

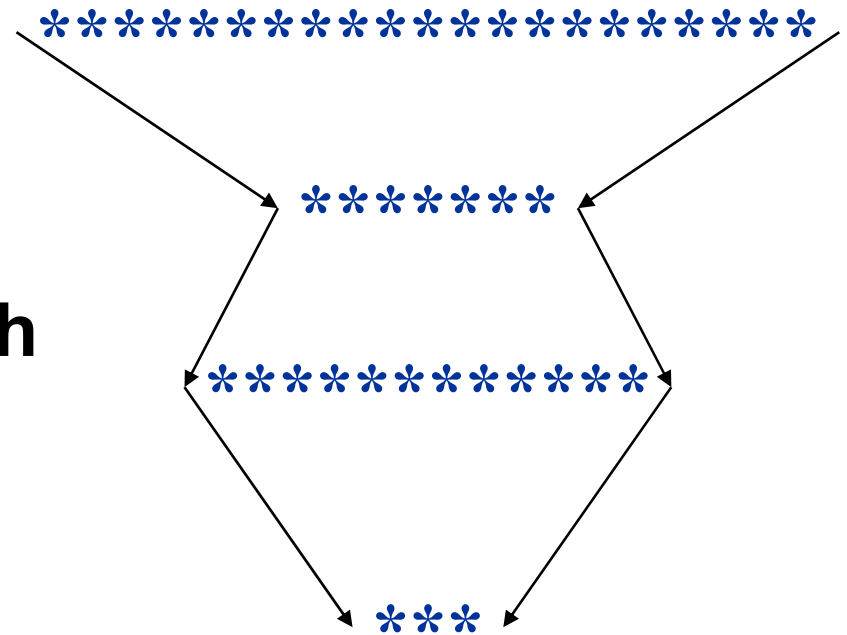
CONCEPT SCREENING

How to narrow down those ideas

(Ref: Chap. 7, Ulrich & Eppinger text)

Concept Selection

- ◆ **Narrowing the choices**
- ◆ **Iterative**
- ◆ **Customer driven**
- ◆ **Weed out bad (vs picking “best”)**
- ◆ **You never have enough information**
- ◆ **Follow structured process**
- ◆ **Document process**



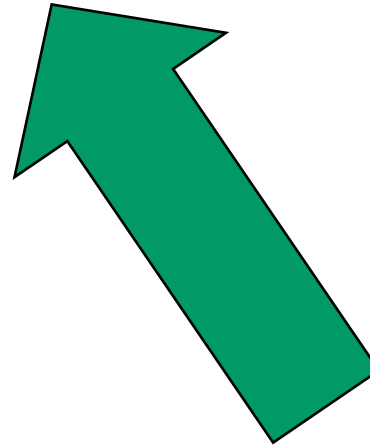
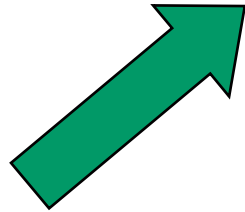
Controlled convergence

WAYS NOT TO DO SCREENING

- ◆ Gut feel
- ◆ Boss says, “Do it this way”
- ◆ Single customer decides
- ◆ One team member is strong champion
- ◆ Influence of experienced designer

Preliminary Steps

- ◆ Present concepts at same level
- ◆ Determine the screening criteria



**Derived from
customer needs**

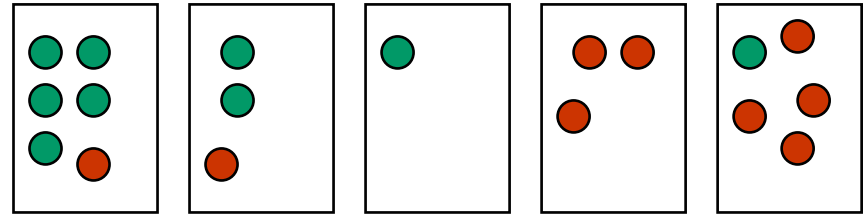
**Get buy-in from all
stakeholders (e.g. advisor)**

Screen criteria used at 3M

- ◆ **Does it solve the problem**
- ◆ **Market potential**
- ◆ **Technical feasibility**
- ◆ **Manufacturing feasibility**

SELECTION METHODS

- ◆ Multi-voting (green dot/red dot)



- ◆ Selection matrix
 - Unweighted
 - Weighted

	#1	#2	#3	#4	#5
Criterion 1	++	+	0	--	--
Criterion 2	0	0	0	-	--
Criterion 3	-	0	0	0	0
Criterion 4	++	-	0	-	-

Weighted selection matrix

	Wght	Battery	Pneumatic	Corded Electric	Int. Combustion
Ease of Use	40				
Setup	20	5	1	2	4
Operating	20	4	2	2	3
Weight	30	2	4	3	2
Manufacturing Cost	20	3	4	3	2
Time to Market	20	3	4	3	3
Total Score		360	340	290	300
Rank		1	2	4	3

Unweighted (Pugh) method

		Battery	Pneumatic	Corded Electric	Int. Combustion
Ease of Use					
Setup		+	S	+	+
Operating		+	S	S	+
Weight		-	S	-	-
Manufacturing Cost		-	S	-	-
Time to Market		-	S	-	-
# of Pluses		2	0	1	2
# of Minuses		3	0	3	3
Keep?		Y	N	N	Y

AFTER SCREENING

- ◆ **Do results make sense?**
- ◆ **Do you have client (advisor) buy-in ?**
- ◆ **Do you have to generate more concepts?**
 - **Or combine elements from several concepts?**
- ◆ **Document the process**
 - **ME4054: for Design Show and report**

BOTTOM LINE: Have a structured process for concept screening. Document and defend your choices.

Exercise--writing tools

- ◆ Find N different writing tools (pens preferred) where $N = \text{group size}$
- ◆ Make one Pugh chart. Criteria on rows, writing implements on columns
- ◆ Assign criteria to group members
- ◆ Evaluate tools, fill in chart

~ 12 minutes