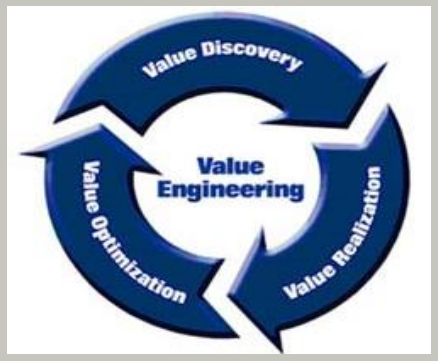

VM WORKSHOP PROCESS

(VE LAB PROCESS)

- Creative Phase
- Evaluation Phase
- Development Phase
- Presentation Phase

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PROJECT MANAGEMENT EXCELLENCE

VE LAB PROCESS

1. Information Phase
2. Function Analysis Phase
3. Creative Phase
4. Evaluation Phase
5. Development Phase
6. Presentation Phase

LECTURE CONTENTS

DAY 2 (2.30 PM TO 4.30 PM - 2 HOURS)

- ❑ **Understanding of common activities, techniques, tools and templates in a VM Workshop Process at:**
  (Based on VE Lab Process as JKR Practice)
  - Creative Phase
  - Evaluation Phase
  - Development Phase
  - Presentation Phase
- ❑ **Post Course Assessment**

LECTURE OBJECTIVES

- **Enhanced understanding of common activities, techniques, tools and templates of each lab phase and inter relations between phases**

- **Familiarization with VM techniques, tools and templates customized to VE Lab process (as JKR Practice in Public Projects)**

3. CREATIVE PHASE

1. Information Phase
2. Function Analysis Phase
3. Creative Phase
4. Evaluation Phase
5. Development Phase
6. Presentation Phase

3. CREATIVE PHASE

ACTIVITIES / TASKS	TECHNIQUES	OUTPUTS
BRIEFING	• Brief on Creative Phase • Set ground rules	• Briefing / Explanation
GENERATE ALTERNATE IDEAS	• Apply "Creative & Innovative Thinking" techniques – Brainstorming; Pareto Principle • Focus on value mismatches & value improvement	•Broad list of creative and innovative ideas [CREATIVITY PHASE TEMPLATE]
RECORD IDEAS	• Record ideas • Do not judge yet!	
PRESENT	• Present to exhaust ideas (go for quantity)	

3. CREATIVE PHASE

Brainstorming is an effective way to generate creativity & innovation

CREATIVITY

is the ability or the process of generating something new that is valuable

INNOVATION

is the process of creating something new that is practical and has significant value

3. CREATIVE PHASE

CREATIVE & INNOVATIVE THINKING TECHNIQUES

ALWAYS IMPROVE EXISTING WAYS

MOVE TO RADICAL CHANGE - "CLEAN PAPER"

Example of "Clean Paper" – Use Internet Banking (Normal way queue at bank or auto machines)

ALWAYS FIND NEW WAYS DOING THINGS

CHALLENGE THE NORMS - "BREAK PATTERN"

Example of "Break Pattern" – Use ATM / CDM Machines (Normal way – Queue at counters to do payments / deposit)

ALWAYS THINK BEYOND - "OUTSIDE THE BOX"

MODIFY OR IMPROVE - "SMART MIRROR"

Example of "Smart Mirror" – Adopt or adapt from nature or other inventions (e.g. spider legs for motor absorbers)

3. CREATIVE PHASE

RULES OF BRAINSTORMING

- Sincere
- Be open mind
- Respect others
- Create permissive environment
- Good human relations
- Participate
- Respond
- Appreciate
- Do not pre-judge
- Quantity first, quality later

Chances of hitting the target point is higher when we brainstorm

3. CREATIVE PHASE

BRAINSTORMING QUESTIONS.....

How else may the function be performed?

What else can perform the required function?

"Can We"……..?

- **Simplify…..?**
- **Eliminate…..?**
- **Add…..?**
- **Relocate…..?**
- **Change….?**
- **Improve…..?**
- **Combine….?**
- **Integrate….?**

3. CREATIVE PHASE

APPLY “PARETO PRINCIPLE”

The law of the vital few …… (*Vilfredo Pareto, 1906*)

The rule of thumb is 80% of the impacts come from 20% of the causes.

So in VE, focus on solving the value mismatches or dominants (the few causes) for making significant value improvements (the great impact).

3. CREATIVE PHASE

4 KEY AREAS OF IDEAS EMERGE DURING LAB:

1. STRATEGIC IMPROVEMENTS – usually involve the client to solve

2. DESIGN & CONSTRUCTION IMPROVEMENT – usually involve the technical team to solve with inputs from the client and users

3. PROJECT MANAGEMENT IMPROVEMENTS – usually involve the project team to improve

4. RISK MANAGEMENT – usually involve the project team to strategize mitigations

3. CREATIVE PHASE

TIPS DURING CREATIVITY PHASE:

- Aim to solve the identified and possible mismatches
- Focus on value variables (functions, quality; cost; resources)
- Always think that everything can be challenged
- Seek for changes with significant impacts
- Be more creative and innovative than usual!

CREATIVITY PHASE TEMPLATE

3. CREATIVE PHASE

SCENARIO 1:

Based on the Prioritized Client Value System, say the criteria of "IMAGE or ESTEEM" is among the least prioritized (or among the most prioritized).

If there are some possible mismatches in terms of providing image or esteem in the design;

Discussion!

What normally deliver unnecessary cost for image?

How can we resolve the mismatch?

3. CREATIVE PHASE

SCENARIO 2:

Based on the Strategic F.A.S.T. Diagram, project functions are supposed to be aligned with the project objectives and also project deliverables.

If there are some possible mismatches in terms of providing the required functions or required deliverables to fulfill the function;

Discussion!

Give examples of function mismatches?

How can we alternate for fulfilling the function?

3. CREATIVE PHASE

SCENARIO 3:

The total area (m2) of the required spaces or total GFA of a project is found larger when compared to any other facility or project servicing the similar function and capacity.

If there are some possible mismatches in terms of providing the area (m2) of the spaces,

Discussion!

How can we identify unnecessary space / GFA?

How can we optimize allocation of spaces?

3. CREATIVE PHASE

SCENARIO 4:

Based on the Cost Model (Cost Estimate) for a VE Study, some elements or items are priced too high / low; or visibly some costs are dominant.

If there are some possible mismatches in terms of specifying materials or technology of the elements or components, or unrealistically dominant,

Discussion!

How can we review the estimated cost?

What is the impact of dominant cost on project value?

3. CREATIVE PHASE

SCENARIO 5:

Based on the Process Flow Analysis and / or Spatial Adjacency Analysis, efficiency of the project operation and user satisfaction have not fulfilled the client's and users' expectation.

If there are some possible mismatches in terms of providing operational efficiency and satisfying client (as owner) and end users,

Discussion!

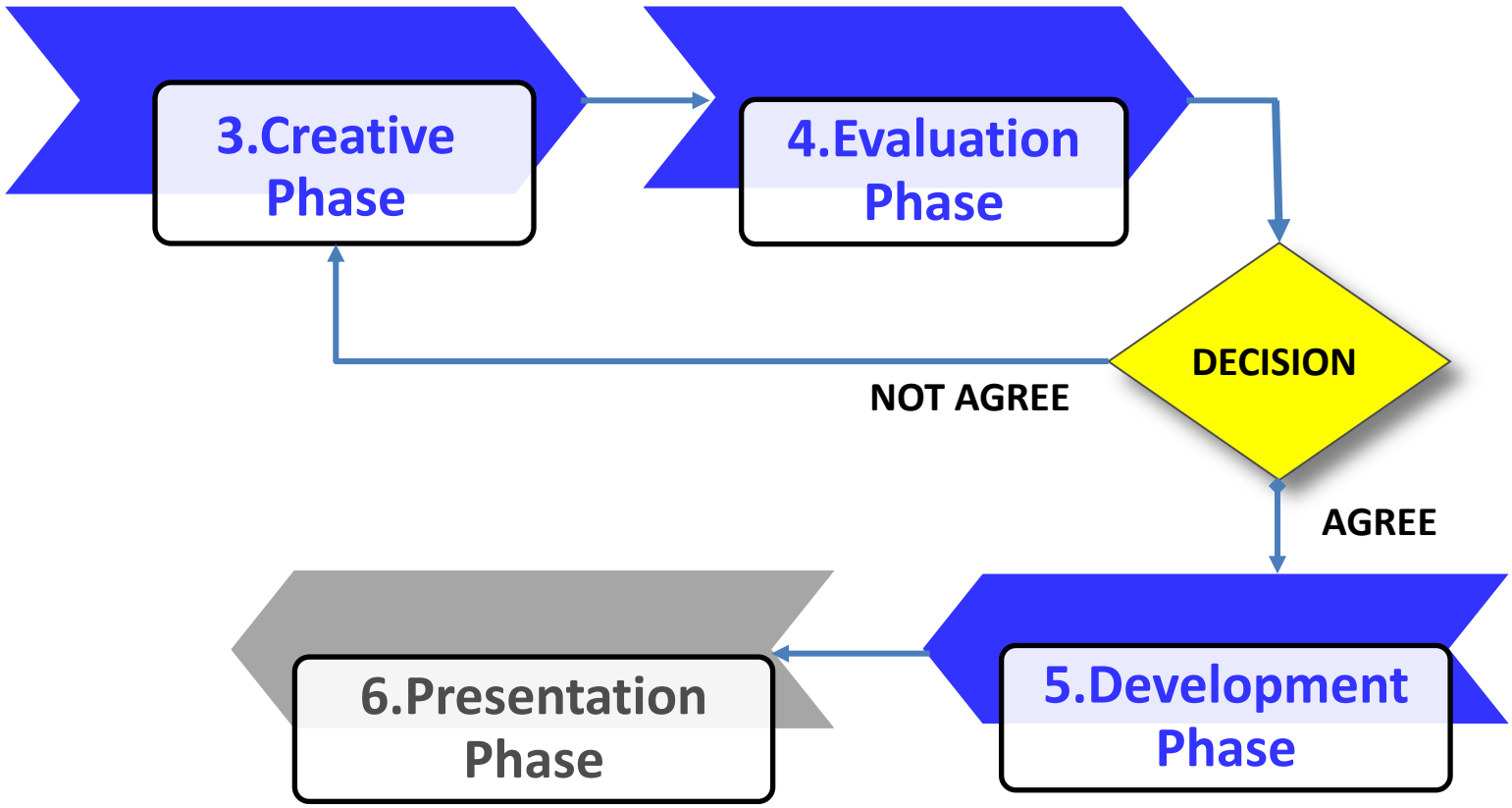
How can we improve operational efficiency?

What is the impact of user satisfaction to us?

4. EVALUATION PHASE

1. Information Phase
2. Function Analysis Phase
3. Creative Phase
4. Evaluation Phase
5. Development Phase
6. Presentation Phase

4. EVALUATION PHASE



4. EVALUATION PHASE

ACTIVITIES / TASKS	TECHNIQUES	OUTPUTS
BRIEFING	• Brief on Evaluation Phase • Set ground rules	• Briefing / Explanation
JUDGE IDEAS	• Judge each generated idea of: * Client Acceptability * Functionally Suitability * Technically Feasibility * Economically Feasibility	•Judged ideas •Categorized ideas (E/I/D) •Shortlisted of "EVALUATE" ideas [EVALUATION PHASE TEMPLATE]
CATEGORIZE IDEAS	• Rank each generated idea whether (with consensus): * *Evaluate* – Potential ideas * *Information* – Potential for future * *Discard* – Non potential ideas	
PRESENT FOR CONSENSUS	• Present to shortlist ideas and obtain lab consensus (categorized as "*Evaluate*" ideas)	

4. EVALUATION PHASE

EVALUATION PHASE (AND DEVELOPMENT PHASE)

requires ANALYTICAL THINKING in order to evaluate the practicality and comparative merit of the potential solutions

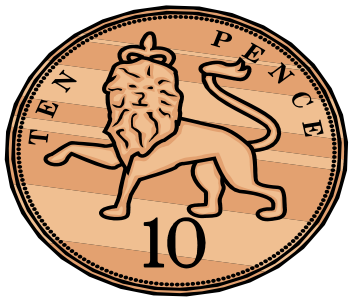
"Analytical thinking is a process of digging a hole deeper; whilst creative thinking is finding somewhere else to dig the hole"

(*Edward de Bono)*

4. EVALUATION PHASE

MAKE JUDGEMENT ON EACH GENERATED IDEA:

- CLIENT ACCEPTABILITY
- FUNCTIONALLY SUITABILITY
- TECHNICALLY FEASIBILITY
- ECONOMICALLY FEASIBILITY



4. EVALUATION PHASE

CATEGORIZE EACH IDEA (WITH CONSENSUS) TO SHORTLIST IDEAS FOR FURTHER EVALUATION:

WHETHER:

- **“EVALUATE” – Potential ideas (solution)**
- **“INFORMATION” – Potential ideas for future**
- **“DISCARD” – Non potential ideas**

4. EVALUATION PHASE

ADVANCED EVALUATION (IF NECESSARY)

- **PRIORITIZING MATRIX – To measure the importance of various value criteria**

- **WEIGHTED EVALUATION MATRICES – To assist in evaluating a range of options available**

4. EVALUATION PHASE

TIPS DURING EVALUATION PHASE:

- Convince the client to “buy” potential ideas
- Never compromise required functions in evaluation
- Modify ways to implement “impractical” ideas
- Do not get quickly influenced by cost implication
- Never undertake that all potential ideas will be viable (yet to be further evaluated in next phase)
- If a dilemma arises (whether go or no go), do not hesitate to evaluate further!

EVALUATION PHASE TEMPLATE

5. DEVELOPMENT PHASE

1. Information Phase
2. Function Analysis Phase
3. Creative Phase
4. Evaluation Phase
5. Development Phase
6. Presentation Phase

5. DEVELOPMENT PHASE

ACTIVITIES / TASKS	TECHNIQUES	OUTPUTS
BRIEFING	• Brief on Development Phase • Set ground rules	• Briefing / Explanation
DEVELOP AND FURTHER EVALUATE IDEAS	• Develop "Evaluate" ideas into workable solutions by evaluating: * Advantages & disadvantages * Innovation created * Risks or constraints * Cost implication • Support idea with calculations, illustrations, sketches etc.	• Detail evaluation of ideas • Recommended ideas [DEVELOPMENT PHASE TEMPLATE]
FINALIZE WITH CONSENSUS	• Present and obtain consensus on best ideas for recommendation (esp. if two or more potential ideas)	
SUMMARIZE IDEAS	• Summarize costs optimization of all recommended ideas & findings • Review Study Model (s)	• Summary of ideas • Reviewed Study Model(s)

5. DEVELOPMENT PHASE

ACTIVITIES / TASKS	TECHNIQUES	OUTPUTS
DEVELOP ACTION PLAN	• Identify task, target date & responsible parties • Discuss and obtain agreement from lab team members / responsible parties	• Agreed Action Plan (including Project Work Programme, if any)
(IF POSSIBLE) INITIATE PROJECT RISK MANAGEMENT	• Review or Identify and register project risks • Discuss mitigation measures & responsible party (if possible) • Measure and mitigate impact of risk on time/cost/quality etc.	• Identified project risks [RISK REGISTER TEMPLATE]
REVIEW VE STUDY ACHIEVEMENT	• Assess achievement of each VE Study Objective • Identify lessons learned • Share achievement / lessons	• VE Study assessment • Identified lessons learned

5. DEVELOPMENT PHASE

DEVELOP (FURTHER EVALUATE) POTENTIAL IDEAS:

- Develop how the idea work?
- How much will it cost and its implication?
- Does the idea bring innovation?
- What is the LCC impact?
- Is there any risk or constraint?
- Explore all pros and cons!

5. DEVELOPMENT PHASE

FINALIZE "RECOMMENDED IDEAS" (WITH CONSENSUS)

AND SUMMARIZE COST IMPLICATIONS:

- To opt for the most viable solutions (if a range of potential solutions involved)
- Summarize cost implications of all opted solutions
- Review Study Model(s) (Space/Cost/Quality etc.)

5. DEVELOPMENT PHASE

TIPS DURING DEVELOPMENT PHASE:

- Do not get solely influenced by cost implication
- Explore advantages and disadvantages exhaustively
- Consider impact of risks or constraints identified
- Highlight any innovation created
- Justify and remark basis of all solutions made on “recommended ideas” and “rejected ideas”

DEVELOPMENT PHASE TEMPLATE

5. DEVELOPMENT PHASE

DEVELOP ACTION PLAN / WORK PROGRAMME

- Develop Action Plan for Post VE Lab activities:
  - Identify tasks, target dates and responsible parties
  - Allow sufficient time for amendment to design based on VE Lab findings
  - Review together with Project Work Programme (CPM)
- Present to get agreement and commitment from all parties
- Include Action Plan in VE Report

5. DEVELOPMENT PHASE

INITIATE RISK MANAGEMENT:

- Brainstorm to identify or review project risks
- Rate the “likelihood” and “impact” of each identified risk
- Rate the risk using “Risk Matrix” – “Extreme/High/Medium/Low”
- Identify treatment measures, responsibility and target action dates
- Wherever possible, measure and mitigate impact of risks on time / cost / quality etc. – especially for “Extreme/High” rated risks!
- Include Risk Register findings in the VE Report

RISK REGISTER TEMPLATE

5. DEVELOPMENT PHASE

ASSESS VE LAB OBJECTIVES:

- Assess the achievement of the VE Study Objectives (S.M.A.R.T. approach):
  - Cost Optimization as budgeted (“Hard” findings)
  - Functionality, efficiency and other improvements (“Soft” findings)
  - Action Plan / work programme improvement
  - Project risks management initiation
- Highlight lessons learned from the VE Lab exercise and suggest improvement strategy

6. PRESENTATION PHASE

1. Information Phase
2. Function Analysis Phase
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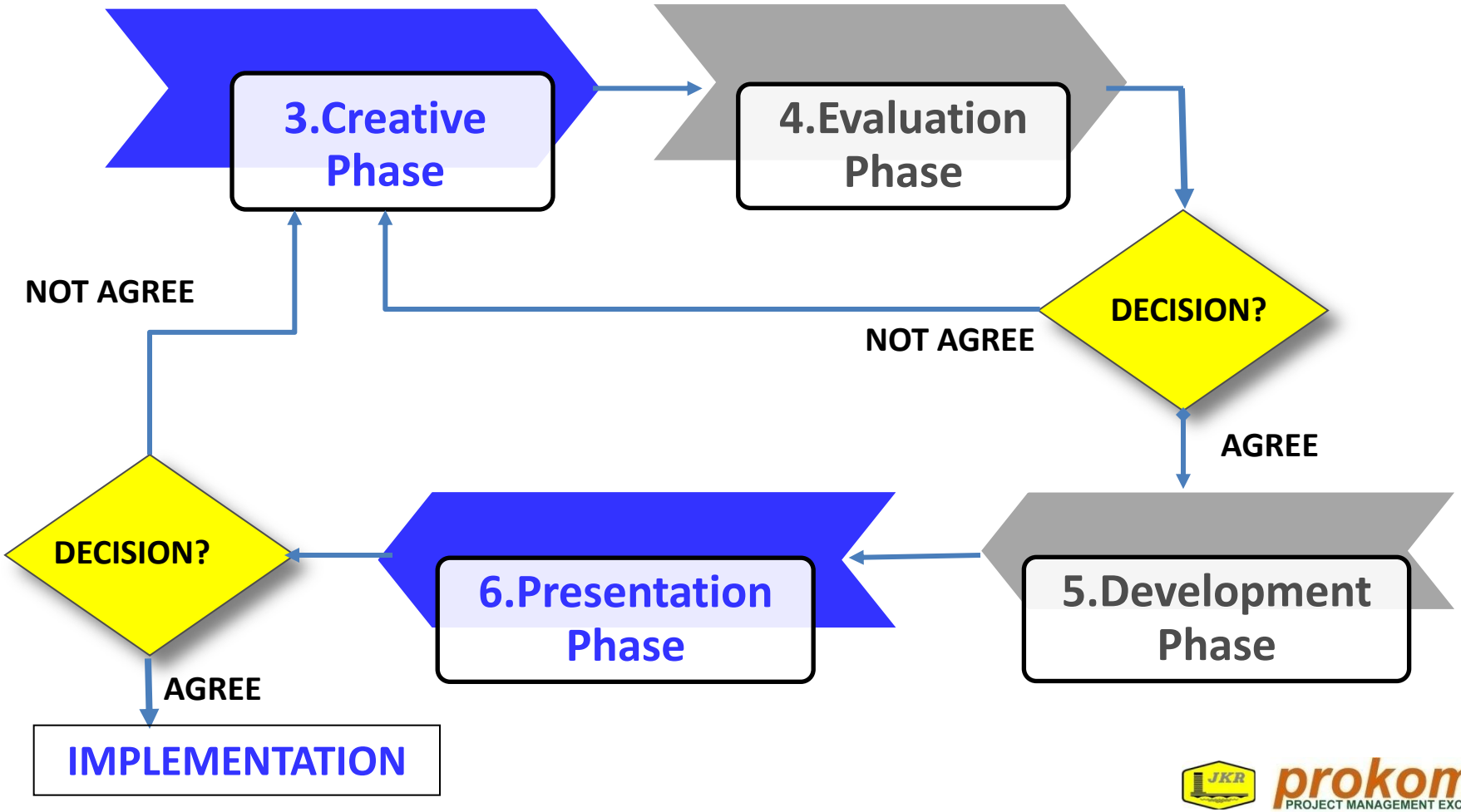
6. Presentation Phase

6. PRESENTATION PHASE



6. PRESENTATION PHASE

ACTIVITIES / TASKS	TECHNIQUES	OUTPUTS
BRIEFING	• Conduct briefing on Presentation Phase	• Briefing /Explanation
PREPARE REPORT	• Prepare initial VE Report* and/or presentation slides ** Prepared by Lead Facilitator*	• Initial report on VE recommendations and study findings
PRESENT FOR CONSENSUS	• Present initial VE Report to obtain feedbacks and acceptance from VE Lab members / stakeholders	• Presented VE Report
FINALIZE REPORT * If required during VE Lab Stage	• Review and finalize VE Report (Post VE Lab activity)	• Finalized VE Report (as VE Study Output)

6. PRESENTATION PHASE

REPORTING OF VE LAB FINDINGS:

- Consolidate all completed VE Lab templates, lab information (attendance), supporting documents, other forms etc.
- Prepare initial VE Report – to include (not limited to):
  - VE Study Objectives
  - Project information
  - VE Study Model (s)
  - Client Value System
  - Project Functions
  - VE Study Scope
  - Summary of recommended ideas and other lab findings
  - Action Plan
  - Achievement of the VE Lab Objectives
  - Lessons Learned

6. PRESENTATION PHASE

PRESENT, REVIEW & FINALIZE VE REPORT:

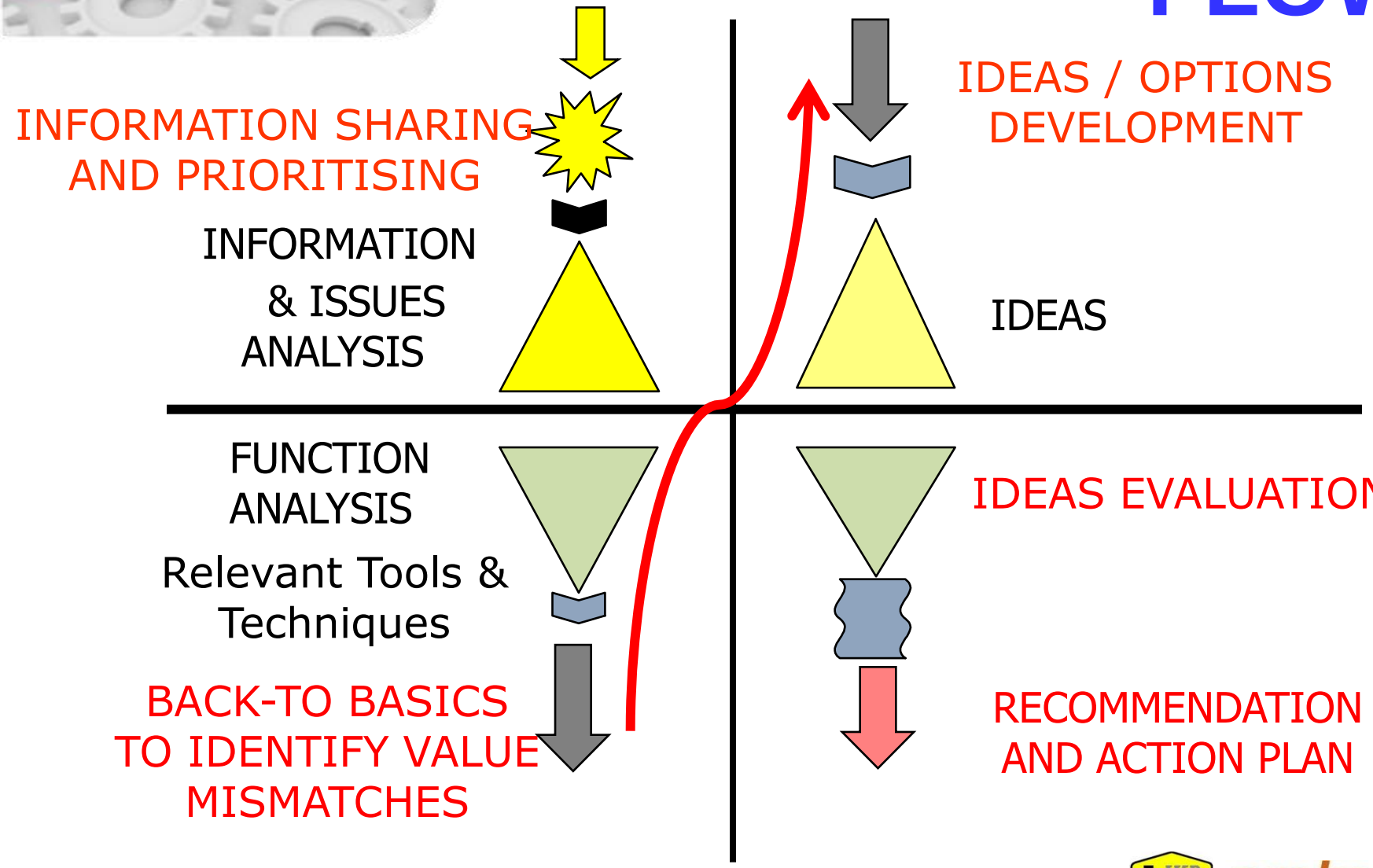
- **Present initial VE Report**
- **Obtain feedbacks or reviews from lab team / stakeholders**
- **Review and finalize VE Report**
- **Produce VE Report (as VE Study output)**
  (if required during VE Lab Stage – Post VE Lab activity)

SAMPLE OF A VE REPORT

WHAT VM LAB PHASES ANSWER

INFORMATION PHASE & FUNCTION ANALYSIS PHASE	CREATIVITY PHASE	EVALUATION PHASE	DEVELOPMENT PHASE	PRESENTATION PHASE
What is it? What does it do? How much does it cost to do it?	What else will do it?	Will it work?	How will it work?	Let's do it!

VM LAB PROCESS FLOW



JKR prokom PROJECT MANAGEMENT EXCELLENCE

VM STUDY CHARACTERISTICS

1. MULTI DISCIPLINARY TEAM ORIENTATED
2. VALUE SYSTEMS OR CRITERIA MADE EXPLICIT
3. FUNCTION BASED YARDSTICK EMPHASIZED
4. STRUCTURED VM WORK PROCESS FOLLOWED
5. TECHNIQUES & TOOLS WITHIN VM METHODOLOGY APPLIED

WHAT VM IMPROVES

WITHOUT VM

- Silos – individual efforts
- Less functions driven
- Independent reviews
- Less client involvement
- Re-active solutions to problems
- Less effective communication
- Seldom consider LCC in decision

WITH VM

- Team effort – cross functional
- Functions driven
- A workshop orientated review
- Client's direct involvement
- Pro-active & creative solutions
- Effective communication
- Consider LCC implications

A VM workshop is described as a "pressure cooker"
(Kelly, Male & Graham)

VM CRITICAL SUCCESS FACTORS

4 KEY AREAS OF VM CRITICAL SUCCESS FACTORS:

1. GOOD MANAGEMENT OF A VM STUDY

Explore value concept, functions, creativity & innovation

Use VM Job Plan, tools & techniques within VM study

2. RIGHT METHODS & TOOLS APPLIED

3. ADAPTABLE TO THE INTERNAL & EXTERNAL ENVIRONMENT

Understand internal & external organizational environment

Team working, communication & satisfaction

4. GOOD HUMAN DYNAMICS DEVELOPED

IN THE ESSENCE OF SHARING …