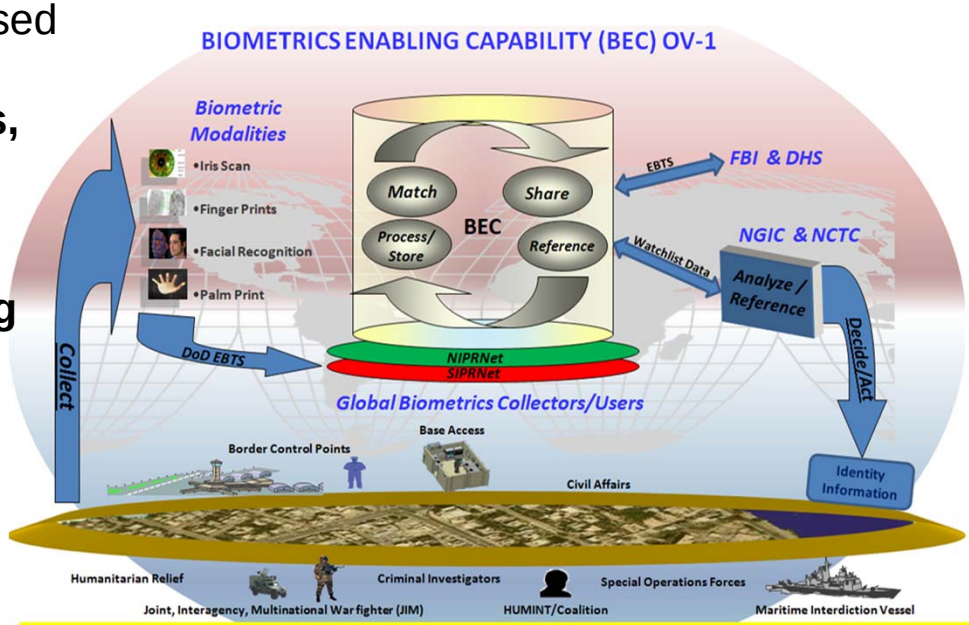
Case Study:
Automated Biometric Identification System (ABIS) Training Survey

ABIS System Description

- **A DoD-wide Biometrics Repository**
  - Core database is centrally housed in Fairmont, West Virginia
  - Biometrics include **fingerprints, face, iris, palm, and latent images**
- **Soldiers capture biometrics using hand-held devices in regions of conflict**
- **FBI and DHS share select biometrics according to sharing agreements**
- **ABIS 1.2 Upgrade***
  - Hardware
    - » Supports increased daily submissions (45K versus 8K)
  - Software
    - » Improved automated match response times
    - » Upgraded Examiner software applications

DOD Automated Biometric Information System



The DoD Automated Biometrics Identification System (to be the BEC Increment 0 Program of Record) will provide the DoD authoritative biometric data repository to support DoD and non-DoD missions such as detainee management, access control, counterintelligence, and border control. The BEC will share biometric identity information of enemy and neutral forces within and outside DoD, while abiding by national and international policies, thus permitting intelligence experts the ability to "connect-the-dots" linking battlefield attacks with criminal activity and to enable U.S Forces to distinguish between adversaries and the civilian population.

** ABIS is a Quick Reaction Capability, not a formal Program of Record. This was the first independent OT of ABIS*

ABIS CONOPS

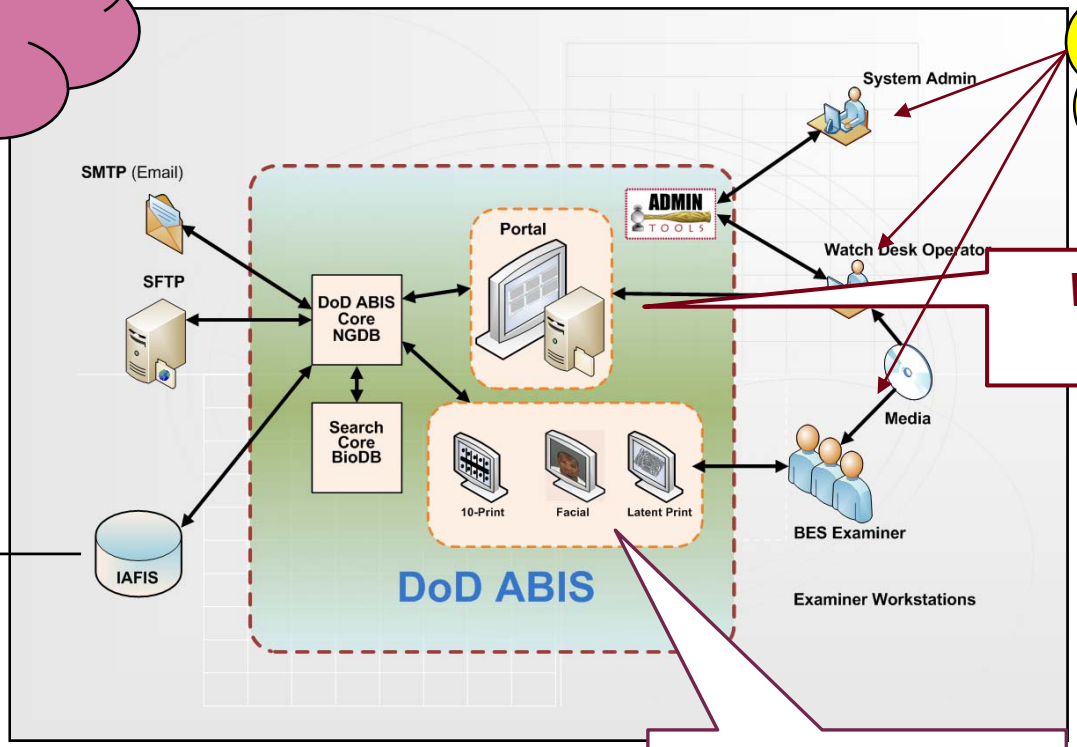
ABIS receives submissions via Email, FTP and media (DVD, Hard Drive, etc.)

End User Surveys:
Mission Accomplishment

SUBMITTERS
DOD:
- **COCOMs**

Non-DOD:
- **FBI**
- **DHS**

Operator Surveys:
1. ***Software Usability***
2. ***Training***



Watchdesk GUIs

Examiner GUIs

ABIS Training Surveys

- **ABIS is a software-intensive system so operators need extensive training to accomplish their jobs**
- **Need to know if training course was adequate for all types of operators**
  - **Examiners** *(conduct manual matches of biometric and latent data)*
  - **Watchdesk** *(manages high volume of requests)*
  - **System Administrators** *(maintain system health)*
- **Goal is to assess whether the official training adequately prepared the BIMA operators to use the ABIS 1.2 upgrade to perform their daily tasks**
- **Test team used a custom survey**
  - Questions separated by topic measuring: curriculum, instructor, need for more training
  - Can compare results across users within this test or future tests (repeatable)
  - Test team interviewed users to gather specific recommendations

Training Satisfaction Survey (excerpt)

DoD ABIS Version 1.2

Evaluation Form

Part II (Training)

RESPONSE

IDENTIFIER

ITEM

Curriculum & Resources	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA
• The pace of the training was efficient	☐	☐	☐	☐	☐	☐
• The overall event was well-organized	☐	☐	☐	☐	☐	☐
• The curriculum content was well-structured	☐	☐	☐	☐	☐	☐
• The course met my expectations	☐	☐	☐	☐	☐	☐
• The subject matter was covered adequately	☐	☐	☐	☐	☐	☐
• Depth of material met training level needs	☐	☐	☐	☐	☐	☐
• The training materials were helpful	☐	☐	☐	☐	☐	☐
• Handouts & reference materials were relevant	☐	☐	☐	☐	☐	☐
Facilitator(s)						
• The instructor was knowledgeable	☐	☐	☐	☐	☐	☐
• The instructor was prepared	☐	☐	☐	☐	☐	☐
• The instructor communicated effectively	☐	☐	☐	☐	☐	☐
• The instructor answered questions completely	☐	☐	☐	☐	☐	☐
• Participation & interaction were encouraged	☐	☐	☐	☐	☐	☐
• The presentation was practical	☐	☐	☐	☐	☐	☐

Training Survey
Good and Bad Points

- **Good**
  - Clear separation of topics
  - User-friendly *(little interpretation needed)*
  - Closed questions *(permits comparing results across groups of users)*

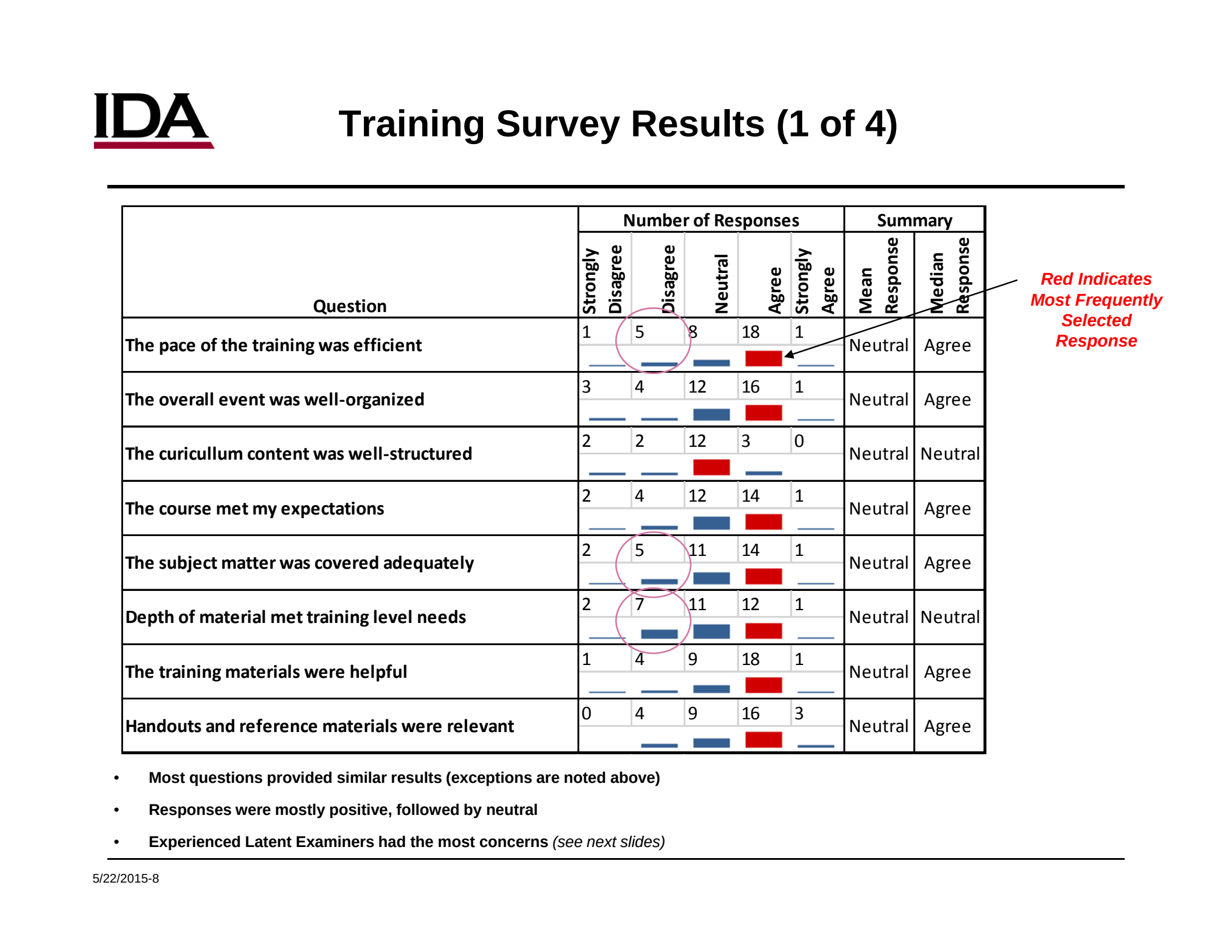
- **Bad**
  - Neutral responses not useful in this case because all users should have an opinion
  - Identifiers did not include numbers *(numbers are needed to indicate location in survey and to aid in data analysis)*
  - Some questions violate the knowledge liability rule, e.g.
    - » Adequacy of depth of material *(experienced operators may have an opinion but new operators probably won't know)*
    - » Instructor's level of knowledge *(same comment)*

Training Interview Questions

- **Sample questions to prompt further discussion**
  - Was adequate training provided on software tools?
  - Was training provided to successfully perform all trouble-shooting tasks appropriate to your position?
  - Was training provided to successfully perform all corrective maintenance tasks appropriate to your position?
  - Could you benefit from additional training?
- **Interviews help with problem identification**
  - Need for more training in specific areas
  - Timing of training (too early or too late to support the test or deployment)
  - Need for multiple levels of training (beginner to advanced)

Training Survey Results (1 of 4)

Question	Number of Responses					Summary	
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean Response	Median Response
The pace of the training was efficient	1	5	8	18	1	Neutral	Agree
The overall event was well-organized	3	4	12	16	1	Neutral	Agree
The curicullum content was well-structured	2	2	12	3	0	Neutral	Neutral
The course met my expectations	2	4	12	14	1	Neutral	Agree
The subject matter was covered adequately	2	5	11	14	1	Neutral	Agree
Depth of material met training level needs	2	7	11	12	1	Neutral	Neutral
The training materials were helpful	1	4	9	18	1	Neutral	Agree
Handouts and reference materials were relevant	0	4	9	16	3	Neutral	Agree



- **Most questions provided similar results (exceptions are noted above)**
- **Responses were mostly positive, followed by neutral**
- **Experienced Latent Examiners had the most concerns** *(see next slides)*

Training Survey Results (2 of 4)

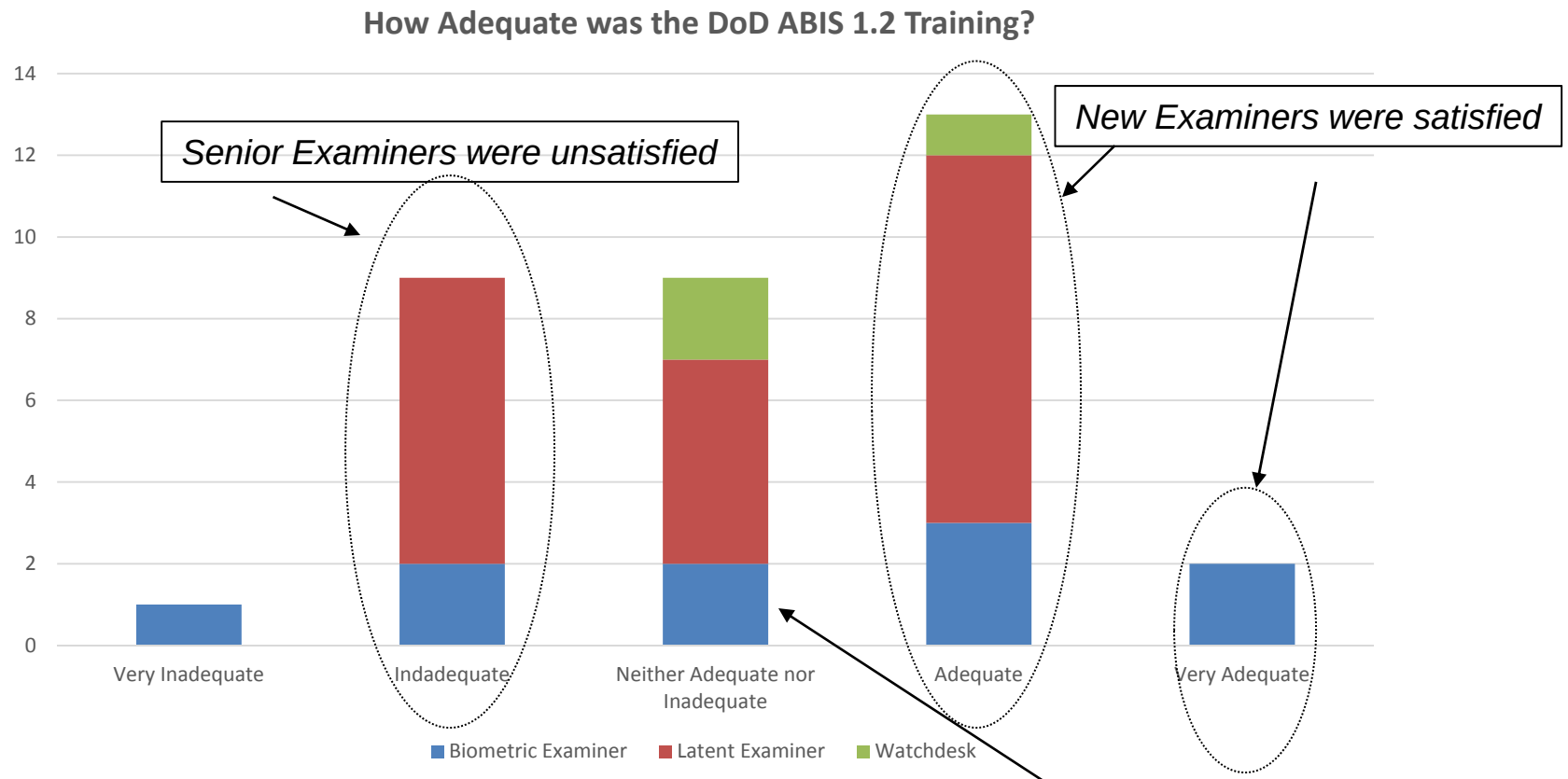
- **Extreme responses help identify <u>specific recommendations</u>**
  - Demographics surveys can help explain responses
    - » Use of anonymous identifiers protect identities and encourage freedom of expression

- **Senior versus beginner Examiner**
  - **Senior latent print Examiner** (Id "2136")
    - » **Strongly disagreed** with 8 of 16 training effectiveness questions
    - » **Strongly agreed** with need for additional training
    - » Demographics data indicate 3 years and 9 months experience in current position.
  - **Beginner biometrics Examiner** (Id "3233")
    - » **Strongly agreed** with all 16 of 16 training effectiveness questions
    - » **Strongly agreed** with need for additional training
    - » Demographics data indicate 9 months experience in current position

- **Recommendations**
  - Multiple levels of training are required
  - This training was appropriate for newer personnel
  - Operators need more training
  - Interview Results:
    - » Need for on-the-job training
    - » Need for up-to-date documentation
    - » Need for follow-up training to reflect system changes

(All Operators took the same Training Course)

Training Survey Results (3 of 4)



Training Survey Results (4 of 4)

- **Survey Free Text Responses**
  - General training recommendations:
    - » Training was **provided too early** and the system has since changed considerably
    - » Need **updates to training documentation to reflect the many system changes**
  - Specific training recommendations:
    - » **Importing/acquiring images and encoding them**
    - » **Filling in the search fields**
    - » **Need more training on Tenprint and Facial Examination Tools**

Red font indicates findings and recommendations from the IOT&E

Lessons Learned / Survey Improvement Recommendations

- **The ABIS IOT&E Assessment provides a good example for conducting training surveys and interviews**

- **Recommendations for improving the surveys include**
  - Use **numbered identifiers** to aid in the analysis phase and to help the respondent comprehend the length of the survey
  - **Remove the *"neutral"*** option to prevent unmotivated users from not answering pertinent questions and to add value to the analysis
  - Administer surveys and interview questions together to aid in **problem detection** by identifying reasons for extreme responses.
  - Keep surveys as **short and concise** as possible and avoid repetitive questions
  - Avoid questions that violate the **knowledge liability rule** *(e.g., "The instructor was knowledgeable")*
  - Include a question asking for **specific improvement recommendations** *(allows operator to provide direct feedback to training instructor)*