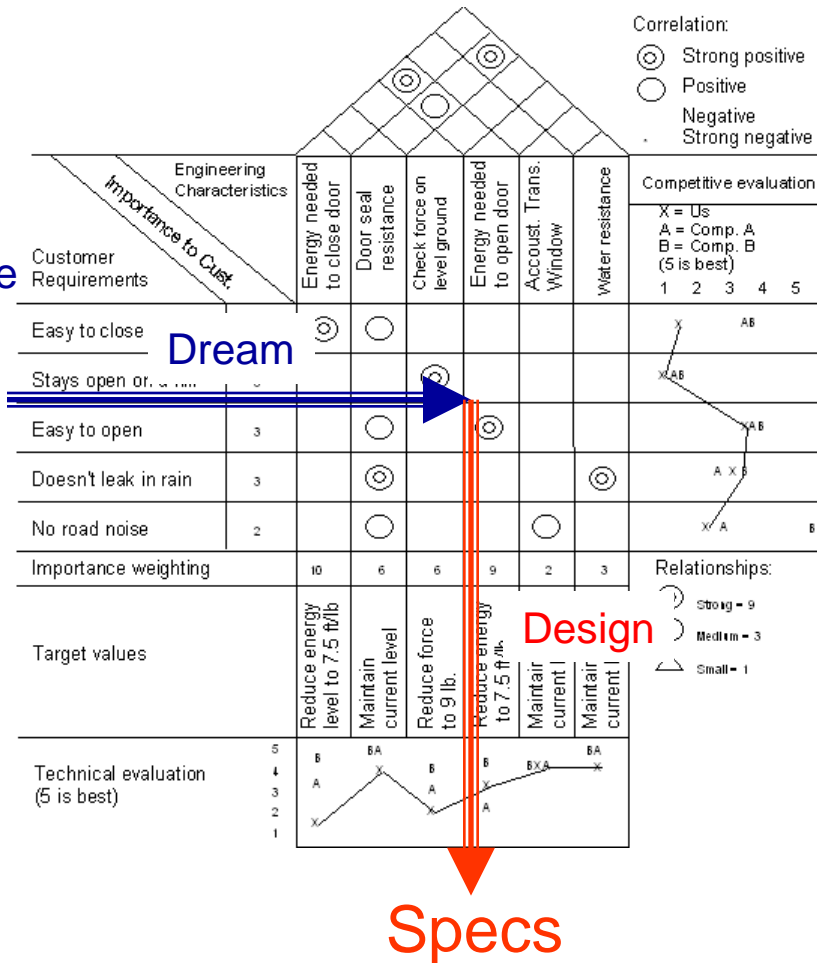
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Typical method : **semantic scaling**

Quality Function Deployment

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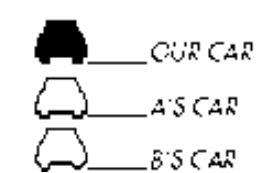
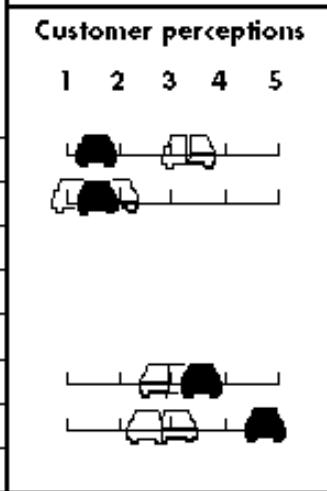
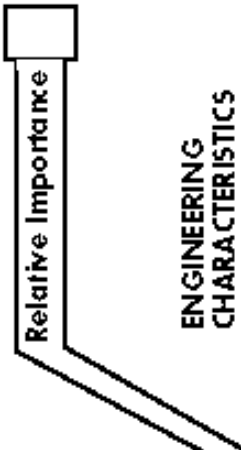
From vague ideas (reqs) to objective criteria (specs)

From Reqs to Specs – Step 1

Translating from ‘Customer-speak’ to ‘Engineer-speak’

Engineering characteristics tell how to change the product

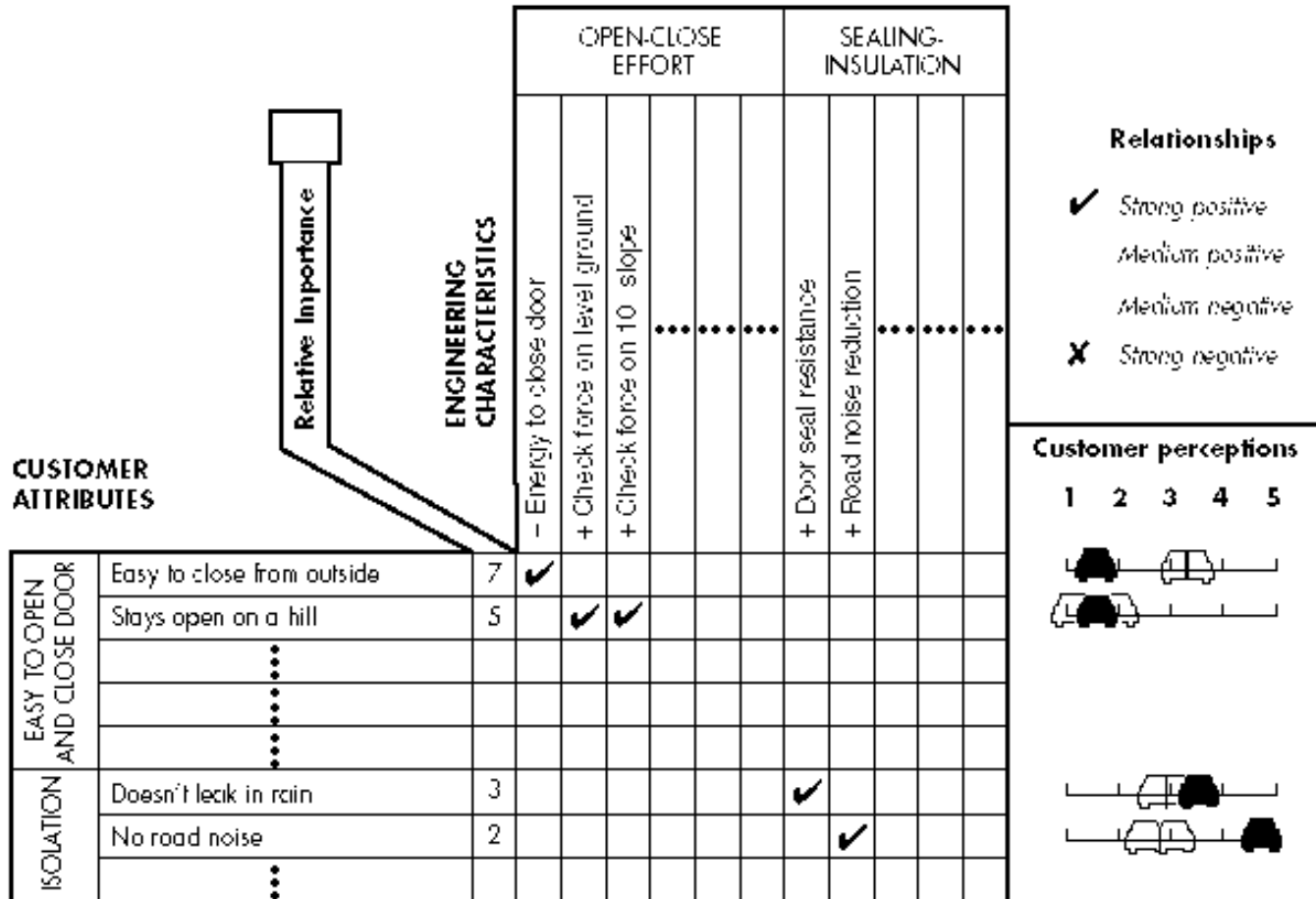
CUSTOMER ATTRIBUTES			ENGINEERING CHARACTERISTICS			OPEN/CLOSE EFFORT				SEALING-INSULATION					
EASY TO OPEN AND CLOSE DOOR	Easy to close from outside	7	- Energy to close door	+ Check force on level ground	+ Check force on 10° slope					+ Door seal resistance	+ Road noise reduction				
	Stays open on a hill	5													
	•••														
ISOLATION	Doesn't leak in rain	3													
	No road noise	2													
	•••														



From Reqs to Specs – Step 2

Identifying inter-relationships

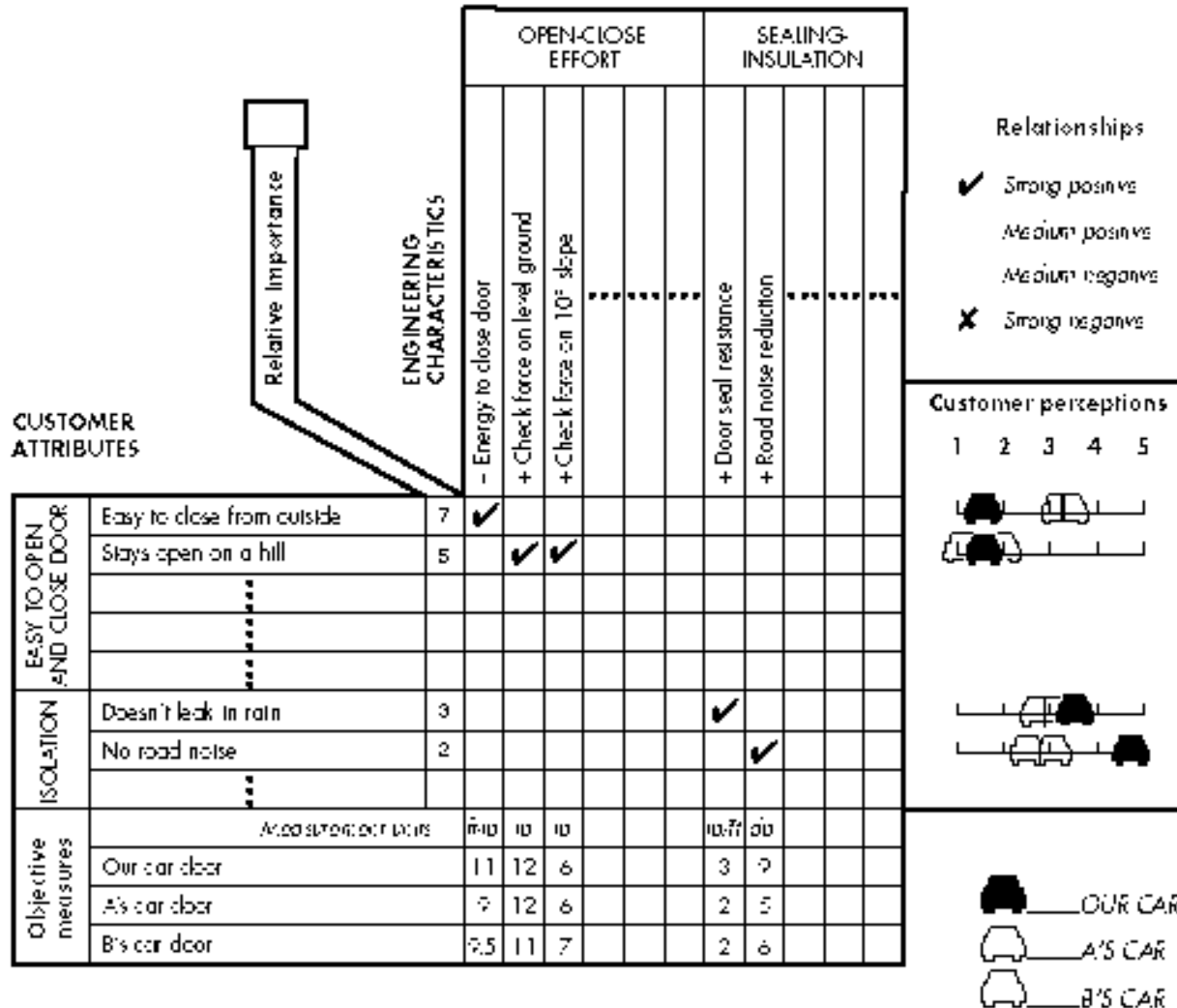
Relationship matrix shows how engineering decisions affect customer perceptions



From Reqs to Specs – Step 3

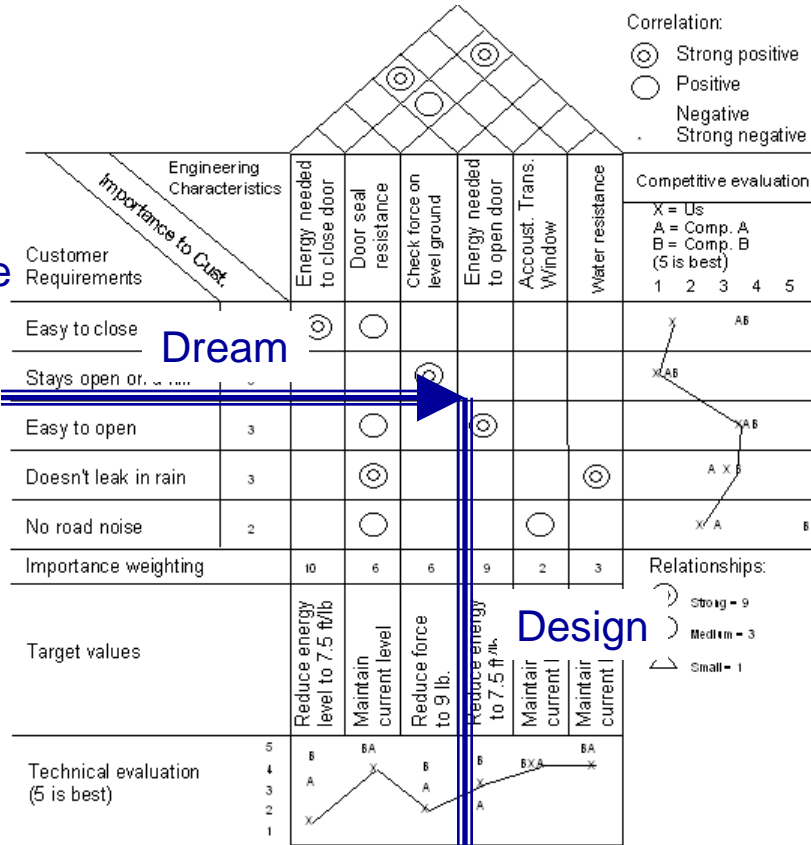
Calibrating the attribute values (objective measures)

Objective measures evaluate competitive products



Quality Function Deployment

“Voice of the
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Cost ← **Deliver** **Specs**

From physical attributes to \$\$\$

Design for Manufacturing

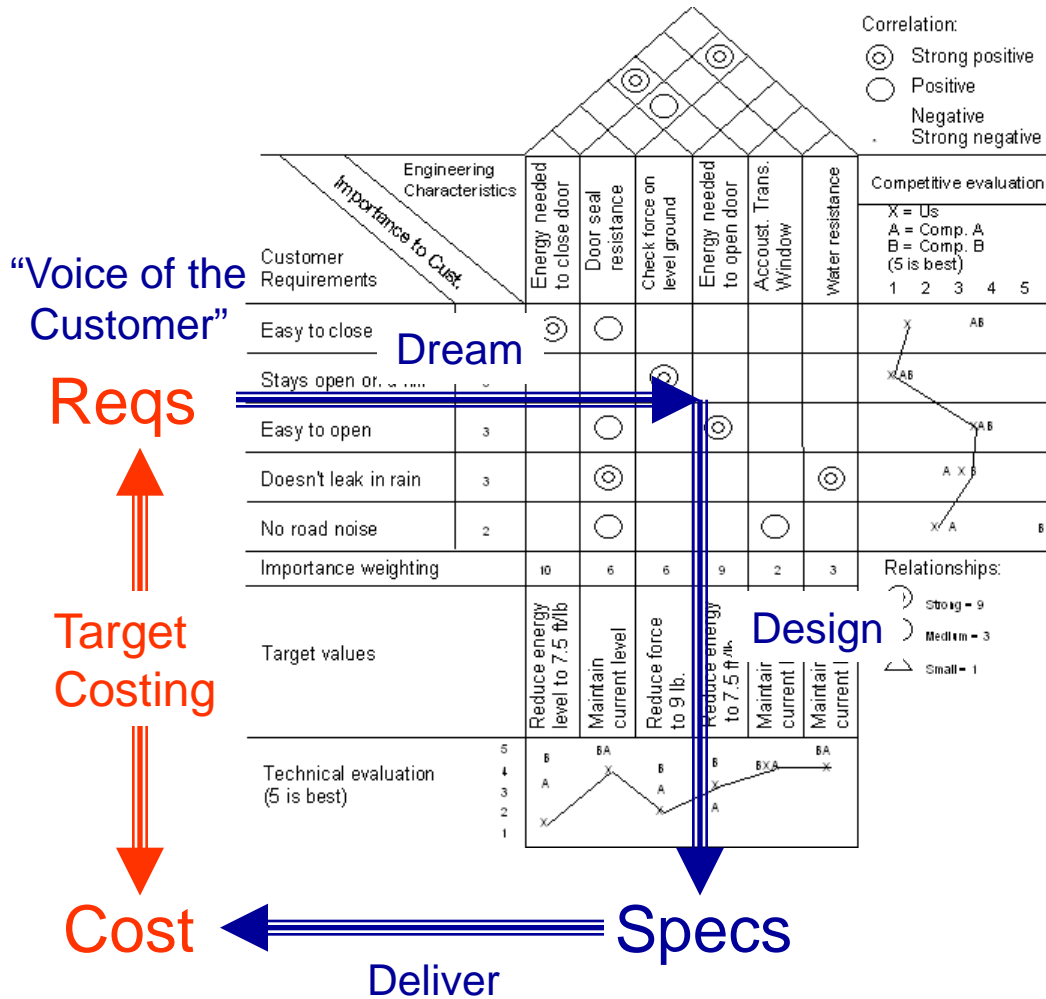
- Cost-effective materials
- Repeatable tolerances
- Economies of scale & learning
- Standardized components
- Platforms & modules
- End-of-line customization (postponement)

Typically, over 75% of product costs are “design locked”

Product

Deliver benefits at 'right' cost

Quality Function Deployment



Target Cost equals Market Price less Desired Profit

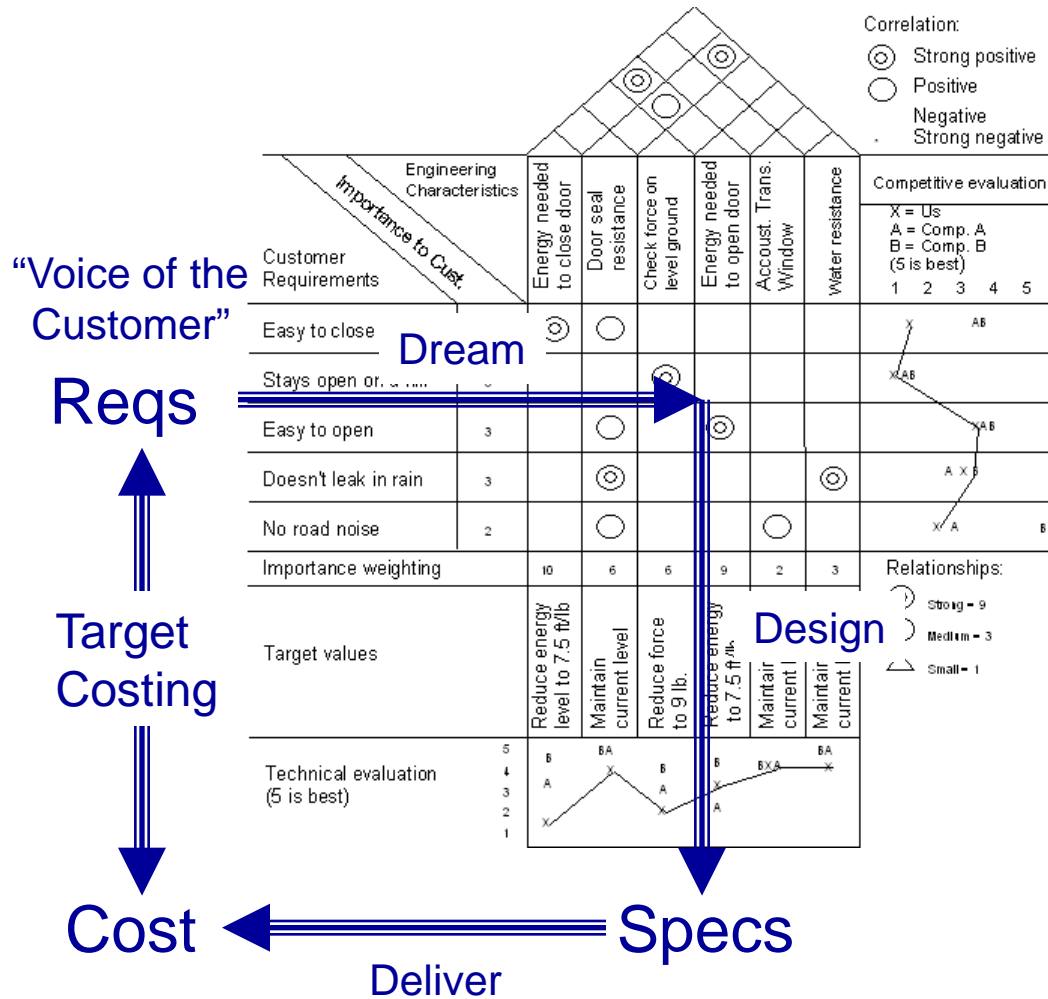
From dreams to practicality

Target Costing

- Determine price point for approximate feature/benefit combination
- $\text{Price} - \text{target profit} = \text{Target cost}$
- Iterate design trade-offs until target cost is hit
 - ... Estimate cost function for attributes
 - ... “Give up” low leverage design values
- Revalidate price point given revised design

QFD: *Putting it all together*

Quality Function Deployment



Closed loop – starting (and ending) with the customer

QFD: *Rest of the process ...*

The rest of the process ...

