The 3 VM Stages

The 3 Stages of the VM Study

VE

Job Plan

VE Job Plan

Like any other

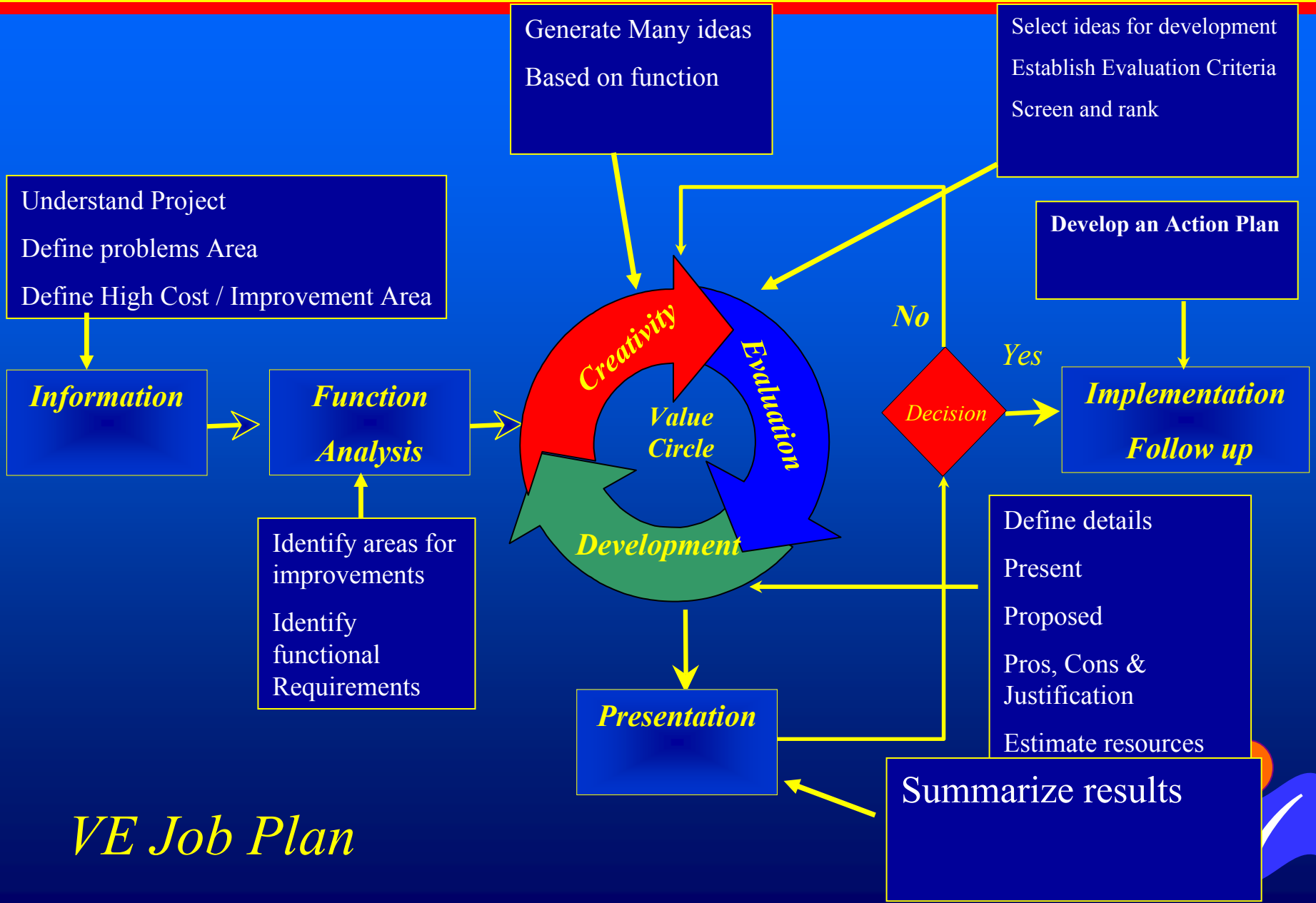
Problem

Solving

Methodology

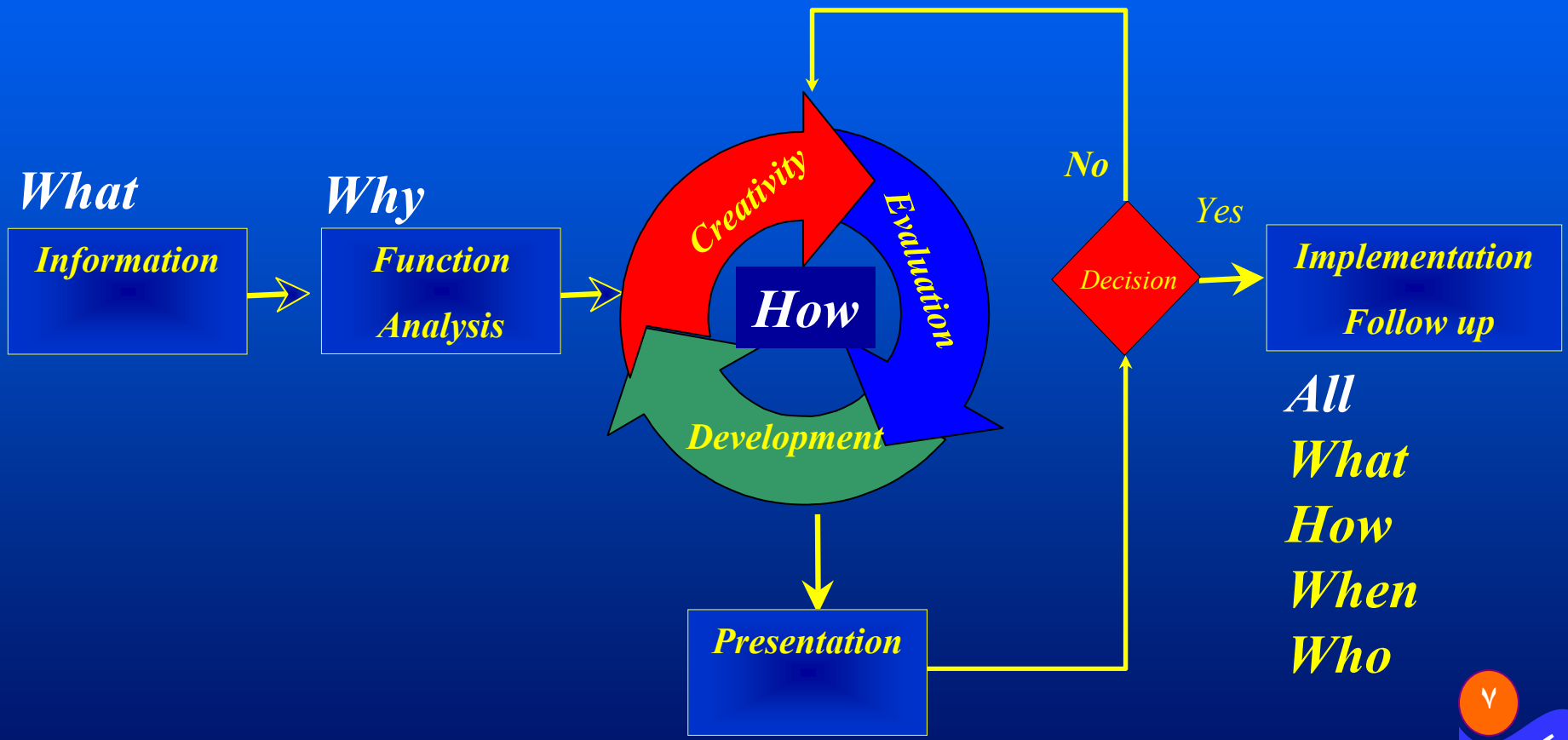
The 7 Phases Of The VE Workshop

The 7 Phases of The VE Workshop

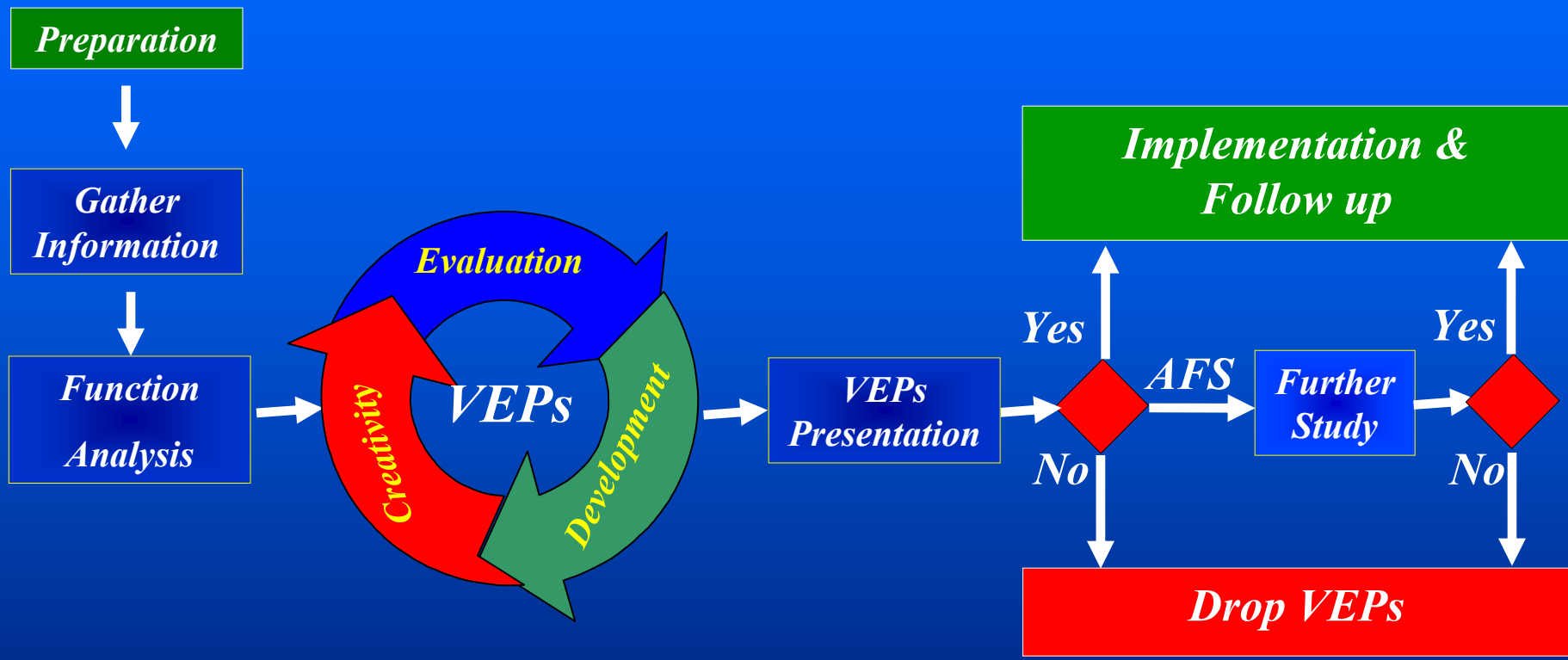


VE Job Plan

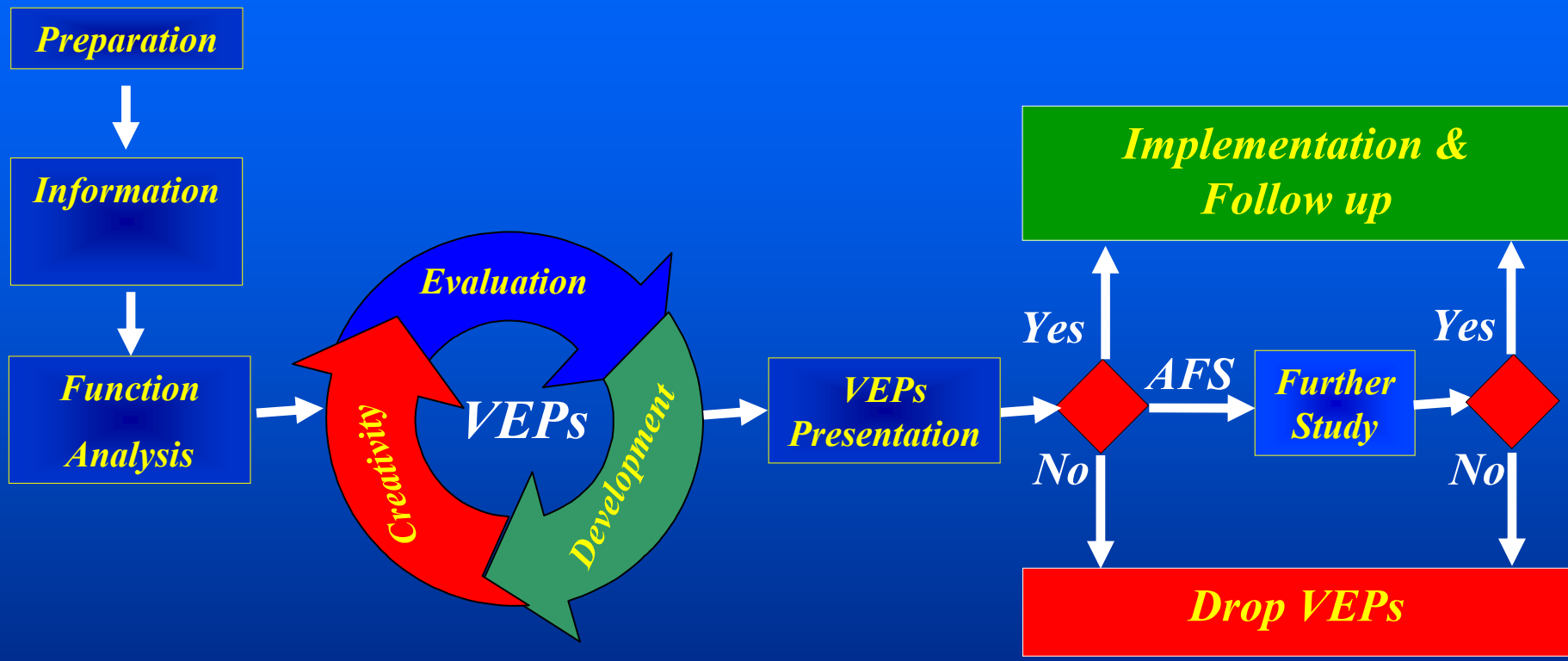
The 7 Phases of The VE Workshop



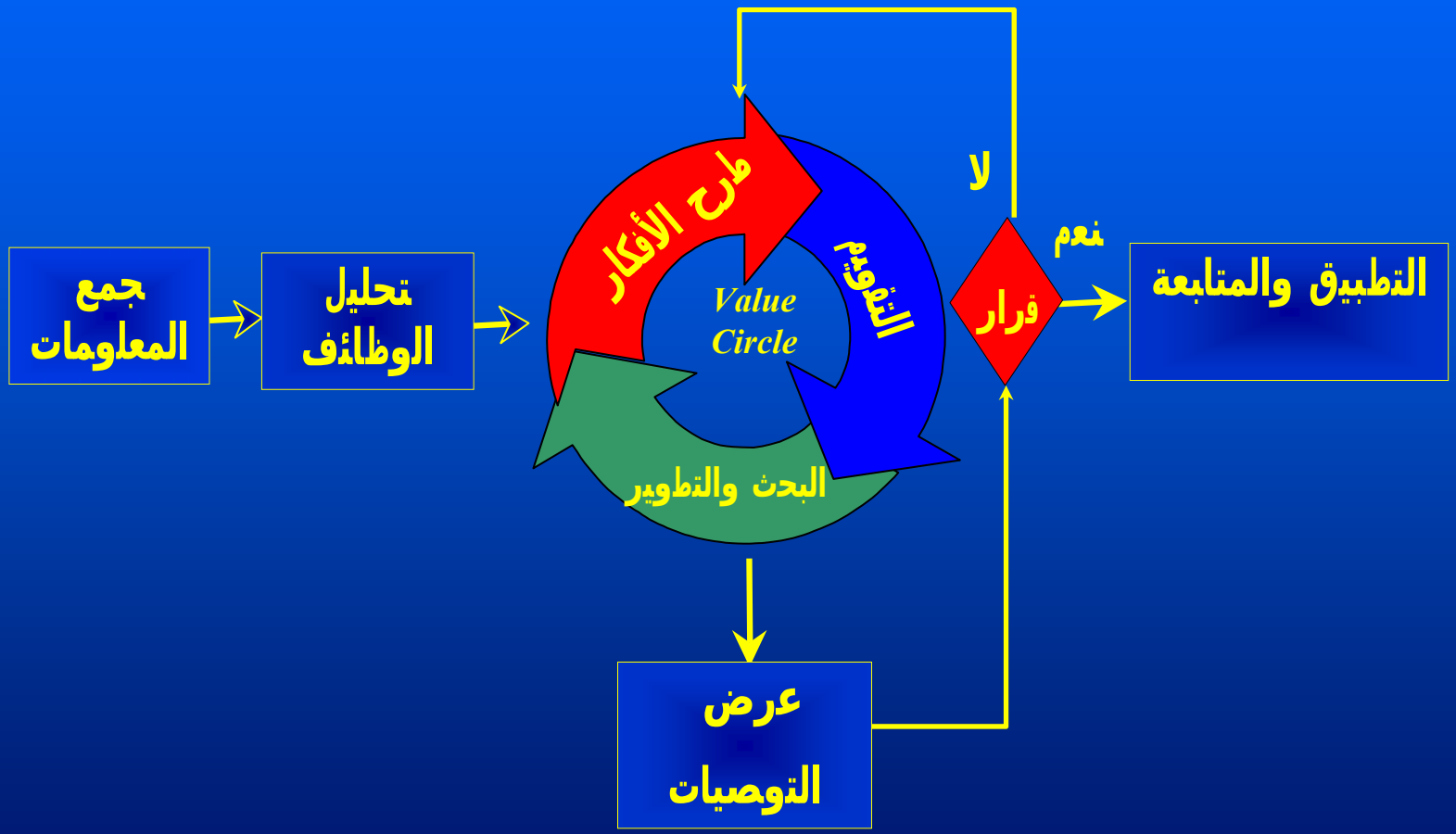
The 7 Phases of The VE Workshop



The 7 Phases of The VE Workshop



خطة عمل الهندسة القيمية



اختيار أرضيات (لقاعة تدريب)

Non-Monetary Criteria

How Important

2 points for Major Preference

1 points for Minor Preference

1 point each for Same preference

	A	B	C	D	E	Q	C	V = Q / C
A. الأمان								
B. الصحة	A/2							
C. سهولة الصيانة	A/C	C/1						
D. الجمال	A/D	B/D	C/D					
E. امتصاص الصوت	E/1	E/1	C/E	E/1				
ثقل المعيار	4	1	4	3	4	الجودة Points	التكلفة الكلية	مؤشر القيمة
النسبة المئوية لكل معيار	25	6	25	19	25			
سيراميك	4	5	4	3	2			
	100	30	100	57	50	337	70	4.81
موكيت	5	3	3	5	5			
	125	18	75	95	125	438	80	5.48
رخام	3	4	4	5	3			
	75	24	100	95	75	369	100	3.69

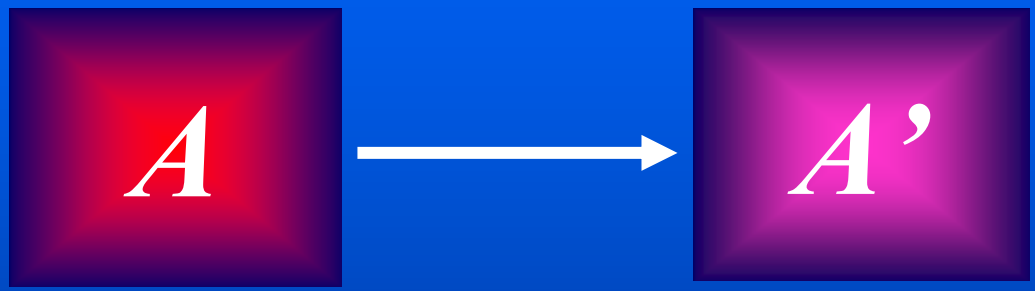
Rates : (5) Excellent, (4) Very Good, (3) Good, (2) Fair, (1) Poor

What is

Function Analysis

Function Analysis

Conventional Method



VE Technique

Example AC system (Package Unit)

Function is Control Temperature

Alternative "Insulation"

Function Analysis

- *Determine Function*
  - *Active Verb & Measurable Noun*
- *Classify Function*
  - *Basic, Secondary and Required Secondary*
- *Develop FAST*
  - *Relationship between functions*
  - *Test Validity of functions*
  - *Identify Missing functions*
  - *Comprehend the project*

Function Analysis

- Determine Functions
  - Active Verb & Measurable Noun
- Classify Functions
  - ✓ Basic (B) ,

    Could (this item) do its job if I (this function) is eliminate?

    If the answer is NO, then it is Basic
  - ✓ Required Secondary (RS)

    Would we still have the basic function if I eliminate (this function) ?

    If the answer is NO, Then it is RS
  - ✓ Secondary (S)

Level of abstractions

for a School

How ?

Develop Society

Teach students

Accommodate Students

Build School

Why ?

Level of abstractions

for a pen

How ?

Change attitude

Communicate ideas

Transmit thoughts

Write words

Why ?

FAST Diagram

Function Analysis System Techniques

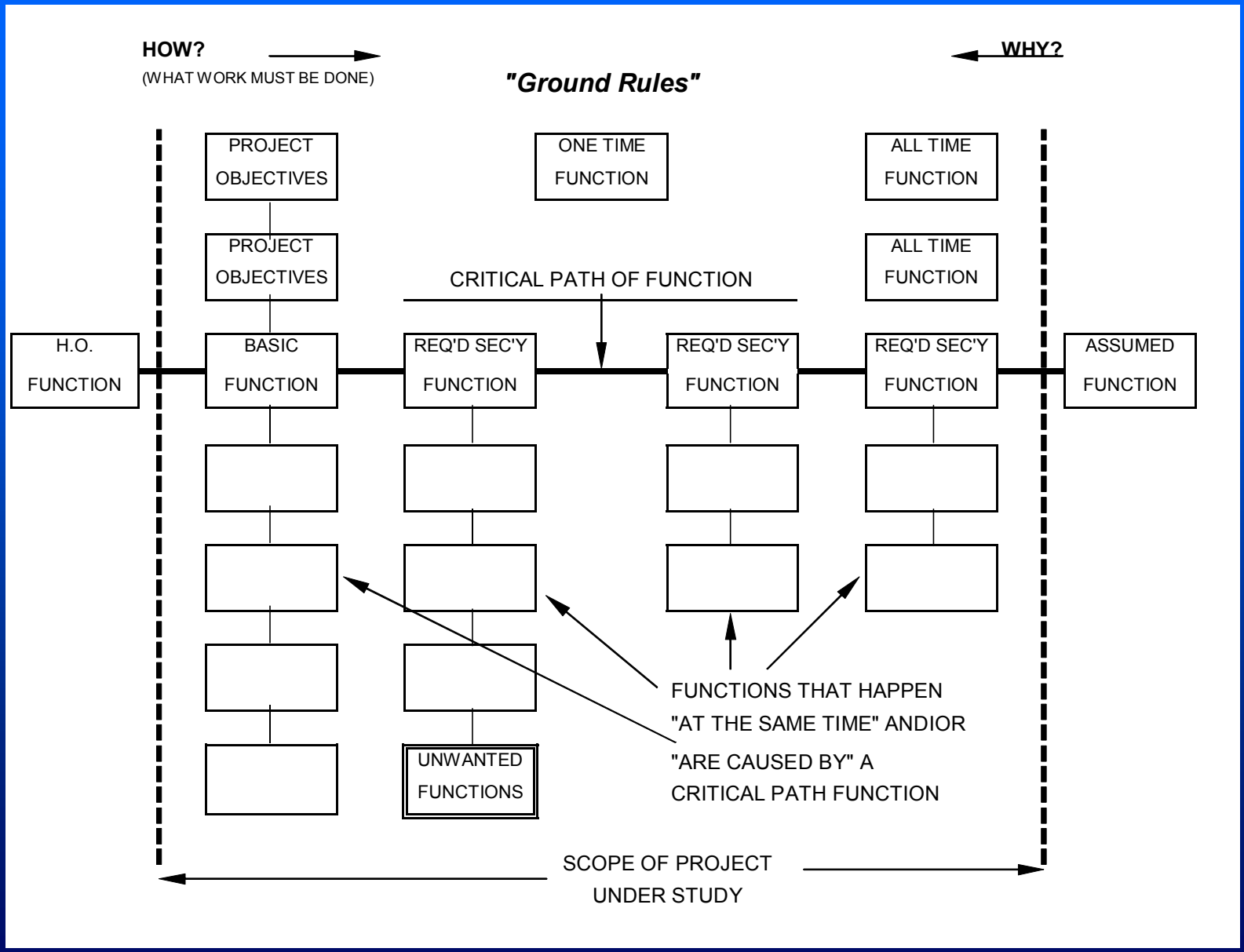
Function Logic Diagram

Objectives

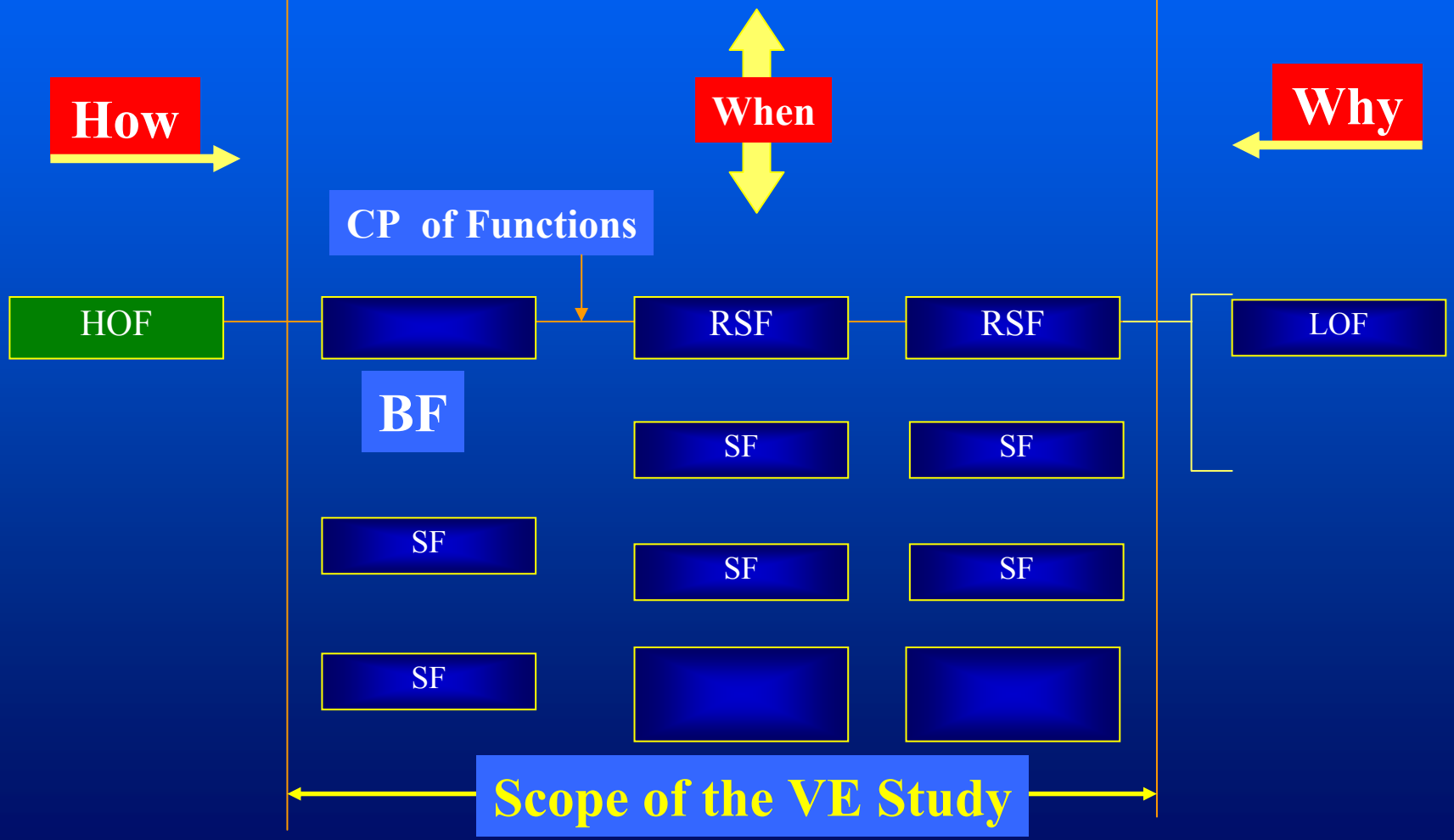
- ✓ Relate functions to each others
- ✓ Test Validity of functions
- ✓ Identify Missing functions
- ✓ Comprehend the project

Video

Classical FAST



Classical FAST



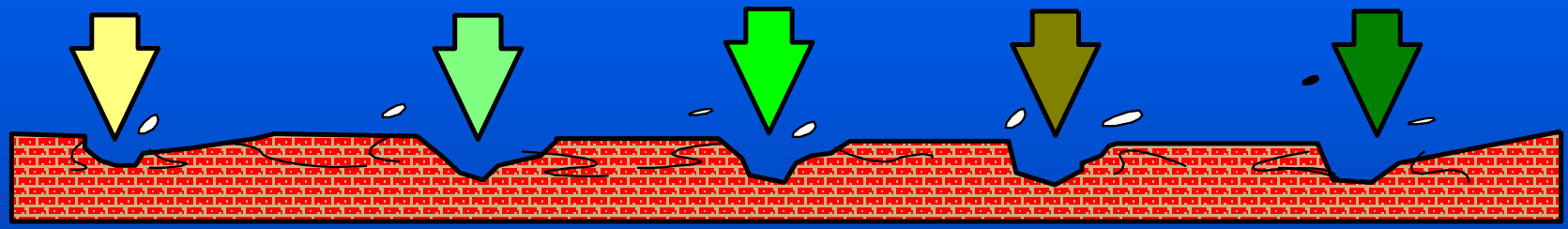
VE is

Creative

Team Work

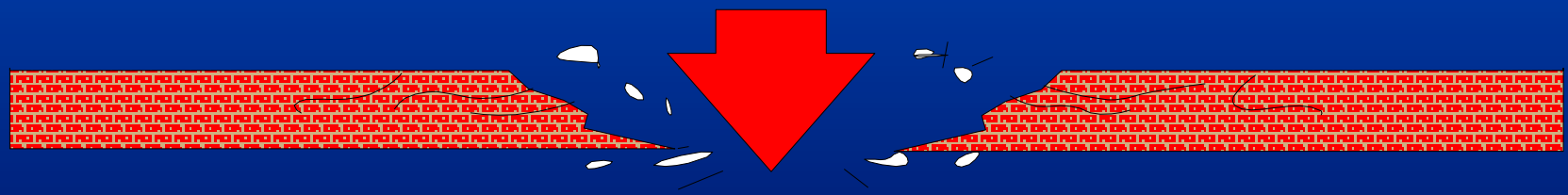
INDIVIDUAL EFFORTS

PM Designer Owner User Engineers



VE APPROACH

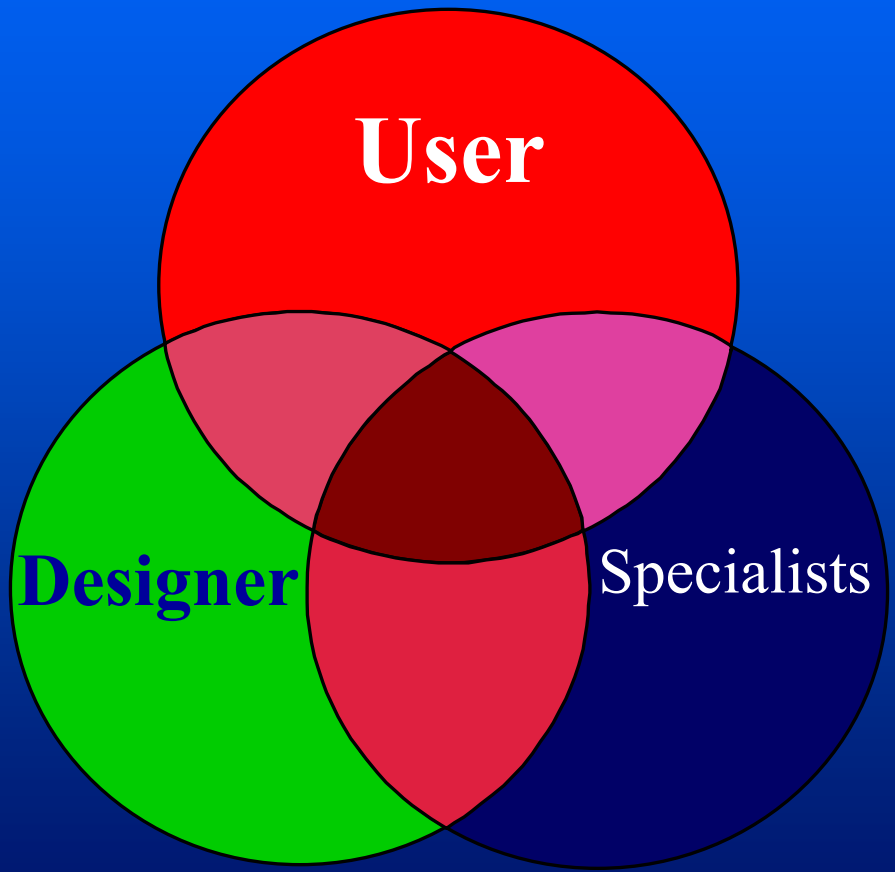
VE TEAM EFFORT



SOLUTION

The VE Team (Holistic Team)

Multi-discipline Team



Led by

Value specialist

and composed of

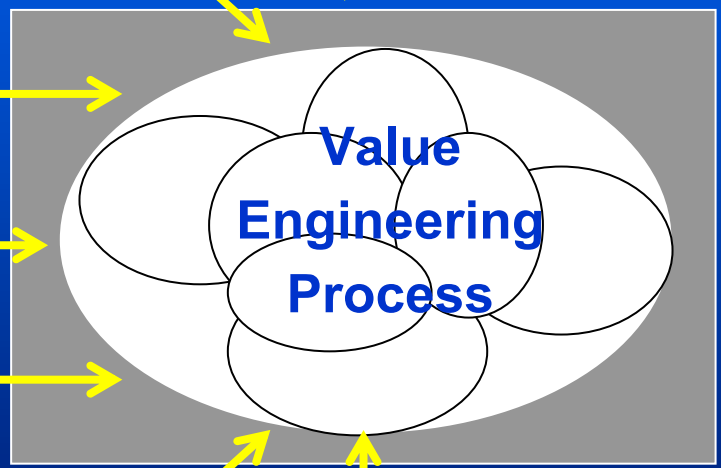
Team size حجم الفريق

7 ± 2

VE Team

- Value Specialist
- Proponent Representative
- Designer Consultants
- FPD
- PMT
- Cost Estimator
- Other Specialist

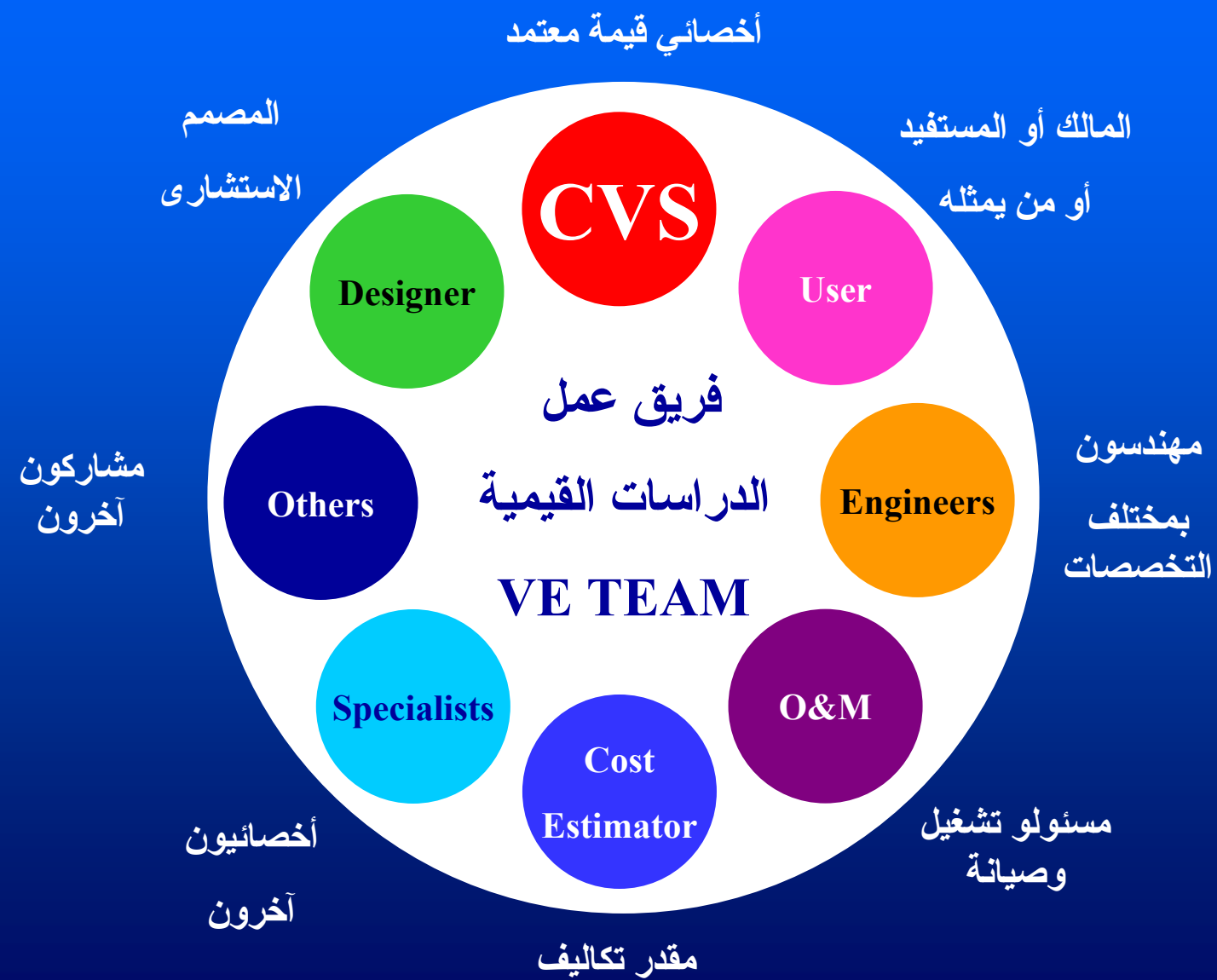
VE Job Plan



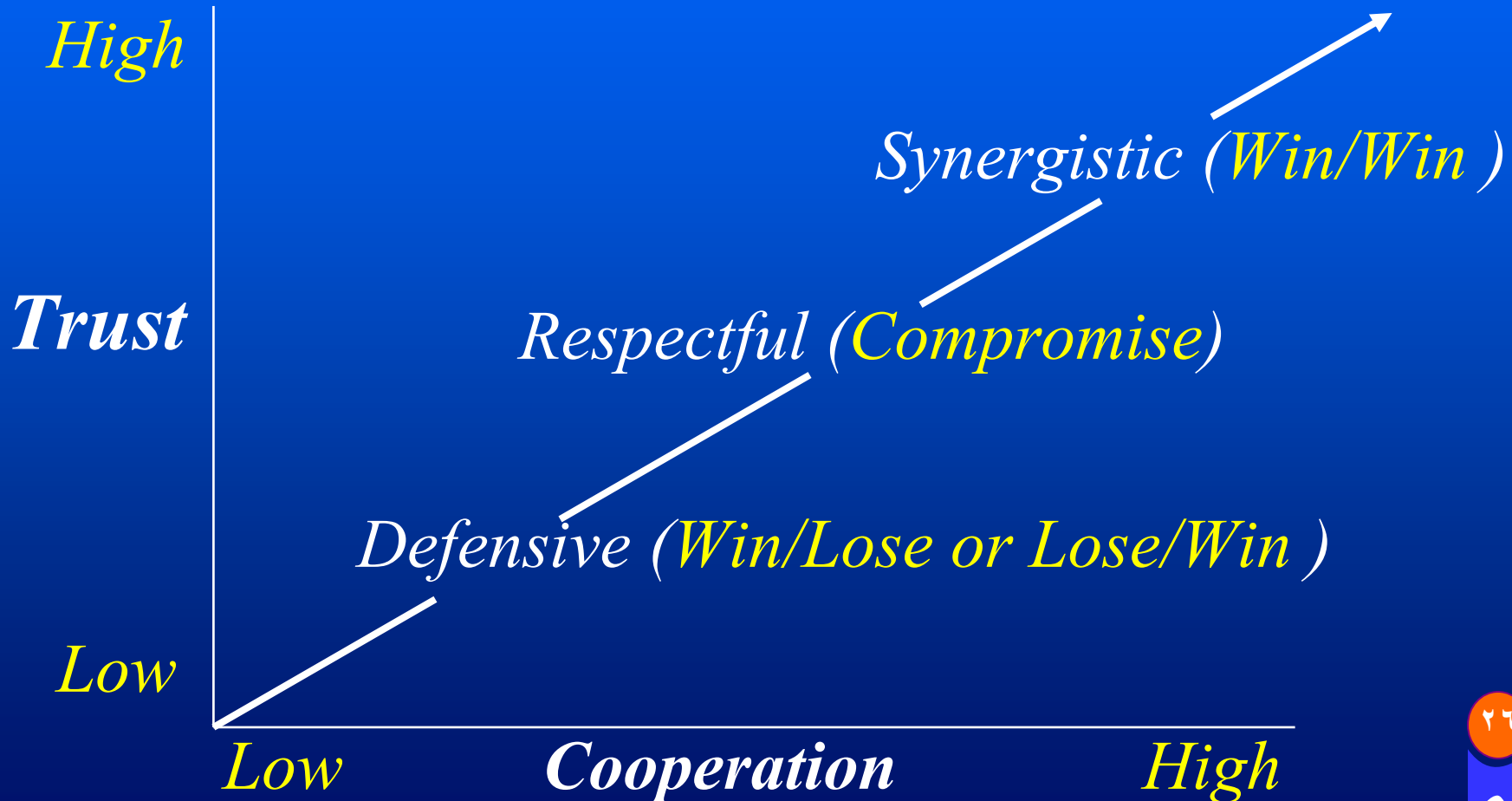
Outcome

Recommendation

Implementation

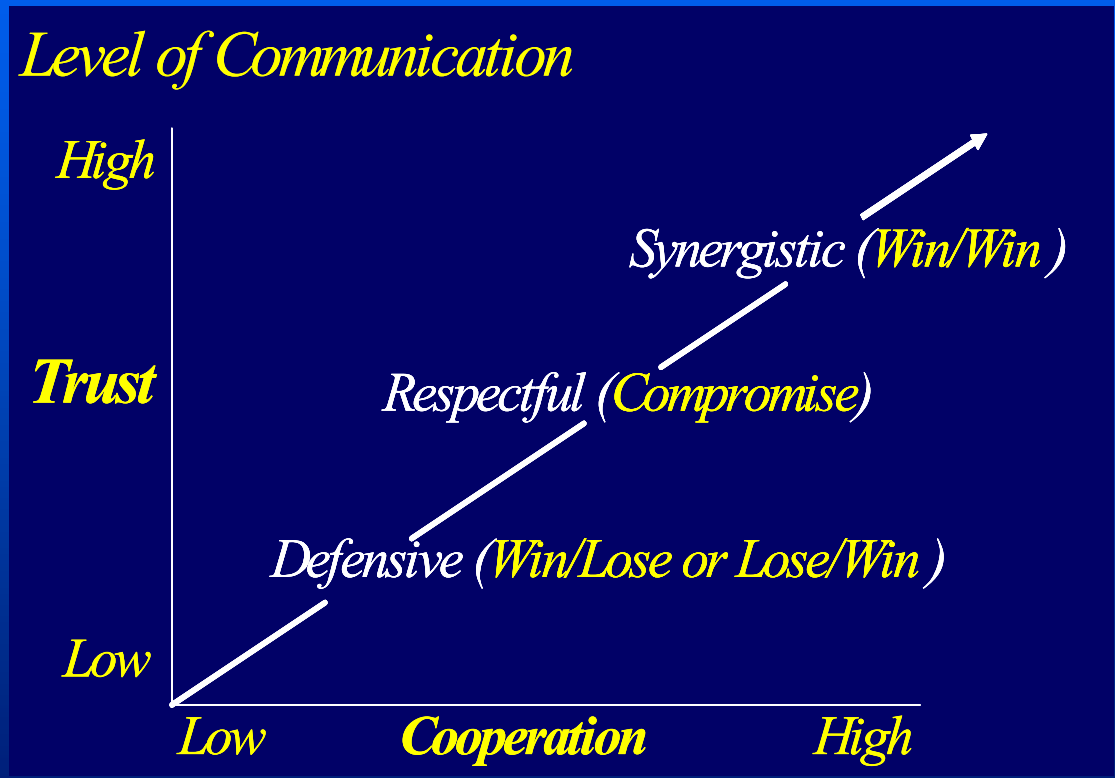

أخصائي قيمة معتمد
المصمم
الاستشارى
المالك أو المستفيد
أو من يمثله
CVS
Designer
User
فريق عمل
الدراسات القيمية
VE TEAM
Others
Engineers
مشاركون
آخرون
مهندسون
بمختلف
التخصصات
Specialists
O&M
Cost
Estimator
أخصائيون
آخرون
مقدر تكاليف
مسئولو تشغيل
وصيانة

Level of Communication



Team Work – Resolving Conflicts

- Company interest vs.. Department's interest
- Personal interest
- Individual conflict
- Team arguments



Creativity in VE

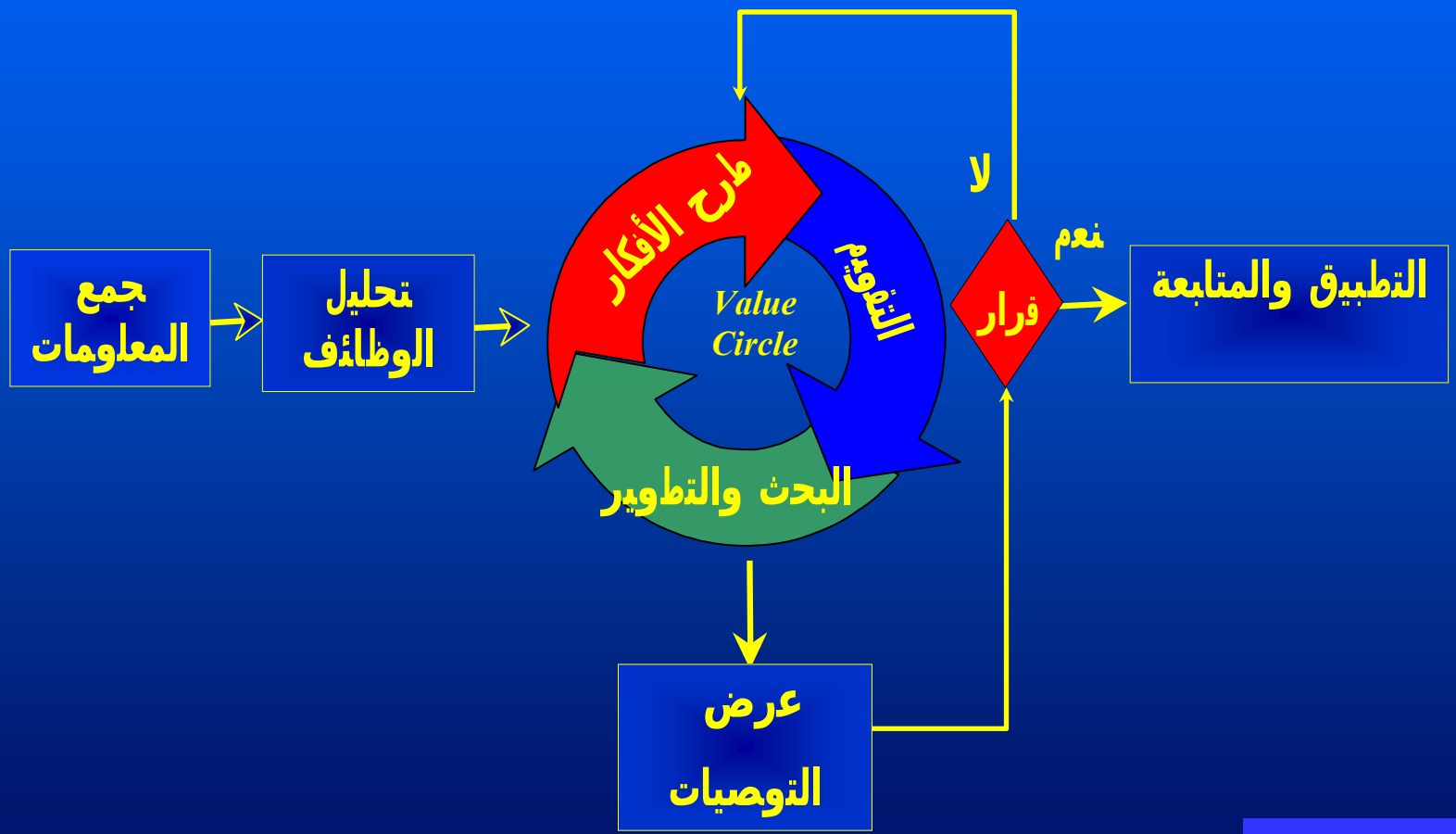
Brainstorming Method

- *Create as many ideas as possible*
- *Quantity not quality(at this stage)*
- *Absolutely no judgments or discussion*
- *Go Wild !!*
- *Challenge every thing (.... Even your standards)*

مراحل الإبداع – د. طارق السويدان

عملية الإبداع : د. طارق السويدان

الهندسة القيمية هي ... عملية إبداعية



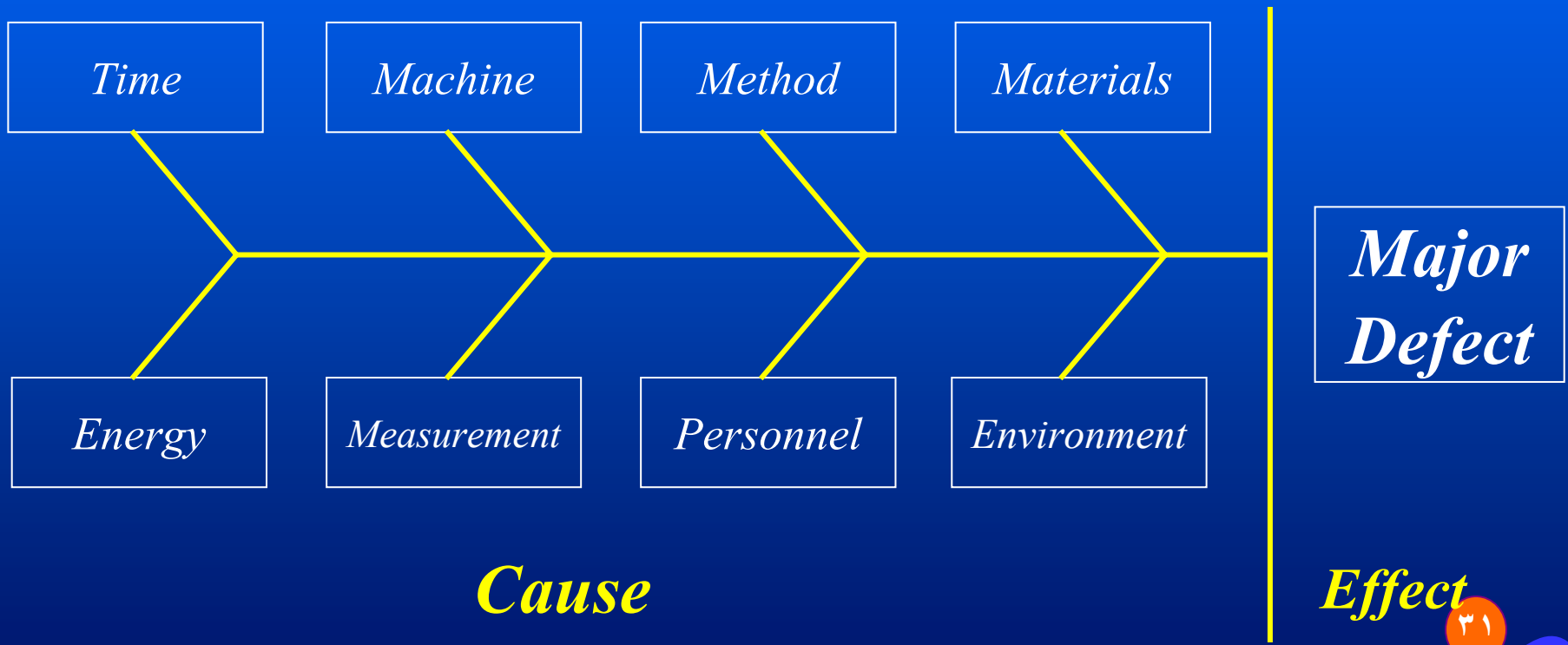
- التحضير
- التحري
- التحول
- الاحتضان
- التنوير
- التقييم
- التنفيذ

المصدر : د. طارق السويدان

Cause-and-effect Diagram

by Ishikawa

Also call the fishbone Diagram



Have you heard these lately ….

- *That's impossible !*
- *We don't things that way !*
- *We tried something like that before, and it didn't work !*
- *We would be laughed at !*
- *It's against our !*
- *Please, be serious !*
- *It can't be done !*
- *It's my job !*
- *We're different !*
- *I know that boss won't like it !*
- *We have been do it successfully for that last 15 years, why change!*

Ideas Evaluation

- *Eliminate Nonsense*
- *Establish “ Evaluation Criteria “*
- *Use “ T - Chart “*
- *Identify Pros & Cons*
- *Rank ideas “ Out of 10 “*
- *Select best ideas for development*

Idea Evaluation

Method 1

Potential Impact

Implementation	High	Low
Easy	A	C
Hard	B	D

Idea Evaluation

Method 2 : Weighted Evaluation Matrix

Rank out of 10, based on weight

Method 3 : 5+ system

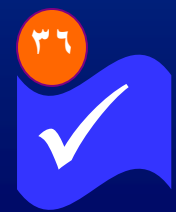
Rank out of 10, based on vote

Method 4 : Conceptual Ranking

High, Medium and Low

Ideas Development

- *Use The Form .... It contains :-*
  - *Title of Idea*
  - *Original Design (Base Case)*
  - *Proposed Design (VE Alternative)*
  - *Pros , Cons and Justification*
  - *Initial Cost and LCC analysis*
  - *Weighted Evaluation Matrix*



Presentation Format

- **Introduction**
  - Introduction of the VE Team Members
  - Define Scope
  - Main topic discussed
  - Function Analysis & FAST Diagram
- **Body**
  - List of Ideas & Recommendations (20-30 ideas)
  - Total Saving (Addition)
  - Talk about 10 VEP
  - Present at least one WEM and one LCC
- **Conclusion**

How to present

- *Relax and talk informal (Conservation mode)*
- *Speak rapidly ....but not quickly*
- *Face the audience, look in the eye (3-5 seconds)*
- *Learn your presentation point by point*
- *Be excited and enthusiastic*
- *Use clear good AV*
- *You do not have to answer all the questions.*
- *Face the people concerned (Decision maker)*
- *Practice, Practice, Practice ...see your self.*