

NSA SCIENTIFIC ADVISORY BOARD

PANEL ON DIGITAL NETWORK INTELLIGENCE (DNI) (Née "C2C")

Report to Director

Lt Gen Jim Clapper USAF(RET)

Panel Members

(b)(3)-P.L. 86-36

OVERALL BRIEFING CLASSIFICATION

28 June 1999

Released by NSA on 17-May-2004
pursuant to the Freedom of Information Act
Case #: 41176

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... Subtitled...

You asked for the time of day...

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2/61

OVERALL CLASSIFICATION OF THE BRIEFING:

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AGENDA

- ➔ **1. Purpose**
- 2. Background**
- 3. Definitions and Historical Overview**
- 4. Importance of 'C2C'**
- 5. Target/Technology Trends - DNI Definition**
- 6. "TAXONOMIES"**
 - // Deployment**
 - // Functional / SMM**
 - // Skills**
 - // Systems**
 - // Organizational**
 - // Resources**
- 7. Conclusions**
- 8. Recommendations**

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1. Purpose

- **Describe broad strategy for "C2C"**
- **Respond to Congressional tasking regarding** (b) (3) - P.L. 86-36

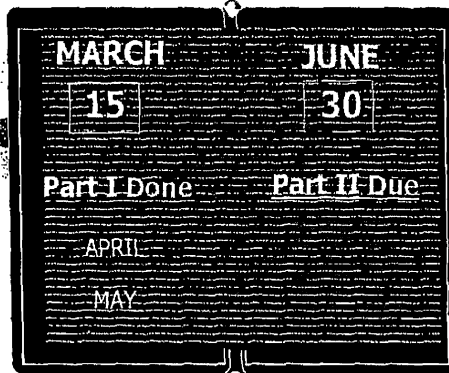
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2. Background

- **Congressional direction - FY99 Intelligence Authorization Act.**
 - /// **Focuses on NSA management of conventional and "C2C" programs**
 - /// **Requests DIRNSA task NSASAB for two part study**

2 Background

Part II : Conventional & "C2C" areas
(Due 30 June)



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7/61

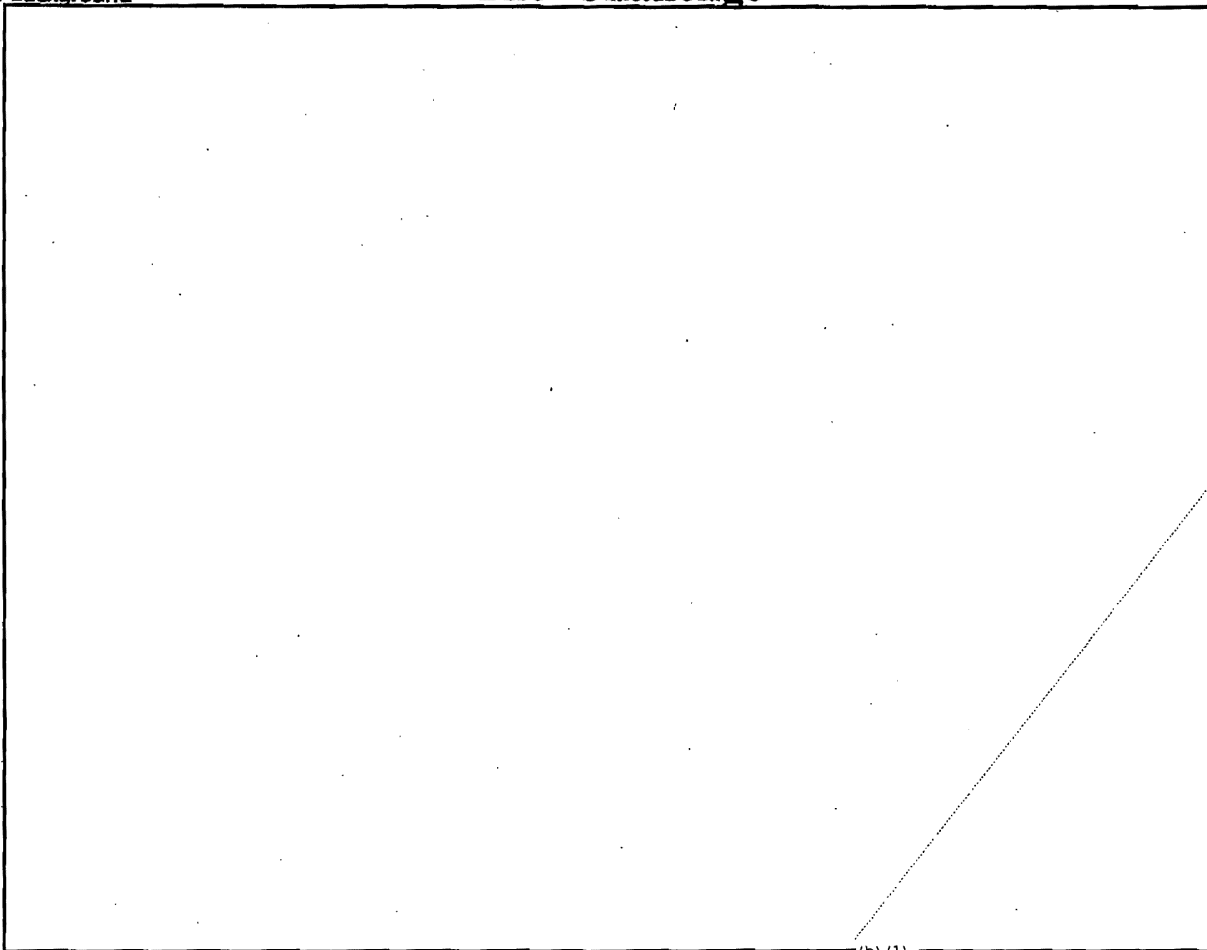
2. Background

The Tasking

- **"NSASAB should consider broader applications of SARC (SIGINT Automation Research Center) accomplishments and recommend additional SARC R&D activities for automation of collection, analysis and reporting of 'C2C' "**
- **"Identify technical direction and planning for 'C2C' survey"**
- **" Do the same thing for 'C2C' that the NSASAB panel did for Conventional under part I "**

2. Background

The Challenge



(b) (1)
(b) (3) - P.L. 86-36
(b) (3) - 18 USC 798
(b) (3) - 50 USC 403

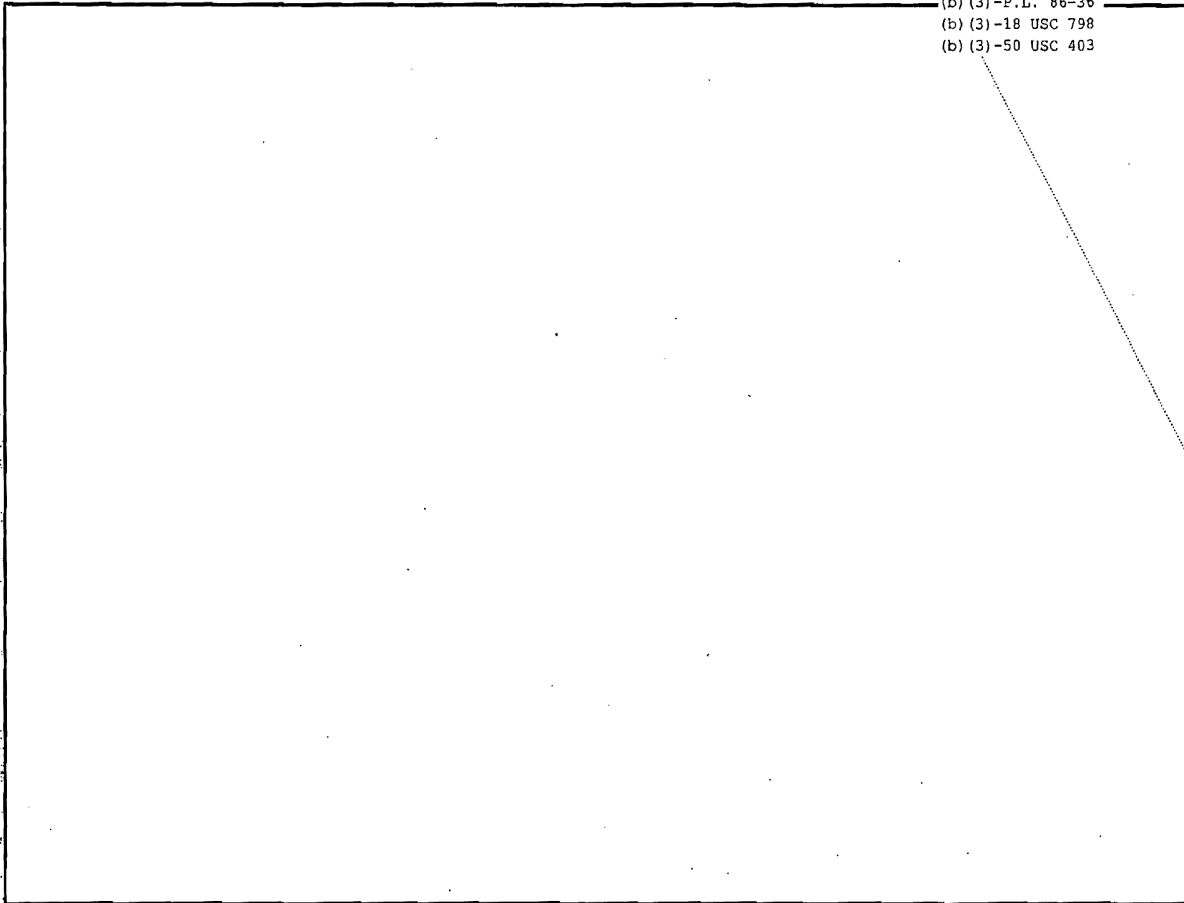
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2. Background

The Challenge (cont'd)

(b) (1)
(b) (3)-P.L. 86-36
(b) (3)-18 USC 798
(b) (3)-50 USC 403



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2. Background

The REAL Challenge

- **The responses to these questions transcend (b) (3)-P.L. 86-36 and the SARC**
- **They point out an entirely new paradigm for SIGINT**

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The Real Imperatives....

- **A commitment to re-tool: organizationally, programmatically, and technologically**
- **A universally understood template of the concept of SIGINT as it should be conducted and managed**
- **A plan of action which embraces the principle that *"Form Follows Function"***

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6. "TAXONOMIES"

/// Deployment

/// Functional / SMM

/// Skills

/// Systems

/// Organizational

/// Resources

7. Conclusions

8. Recommendations

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13/61

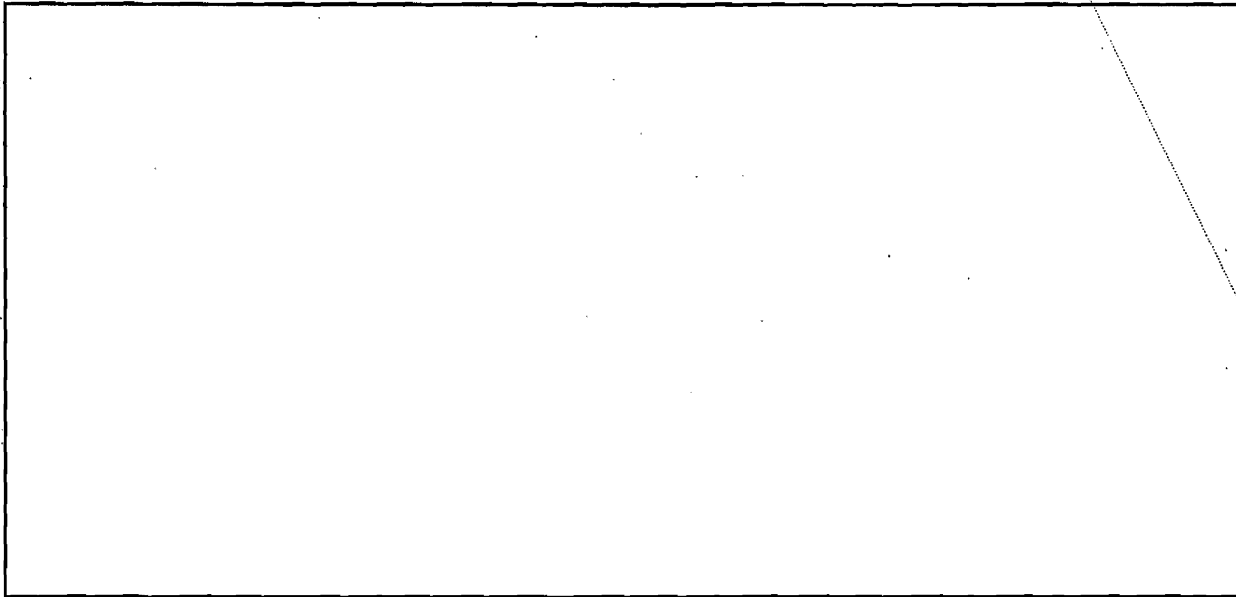


3. Definitions / Overview

(b) (1)
(b) (3) - P.L. 86-36
(b) (3) - 18 USC 798
(b) (3) - 50 USC 403

What is "C2C" ?

- **Term unique to NSA and its partners**



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14/61 

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4: The Importance of 'C2C'

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(b) (3) -P.L. 86-36
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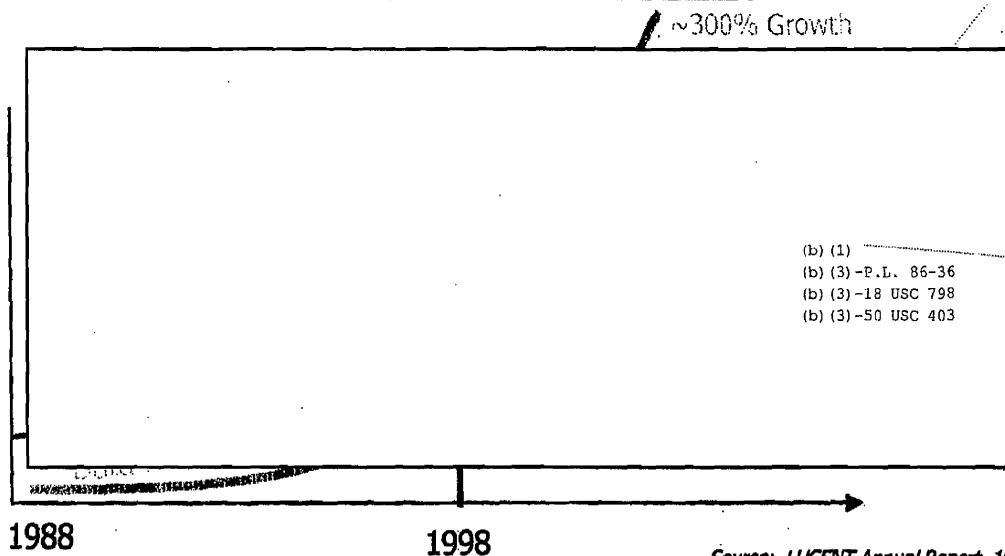
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5. Target/Technology Trends



Volume
of Traffic



Source: LUCENT Annual Report, 1998

This profound change mandates a new paradigm

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Digital Network Intelligence



"The intelligence from intercepted digital data communications transmitted between, or resident on, networked computers"

AGENDA

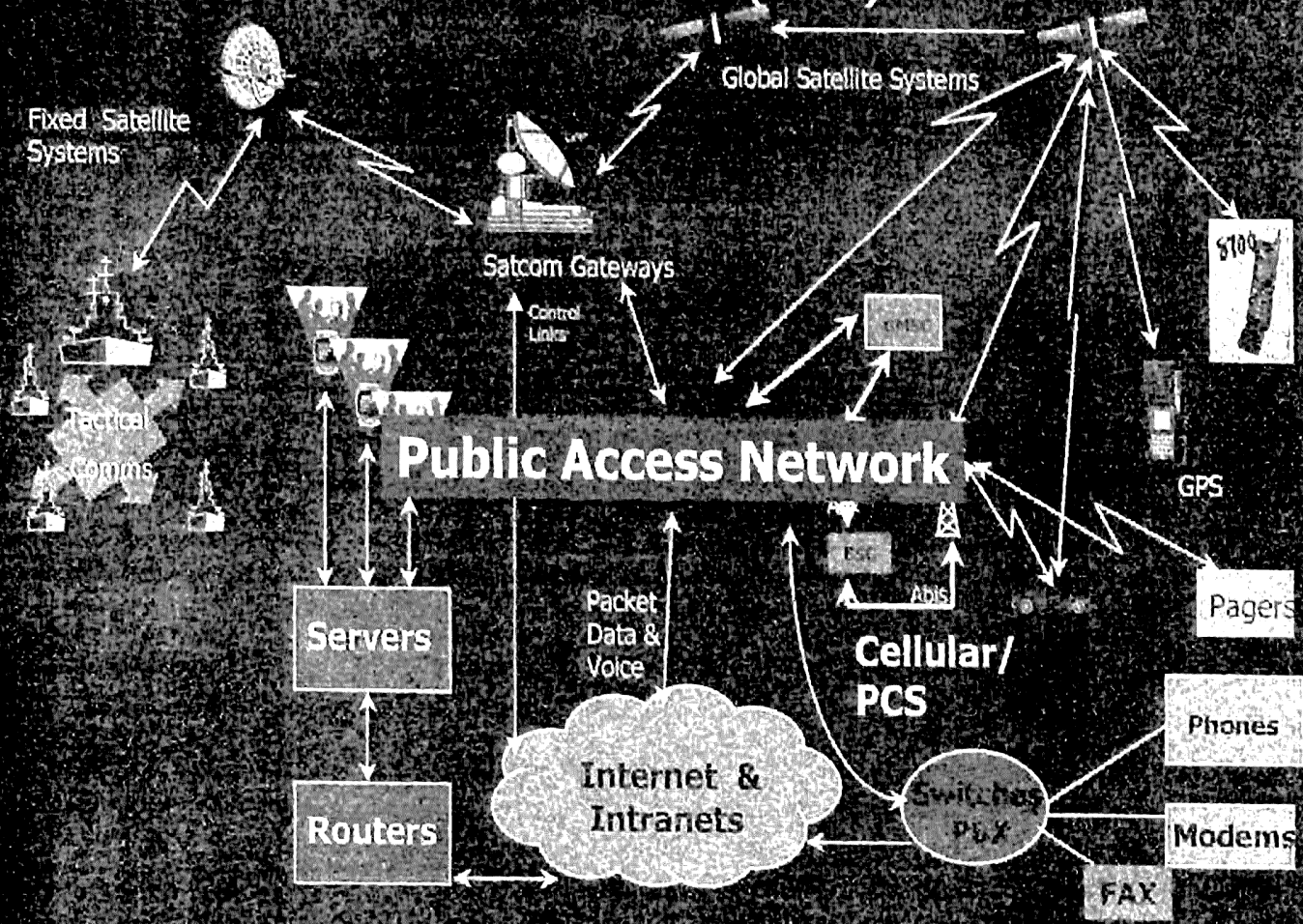
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→ **6. "TAXONOMIES"**

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"A Network of Networks - The Global Network Infrastructure (GNI)"



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(b) (1)
(b) (3) - P.L. 86-36
(b) (3) - 18 USC 798
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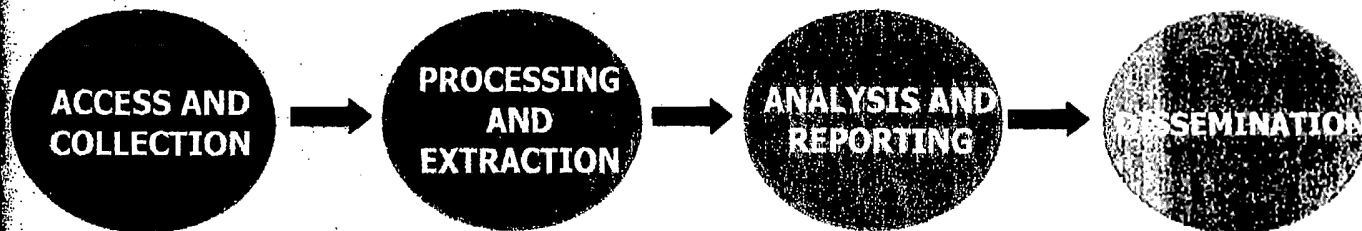
23/61

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DNI FUNCTIONAL TAXONOMY



Definitions

Includes Attendant Operational & Management Activities

A&C - The activity of identifying and acquiring target networks

P&E - The process of converting machine language into human language

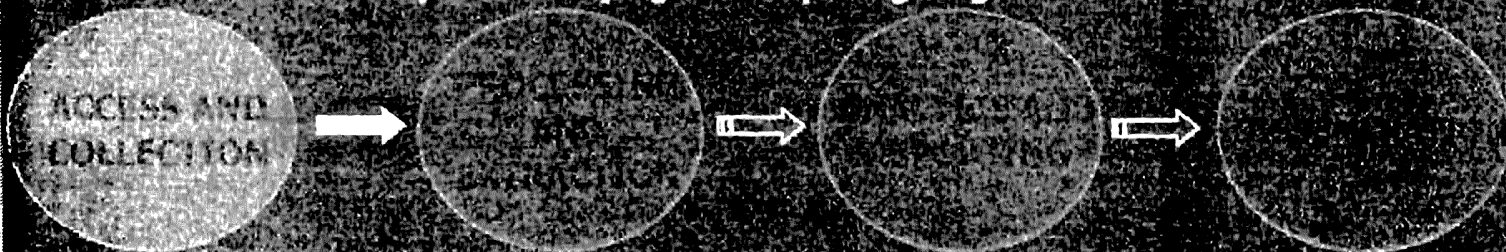
Dissemination - The forwarding and presentation of multimedia intelligence products

(b) (1)
(b) (3)-P.T. 86-36
(b) (3)-18 USC 798
(b) (3)-50 USC 403

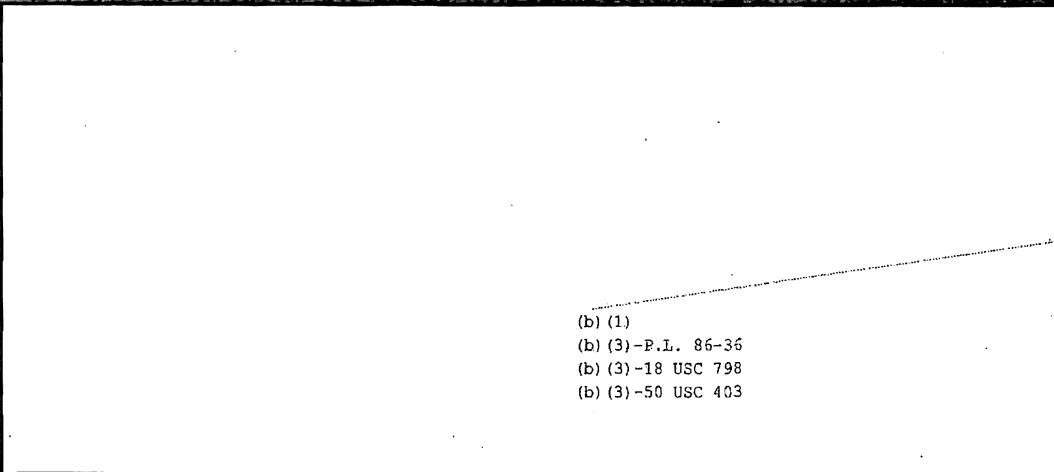
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ACCESS AND COLLECTION

The activity of identifying and acquiring target communications



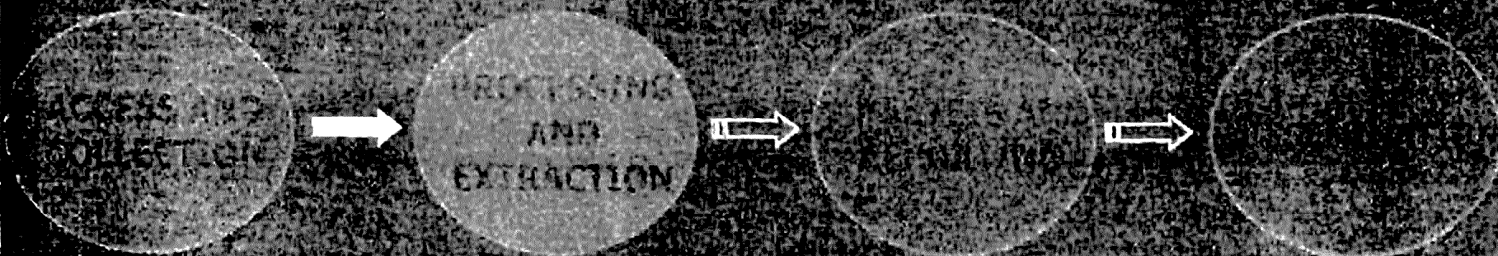
Types of Access



DNI FUNCTIONAL TAXONOMY

PROCESSING AND EXTRACTION

The process of converting machine language into human language



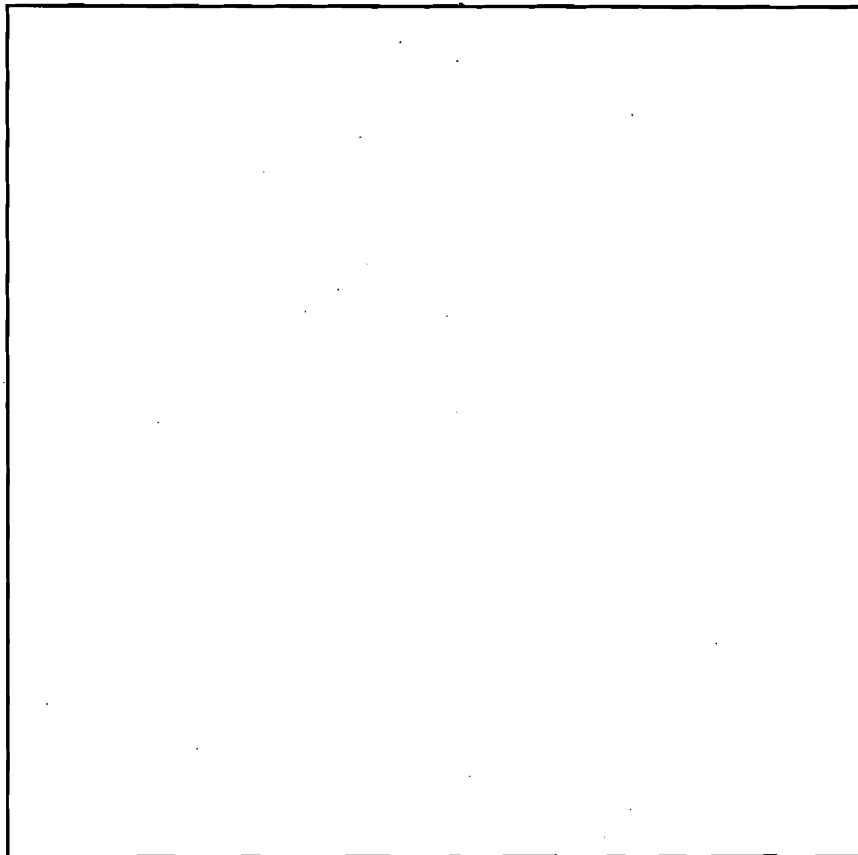
Manipulating huge volumes of heterogeneous complex data

Within P&E there are 4 major functions...



6. Functional Taxonomy - Processing

DNI PROCESSING CYCLE



(b) (1)
(b) (3) - P.L. 86-36
(b) (3) - 18 USC 798
(b) (3) - 50 USC 403

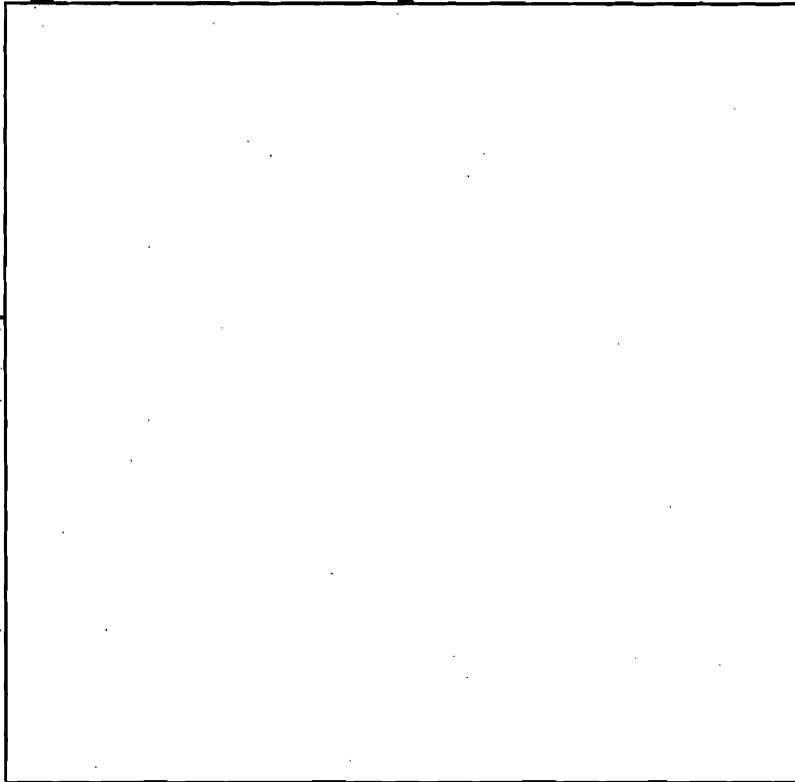
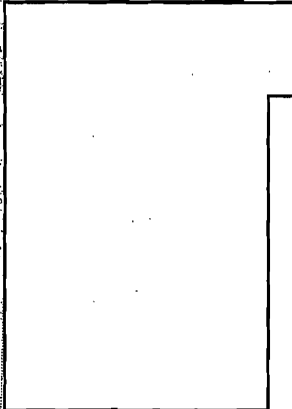
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28/61



6. Functional Taxonomy - Processing

PROCESSING FUNCTIONS



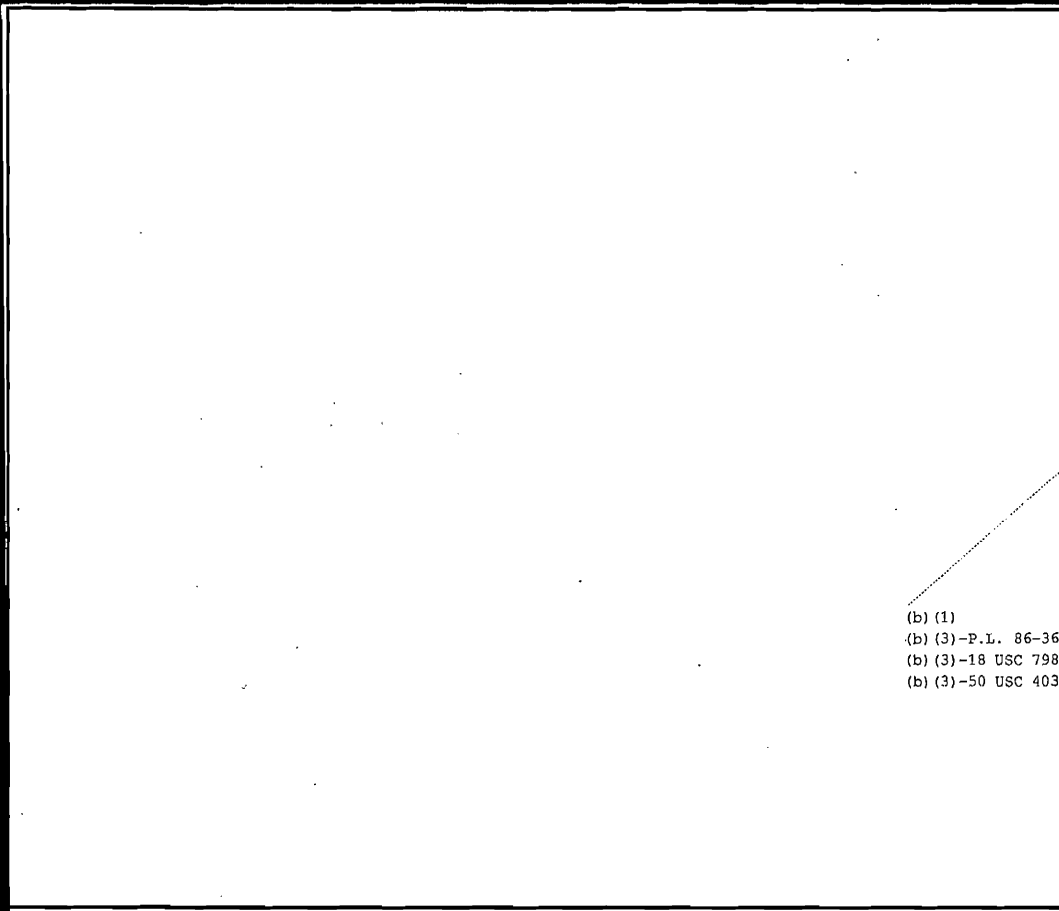
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6. Functional Taxonomy - Processing

Example of the signal processing challenge - Where/What do we extract ?



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(b) (3)-P.L. 86-36
(b) (3)-18 USC 798
(b) (3)-50 USC 403

6. Functional Taxonomy - Processing

PROCESSING FUNCTIONS

(b) (1)
(b) (3)-P.L. 86-36
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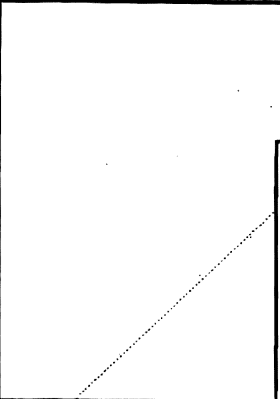
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32/61 →

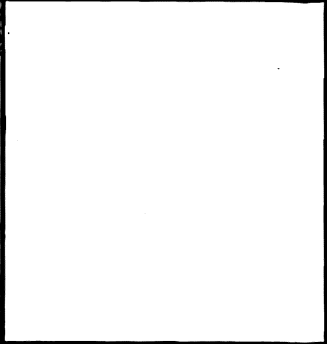
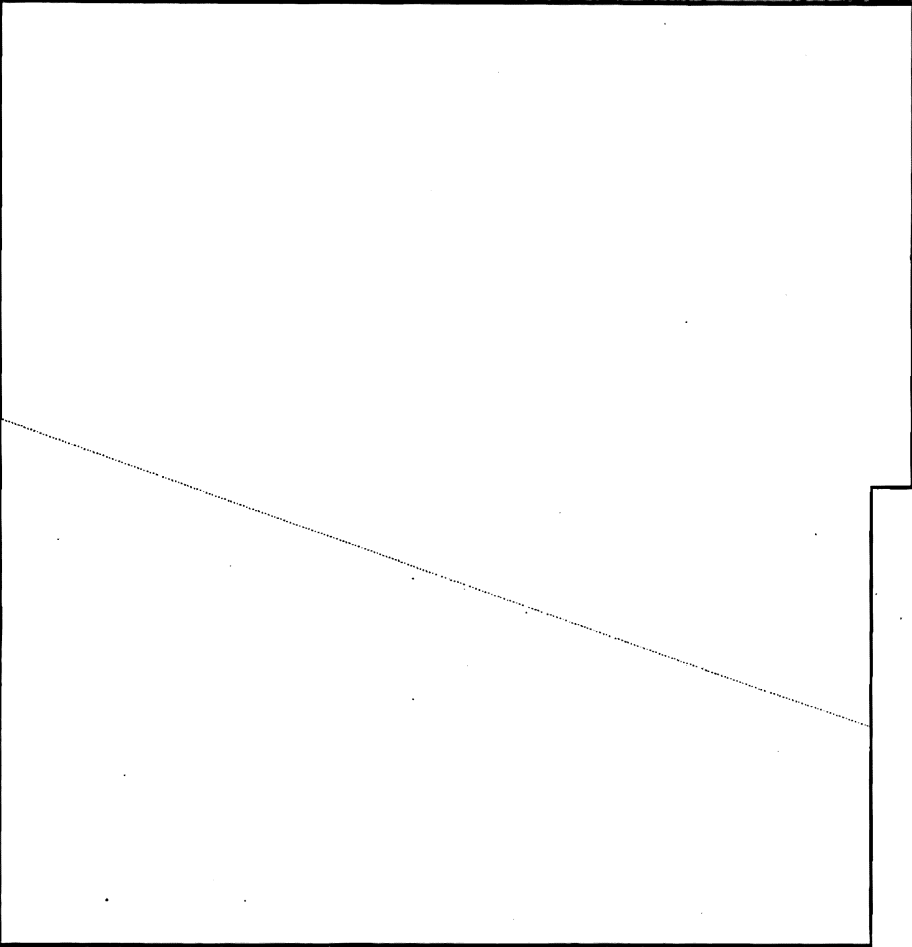
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6. Functional Taxonomy - Processing

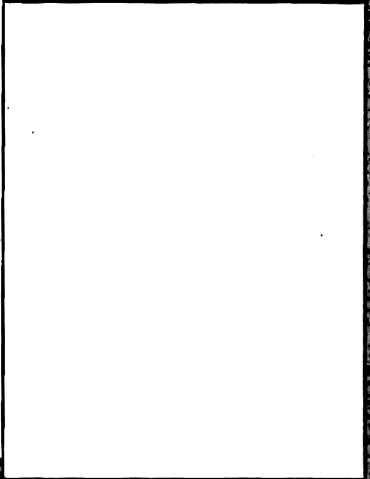
PROCESSING FUNCTIONS



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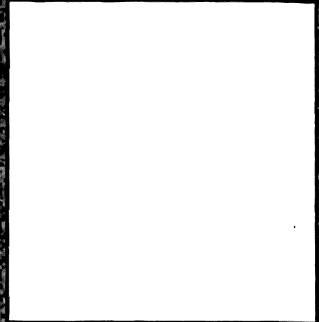
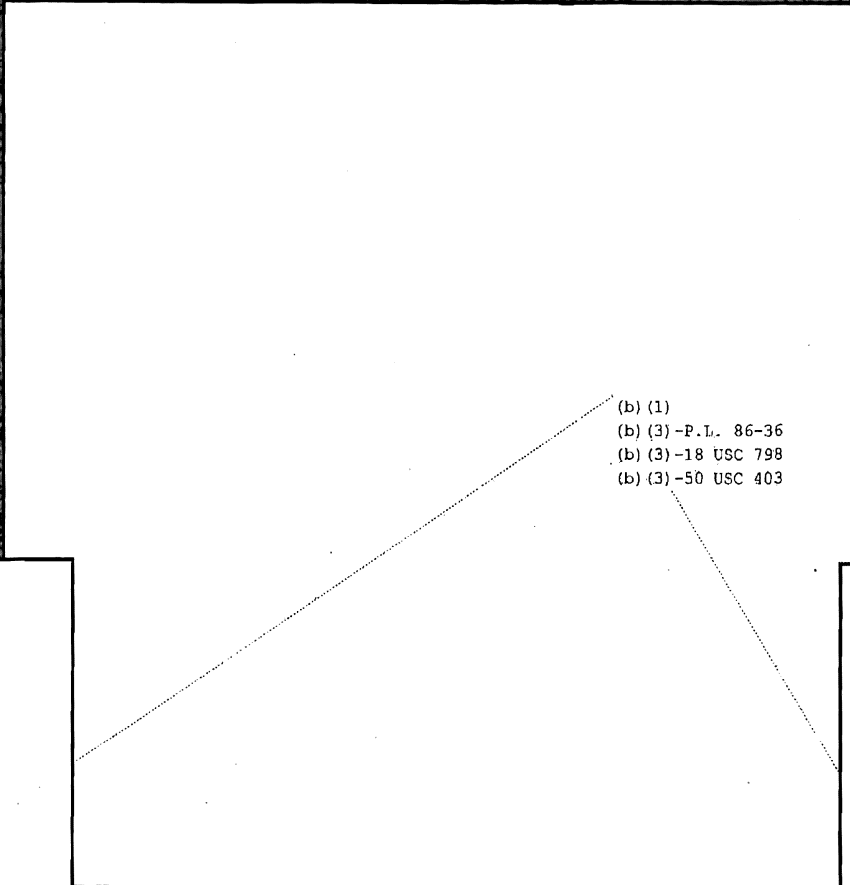
6. Functional Taxonomy - Processing

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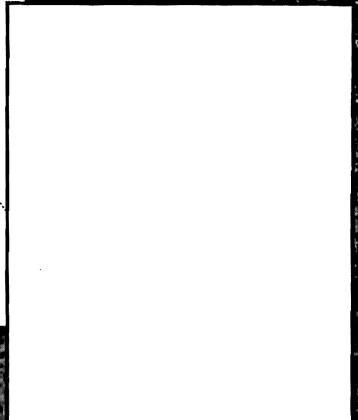
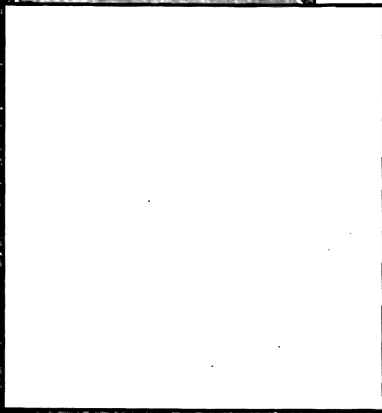
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PROCESSING FUNCTIONS

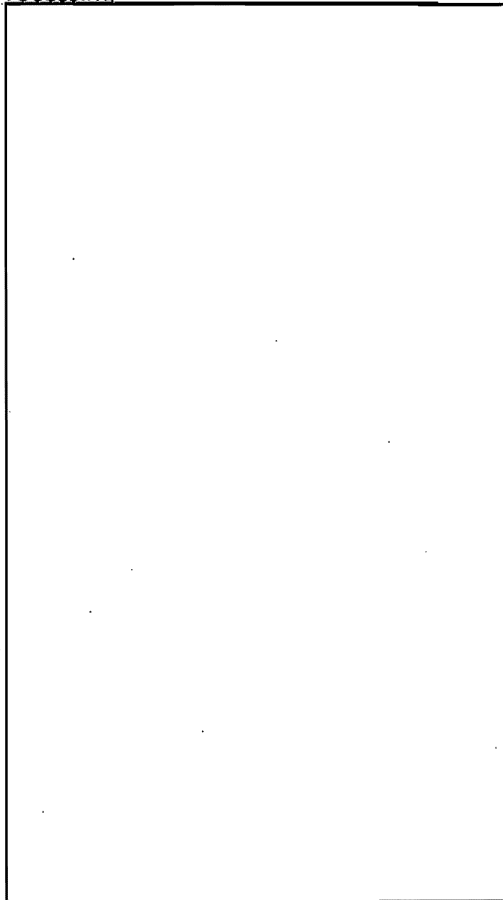


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6. Functional Taxonomy - Processing



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(b) (3) - P.L. 86-36
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METADATA

METADATA

DEFINITION:

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(b) (1)
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IMPORTANCE:

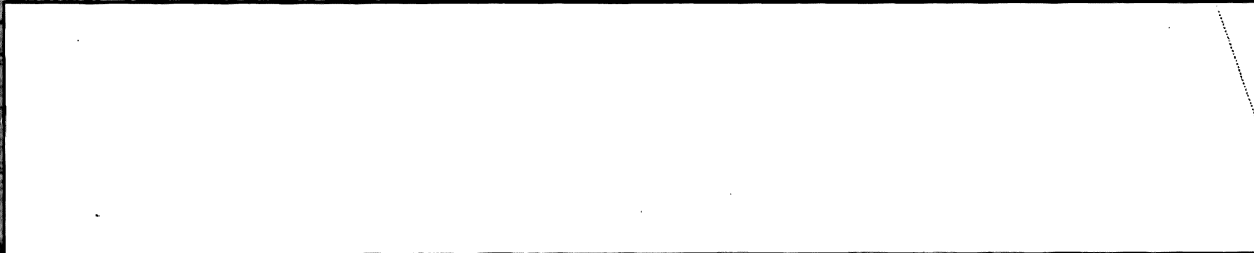
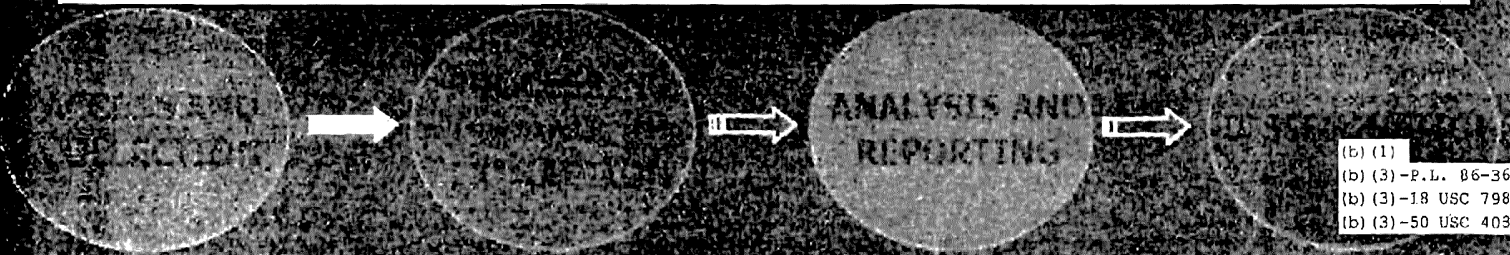
Reduces the amount of irrelevant intercepted data
Critical to SIGINT Mission Management and applies
to all missions

The End-to-End DNI Process

(b) (3)-P.L. 86-36

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Analysis and Reporting

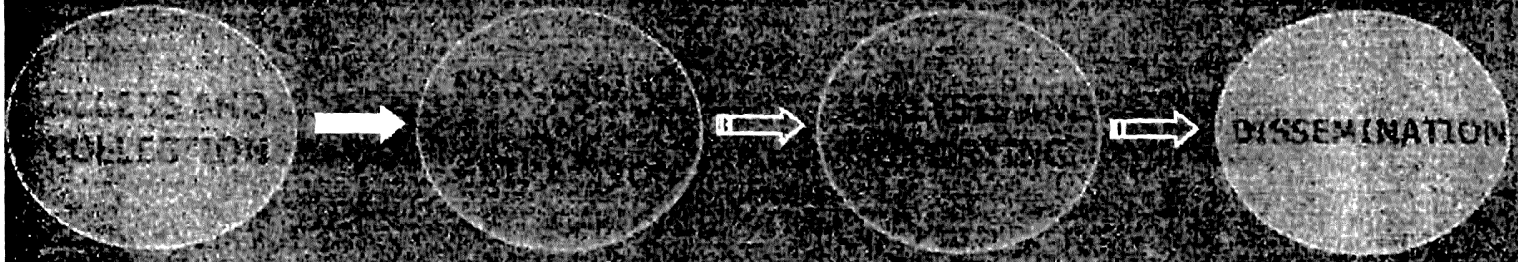


Reporting was text based - Now moving to MULTIMEDIA

6. Functional Taxonomy - Dissemination

DISSEMINATION

The forwarding and presentation of intelligence products



DNI traffic contains multiple media types (multimedia)

SIGINT Mission Management

Access
and
Collection

Processing
and
Extraction

Analysis
and
Reporting

DISSEM

SMM governs the end-to-end process

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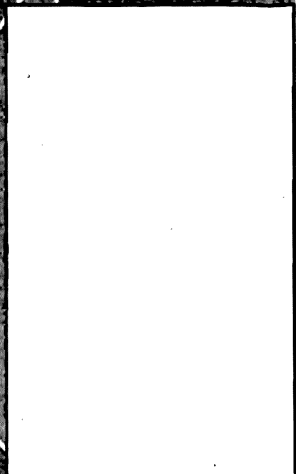
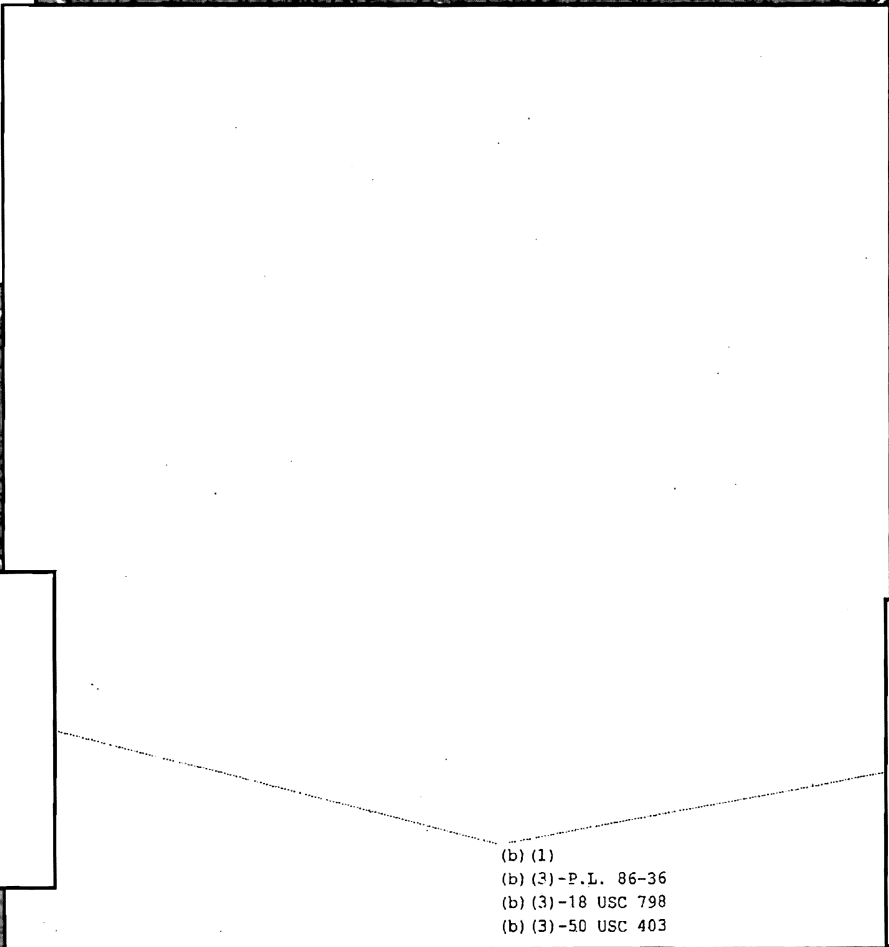
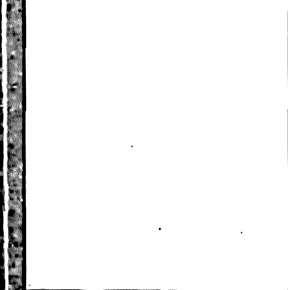
41/61

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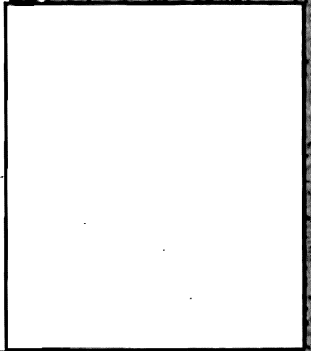
SKILLS TAXONOMY



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(b) (3) - P.L. 86-36
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(b) (1)
(b) (3) - P.L. 86-36
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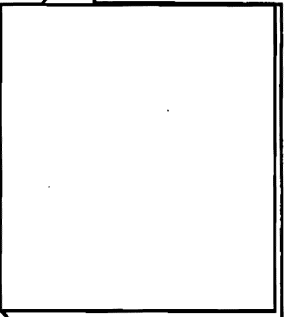
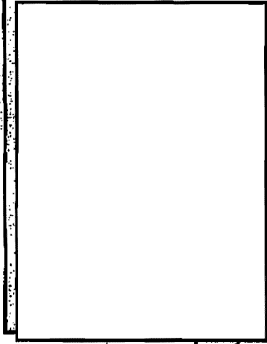
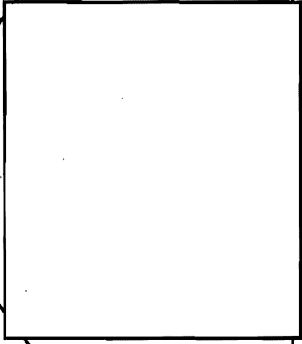
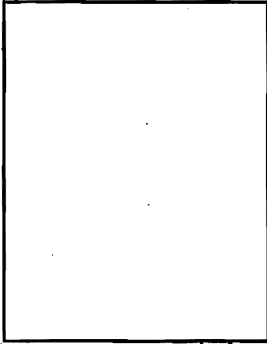


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Systems Taxonomy



(b) (1)
(b) (3) - P.L. 86-36
(b) (3) - 18 USC 798
(b) (3) - 50 USC 403

(b) (1)
(b) (3) - P.L. 86-36
(b) (3) - 18 USC 798
(b) (3) - 50 USC 403

DNI SYSTEMS TAXONOMY - Major Systems

(b) (1)
(b) (3)-P.L. 86-36
(b) (3)-18 USC 798
(b) (3)-50 USC 403

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46/61 

GRANDMASTER

Description:

[Redacted]

Function:

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(b) (1)
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(b) (3) - 18 USC 798
(b) (3) - 50 USC 403

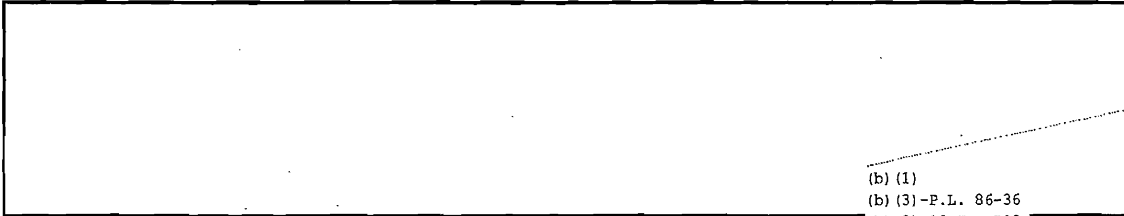
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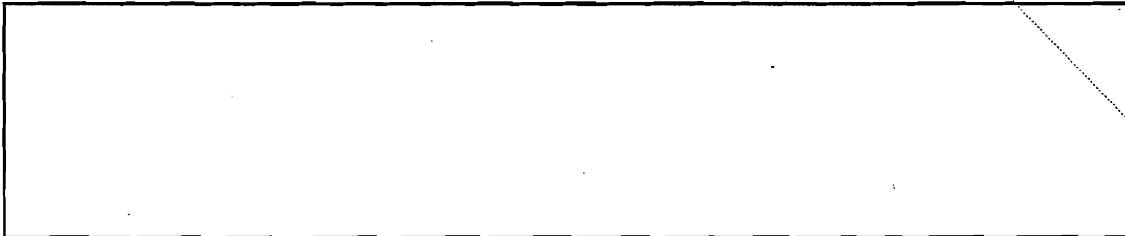
(b) (3) - P.L. 86-36

IS NOT THE "GRAND ANSWER"

SARC



(b) (1)
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(b) (3) - 18 USC 798
(b) (3) - 50 USC 403



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(b) (1)
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49/61

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50/61 →

Organizational Taxonomy

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52/61



Resource Taxonomy

(b) (1)
(b) (3) - P.L. 86-36
(b) (3) - 18 USC 798
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54/61 →

Conclusions

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55/61

Conclusions (Cont'd)

(b) (1)
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56/61



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57/61 →

RECOMMENDATIONS

(b) (1)
(b) (3) - P.L. 86-36
(b) (3) - 18 USC 798
(b) (3) - 50 USC 403

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58/61

RECOMMENDATIONS (Cont'd)

4) Avoid re-inventing the wheel

- /// Draw on industry and academia
- /// True COTS should always be the first choice

(b) (1)
(b) (3)-P.L. 86-36
(b) (3)-18 USC 798
(b) (3)-50 USC 403

A CONCLUDING CONCLUSION

TO DO NOTHING.....

IS NOT AN OPTION

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60/61

Reactions....

(b) (3) - P.I. 86-36

- SALT Reaction

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