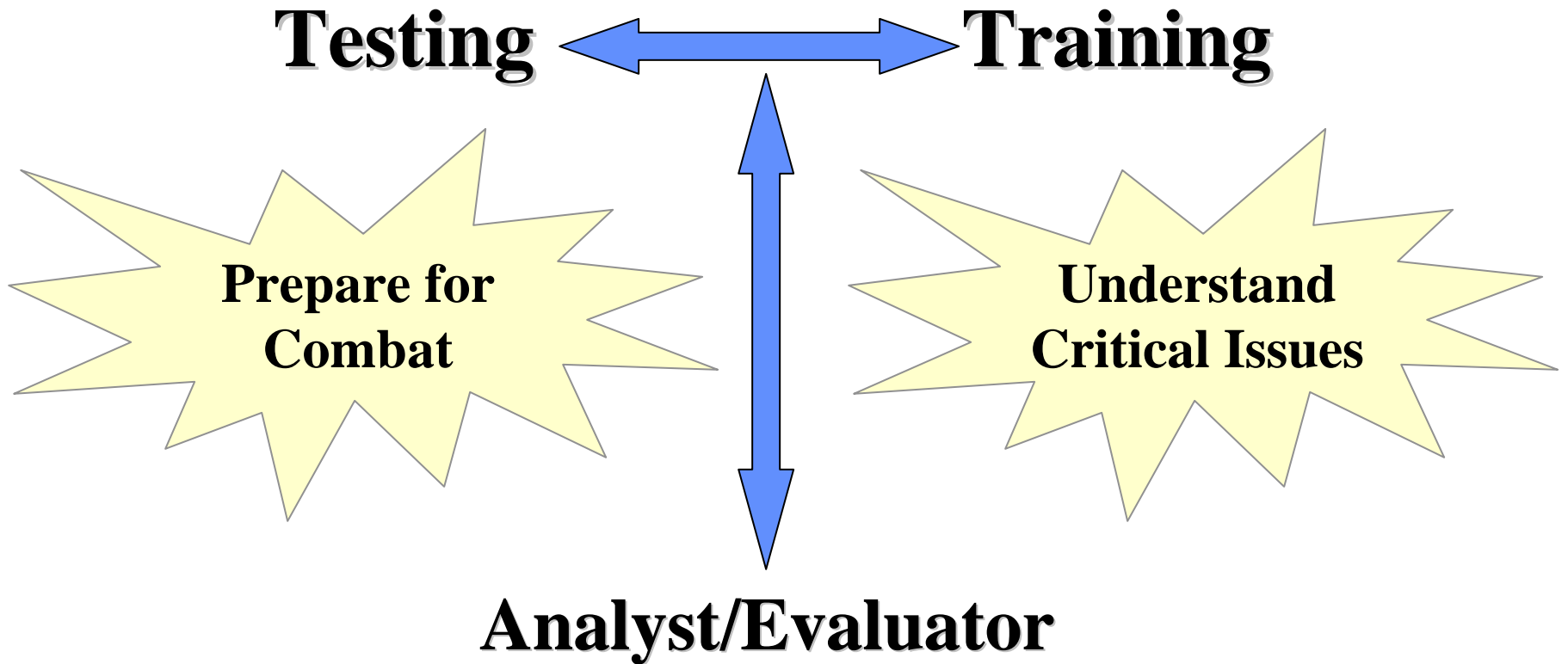


Data Collection & Field Exercises: Lessons from History

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Testing and Training Objectives



GOAL: Benefit Warfighter

Support to Warfighter

Testing

- Test Design
- Data Collection
- Instrumentation



Training

- Exercises
- Real World
- Troops

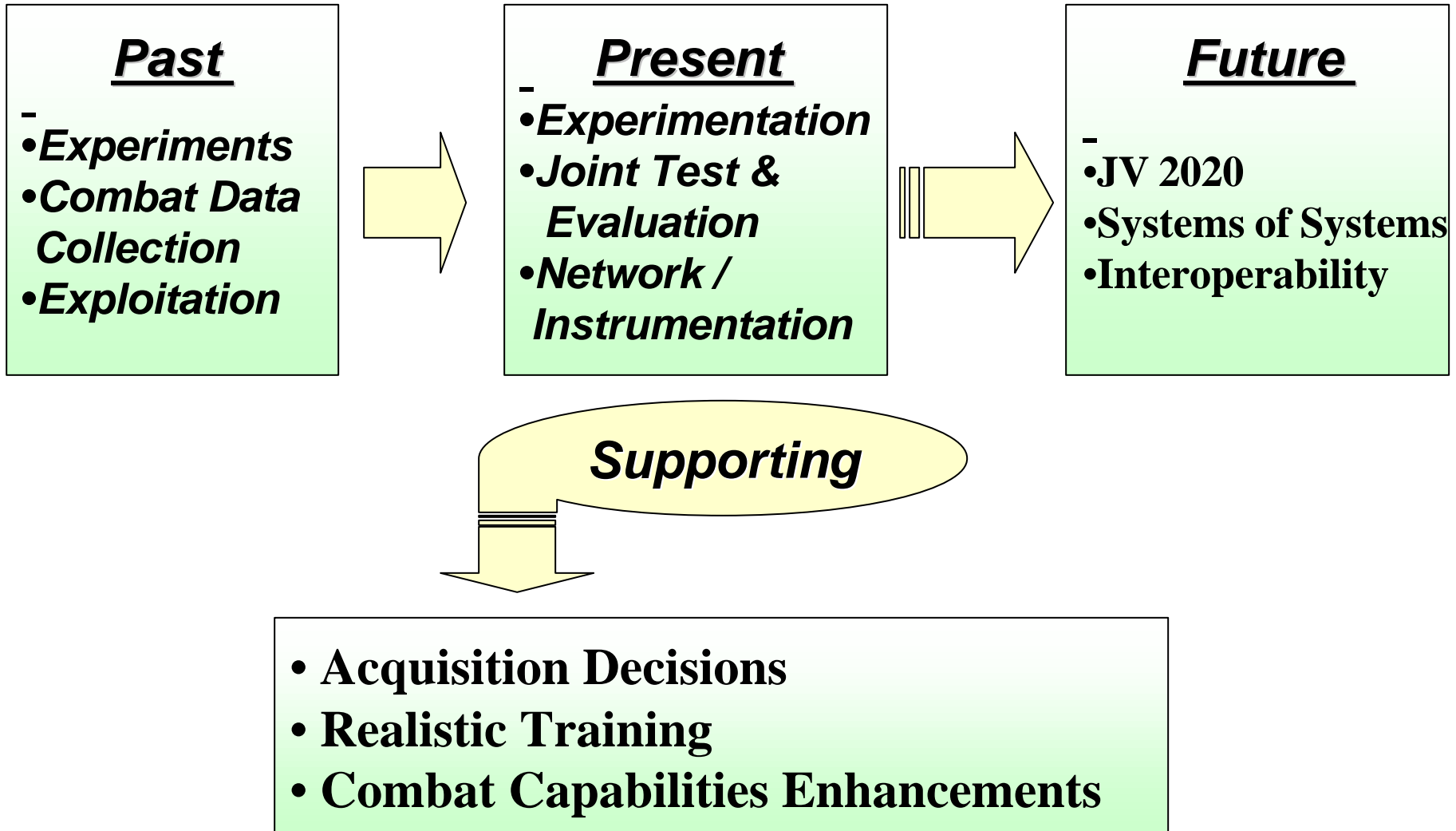
Balancing Objectives

Analyst / Evaluators

- Modeling
- Simulation
- Analytical Techniques

GOAL: Understand the Constraints & Objectives

Historical View



- ***Vietnam***
 - ✓ ***Wound Data Munitions Effectiveness Team***
 - ✓ ***Battle Damage Assessment & Repair Program***
- ***Mid-East Conflicts***
 - ✓ ***Armor Data Collection***
 - ✓ ***Support Operations Data***
- ***Desert Shield / Desert Storm***
 - ✓ ***Armor Data Collection***
 - ✓ ***New Systems Performance***
 - ✓ ***Weapons Performance***

Valuable Lessons Learned for Test & Training

Wound Data Collection

- ***Data on wounds of US casualties
- location, damage & cause***

Benefits & Impact

- ✓ ***Design inputs for more effective helmet***
 - ✓ ***International Red Cross challenges on M-16***
 - ✓ ***Improved modeling capabilities***
 - ✓ ***Enhanced Body Armor***
 - ✓ ***Validated wound criteria***



Battle Damage on Material

- ***Data Collected on US Equipment***
 - ***Helicopters***
 - ***Fixed Wing***
 - ***Ground Systems***

Benefits & Impact

- ✓ ***Emphasis on design for survivability***
- ✓ ***Basis for establishment of JTTCG/AS***
- ✓ ***Validation & update of Vulnerability Models***
- ✓ ***Improved understanding of threat weapons***
- ✓ ***Stimulus for developing BDAR Training***



Past – JT&E VAL Programs

SEEKVAL

- Target acquisition
- Simulators

HITVAL

- P_H Aircraft
- Threat systems
- Modeling

Testing, Training,
Analytical Partnership

Air Combat Evaluation (ACEVAL)

- Close in aerial combat
- Multiple aircraft

Air Intercept, Missile Evaluation (AIMVAL)

Tactical A/C Effectiveness & Survivability in CAS (TASVAL)

- Loss Rates
- Synergy of Systems
- Weather & EW

Impacts of VAL Programs

***Significant Data
To Support:***

- ***System Requirements***
- ***Evaluations***
- ***Modeling Enhancements – V & V***
- ***Acquisition Decisions***
- ***Risk Reductions***

***Understanding
Operational
Issues:***

- ***Improved Tactics***
- ***System limitations***
- ***Threat Capabilities***

Lesson Learned - Desert Storm

- *Armor System Damage*
- *Weapon Performance*
- *Performance Assessment Team*
- *Logistics Support*
- *Intelligence Shortcomings*
 - ✓ *Battle Damage Assessment*
 - ✓ *Time Sensitive Targets*



Logistics Lesson Learned

Logisticians could track, but not predict

General Foss, USA (RET):

"..the worst decision was the decision to stock 60 days of supply and ammo -- it drove up force structure, it cost the Army lots of money and time and over 90% was backhauled



Tons of Stuff Shipped = Pounds per Man per Day

Theater Troop Strength

- 9.7 Million Tons of Materiel Shipped
- More than 6 Million Tons of POL
- Air Force Shipped 350,000 Tons of Ordnance/
Used 69,000Tons or about 20%



Testing + Training = Improvements

LOGISTICS

- J Theater Distribution
- JLOG/Planning Enhancements

CURRENT OPERATIONS

- J Close Air Support
 - J Suppression Enemy Air Defenses
 - J Battle Damage Assessment
 - J WarFighters

JV2020

JOINT T&E
PRESENT

Improve JTTPs

INTEROPERABILITY

- J Interoperability Test Methodology
- JC2, Intelligence, Surveillance and Reconnaissance
- J Data-link Information Combat Execution

FUTURE OPERATIONS

- J Shipboard Helicopter Integration Process
 - J Unmanned Aerial Vehicle

Approach:

- ***Addressing Combat Problems and Issues***
- ***Process Baseline & Modeling Procedures***
- ***Leveraging Training Exercises & Real World Events***
- ***Using Modeling & Simulation***

Impacts:

- ***Evaluate Alternatives to Enhance Combat Capabilities***
- ***Changes in Joint Tactic, Techniques & Procedures***
- ***Integrating M&S into Acquisition, Test & Training***

Army Data Collection



PURPOSE :

- *Establish database on replacement rates for mission-essential parts based on intensive usage*

DATA SUPPORTS :

- *Modeling of combat spares*
- *Planning of spares for combat*
- *Efficient support planning for training exercises*

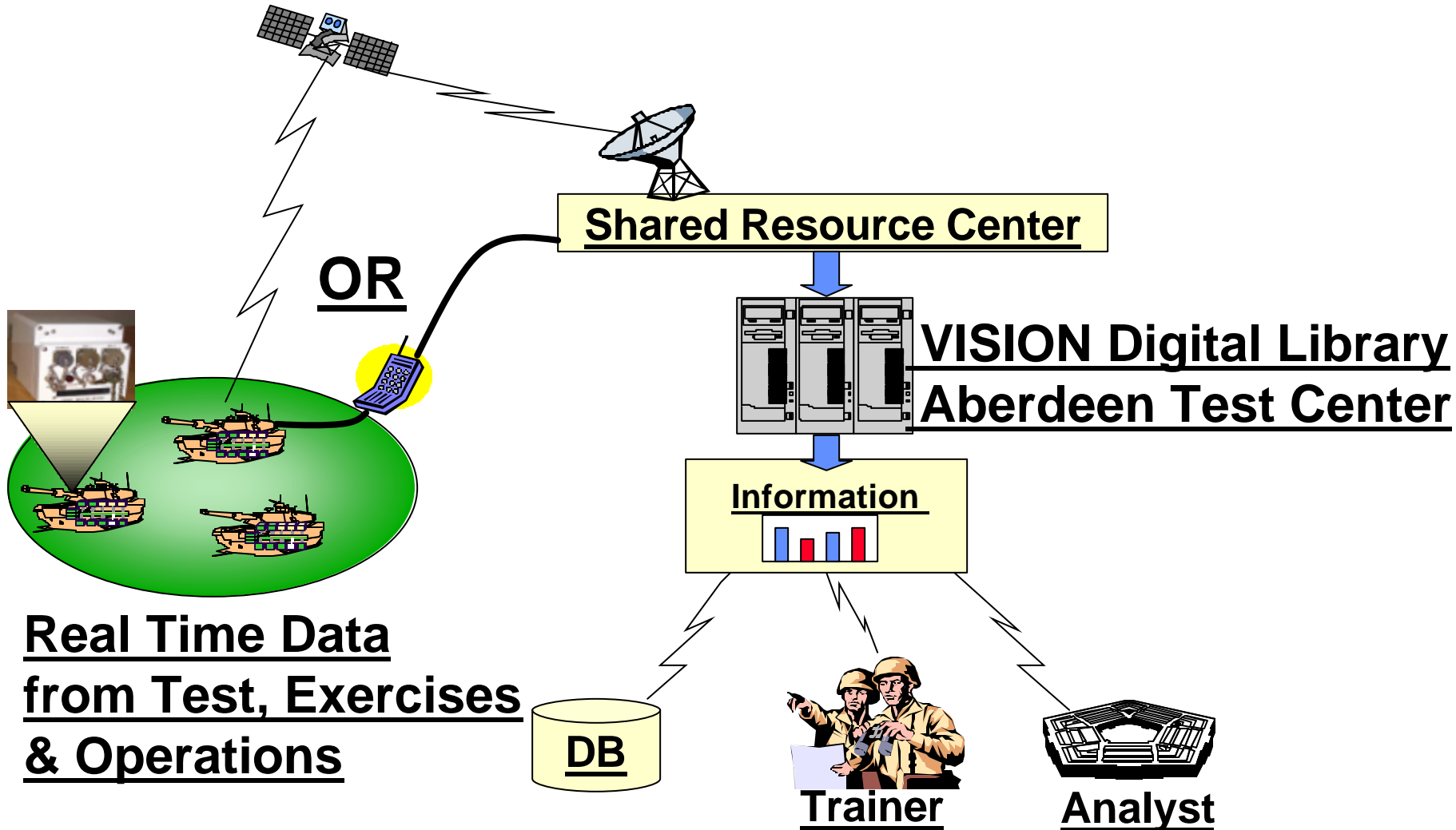
Tester Technology

- **Manual & Time Consuming Process**
- **Models Support Log Plans**



- **Real Time & Accurate Info To Support Log Plans**

Application of Test Technology



Changing World

**Changing Mission
& Requirements**

**Information
Operation**

**New Kill
Mechanisms**

**Joint
Operations**

**Systems of
Systems**

**Lighter
Systems**

Threat

Non-Lethal

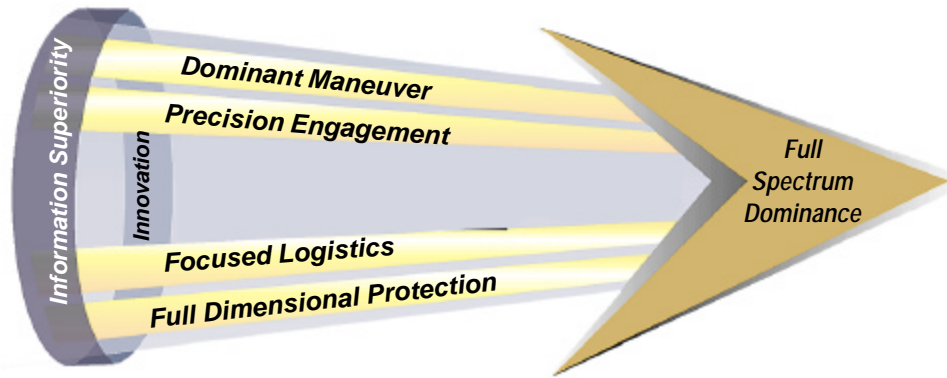
**New
Challenges**



**New Tools
&
Measures**

Meeting Future Requirements

JV 2020 Goals



Testing

- HWIL
- Range Connectivity & Synthetic Environment
- Real Time Data
- CTEIP

Analyst / Evaluator

- HLA
- High Speed Computing
- Constructive/Virtual M&S
- Object Modeling
- DIS

Training

- JTASC
- Resources – Eqp & Personnel
- Exercises

Partnership Critical to Supporting Warfighter