



**U.S. AIR FORCE**

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# **The Deployment Readiness Service: A Case Study of the Challenges of Implementing a Service Oriented Architecture in a Legacy System Environment**

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**Air Force Institute of Technology**



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## *Overview*

- **What Problem is being solved by DRS?**
- **What is a Service Oriented Architecture?**
- **What are the Challenges?**
- **How can these Challenges be overcome?**

*The views expressed in this presentation are those of the author and do not reflect the official policy or position of the United States Air Force, Department of Defense, or the U.S. Government.*



## *What Problem is being solved by DRS?*

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- **Unit Deployment Managers**
  - **Must pull information from many sources**
    - Personnel Information
    - Immunization and medical records
    - Training
    - Etc....
- **Commanders (at all levels)**
  - **Need a snapshot of Unit readiness**
  - **Need ability to Identify problem areas and trends**



# "As Is" Readiness Data Challenge

Example: Training Completion Data Origination Process (Generic)

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Student Completes Course



Authoritative Source (Instructor) Creates Completion Record



Course certificate



Attendance list / Graduation roster



Form

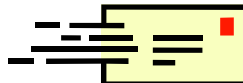


Specialized System

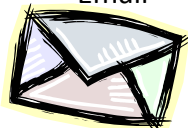
UDM / UTM Obtains Copy of record



Fax/Copier



Email



Distribution



Specialized System



In-Person



UDM / UTM Manages Record Copy

Files Copy in Mobility Folder



AND (May)

Manually enter some data elements from record into one or more of the following systems:



ACES-PR



SFMIS



CAMS



LOGMOD



G081



ARMS

Other Functional Systems (MRDSS, LSA, etc.)



Local Solutions (Excel, Access, Custom Apps)

Time Flow

# Deployment Readiness Service

- What is DRS?

- AF personnel deployment readiness solution
- Automates a manually intensive process
- Subscribes to data from multiple sources
- Pathfinder to integrate data on GCSS-AF

- Initial Users:

- Commanders
- Installation Deployment Officers
- Unit Deployment Managers
- Unit Training Managers

- Why DRS?

- Creates standard service to across AF
- Integrates diverse readiness indicators (med, trng, etc.)
- Automates review, forecasting (by AEF), and scheduling
- Eliminates dual data entry (same data; multiple systems)
- Eliminates record re-creation (PCS/PCA)





# Identify Information Needs

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**DRS**  
Deployment Readiness Service

Summary Query My DRS Admin References

Summary  
CHARLES, PIERRE L. Rank: MSG Role: UDM Unit: AFXX,WPAS

**Requirement Status**

Requirement	Red	Yellow	Green
RELIGIOUS_SENSITIVITY	17%	5%	78%
FOREIGN_CLEARANCE	12%	2%	86%
SMALL_ARMS	10%	10%	80%
LOAC	2%	0%	98%
CHEM_WARFARE	2%	0%	98%
CARGO_PREP	0%	0%	100%
EOR	0%	0%	100%
FORCE	0%	0%	100%
SELF_AID	0%	0%	100%

**Readiness Overview**

Yellow 5 (12% of 42)  
Green 4 (10% of 42)  
Black 1 (2% of 42)  
Red 32 (76% of 42)

**AEF Readiness Overview**

AEF 09,10  
AEF 03,04  
AEF 05,06

**Flight Readiness Overview**

AFXX  
AMXS  
MXAA

Legend: BLACK (Unwaived DAV Code), RED (Fixable/Expired), YELLOW (Expiring in 30 Days), GREEN (Complete)

INDIVIDUAL DEPLOYMENT REQUIREMENTS		DATE PLACED ON DEPLOYMENT STATUS		DATE ALL ACTIONS COMPLETED	
NAME (Last, First, Middle Initial) STUFF, LEVEL N.	GRADE CPT	AFSC 3221	UNIT/SHOP	PRIMARY	DEPLOYMENT AVAILABILITY CODE (DAV)
REQUIREMENTS		DATE INITIALLY ACCOMPLISHED/COMPLETED	INDIVIDUALS INITIALS	INSPECTION RECORD	
DOCUMENTATION					
ID CARD, DD FORM 2AFACF (United States Uniformed Services ID Card (Accountable Form))		16-Apr-98		⊕	✓
DDO TAGS (ID Tags and Chains)		04-Apr-04		✓	✓
EMERGENCY DATA CARD, DD FORM 92 (Record of Emergency Data Card)		15-Aug-93		X	X
SHOT RECORD, PHS 73-1 (Involuntary Certificate of Vaccination)		07-May-00		✓	✓
LOCATOR CARD, AF FORM 240 (Employment Locator and Processing Checklist)		02-Dec-99		✓	NR
HAND RECEIPT, AF FORM 1207 (Temporary Issue Receipt) (For issue of anti-C1 bags and weapons to cargo counters)		24-Jan-94		NR	✓



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## Individual Readiness Summary (IRS) Wireframe

Logged in as: Airforce, Uiz D.  
Rank: TSgt (E6)  
Login Role: UDM  
Login Unit: 20 SVS, 20 FW, Shaw AFB

Displayed individual: Flien, Keepe, M.  
Rank: TSgt (E6)  
Assigned Unit: 20 SVS, 20 FW  
Assigned Base: Shaw AFB

Members AEF  
color = forecast

Medical	Equipment	Training	Administrative	Legal
Requirement STATUS	Requirement STATUS	Requirement STATUS	Requirement STATUS	Requirement STATUS
PHA	GAS_MASK	CARGO_PREP	GENEVA_CARD	DEPENDENT
LAB	GLASSES	CHEM_WARFARE	GOV_DL	POWER_ATT
SHOTS	HEARING_AID	EOR	LES	WILL
EQUIP	PERSONAL_CLOTHES	FORCE	LINE_BADGE	
DLC	PROF_EQUIP	FOREIGN_CLEARANCE	PRP	
	DOC_TAG	HAZ_CERT	BAG_TAG	
		LOAC	HAND_RECEIP	
		RELIGIOUS_SENSITIVITY	ID_CARD	
		SELF_AID	LOCATOR	
		SMALL_ARMS		

Next Requirement Expires 20 May 2007

DAV Status Expires 11 Nov 2007

Click on box to initiate DAV Code query for currently displayed person (waivers can be applied from query results screen)

Click here to create AF 4005 with displayed data

Box Color Reflects Category Readiness

Click here for other display formats

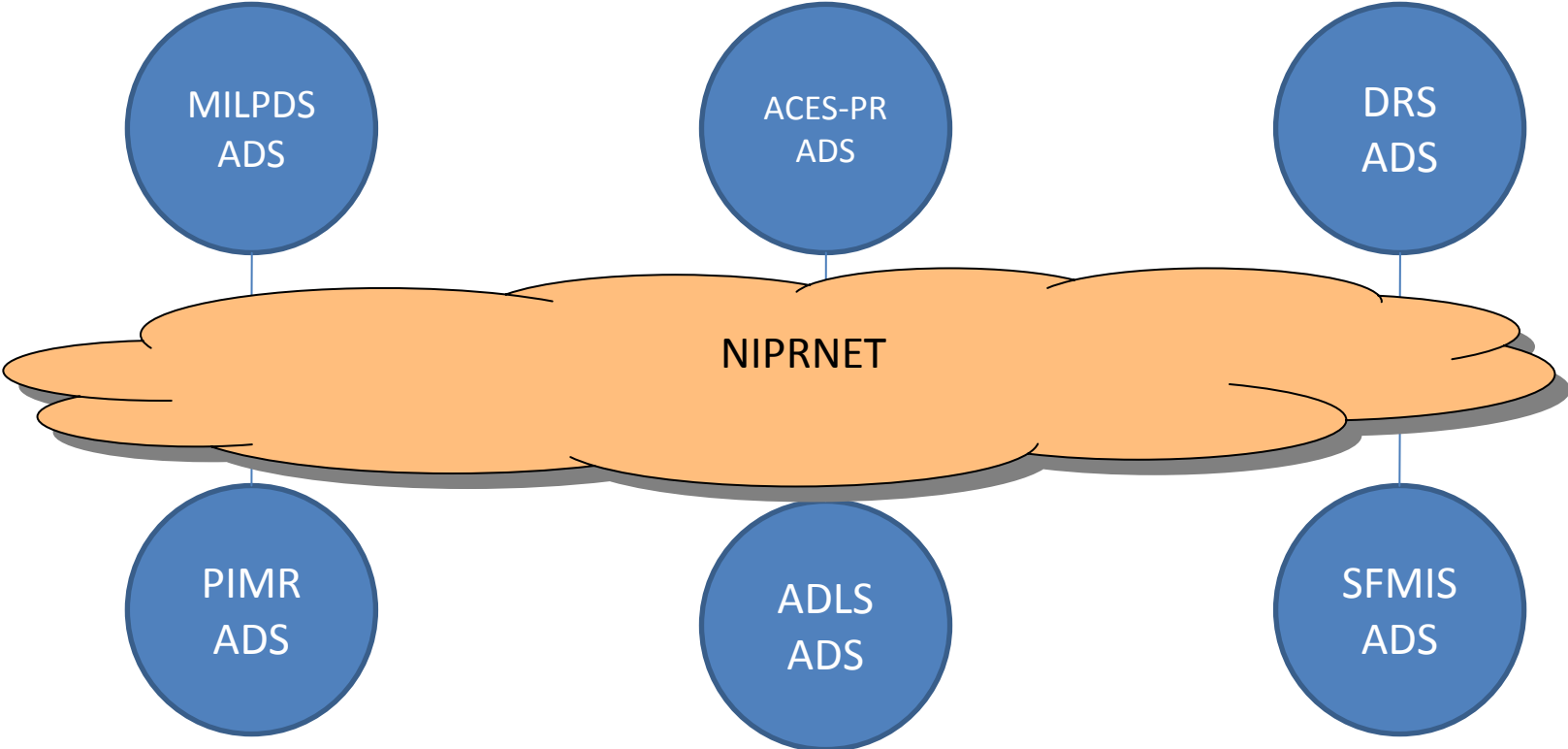
Legend: BLACK (Unwaived DAV Code), RED (Fixable/Expired), YELLOW (Expiring in 15 Days), GREEN (Complete)

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Version 0.91 9 Apr 07<sup>22</sup>

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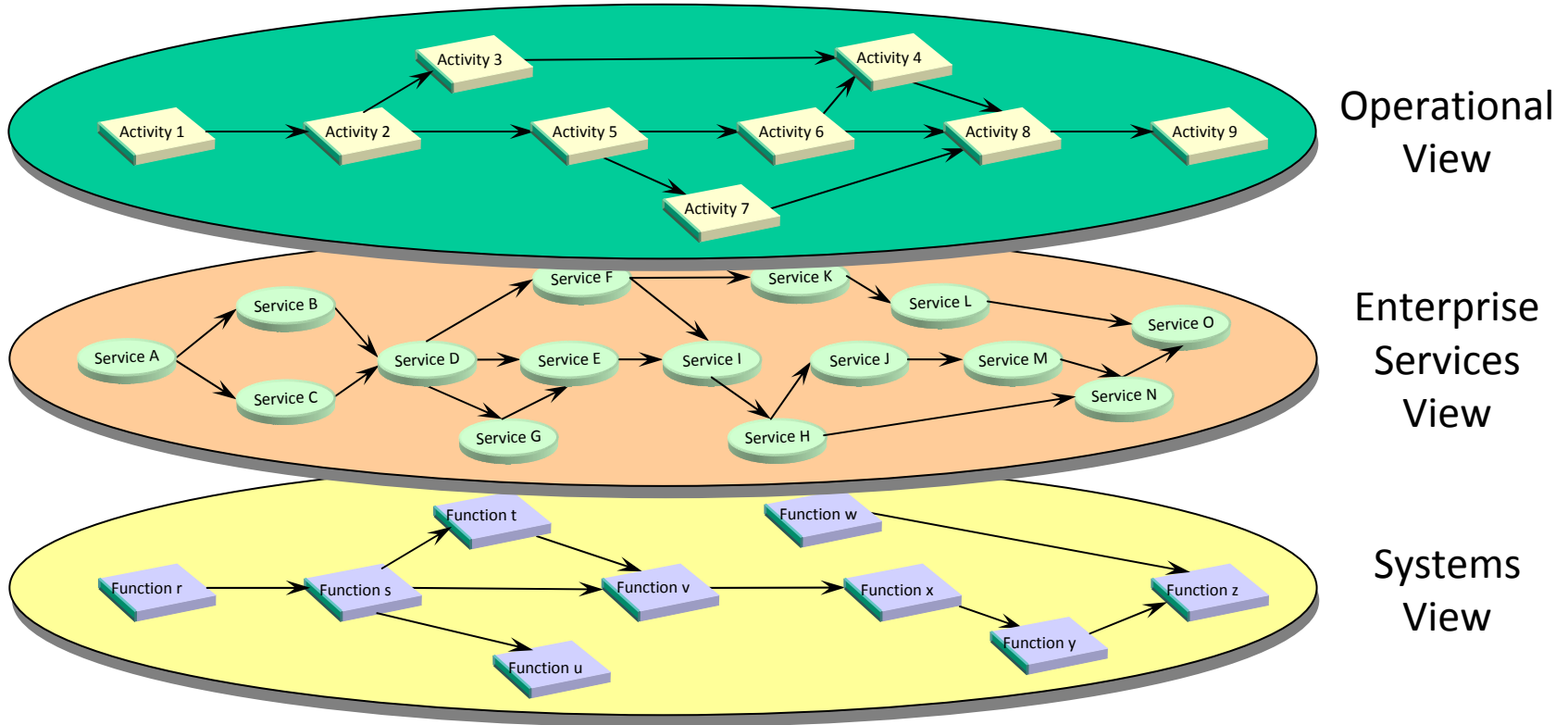
# Current State





# Service-Oriented Viewpoint

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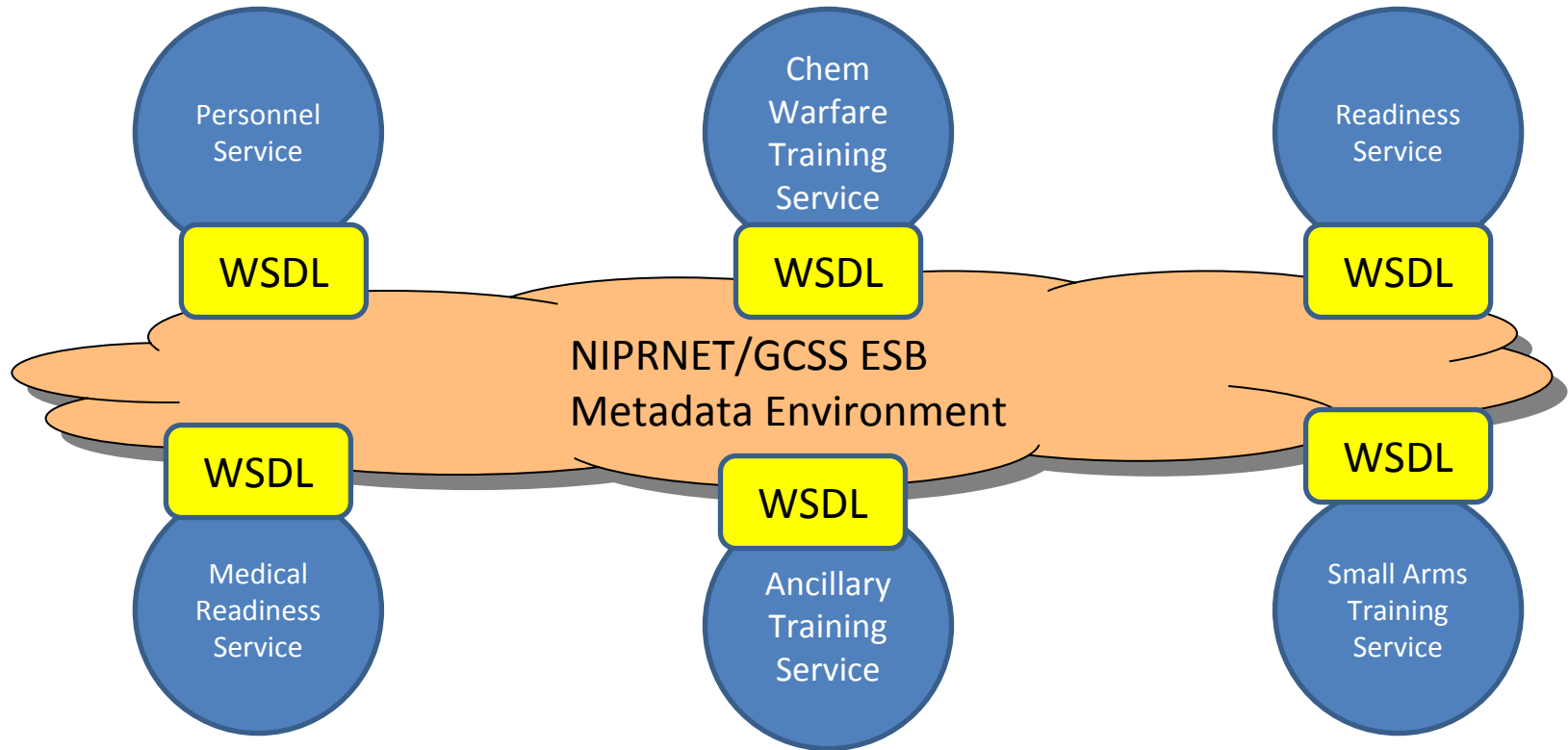


In a Service-Oriented Viewpoint Operations drive Services and Services drive Systems – effectively decoupling Operations from Systems

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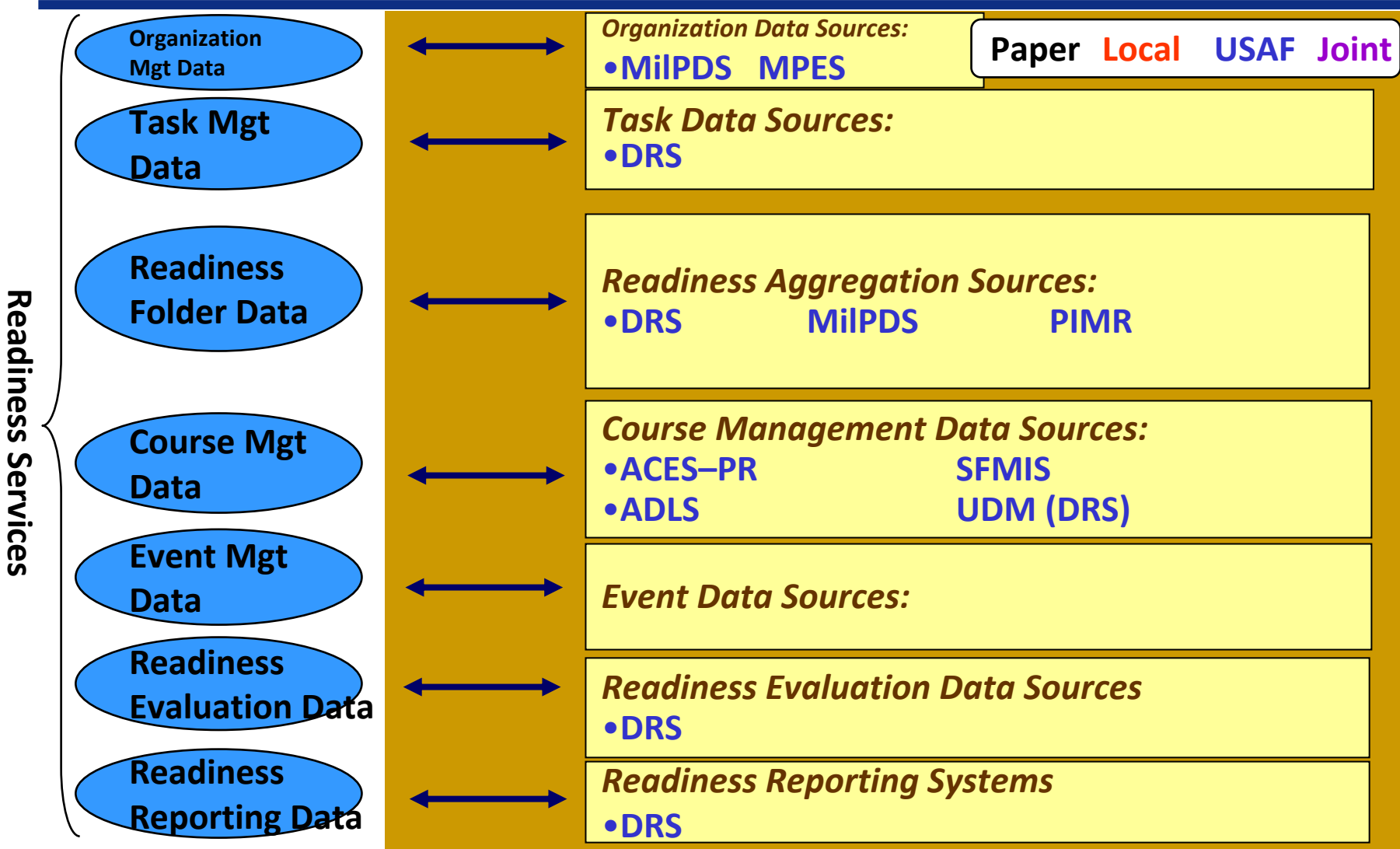
# Future State





**Deployment Readiness Service (DRS)**  
 SV-4 Pathfinder Authoritative Data Sources Summary

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No "as is source" for enterprise Coordination & Orchestration data

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# Readiness COI

## Preliminary Authoritative Data Sources\*

- ACES-PR
  - Chemical Warfare Training
- SFMIS
  - Arming Group
  - Small Arms Training
- MPES
  - Position Number
- PIMR
  - Deployment Limiting Condition
  - Equipment
  - Immunizations
  - Individual Medical Readiness Overall
  - LAB
  - Physical Health Assessment
- ADLS
  - Explosive Ordnance Recognition (EOR) Training
  - Information Assurance
  - Language and Cultural Training
  - Law of Armed Conflict (LOAC) Self-Aid/Buddy Care
  - Trafficking in persons Awareness
- MilPDS
  - Air Expeditionary Force Indicator
  - Assigned Flight (office symbol if flight unavailable)
  - Assigned Group
  - Assigned Installation
  - Assigned Squadron or Unit
  - Assigned Wing
  - Control Air Force Specialty Code
  - Duty Air Force Specialty Code
  - Deployment Availability Codes
  - Duty Status Code
  - First Name
  - Gender
  - Grade
  - Grade Description
  - Last Name
  - Middle Name
  - Office Symbol
  - Primary Air Force Specialty Code
  - Parent Personnel Accounting Symbol Code
  - Personnel Accounting Symbol Code
  - Social Security Number
  - Special Experience Identifier Code
  - Special Experience Indicator Type
  - Suffix (Name)
- UDM
  - BAGGAGE TAGS (2 Sets)
  - Date Placed on Deployment Status
  - Dependent Care Certification, AF Fm 357
  - Dog Tags (ID Tags and Chains)
  - Emergency Data Card DD Form 93
  - Expeditionary Combat Skills Training
  - Force Protection Familiarization
  - Foreign Clearance Guide Briefing
  - Gas Mask Spectacle Inserts
  - Geneva Convention Card, DD Form 1934
  - Hand Receipt, AF Form 1297
  - Hazardous Cargo Certification (If Req'd)
  - Hearing Aids
  - ID Card
  - Leave & Earnings Statement, DFAS Fm 700
  - Line Badge, USAF Restricted Area Badge
  - Locator Card, AF Form 245 (Employment Locator and Processing Checklist)
  - Pallet Build-Up/Cargo Preparation (If Req'd)
  - Personal Clothing Requirements
  - Personnel Reliability Pgm (PRP), AF Fm 286
  - Power of Attorney
  - Prescription Glasses
  - Professional Equipment
  - Religious Sensitivity Briefing
  - Shot Record, PHS 73 1
  - U.S. Government Driver's License
  - Will

\* Initial set based on Spiral 0



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# ***Example Use Cases: Log-in For All Use Cases and Users***

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- **User logs-in to AF Portal**
- **User clicks on DRS**
- **DRS comes up with specific role for current user based on Portal log-in**
- **Screen shows**
  - **User summary: % of unit (or wing) ready, # overdue, # expiring**
    - **Print/export to Powerpoint option**
  - **User name, rank, date, unit name, base, etc.**
  - **Selectable options**
    - **Reports, Query, Create (Requirements, Notifications, Thresholds), Mass Actions (Updates, Printing), My Account, etc.**

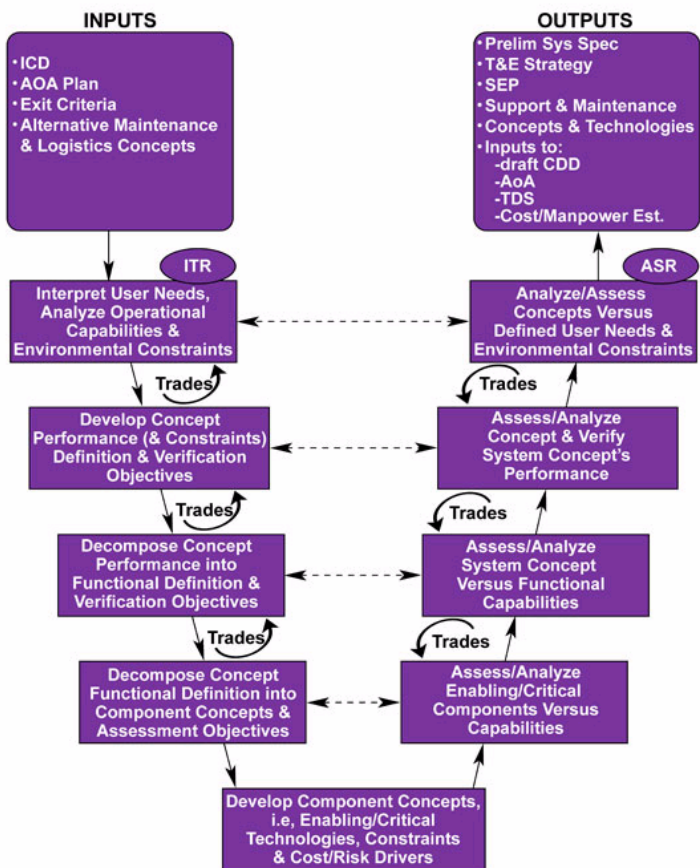
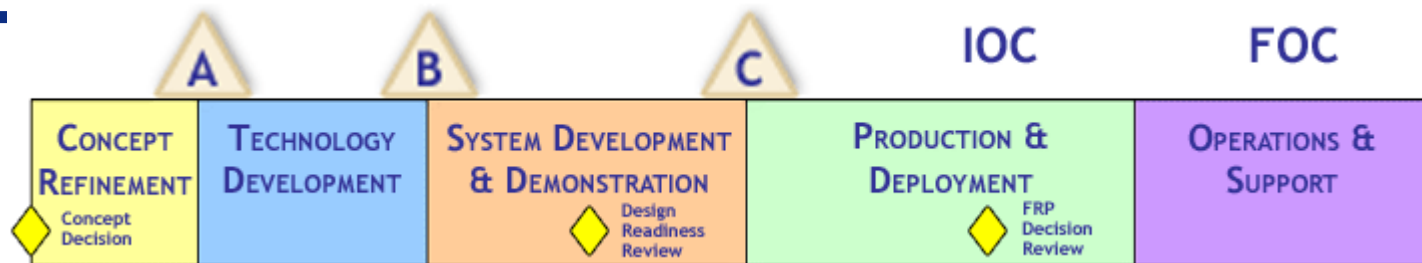
# Example Survey based off of Use Cases

<b>Readiness Reporting</b>	<b>1 Strongly Disagree</b>	<b>2 Disagree</b>	<b>3 Neutral</b>	<b>4 Agree</b>	<b>5 Strongly Agree</b>	<b>Avg</b>
<b>i. DRS provided easy to interpret readiness indicators</b>	0	1	2	11	9	<b>4.2</b>
<b>ii. DRS accurately produced AF Forms 4005</b>	1	3	4	10	6	<b>3.7</b>
<b>iii. DRS accurately printed AF Forms 4005</b>	0	3	6	8	6	<b>3.7</b>
<b>iv. DRS enabled me to conduct readiness reporting</b>	0	2	7	8	4	<b>3.7</b>
<b>v. It was easy to notice when there were problems with unit personnel readiness</b>	0	2	1	13	7	<b>4.1</b>
<b>vi. DRS enhanced my unit readiness briefings</b>	0	2	7	9	3	<b>3.6</b>



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# Concept Refinement



## Challenges

- Short Schedule
  - < 5Months
- Limited Funding
  - NTE \$1M
  - No additional Funding for ADS
- Prescribe Performance
  - No Data Warehouse
  - No Pub/Sub
    - Must use Request/Reply
  - Must Follow COI Vocabulary
    - Not yet Developed
- Limited Experience Building Services
  - Hard to map services in DoDAF

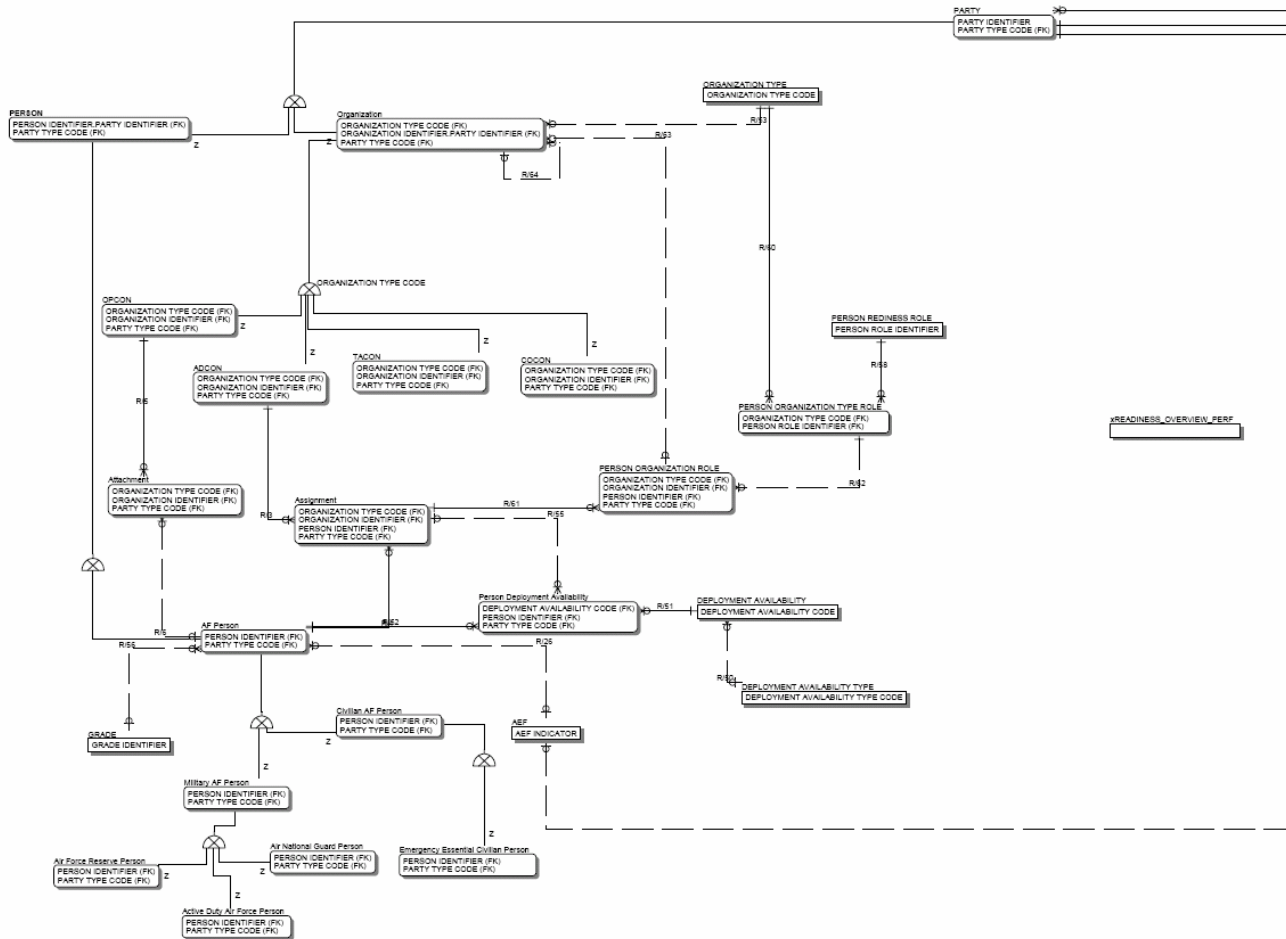
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# Example Original Product From Readiness Community of Interest

UKS WORKSHOP[34J] – UKS Strawman PK / <Main Subject Area>





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# Current Process

PREPARED 19-SEP-2005 1520 Personnel Deployment Checklist PCN SA200504

INDIVIDUAL DEPLOYMENT REQUIREMENTS		STATUS	DATE ALL ACTIONS COMPLETED		
NAME (Last, First Middle Initial)	GRADE	DAFSC	DUTY SECTION	PRIMARY DEPLOYMENT AVAILABILITY CODE (DAV)	
MARQUEZ, RONALD ANT	1LT	021M3	NOON		00
CHECKLIST ITEMS					
ID CARD (DD FORM 2AE)	14 SEP 05	RAM	✓		
LINE BADGE (AF FORM 1199)	14 SEP 05	RAM	✓		
DOG TAGS (2 ID TAGS AND 1 LRG, 1 SM CHAINS)	14 SEP 05	RAM	✓		
EMERGENCY DATA CARD (DD FORM 93)	14 SEP 05	RAM	✓		
IMMUNIZATION RECORD (DHHS FORM FHS 731)	14 SEP 05	RAM	✓		
CURRENT LEAVE AND EARNINGS STATEMENT (DFAS FORM 702)	14 SEP 05	RAM	✓		
US GOVERNMENT DRIVER'S LICENSE (AF FORM 2293)	14 SEP 05	RAM	✓		
WILL	14 SEP 05	RAM	✓		
POWER OF ATTORNEY	14 SEP 05	RAM	✓		
DEPENDENT CARE CERTIFICATION (AF FORM 357)	NIR	NIR	NIR		
LOCATOR CARD (AF FORM 245)	14 SEP 05	RAM	✓		
PRESCRIPTION GLASSES (2 PAIR)	14 SEP 05	RAM	✓		
GAS MASK SPECTACLE INSERTS	14 SEP 05	RAM	✓		
HEARING AIDS AND 2 SETS OF BATTERIES	NIR	NIR	NIR		
PRESCRIPTION MEDICATION (180-DAY SUPPLY)	14 SEP 05	RAM	✓		
PERSONAL CLOTHING/HYGIENE ITEMS	14 SEP 05	RAM	✓		
BAGGAGE TAGS	14 SEP 05	RAM	✓		
ON-THE-JOB TRAINING RECORD (AF FORM 623)	NIR	NIR	NIR		
PROFESSIONAL EQUIPMENT	14 SEP 05	RAM	✓		
USAF FIREARMS QUALIFICATION	14 SEP 05	RAM	✓		
GAS MASK FIT CHECK	14 SEP 05	RAM	✓		
FAMILY READINESS BRIEFING	14 SEP 05	RAM	✓		
POST/PRC HEALTH ASSESSMENT FORMS	14 SEP 05	RAM	✓		
TRAINING REQUIREMENTS					
LAW OF ARMED CONFLICT (LOAC)		RAM	✓		
SELF-AID BUDDY CARE (SABC)		RAM	✓		
FORCE PROTECTION FAMILIARIZATION		RAM	✓		
SMALL ARMS TRAINING		RAM	✓		
NUCLEAR-BIOLOGICAL-CHEMICAL DEFENSE (NBCD) AND EXPLOSIVE ORDNANCE RECOGNITION (EOR) TRAINING		RAM	✓		
IMMUNIZATIONS					
ORAL POLIO (ONE DOSE FOR LIFE)	27-AUG-2002	RAM	✓		
MMR (MMPS/MEASLES/RUBELLA)	27-AUG-2002	RAM	✓		
TD (TETANUS/DIPHTHERIA)	27-AUG-2002	RAM	✓		
IPPD (TB SKIN TEST POST DEPLOYMENT)	29-AUG-2002	RAM	✓		
INFLUENZA (ANNUALLY)	07-FEB-2005	RAM	✓		
MENINGITIS (MENINGITIS) (HIGH-RISK)	27-AUG-2002	RAM	✓		
HEPATITIS A (1ST SERIES)	27-AUG-2002	RAM	✓		
HEPATITIS A (2ND SERIES) (DUE 6-12 MONTHS LATER)	27-FEB-2003	RAM	✓		
YELLOW FEVER (TO HIGH-RISK AREA)	25-NOV-2002	RAM	✓		
TYPHOID (TYPHIM VI) (2YR) (TO HIGH-RISK AREA)	25-NOV-2002	RAM	✓		
ANTHRAX #1 (INITIAL) (HIGH-RISK)	06-NOV-2003	RAM	✓		

AF FORM 4005, JUN 97 (EF-V1) REPLACES ACC FORM 160, MAR 96, WHICH IS OBSOLETE.

TOA Page 4 of 1

PERSONAL DATA - PRIVACY ACT OF 1974  
INDIVIDUAL TRAINING REQUIREMENT NOTICE AS OF 17 OCT 05

NAME MARQUEZ RONALD A EMP # 00663 GRADE 014/ W/C ORG / TDY RETURN DATE /

COURSE CODE	TITLE	DURATION	TYP	INTV	STATUS	DATE	DUE DATE	EVI
002986	CERTFIS IMPOUND AUTHORITY	001 Y	QUAL			12 NOV 04		II
006066	FAMINITIAL EVAL	001 Y	COMPL			17 JAN 03		
006096	FADMISSION ORIENTATION	004 Y	COMPL			18 FEB 03		
006170	FADMW/C CONTROLLED AREA TNG	001 A	COMPL				22 AUG 06	
010033	FMILOM AWARENESS	002 Y	COMPL			09 JAN 03		
013024	FSECOPSEC	001 A	COMPL				12 OCT 06	
013045	FSECURITY TNG PHASE 1	002 Y	COMPL			23 NOV 03		
013046	FSECURITY TNG PHASE 2	002 A	COMPL				30 JAN 06	
018024	QANCLAW OF ARMED CONFLICT	001 H	QUAL				30 APR 06	
018036	QANCPROT FROM TERROR I/VI I	003 A	QUAL				08 FEB 06	
018049	QANCSLFT AID 4 BUDDY CARE	001 T	QUAL				25 NOV 06	
018054	QANCSUICIDE AWARE/VIOLENCE	001 H	QUAL				08 AUG 06	
018055	QANCSUPERVISOR SAFETY TNG	003 Y	QUAL			16 JAN 03		
018071	QANCSOSEXUAL POLICY TNG	001 Y	QUAL			04 JUN 03		
019111	QDEFFSTR CBRENE DEFENSE LTA	006 H	*AWACT				07 JAN 06	
019114	QDEFFSTR CBRENE TGT STD LTA	002 H	QUAL				17 JUN 06	
019242	QDEFFSMALL ARMS 9MM CAT C	008 K	QUAL				01 OCT 07	
024013	QMEDPCP 2 YEAR RECERT	001 T	QUAL				25 NOV 06	
027049	QMNUNMS EXPLOSIVE SAFETY	002 A	*AWACT				16 NOV 05	

APF 05290 08:34:53 PROCESSED. VERSION DATE: 040105

## CAMS Report

INDIVIDUAL DEPLOYMENT REQUIREMENTS		DATE PLACED ON DEPLOYMENT STATUS		DATE ALL ACTIONS COMPLETED	
NAME (Last, First Middle Initial)	GRADE	AFSC	UNIT/SHOP	PRIMARY DEPLOYMENT AVAILABILITY CODE (DAV)	
MARQUEZ, RONALD ANT	1LT				
DOCUMENTATION					
ID CARD, DD FORM 2AE/FACT (United States Uniformed Services ID Card)(Accountable Form)					
DOG TAGS (ID Tags and Chains)					
EMERGENCY DATA CARD, DD FORM 93 (Record of Emergency Data Card)					
SHOT RECORD, PHS 731 (International Certificate of Vaccination)					
LOCATOR CARD, AF FORM 245 (Employment Locator and Processing Checklist)					
HAND RECEIPT, AF FORM 1297 (Temporary Issue Receipt) (For issue of mini C-1 tags and weapons to cargo couriers)					
BAGGAGE TAGS (2 Sets)					
OTHER (If Required)					
GENEVA CONVENTIONS CARD, DD FORM 1304 (Geneva Conventions Identify Card) FOR MEDICAL AND RELIGIOUS PERSONNEL WHO SERVE IN OR ACCOMPANY THE ARMED FORCES					
PRIP, AF FORM 286 (Personnel Reliability Program)					
DEPENDENT CARE CERTIFICATION, AF FORM 357					
U.S. GOVERNMENT DRIVER'S LICENSE (Special Purpose Vehicles)					
PRESCRIPTION GLASSES (2 PAIR) (1 pair for ARC)					
GAS MASK SPECTACLE INSERTS					
HEARING AIDS					
PERSONAL CLOTHING REQUIREMENTS					
LINE BADGE, USAF RESTRICTED AREA BADGE (Accountable Form)					
OPTIONAL					
LES, DFAS FORM 700 (Leave and Earning Statement)					
WILL					
POWER OF ATTORNEY					
TRAINING		DATE		INDIVIDUAL'S INITIALS	
		INIT. TRAINING	DUE DATE	DUE DATE	DUE DATE
SMALL ARMS					
SELF-AID/BUDDY CARE					
CHEMICAL WARFARE					
PALETT BUILDUP/CARGO PREPARATION (If Required)					
HAZARDOUS CARGO CERTIFICATION (If Required)					
RELIGIOUS SENSITIVITY BRIEFING					
FOREIGN CLEARANCE GUIDE BRIEFING					
EXPLOSIVE ORDNANCE RECOGNITION (EOR) TRAINING					
LAW OF ARMED CONFLICT (LOAC) BRIEFING					
FORCE PROTECTION FAMILIARIZATION					
INDIVIDUAL'S SIGNATURE		UDMS/SUPERVISOR'S SIGNATURE			
AF FORM 4005, 19970601 (EF-V2)		REPLACES ACC FORM 160, MAR 96, WHICH IS OBSOLETE.			

**LOGMOD 4005**

**Blank 4005**





# Form 4005 Source Matrix

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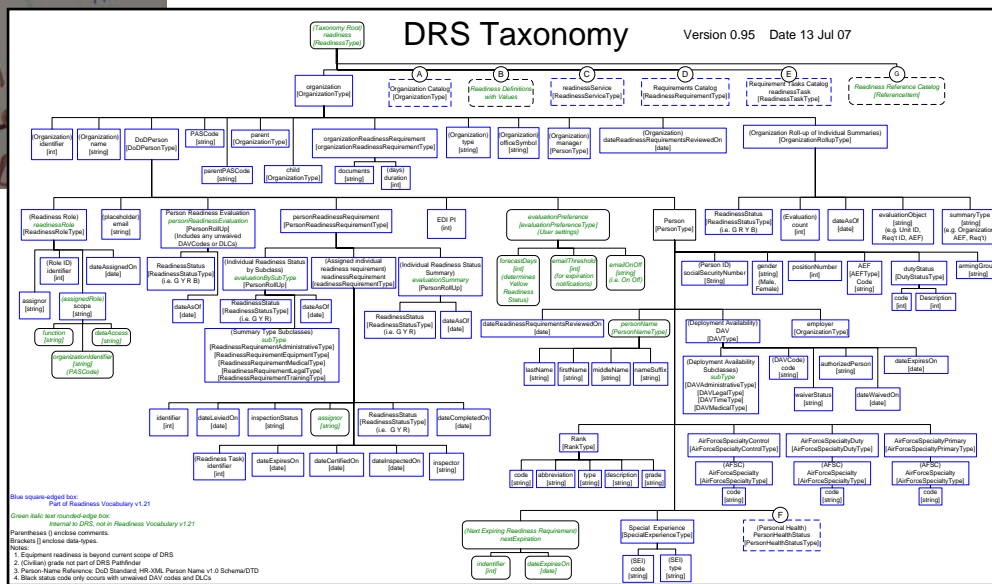
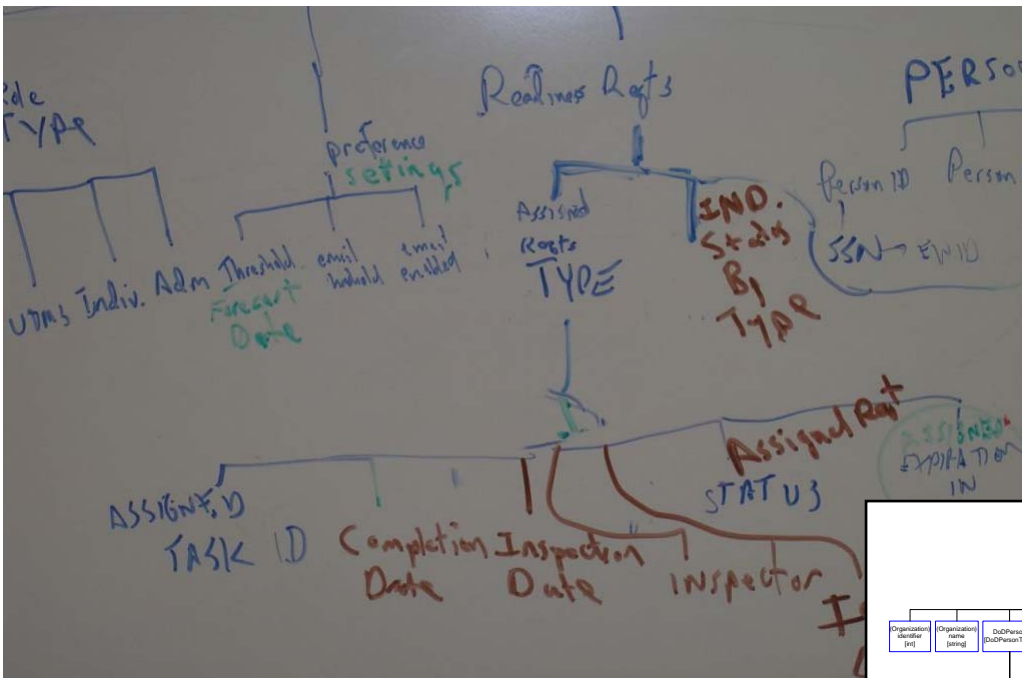
Data Field	Data Provider	Method Of Entry
Top Portion		
• Date Placed on Deployment Status	UDM**	Manual Entry in DRS
• Date All Actions Completed	UDM**	Manual Entry in DRS
• Name	MilPDS	Automated Feed
• Grade	MilPDS	Automated Feed
Documentation		
• ID Card, DD Form 2AFACT	UDM**	Manual Entry in DRS
• Dog Tags	UDM**	Manual Entry in DRS
• Emergency Data Card, DD Form 93	UDM**	Manual Entry in DRS
• Shot Record, PHS 731	UDM**	Manual Entry in DRS
• Locator Card, AF Form 245	UDM**	Manual Entry in DRS
• Hand Receipt, AF Form 1297	UDM**	Manual Entry in DRS
• Baggage Tags	UDM	Manual Entry in DRS
Other (if Required)		
• Geneva Conventions Card, DD Form 1934	UDM	Manual Entry in DRS
• PRP, AF Form 286	UDM	Manual Entry in DRS
• Dependent Care Certification, AF Form 357	UDM	Manual Entry in DRS
• U.S. Government Driver's License	UDM	Manual Entry in DRS
• Prescription Glasses	UDM	Manual Entry in DRS
• Gas Mask Spectacle Inserts	UDM	Manual Entry in DRS
• Hearing Aids	UDM	Manual Entry in DRS
• Personal Clothing Requirements	UDM	Manual Entry in DRS
• Professional Equipment	UDM	Manual Entry in DRS
• Line Badge, USAF Restricted Area Badge	UDM	Manual Entry in DRS
Optional		
• LES, DFAS Form 700	UDM	Manual Entry in DRS
• Will	UDM	Manual Entry in DRS
• Power of Attorney	UDM	Manual Entry in DRS
• Blank Fields	UDM	Manual Entry in DRS
Training		
• Small Arms	SFMIS	Automated Feed
• Self-Aid/Buddy Care	ADLS	Automated Feed
• Chemical Warfare	ACES	Automated Feed
• Pallet Build-Up/Cargo Preparation (If Required)	UDM	Manual Entry in DRS
• Hazardous Cargo Certification (If Required)	UDM	Manual Entry in DRS
• Religious Sensitivity Briefing	UDM	Manual Entry in DRS
• Foreign Clearance Guide Briefing	UDM	Manual Entry in DRS
• Explosive Ordnance Recognition (EOR) Training	ADLS	Manual Entry in DRS
• Law of Armed Conflict (LOAC) Briefing	ADLS	Automated Feed
• Force Protection Familiarization	ADLS	Automated Feed

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# Cross-check Model for Completeness & Consistency

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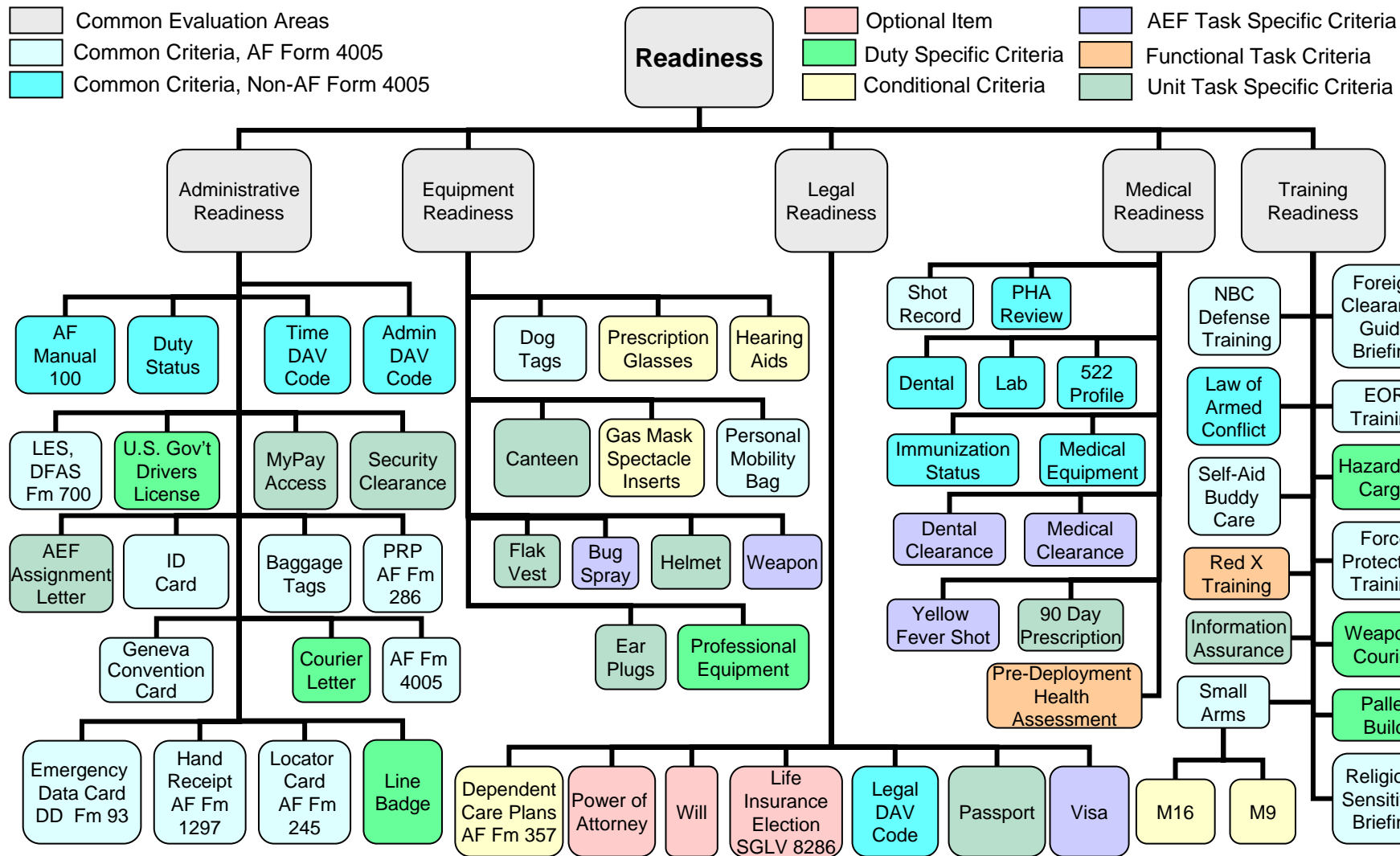


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# Deployment Readiness Service

## Readiness Items Grouped by Type

### Example



Note: This is by no means a complete set but provides insight to the types of factors involved



# Other Checks

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Organization

Person

Reporting

**Readiness Requirements**

**Readiness Tasks**  
(e.g. items completed or inspected)

**Evaluation**

BLACK Unwaived DAV Code | RED Fixable/Expired | YELLOW Expiring in X Days | GREEN Complete

Medical

Shot Rec	Glasses	Imm. Stat.
Dental	Lab	Profile/422
HRR	Overall Stat	Actions

Shot Rec	Glasses	Imm. Stat.
Dental	Lab	Profile/422
HRR	Overall Stat	Actions

Shot Rec	Glasses	Imm. Stat.
Dental	Lab	Profile/422
HRR	Overall Stat	Actions

Equipment

Dog Tags	Gas Mask Inserts
Hearing Aids	Clothing Req'ts
Pro Equip	Custom Req't

Dog Tags	Gas Mask Inserts
Hearing Aids	Clothing Req'ts
Pro Equip	Custom Req't

Dog Tags	Gas Mask Inserts
Hearing Aids	Clothing Req'ts
Pro Equip	Custom Req't

Training

Small Arms	SABC	NBC	Foreign
Pallet	Haz Cargo	EOR	
Religious	LOAC	FP Trng	

Small Arms	SABC	NBC	Foreign
Pallet	Haz Cargo	EOR	
Religious	LOAC	FP Trng	

Small Arms	SABC	NBC	Foreign
Pallet	Haz Cargo	EOR	
Religious	LOAC	FP Trng	

Admin

Time DAV	Hand Rcpt	PRP
Admin DAV	Locator	Gov't Lic.
ID Card	Bag Tags	Line Badge
Emer. Data	Geneva Cd	LES

Time DAV	Hand Rcpt	PRP
Admin DAV	Locator	Gov't Lic.
ID Card	Bag Tags	Line Badge
Emer. Data	Geneva Cd	LES

Time DAV	Hand Rcpt	PRP
Admin DAV	Locator	Gov't Lic.
ID Card	Bag Tags	Line Badge
Emer. Data	Geneva Cd	LES

Legal

PoA	Will
Dep Care	LDAV

PoA	Will
Dep Care	LDAV

PoA	Will
Dep Care	LDAV

Source:

ADLS	MIIPDS	SFMIS	DRS	ACES-PR	PIMR	AFCITA
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# UDM Selects Airman & Requests Indiv Readiness (4005 + Medical Data)

Use Case references X-025

USER(UDM)

User needs to review person's AF Fm 4005. Selects person in unit

User views welcome screen with their name and role

User views Airman's 4005

DRS Web App

Org structure expands to review sub units & people. Person selected

e.g. calls server app (4005 Service / function)

Displays aggregated data in requested 4005 presentation format

DRS Server Apps

Build request for person info, readiness req'ts and items to complete 4005

e.g. creates request for person info (grade, AFSC, DAV codes), readiness requirements, readiness items

Receives / checks requested aggregate object

AF Portal

Aggregation Service (BPEL driven)

Execute request; splits into individual ADS requests

Receive list of req'd items, Identify ADS for each req'd item and request item status

Collect responses, match item status to requirement, build aggregate object

Name, Grade, Unit, DAV status, req't list matched with status

Aggregate Object Placeholder

ADS (Organizat

ADS: MilPDS Grade, AFSC, DAV Codes

Request for User Name & Grade

ADS (Requirements)

ADS: SFMIS Arming group

Request for Applicable Requirements

ADS (Readiness Items)

ADS: DRS Req'ts applicable to airman

Request for Small Arms Trng

ADS: SFMIS Sm Arms Trng

Request for NBC Training

ADS: ACES-PR Chem War Trng

ADS: ADLS EOR, SABC, LOAC

Request for other Ancillary Training

ADS: DRS Dog Tags, ID card, dependent Care, etc

Request for other required items

ADS: PIMR

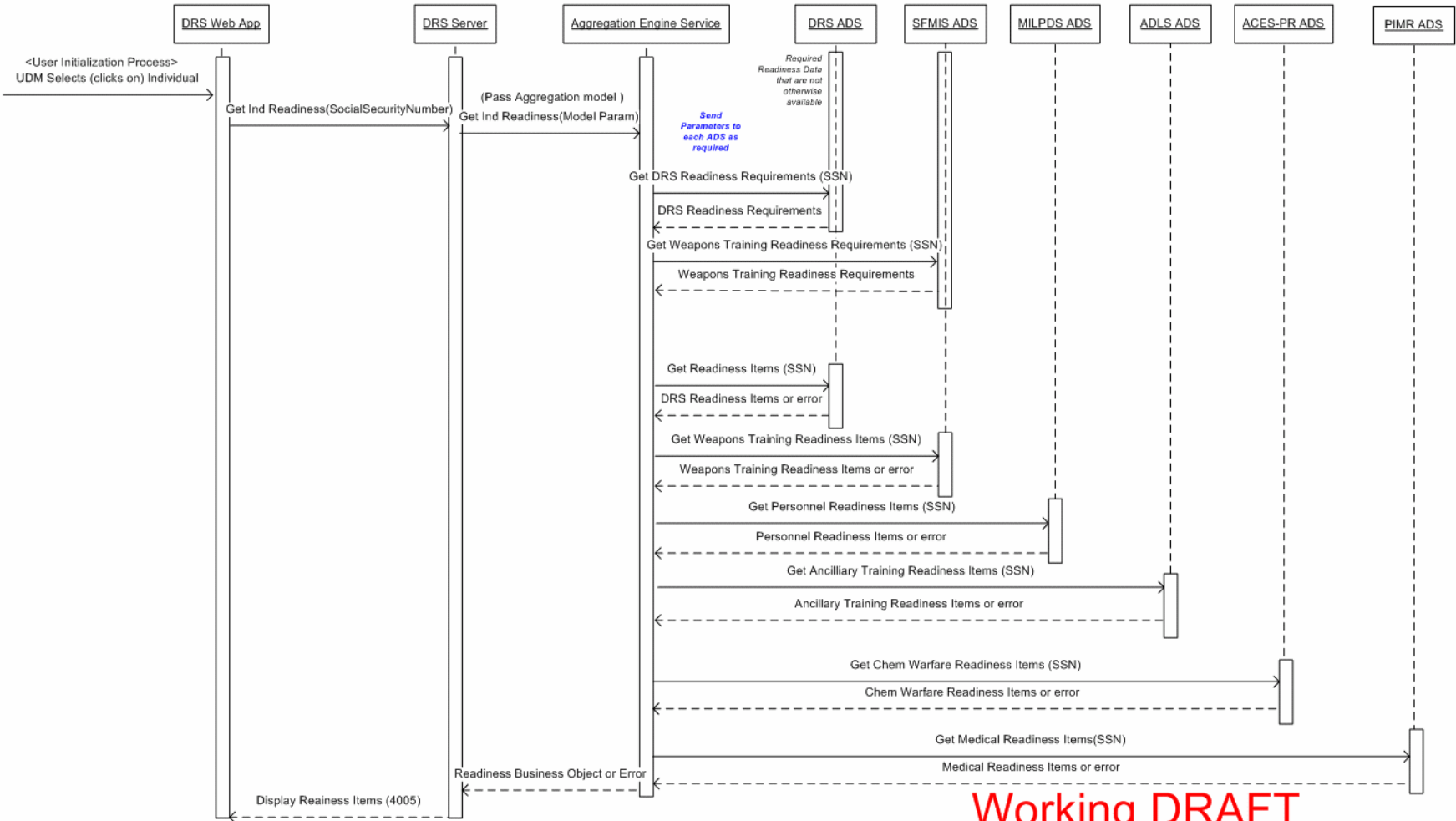
Request for Medical Data



# Example Sequence Diagram

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## UDM Requests Individual Readiness Sequence Diagram





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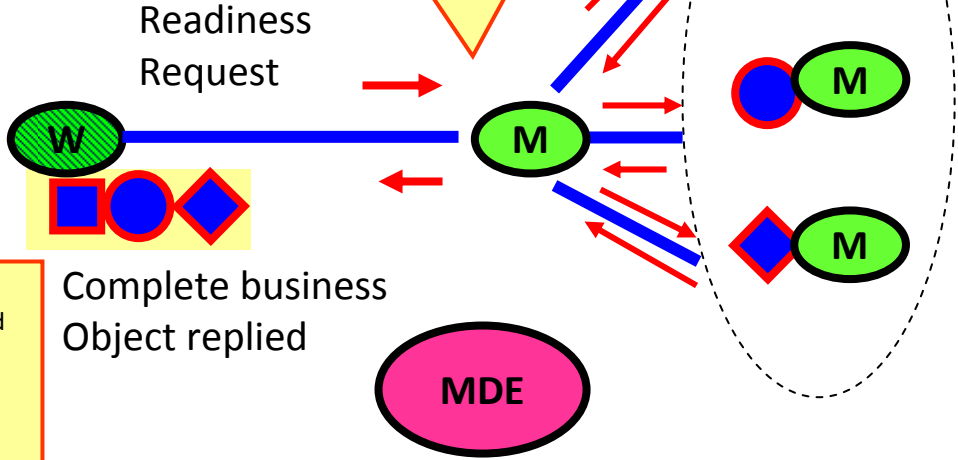
# DRS develop/deploy/use Timeline

UC 11: Use Mission Services (Web App)

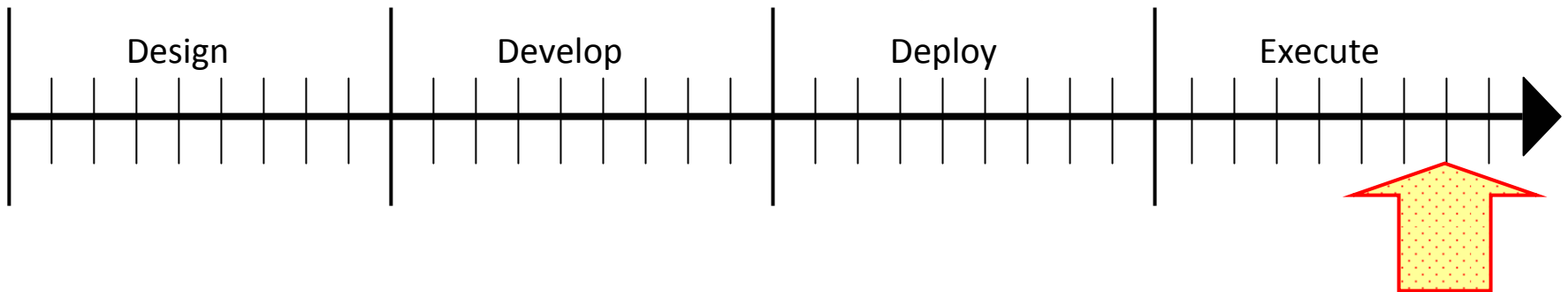


User invokes web application, which uses aggregation service to call the wrappers, and then converts the resulting business object into human readable representation on the AF Portal

Aggregation service pulls data from multiple services, processes it, and re-packages as single business object



Note: Aggregation service does not use MDE to determine which Mission Services (Wrappers) to call at runtime

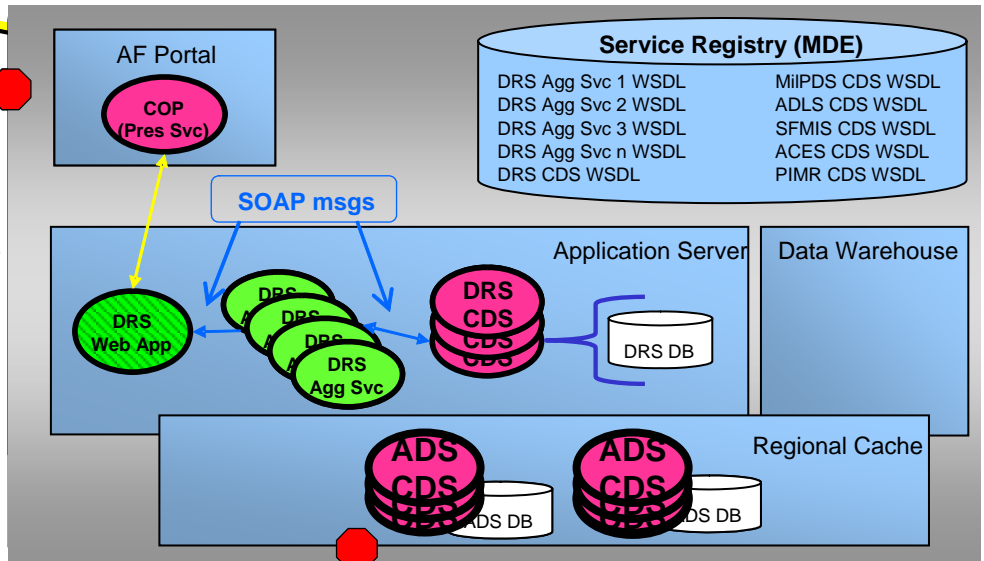
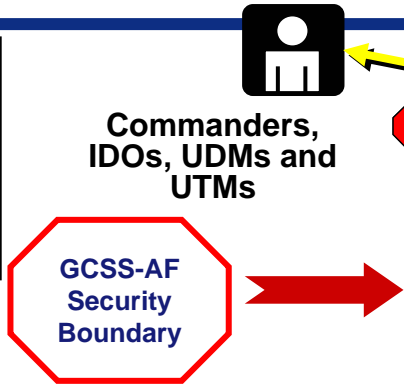




# DRS Pathfinder SV-1 (DRAFT)

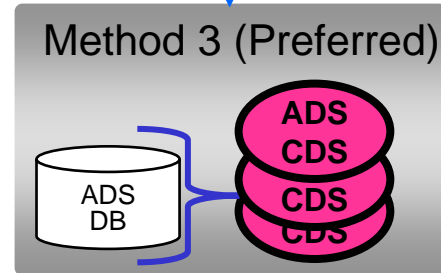
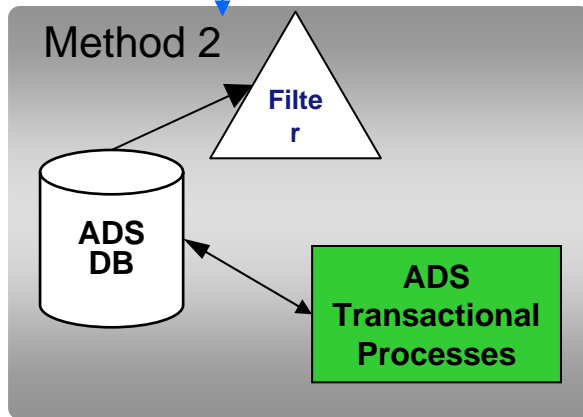
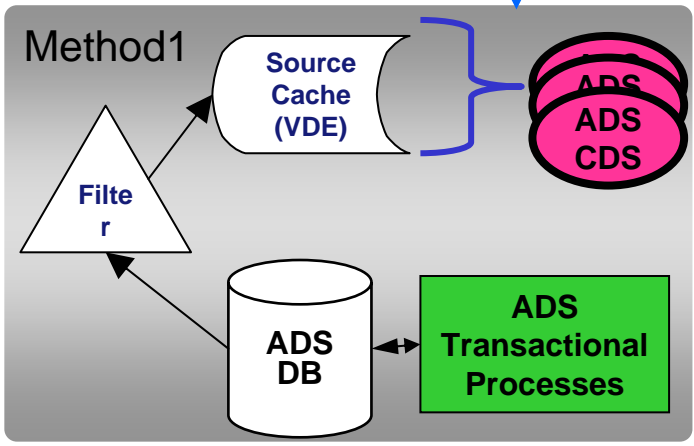
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- = Mission Service
- = Enterprise Service
- CDS = Core Data Service
- VDE = Vocabulary Defined Elements



- Method 1 – ADS Keeps Local Cache
- Method 2 – ADS Uses Regional Cache
- Method 3 – ADS Direct Service

Secured SOAP messages

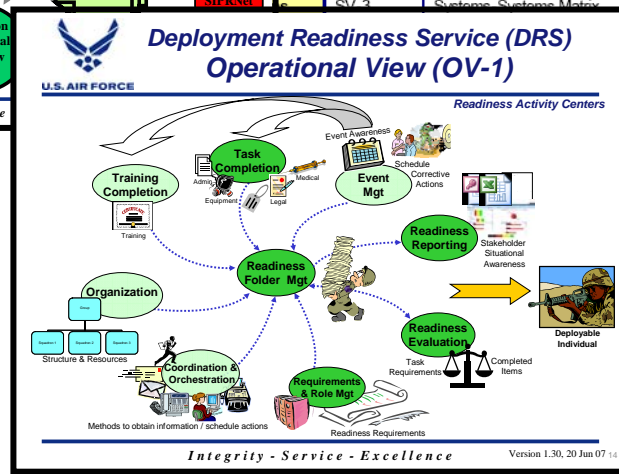
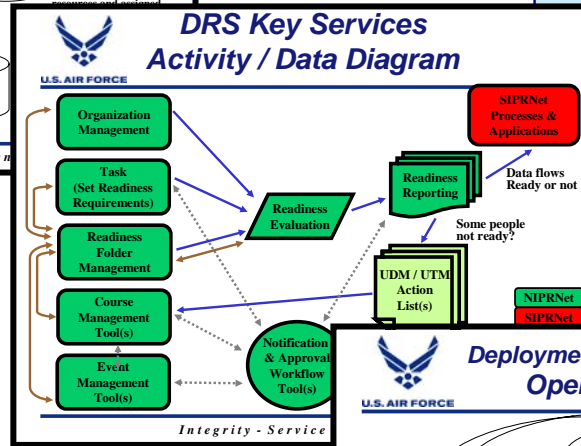
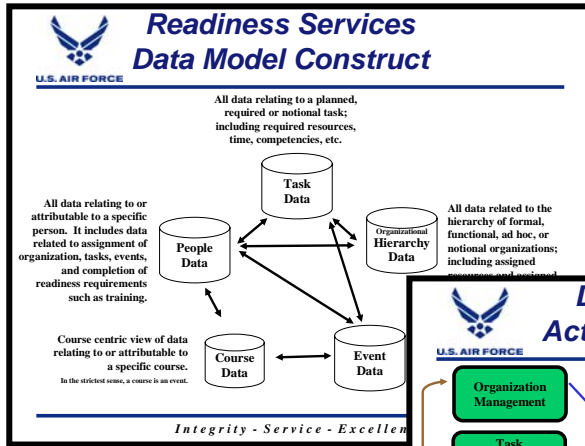






# Refine the Model

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## Update DoD Architecture Framework (DoDAF) artifacts

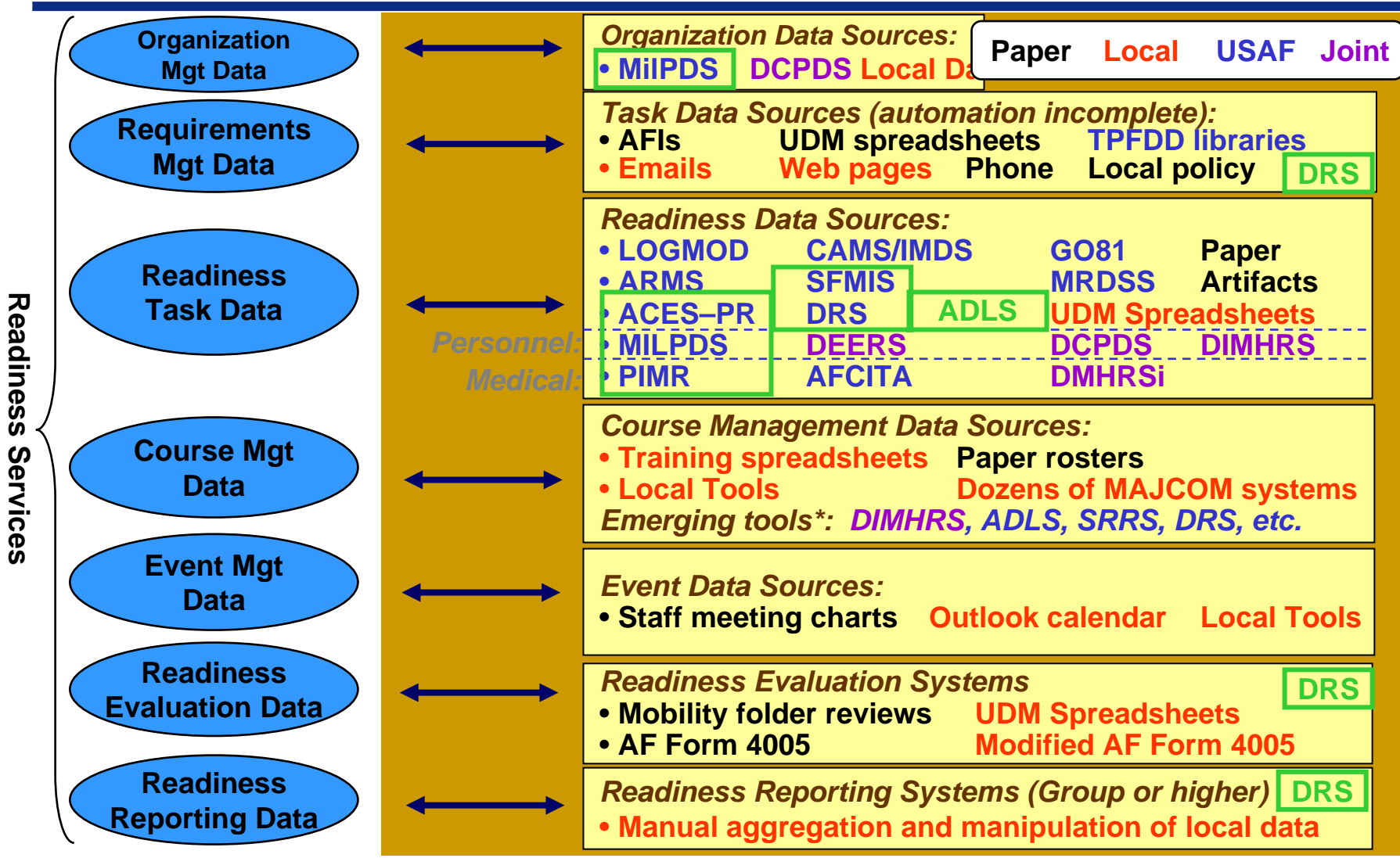
Applicable View	Framework Product	Framework Product Name	General Description
All Views	AV-1	Overview and Summary Information	Scope, purpose, intended users, environment depicted, analytical findings
All Views	AV-2	Integrated Dictionary	Architecture data repository with definitions of all terms used in all products
Operational	OV-1	High-Level Operational Concept Graphic	High-level graphical/textual description of operational concept
Operational	OV-2	Operational Node Connectivity Description	Operational nodes, connectivity, and information exchange guidelines between nodes
Operational	OV-3	Operational Information Exchange Matrix	Information exchanged between nodes and the relevant attributes of that exchange
Operational	OV-4	Organizational Relationships Chart	Organizational, role, or other relationships among organizations
Operational	OV-5	Operational Activity Model	Capabilities, operational activities, relationships among activities, inputs, and outputs; overlays can show cost, performing nodes, or other pertinent information
Operational	OV-6a	Operational Rules Model	One of three products used to describe operational activity—identifies business rules that constrain operation
Operational	OV-6b	Operational State Transition Description	One of three products used to describe operational activity—identifies business process responses to events
Operational	OV-6c	Operational Event-Trace Description	One of three products used to describe operational activity—traces actions in a scenario or sequence of events
Operational	OV-7	Logical Data Model	Documentation of the system data requirements and structural business process rules of the Operational View
Systems	SV-1	Systems Interface Description	Identification of systems nodes, systems, and system items and their interconnections, within and between nodes
Systems	SV-2	Systems Communications Description	Systems nodes, systems, and system items, and their related communications lay-downs
Systems	SV-3	Systems Systems Matrix	Relationships among systems in a given architecture; can be designed to show relationships of interest, e.g., system-type interfaces, planned vs. existing interfaces, etc.
Systems	SV-4	Systems Capabilities Matrix	Functions performed by systems and the system data flows among system functions
Systems	SV-5	Systems Capabilities Matrix	Mapping of systems back to capabilities or of system functions back to operational activities
Systems	SV-6	Systems Capabilities Matrix	Provides details of system data elements being exchanged between systems and the attributes of that exchange
Systems	SV-7	Systems Capabilities Matrix	Performance characteristics of Systems View elements for the appropriate time frame(s)
Systems	SV-8	Systems Capabilities Matrix	Planned incremental steps toward migrating a suite of systems to a more efficient suite, or toward evolving a current system to a future implementation
Systems	SV-9	Systems Capabilities Matrix	Emerging technologies and software/hardware products that are expected to be available in a given set of time frames and that will affect future development of the architecture
Systems	SV-10	Systems Capabilities Matrix	One of three products used to describe system functionality—identifies constraints that are imposed on systems functionality due to some aspect of systems design or implementation
Systems	SV-11	Systems Capabilities Matrix	One of three products used to describe system functionality—identifies responses of a system to events
Systems	SV-12	Systems Capabilities Matrix	One of three products used to describe system functionality—identifies system-specific refinements of critical sequences of events described in the Operational View
Systems	SV-13	Systems Capabilities Matrix	Physical implementation of the Logical Data Model entities, e.g., message formats, file structures, physical schema

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# Identify Information Assets

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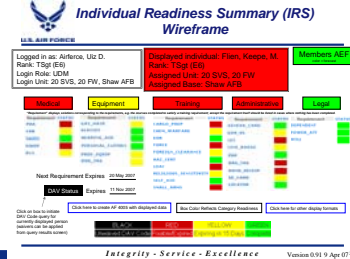


No "as is source" for enterprise Coordination & Orchestration data

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# Map Data Flow



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Use Case #X-022  
(Use Case X-010 is prerequisite)

**USER**

Activated by selecting an individual from an actionable link from other users cases--including but not limited to X-020, X-030, X-032, X-035, X-036, X-040)

Display Fields:  
• See IRS wireframe

Actions:  
• Sort by display fields  
• Export to AF 4005  
• Launch DAV code query for user  
• Other formats  
• Req't drill down (future)

User views selected Airman's IRS can change viewing format or generate 4005

**DRS Web App**

Calls IRS service/function with selected user's ID

e.g. calls server app (IRS)

Displays aggregated data in IRS presentation format

**DRS Server Apps**

Build request for person info, readiness req'ts, eval criteria, and items necessary to build IRS

e.g. creates request for person info (grade, AFSC, DAV codes), readiness requirements, readiness tasks (completion data)

Receives / checks requested aggregate object

**Aggregation Service**

Use session data, identify and obtain any missing pieces through individual ADS requests

Receive list of req'd items, definitions & task sources, and request task status

Collect responses, match item status to requirement, eval, build aggregate object

Name, Grade, Unit, DAV status, req't list matched with status

Aggregate Object Placeholder

**ADS (Definitions & Catalogs)**

- DRS: Get\_DAV\_Code\_Definitions
- DRS: Get\_AEF\_Definitions
- DRS: Get\_Requirement\_Definitions
- DRS: Get\_Readiness\_Status\_Definitions
- DRS: Get\_ADS(Null)

Request for DAV codes, titles, ADSs, requirements, tasks

**ADS (Organization)**

- MILPDS: Get\_Detailed\_Individual\_Data

Request for person info

**ADS (Requirements)**

- DRS: Get\_Assigned\_Requirements
- SFMIS: Get\_Arming\_Group

Request for Applicable Requirements

**ADS (Readiness Evaluation)**

- DRS: Get\_Readiness\_Eval\_Thresholds
- DRS: Get\_DAV\_Code\_Waiver

Request for evaluation thresholds

DRS: Store\_Readiness\_Evaluation\_Status

Evaluation results stored as last eval record

**ADS (Readiness Tasks)**

- SFMIS: Get\_Completed\_Training
  - ACES-PR: Get\_Completed\_Training
  - ADLS: Get\_Completed\_Training
  - PIMR: Get\_Medical\_Readiness\_Individual
  - DRS: Get\_Readiness\_Item
- Request for Small Arms Trng  
Request for CBRNE Training  
Request for other Ancillary Training  
Request for Medical Eval Status  
Request for other required items



# DoDAF Service View

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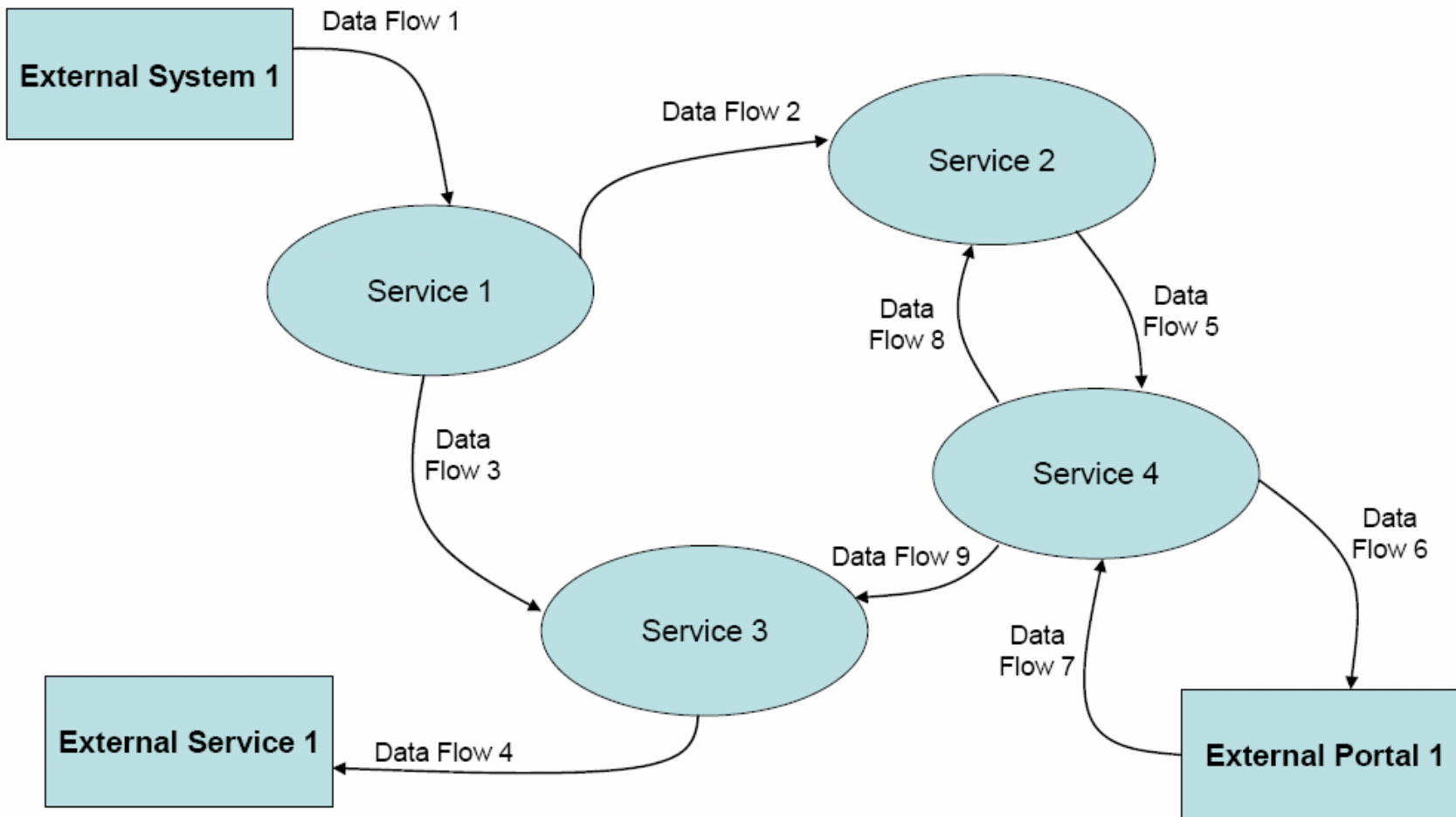


Figure 5-24: Notional Example: SV-4b: Data Flow Diagram

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## *Overcoming Challenges*

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- Realistic Schedule
- Realistic Funding
- Rethinking Performance Constraints
  - “Regional Cache”
- Up Front Engineering
  - Created Technical Package
- Iterative Vocabulary Development



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## *Summary*

- **What Problem is being solved by DRS?**
- **What is a Service Oriented Architecture?**
- **What are the Challenges?**
- **How can these Challenges be overcome?**



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***Questions?***

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