#### The Digital Training Management System (DTMS) Operators Course

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#### **IDE 631 – Instructional Design and Development I**

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#### Abstract

The Digital Training Management System (DTMS) is a Learning Management System developed and used by the Army to track and manage soldiers' training to determine their readiness and, ultimately, their readiness. All Soldiers are obligated, by regulation, to assess their physical readiness twice a year and not to exceed 180 since the last assessment.

The Army has been working diligently during the last three years to change its Soldier fitness assessment construct. To validate and assess the effectiveness of the Army's newly developed fitness assessment, the Army conducted an Army-wide DTMS report for Soldier fitness assessments – the Army Combat Fitness Test (ACFT). In doing so, the Army identified a problem with the 1st Armored Division (1AD), located at Fort Bliss, Texas, where only 61% of the 20K plus Soldiers assigned to the 1AD had a valid fitness assessment recorded and input into DTMS – a problem still present, today. See Appendix A for 1AD ACFT DTMS overview.

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#### **Instructional Analysis: Performance Statement**

#### **Problem Statement**

"Military personnel are having difficulty tracking and entering ACFT performance inputs into the Digital Training Management System (DTMS)"

#### **Competent Performance**

DTMS Operators should be able to demonstrate the proper operator-level functionality, which includes:

- Enter the training plan to schedule and manage events, event sets, checklists, calendars, and training schedules in sequence and without error.
  - Demonstrate proper data input to manage Soldier training records without error.
- Demonstrate proper data pull to manage reports and unit training proficiency statuses without error.

#### **Performance Problem**

Military personnel are not correctly inputting ACFT data into DTMS within 72-hours after completing the ACFT. Army Regulation (AR) 350-1 requires timely and accurate reporting of training events, including the ACFT, in DTMS, without exception or regard for DTMS system outages, network outages, or units' lack of expertise or knowledge of DTMS.

Almost every Soldier in the Army possesses basic computer skills and knowledge. However, DTMS is Learning Management System (LMS), which is not easily understood and is a foreign system to soldiers who have received no formal training about its use and operation. DTMS has several nuances that often require proper training to understand and resolve. For that reason, it takes formal training to understand and effectively use, regardless of a Soldier's previous knowledge or expertise.

#### **Analysis: Audience & Working / Learning Environments**

#### **Audience Profile**

DTMS Operators are U.S. Army Soldiers trained and efficient in a vast range of Military Occupational Series' (MOS) positions and skill levels throughout the Army. The average operator is, at a minimum, high school (or equivalent) graduates, Basic Combat Training (BCT) trained, MOS specific school trained (Department of the Army, 2019).

Soldiers of all ranks and MOS's will be eligible to attend DTMS training [based on unit mission, intent, and end goal]; however, the preferred targeted audience rank to achieve organizational success is Specialist (E-4) thru Sergeant First Class (E-7). The intent should be on

proper individual skills with a developmental focus that can adapt to unit position and future competency, supporting DTMS training management goal(s) and objectives.

#### **Learning and Working Environments**

The **working environment** is relaxed, easy-going, and ideal workspace to allow office development and management teaching. The area is large enough to fit approximately 30 workstations in a large classroom or office space, with desks, chairs, computer workstations, and a shared printer for everyday products. The area is equipped with projection, video display, and custom audio and recording for digital playback for future training needs.

The **evaluation environment** is established to enable a flow of information between the operator and instructor; all DTMS systems are linked to allow for viewability by the senior systems instructor for control, instruction, and development. As DTMS training progresses, evaluations and knowledge assessments will span records management, the ability to digitally develop, record, coordinate training plans within organizations, record training assessments, training completion, and training readiness. The training management process from the project, preparation to execution, is key to maintaining an environment of calm, developmental, open feedback between operator and instructor to ensure complete understandability of the information in a short 16-hr block of instructing window.

The **learning environment** where the DTMS operators receive the training is open-minded and spirited. Operators and instructors must have constant student-to-teacher feedback to ensure the complete understandability of the instruction is delivered. Operators will progress from building soldiers' profiles to unit records management quickly; if not, operators can fall behind if unsure of information or how to advance to the next step(s). Establishing trust and confidence early in the training instruction is critical to ensure the final hands-on evaluation is 100 percent successful. An effort that prepares the operators to become unit subject matter experts after the completion of the course.

#### **Analysis: Content Analysis**

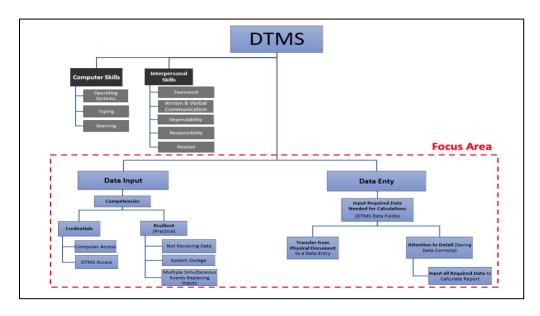
#### **Content Analysis**

Unit level leaders have options, and it is at their discretion whom they pick to serve in their training room and those in their training room as the DTMS Operator(s). *Data Inputs* are some areas are missed during the selection process where soldiers are selected in relevance of good work habits and computer skills. Computer skills are critical as they serve as a base for and the number of soldiers selected.

In developing the content analysis, the below analysis hierarchy serves as the framework for why Soldiers must be developed and appropriately selected for DTMS operations. Currently, Soldiers are not tested on recording, transfer of documentation, or attention to detail which effects *Data Entry*. Additionally, their ability to input data is vital to developing systematic credentials, which leaves a gap in systems training that could affect overall unit deployment

status. With this understanding, the hierarchy will lead this analysis towards understanding the path to a solution.

## **Content Analysis Hierarchy**



Design: Content, Instructional Goals, Objectives, & Assessments

## Summary of the Relationship(s) amongst Performance and Content

Performance	Content
Input ACFT results into DTMS within 72-	DTMS Operators demonstrate
hours after the completion of the even both	Mastery Learning using Scaffolding
accurately and without error.	to increase their knowledge and
Lower Order Thinking Skills - Memorize	proficiency of DTMS through
and recall the required actions necessary to	several practical exercises, check(s)-
accurately input ACFT data into DTMS	on-learning, student/instructor
	interactions, and a culminating
Higher Level Thinking - Processing	hands-on evaluation designed to
Methods used to input ACFT data in DTMS.	evaluate mastery learning.
Report ACFT events and unit statistics,	Utilizing multiple practical
without error, using both digital and analog	exercises and receiving subsequent
reporting methods.	instructor feedback, designed to
Lower Order Thinking Skills - Memorize	improve efficiency/accuracy,
and recall the required actions(steps) taken	learners practice DTMS data input
to report ACFT statistics.	and reporting while gaining
_	confidence and with increased
Higher Level Thinking - Analyze the	accuracy.
reports produced for accuracy to identify	
and correct deficiencies while reporting.	

#### **Instructional Goals**

For the duration of this content, "Learners" are defined as DTMS operators.

- Learners successfully log in to DTMS using the correct certificate and having granted access to DTMS.
- Learners access and explore helpful DTMS links that assist them should they have trouble navigating DTMS.
- Learners can explain contingency planning techniques to consolidate data to input when system access is restored rapidly.
- Learners successfully input ACFT data rapidly into DTMS using the contingency plan they developed.
  - Learners successfully print and email an ACFT report using DTMS.
- Learners produce an ACFT report, in paper format, to the instructor in paper format and using email. The produced report should be complete, accurate, and without error.

#### **Learning Objectives**

- Learners demonstrate their granted access to DTMS and Government Networks.
- Learners can navigate DTMS, understand sections and sub-sections of DTMS, and seek 'how-to' help should they encounter problems navigating DTMS.
- Learners demonstrate using a method of their choosing, and they elect to use to consolidate data required for rapid input into DTMS when access is restored.
- Learners successfully demonstrate and refine the effectiveness of their individually developed contingency plan.
- Leaner's scaffold their contingency plan when demonstrating successfully saving ACFT input data.
  - Learners create an ACFT report distributable in paper format and by using email.

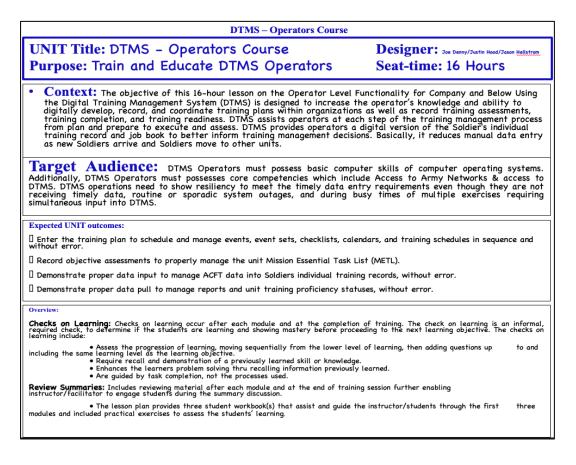
# Summarize Relationship(s) amongst Goals, Objectives, and Assessments

Instructional Goal	Learning Objectives	Learning Assessment
Learners (DTMS Operators) successfully log in to DTMS using the correct certificate and having granted access to DTMS.	Learners demonstrate their granted access to DTMS and Government Networks.	After practical application, the instructor will visually check each learner's workstation to ensure they are logged in and have granted access to DTMS.
Learners (DTMS Operators) access and explore helpful DTMS links that assist them should they have trouble navigating DTMS.	Learners can navigate DTMS, understand sections and subsections of DTMS, and seek 'how-to' help should they encounter problems navigating DTMS.	During practical application, learners have presented visual check-on learning to which they are asked to search for a provide the telephone number and email address for the DTMS Helpdesk.
Learners can explain contingency planning techniques to consolidate data to input when system access is restored rapidly.	Learners demonstrate using a method of their choosing, and they elect to use to consolidate data required for rapid input into DTMS when access is restored.	After being presented with several options available but not wholistic, learners will decide and use a means of their choosing to develop a contingency plan that consolidates key data the instructor issues them in the form of a practical exercise.
Learners (DTMS Operators) successfully input ACFT data rapidly into DTMS using the contingency plan they developed.	Learners successfully develop, demonstrate the use of, and refine the effectiveness of their individually developed contingency plan.	Learners presented a practical exercise that included more data entries required for input into DTMS. The learners will extract the data given to their contingency plan and then use their contingency plan to input the data into DTMS. The learner will present both the contingency plan and their workstation to the instructor for evaluation and feedback.

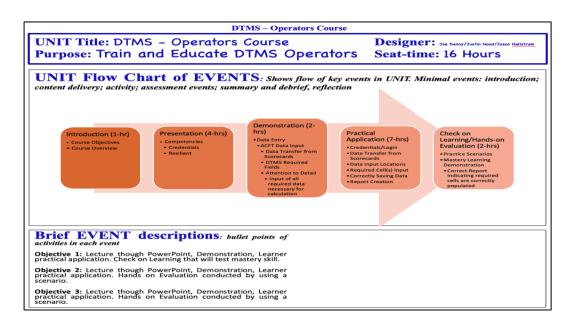
Learners (DTMS Operators) successfully input ACFT data rapidly into DTMS using the contingency plan they developed.	Learners successfully develop, demonstrate the use of, and refine the effectiveness of their individually developed contingency plan.	Learners presented a practical exercise that included more data entries required for input into DTMS. The learners will extract the data given to their contingency plan and then use their contingency plan to input the data into DTMS. The learner will present both the contingency plan and their workstation to the instructor for evaluation and feedback.
Learners (DTMS Operators) successfully print and email an ACFT report using DTMS.	Leaner's scaffold their contingency plan when demonstrating successfully saving ACFT input data.	Learners are presented with a practical exercise that includes more data than the previous two exercises. Learners must input, save, and, if saved correctly, produce an ACFT report in paper form and email it to the instructor.
Learners (DTMS Operators) produce an ACFT report, in paper format, to the instructor in paper format and using email. The produced report should be complete, accurate, and without error.	Learners create an ACFT report distributable in paper format and by using email.	Learners are given a timed and data-intensive hands-on evaluation which requires them to use all the skills previously taught to produce a correct, accurate, and error-free report to the instructor. The report must be submitted in paper form and email for successful course completion.

#### **Development: Storyboard Set**

#### **Narrative**

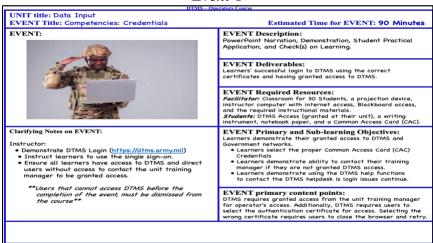


#### **Flowchart**

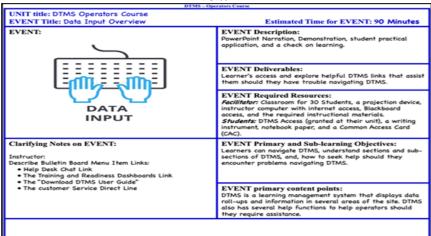


#### **Storyboard Screens**

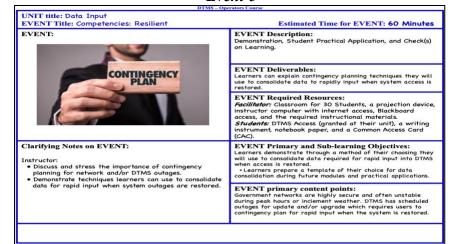
#### Event-1



#### Event-2



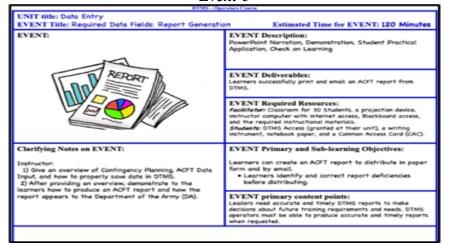
#### Event-3



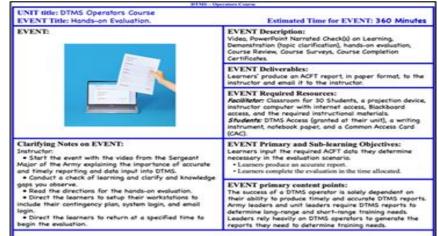
#### Event-4

	EVENT Description: Practical Exercise, PowerPoint, Demonstration, Practical Exercise, Check(s) on Learning.	
SCENARIO AND	EVENT Deliverables: Learners successfully input ACFT data rapidly into DTMS from the contingency plan they developed.	
CONTINGENCY PLANNING	EVENT Required Resources: Facilitator: Classroom for 30 Students, a projection device instructor computer with internet access, Blackboard materials. Seemanios, and the required instructional materials. Students: DTMS Access (granted at their unit), a writing instrument, notebook paper, and a Common Access Card (CAC).	
Clarifying Notes on EVENT:  Instructor:  • Learners will start this event with a practical exercise which they will extract specified data from the scenario and consolidate the data to their contingency planning mechanism (Excel, Ms. Word, etc.)  • Then, the instructor will use the course material contingency plan to demonstrate rapid ACFT data input into DTMS.	EVENT Primary and Sub-learning Objectives: Learners successfully demonstrate the effectiveness of their contingency plan.  • learners adjust their contingency plan to make it more suitable or effective.  • Learner complete the practical exercise to input required ACFT data into DTMS before this event expires.	
	EVENT primary content points:  Training events are continuous and produce much data required for input into DTMS. Regardless of system outages, reporting requirements are requirements are requirements are reconstance.	

#### Event-5



#### Event-6



#### **Implementation: Dissemination Plan**

#### **Dissemination Plan**

The DTMS Operators course will be disseminated in six phases: Awareness, Interest, Evaluation, Trial, Adoption, Implementation.

- Phase 1 (Awareness): During this phase, unit awareness of the newly developed DTMS Operators Course will be published and made visible through published annual training guidance by the Division. When published, the description will include the target audience, the class capacity, and the scheduled course dates to include estimated Trial, Adoption, and Implementation dates.
- Phase 2 (Interest): After providing awareness through published annual training guidance, aware subordinate units will subsequently publish the DTMS Operators Course in their yearly training guidance to subordinate units to garner their interest in the course.
- Phase 3 (Evaluation): To validate the newly designed instruction, division trainers will conduct OJT with the 3rd Brigade (the lowest reporting unit) and provide feedback about necessary changes/adjustments to meet the learning outcomes and course objectives.
- Phase 4 (Trial): After making the necessary changes in Phase 3 (Evaluation): division trainers will conduct a trial course given to 3rd Brigade DTMS Operators. After successful course completion, graduates will return to their units and be given a specified timeframe, not yet determined, to input unit ACFT data into DTMS. After the specified time has expired, the instructional designers will gather the course critiques, administered evaluations, and ACFT data roll-ups provided by the division training manager to evaluate and make necessary adjustments to the course before Phase 5, adoption.
- **Phase 5 (Adoption):** In Phase 5, Division annual training guidance is adjusted to include a larger population of DTMS Operators. Course allocations will be equally distributed to include other units, not only the 3rd Brigade, allowing other teams to have trained and capable DTMS operators necessary to input the missing ACFT data in DTMS.
- Phase 6 (Implementation): During implementation, the course schedules are adjusted to a continuous, enduring, and sustainable course in which units can plan and sequence their personnel for attendance. By this time, units are seeing the value of the DTMS Operators Course and guiding subordinate unit personnel's requirement to attend the course. At the same time, maintain an adequately trained population of DTMS Operators in every unit.

## **Evaluation: Formative and Summative Evaluation Plan, Cost Benefit**

### **Formative Evaluation**

Component			Stakeholders
of	Evaluation Questions	Instrument/	Providing the
instruction	Evaluation Questions	Protocol	Data
Presentation	<ul> <li>Are learners attentive and expressing interest about the topic?</li> <li>Are learners using schema to retrieve and correlate the material being presented for applicability and future use?</li> <li>Are learners asking questions or seeking clarification to assist them to achieve greater understanding of the material being presented?</li> </ul>	<ul> <li>Observation</li> <li>Interaction</li> <li>Discussion</li> <li>Check(s)-on-learning</li> </ul>	<ul> <li>Learners</li> <li>Instructors</li> <li>Instructional Designers</li> </ul>
Demonstration	<ul> <li>Are learners displaying actively following along with the demonstration</li> <li>Are the learners' displaying indicators which express their understanding of the topic being taught?</li> <li>Is the demonstration soliciting the learners' stimuli to elicit a response?</li> </ul>	<ul> <li>Observation</li> <li>Interaction</li> <li>Discussion</li> <li>Check(s)-on-learning</li> <li>Learner Interaction</li> </ul>	<ul> <li>Learners</li> <li>Instructors</li> <li>Instructional Designers</li> </ul>
Practical Application	<ul> <li>Are the learners actively engaged?</li> <li>Are the learners' asking questions or seeking clarification?</li> <li>Are the learners interacting with each other?</li> <li>Are the learners demonstrating a desire to master the material being taught?</li> </ul>	<ul> <li>Observation(s)</li> <li>Instructor/Learner interaction(s)</li> <li>Surveys/Critiques</li> <li>Check(s)-on-learning</li> </ul>	<ul> <li>Learners</li> <li>Instructors</li> <li>Instructional Designers</li> </ul>
Mastery Learning	<ul> <li>Are learners relating new knowledge to the knowledge previously taught?</li> <li>Are learners demonstrated scaffolding proficiency?</li> <li>Are learners demonstrating proficiency navigating DTMS?</li> </ul>	<ul> <li>Observation</li> <li>Interaction</li> <li>Discussion</li> <li>Check(s)-on-learning</li> <li>Learner Interaction</li> </ul>	<ul> <li>Learners</li> <li>Instructors</li> <li>Instructional Designers</li> </ul>

## **Summative Evaluation**

Type of Evaluation	Evaluation Questions	Instruments/ Protocols	Uses
• Effectiveness to correct the existing performance gap.	• Is ACFT data being input and reported within 72 hours after event completion? • Are ACFT reports complete, and essential cells populated?	• Division Training Manager ACFT data pulls, merging, and statistical analysis.	<ul> <li>Course modifications to correct the performance gap if it is clearly understood and if course is designed to correct.</li> <li>To determine if new performance gap emerged from knowledge, skill, or behavior.</li> </ul>
• Is there a reduction in redundant training and the associated cost as result of effective DTMS input/management?	• Are units conducting redundant ACFT's to capture data required for DTMS to populate and report?	• Division Training Manager ACFT data pulls, consolidation , and statistical analysis.	<ul> <li>Determine scheduled training being conducted, if so, are good record keeping practices used?</li> <li>Are records being transferred to the DTMS operators in a timely for subsequent reporting.</li> </ul>

## **Cost-benefit Analysis**

Costs associated to Implement (human capital, facilities, equipment, financial, resources, quantitative and qualitative)	Benefits associated with Implementation (financial, resources, quantitative and qualitative)
Cost in Time/Manpower: 16-hour course length results in a cost in training at the unit level (reduction in tactical proficiency)	Cost in Time/Manpower: Training development will occur at the unit level to increase OJT trained DTMS operators and their proficiency.
Cost in Time/Manpower: Student-to- instructor-ratio of 1:5 per class, with a class capacity capped at 30, increased strain is absorbed by the unit when losing leaders tasked to teach the course; degrades mission readiness.  Cost in Dollars: Associated course costs includes costs for classrooms, desks, chairs, facility management, projector, laptops, printers (Education Technology Plan), and supplies required to operate the equipment and facilities.	Cost in Time/Manpower: Increased mission/unit readiness as result of increased DTMS operators, DTMS input and the subsequent reporting.  Cost in Dollars: Increased population of certified operators improves training tracking and further reduces operating expenses and training costs.  Cost in Dollars: Reduces redundant operations and/or training events while improving operating efficiency and Army operating costs.

#### References

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## Appendix A

#### 1st Armored Division ACFT DTMS Overview



# 1<sup>st</sup> Armored Division ACFT Status in DTMS

#### 1AD has tested 61% as of 7 July. 2021

7 July, 2021

Unit	Tested (%)	# Tested	Not Tested
1/1 AD	81.90 %	3,593	749
2/1 AD	57.63 %	2,365	1,723
3/1 AD	40.28 %	1,479	2,192
CAB	72.50 %	2,210	748
DIVARTY	58.79 %	485	339
DSB	57.89 %	1,009	718

#### 30 June, 2021

Unit	Tested (%)	# Tested	Not Tested
1/1 AD	81.56 %	3,569	757
2/1 AD	53.59 %	2,200	1,888
3/1 AD	39.56 %	1,454	2,219
CAB	72.33 %	2,117	749
DIVARTY	57.87 %	478	347
DSB	57.64 %	1,007	727

"America's Tank Division

POC: Duane Shaw 744-8072

UNCLASSIFIED

Date: 7/7/2021

# **Final Report Checklist**

Storyboard Screens		
Storyboard Screens.	Title page and Table of Content present Effective Abstract (good grammar, spell checked)	
Storyboard Screens.	Required components present (problem statement, content analysis) Supporting graphics, charts, clear and accurate Section conforms to length guidelines Grammar, spelling, format check	
Storyboard Screens.	Required components present (instr. strategies, resources, assessments) Supporting graphics, charts, clear and accurate Section conforms to length guidelines Goals, objectives, activities, assessments align and address identified gap Grammar, spelling, format check	
Storyboard Screens.	Required components present (storyboard set) Supporting graphics, charts, clear and accurate Prototype clearly demonstrates design of instruction Section conforms to length guidelines Grammar, spelling, format check	
Storyboard Screens.	Required components present (dissemination plan) Supporting graphics, charts, clear and accurate Section conforms to length guidelines Grammar, spelling, format check	
Storyboard Screens.	All required components are present (formative/summative; cost/benefit) Supporting graphics, charts, clear and accurate Section conforms to length guidelines Grammar, spelling, format check	
Storyboard Screens.	References section is BEFORE appendix A, in APA style Supplemental Appendixes referenced in body of report Supporting graphics, charts, clear and accurate in Appendixes Grammar, spelling, format check Final checklist attached after LAST appendix	
Storyboard Screens.	All sections are written in a professional manner, single spaced 12 pt Times New Roman font is used in main text, (tables can be 10pt) APA formatting is followed in citations Graphics and/or diagrams are used effectively Report is formatted into one file (pdf)	
Storyboard Screens.	Performance problem is clearly described Analysis supports recommendation for instructional solution Instructional Design solutions address gaps identified in Analysis Development plan addresses Design specification Implementation plan aligns with Analysis and Design plan Evaluation plan aligns with instruction and performance problem Flow of messages among sections and performance problem are clear	