

NIST ELFT Workshop  
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# Defining AFIS Latent Print “Lights-Out”

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# AFIS 10-Print Lights-Out

Arrest –  
Booking Process

Court

10-Print Operations

Central site receives and processes 10-print record with no human intervention; AFIS classifies, filters repository, extracts minutiae and performs search. Automatic Hit/No Hit decision. Record is updated or created.

Booking Officer performs 10-Print fingerprint capture and transmitted electronically to AFIS

Adherence to ANSI/NIST ITL 1-2007 standard

Notification of results is returned to submitting agency

Arrest record is available upon request.

10-print examiner reviews record, compares all fingerprints, verifies as being same person. Prepares report. Testifies in court.

Request for records testimony

Booking Officer and 10-print Examiner testify

# NIST ELFT Phase II Report

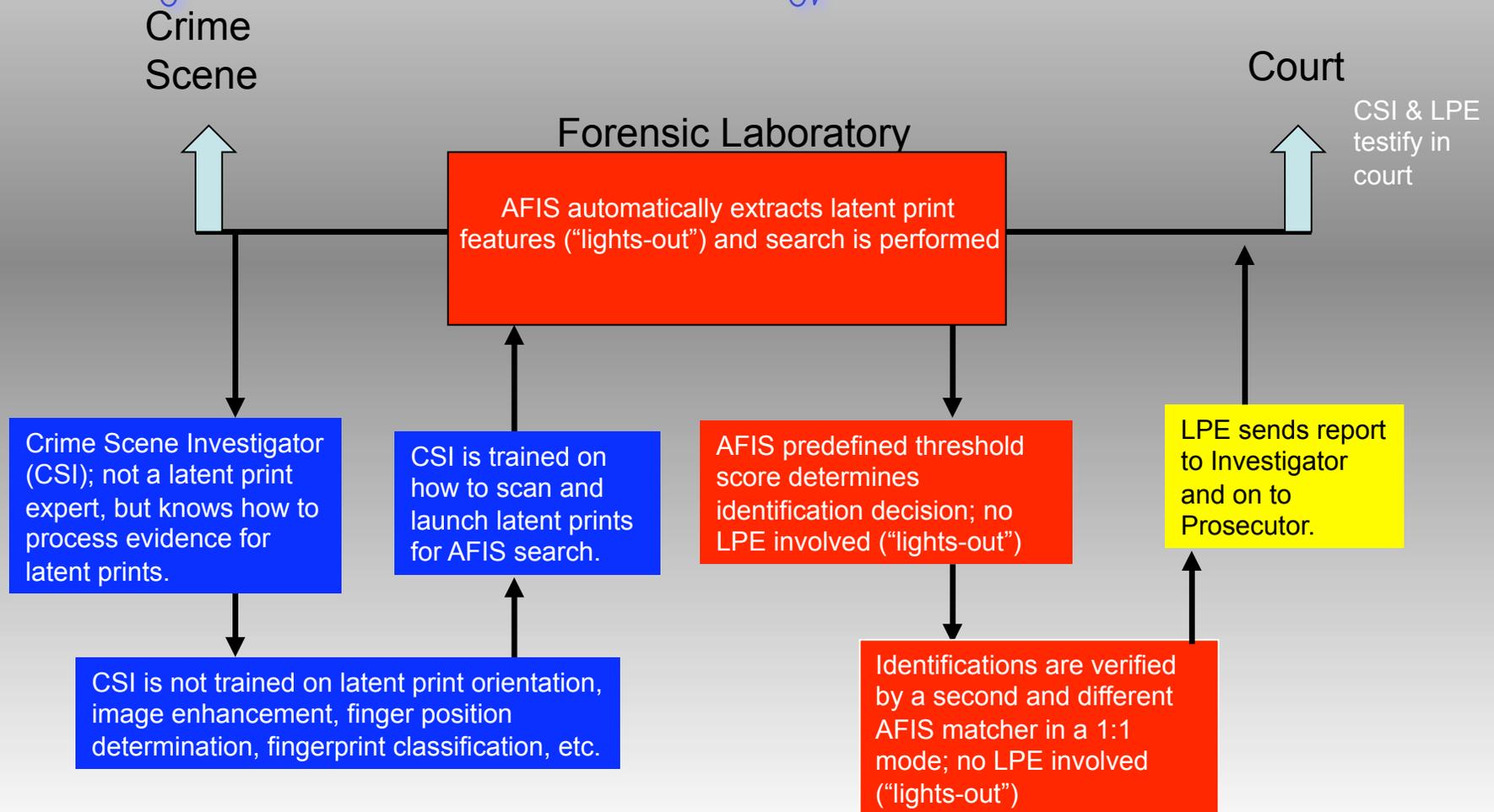
## Section 1.1, AFIS and Automated Feature Extraction and Matching

“It is important to distinguish AFEM-based latent fingerprint identification from the general concept of *lights-out identification*. *Lights-out* identification refers to a system requiring minimal or zero human assistance in which an image is presented as input, and the output consists of a short candidate list. For ten-print search applications, this list may be: 1) empty, 2) contain a single candidate, or rarely 3) have more than one candidate. Event (3) will occur only in cases when the matcher produces more than one candidate with a significant computed probability of being a true mate. *Lights-out* matchers are currently in operation for rolled fingerprint search systems, and are emerging for plain impressions. Latent fingerprints are much more difficult, and no *lights-out* matchers are currently in operational service. Furthermore, the *ELFT07 Concept of Operations (CONOPS)* asserts that a fully *lights-out* latent fingerprint matching capability represents too large of a single step from current practices.”



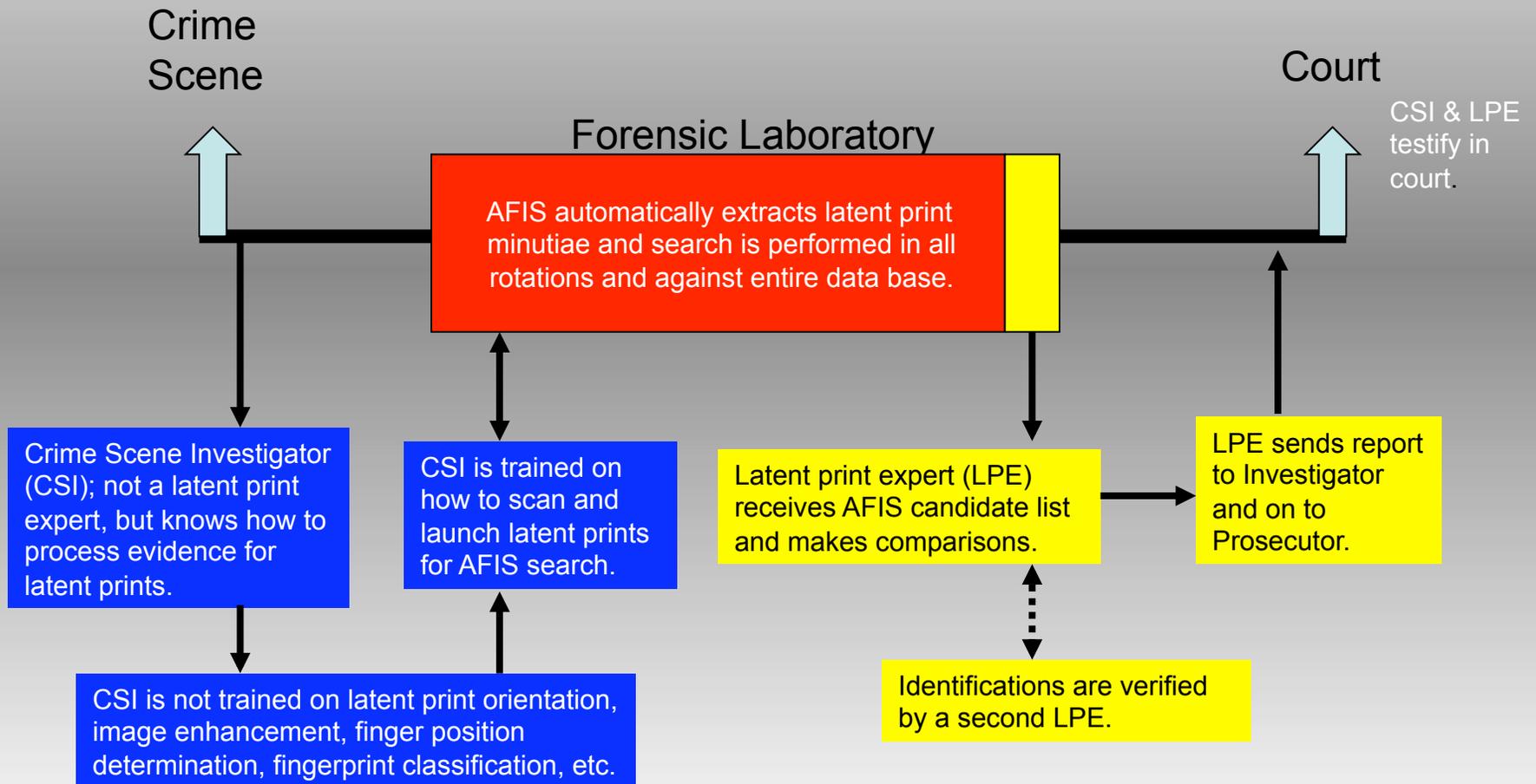
# Scenario 2

## AFIS "Lights-Out" Latent Print Searching, Identification and Verification



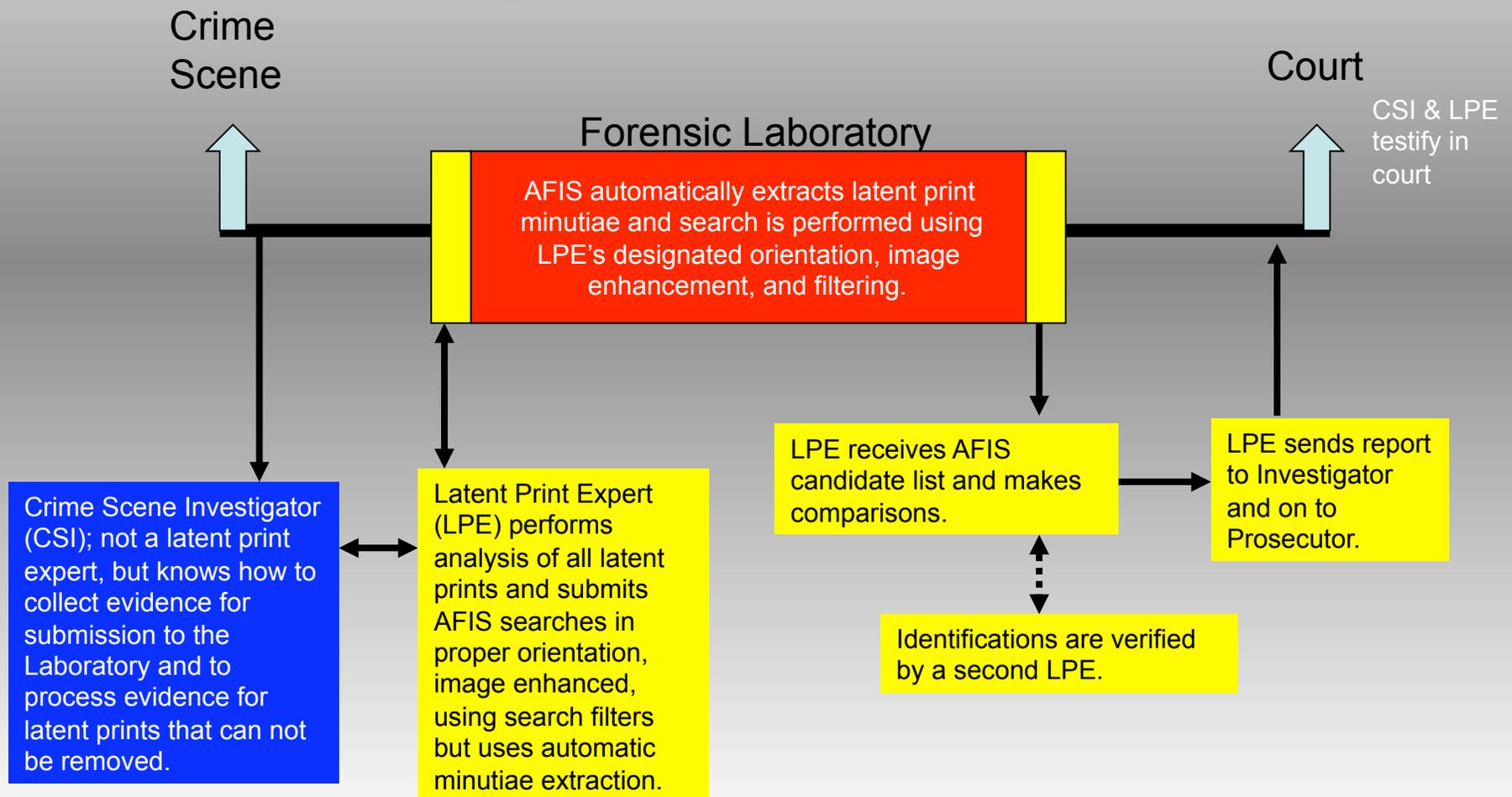
# Scenario 3

## AFIS "Lights-Out" Latent Print Searching



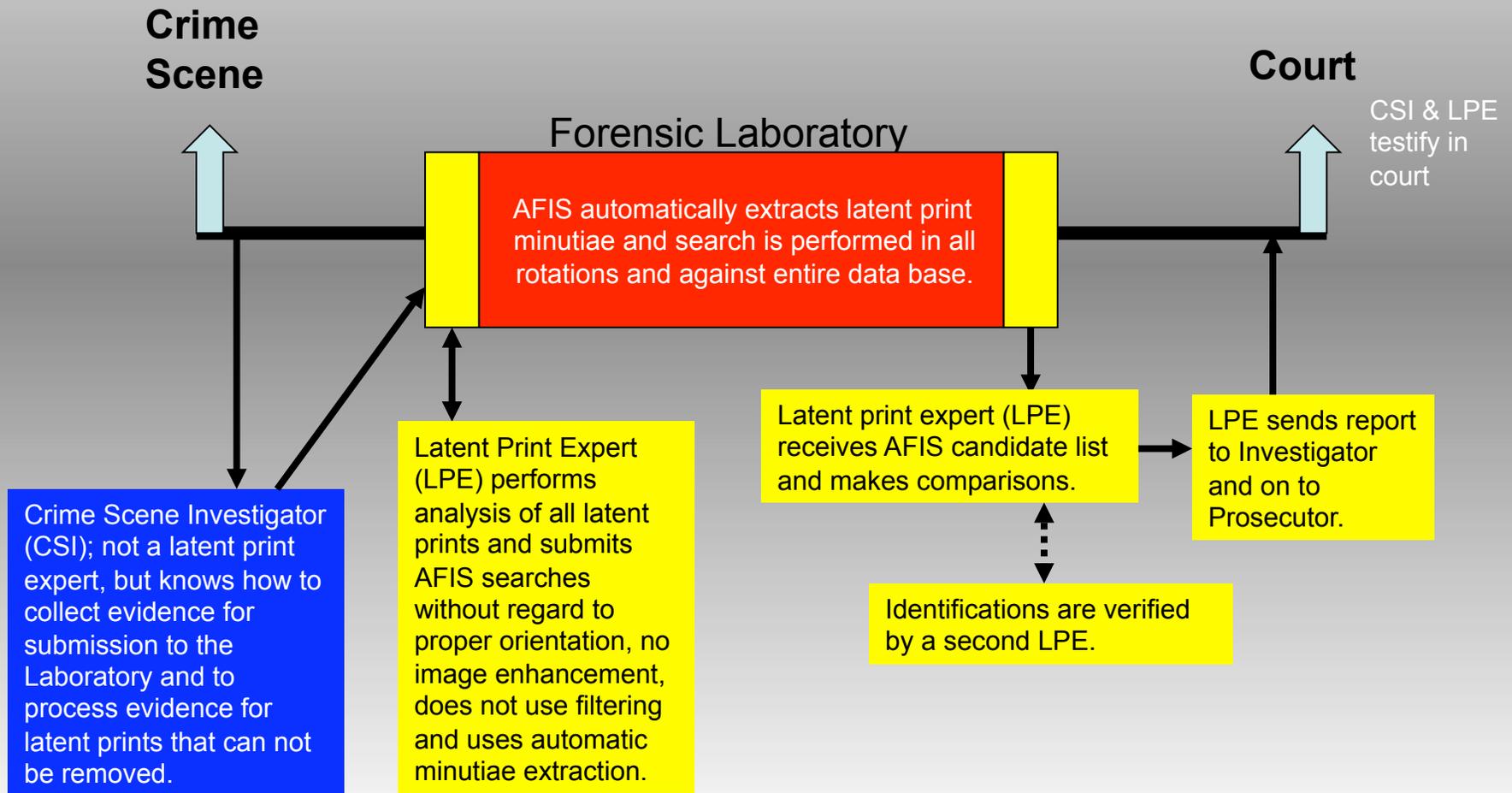
# Scenario 4

## AFIS "Semi Lights-Out" Latent Print Searching



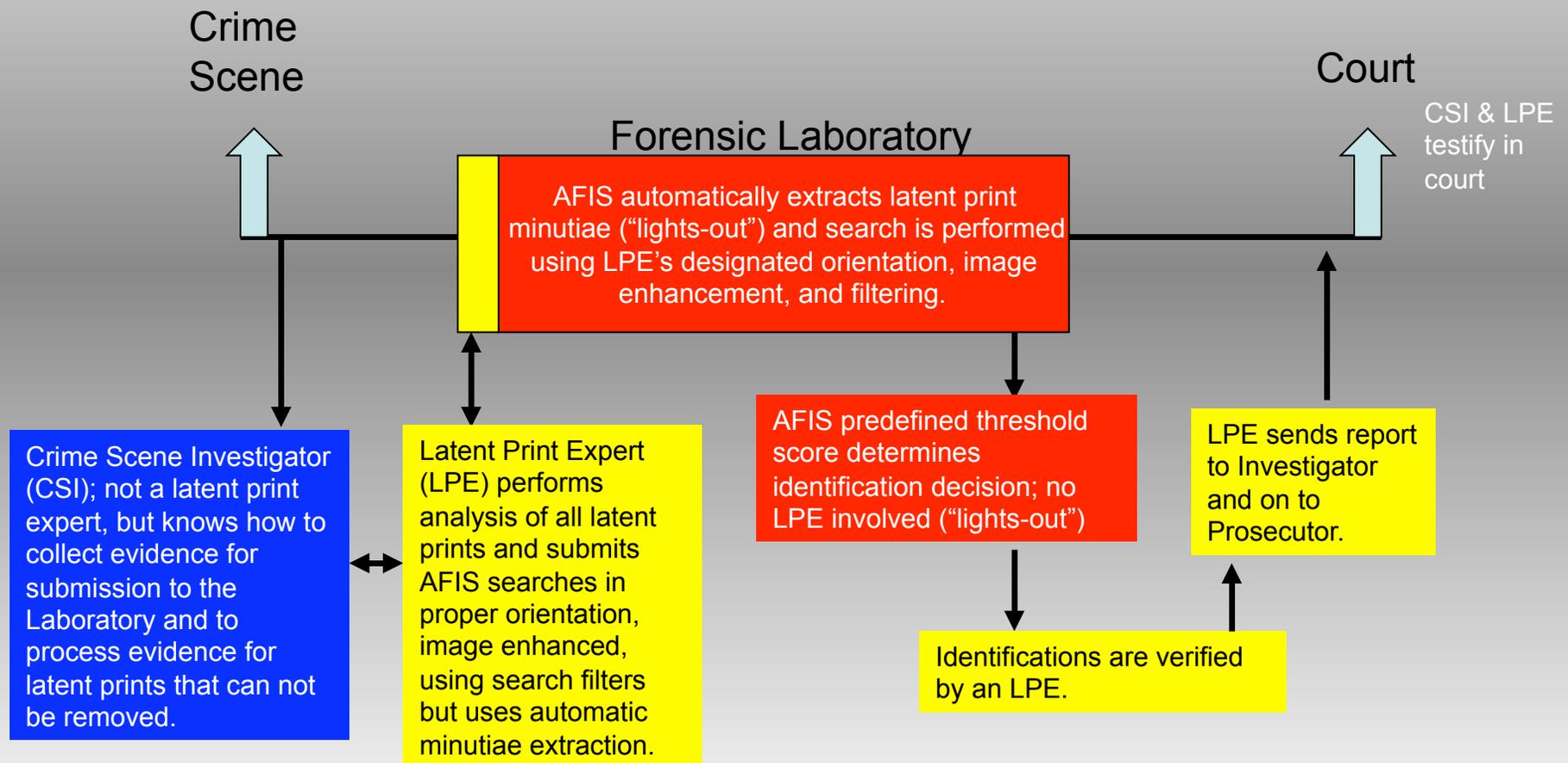
# Scenario 5

## AFIS "Semi Lights-Out" Latent Print Searching



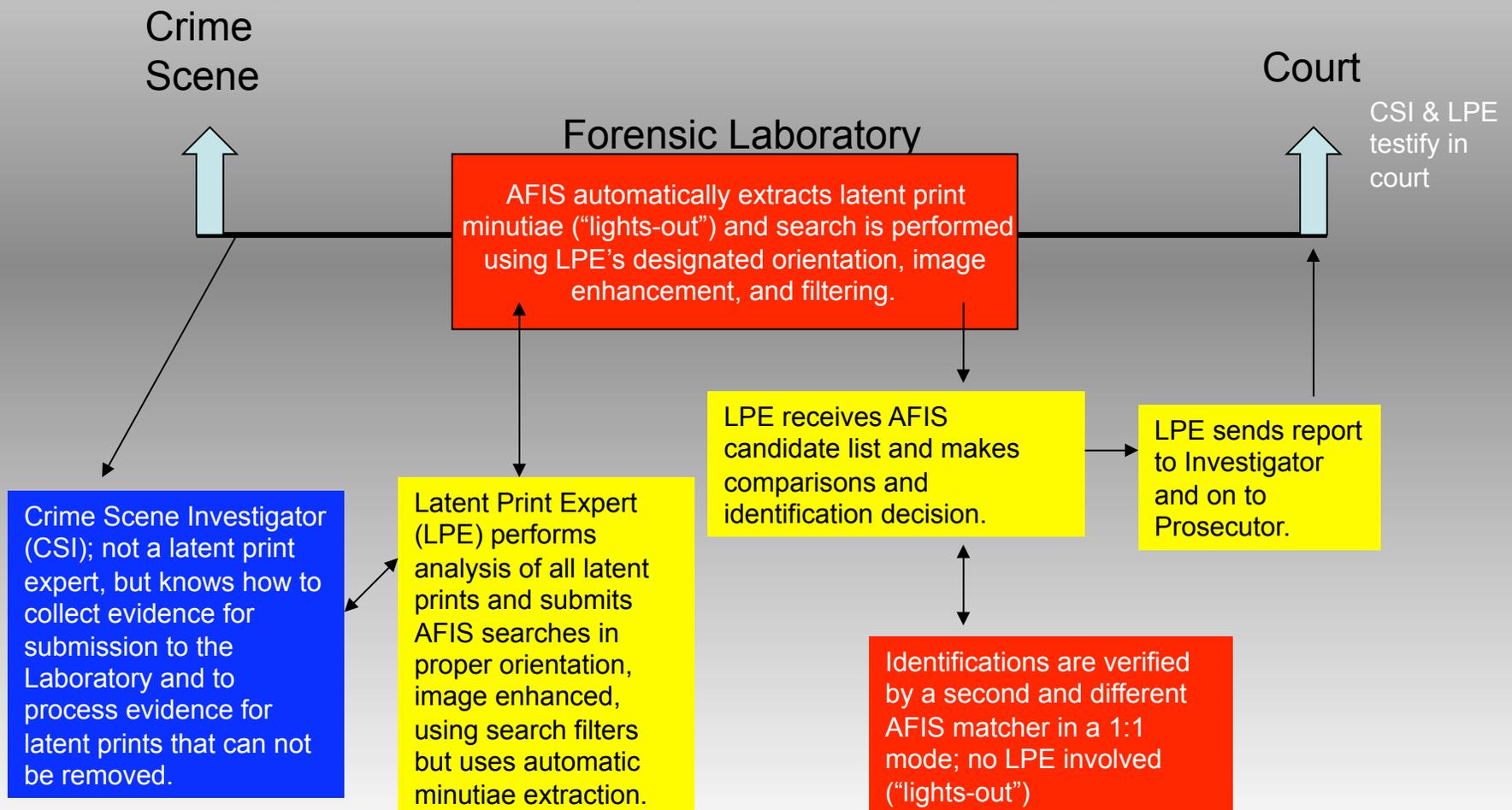
# Scenario 6

## AFIS "Semi Lights-Out" Searching and Latent Print "Lights-Out" Identification



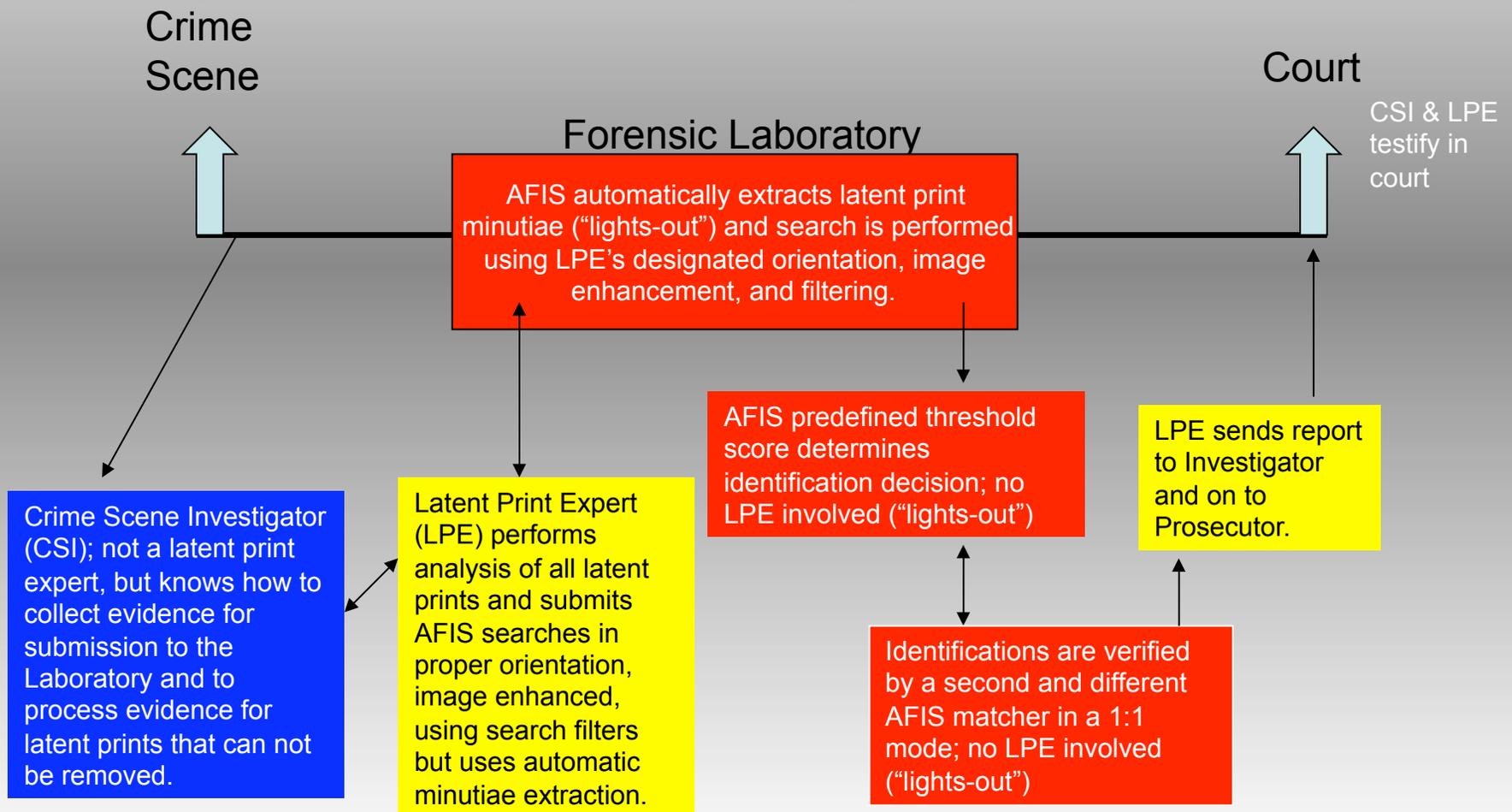
# Scenario 7

## AFIS "Semi Lights-Out" Searching and Latent Print "Lights-Out" Verification



# Scenario 8

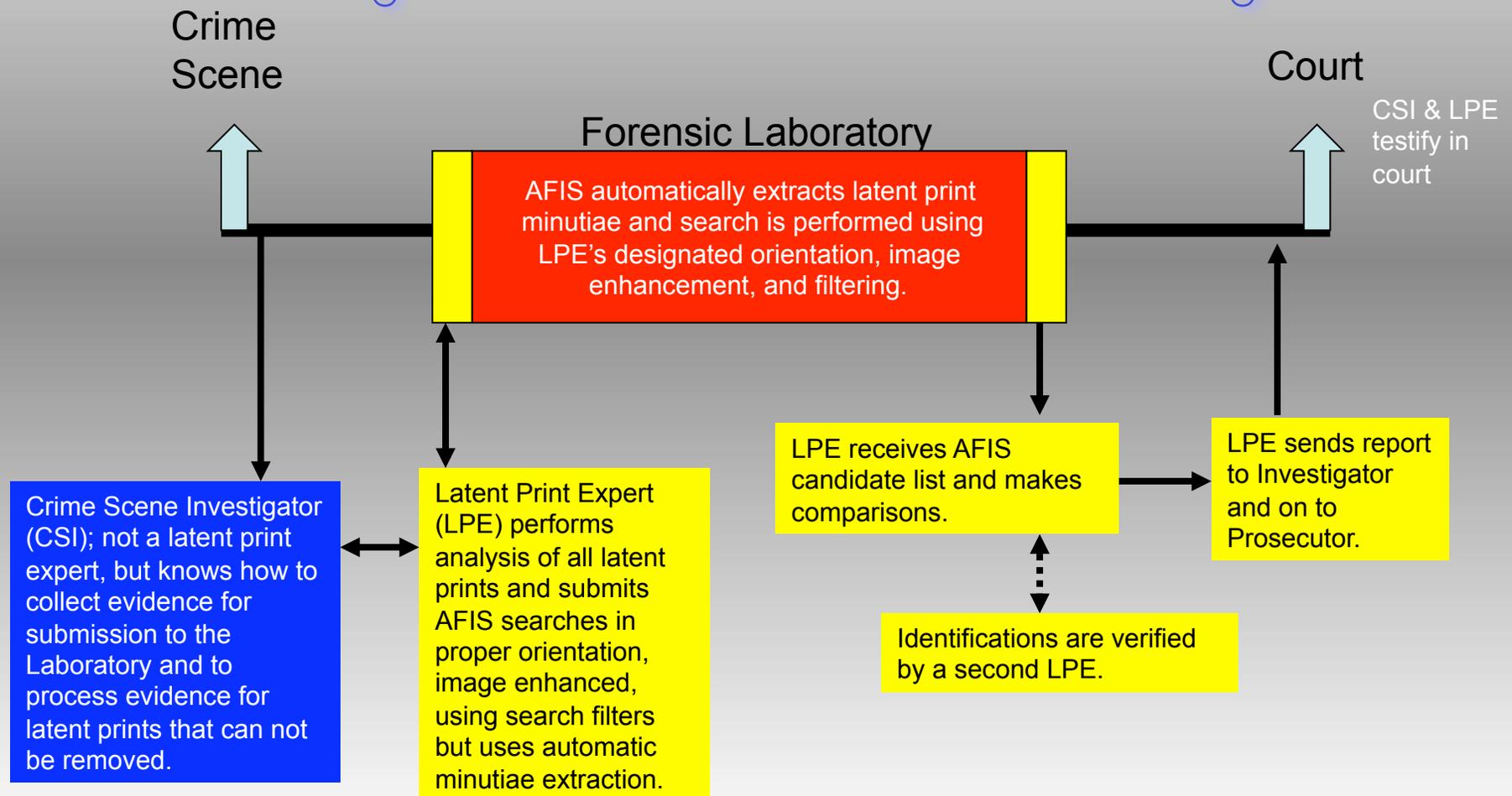
## AFIS "Semi Lights-Out" Searching and Latent Print "Lights-Out" Identification and Verification



**Which scenario is the ELFT Phase II test?**

# Scenario 4

## AFIS "Semi Lights-Out" Latent Print Searching - AFEM





What is the demand for each scenario?

Where is the market now? Future?

What needs to be tested next?