

**Enhanced Video Text and Audio Processing (eViTAP)
User Evaluation
Conducted by MARFORPAC Experimentation Center**

**MARFORPAC and I MEF
April 26-29, 2004**

The following presents the results of a limited, informal evaluation of the eViTAP system conducted at MARFORPAC (Camp Smith, HI) and I MEF (Camp Pendleton, CA) during the period 26-29 April, 2004.

Training was conducted on site at both locations by DARPA's contractor, Virage Advanced Technology Group (ATG). For the evaluation, users accessed eViTAP servers located in Woburn MA by means of a web browser (IE) over the Internet. It should be noted that direct access to the Internet is increasingly difficult to obtain on Military bases, due to information security measures and the resultant closure of many ports on base firewalls. This obstructs the flow of data and control of information between users on the inside and servers located elsewhere.

Nine users experimented with and evaluated eViTAP; 4 from Camp Smith and 5 from Camp Pendleton. A summary of the users profile is provided as Enclosure 1 to this report.

Enclosure 2 presents a consolidation of responses from the User Evaluation Forms. This consolidation shows the highest and lowest scores for each question in bold italics and gives the average score as a number expressed to two decimal places in the center column of the tables. Where applicable, textual comments have been transcribed into Enclosure 2, most, however, have been included below.

Enclosure 3 is I MEF's report on eViTAP.

Summary of Major User Comments:

The following points were cited as capabilities that the users thought should be added to eViTAP:

- more languages, and different dialects of those with multiple dialects
- audio translation
- the ability to group Groups
- clip pulls into PowerPoint in Windows Media Viewer format
- ability to save and edit clips on user's desktop directly from web browser
- video streaming over port 80, to avoid firewall issues
- translation of foreign word named entities in the search results
- radio channel feeds

The following points were cited as eViTAP deficiencies:

- case sensitivity of searches and 'find in text' searches re: search terms
- ability to schedule multiple channels for sequential encoding and subsequent indexing and machine translation (MT) (i.e. timesharing of one suite of channel servers)

The following points were cited as to what users liked least about eViTAP:

- case sensitivity of searches
- eViTAP is designed only for live feed video broadcasts vs radio or storage of feeds for later processing

Conclusion:

The overall impression of the users was that eViTAP was highly useful capability, primarily for watch floor analysts, and was more useful at higher echelons than lower ones. The most enthusiastic users would still need some custom tailoring of the system architecture and/or product features in order to more fully meet their needs before it could be employed operationally.

Enclosure 1

User Profile:

User	Unit	MOS	Rank	Linguist?	Analyst?	Computer literacy
1	MFP/PA	4341	GySgt	no	yes	High
2	MFP/G2	0211	GySgt	Spanish, 3/3	no	Medium
3	MFP/G2	0231	GySgt	no	yes	Medium
4	PACOM/STA	-	Lt Col	no	no	High
5	I MEF	0211	GySgt	no	no	Medium
6	I MEF	0231	SSgt	Portuguese	yes	Low
7	I MEF	0211	SSgt	Russian/ Ukranian, 3	yes	?
8	I MEF	0261	SSgt	no	yes	Medium
9	I MEF	2629	SSgt	no	yes	High

Enclosure 2

**Enhanced Video Text and Audio Processing (eViTAP)
User Evaluation Questionnaire**

EFFECTIVENESS	Strongly Disagree				Strongly Agree
	1	2	3	4	5
The eViTAP provided a means for pin-pointing query items within a newsclip	<i>1</i>	2	3.67	4	5
The real-time alerting function in eViTAP was timely and accurate.	<i>1</i>	2	3.78	4	5
The eViTAP was adequate for determining exploitation potential/and news story tracking.	1	2	3.89	4	5
The eViTAP significantly enhances my capability to perform the mission/operations (as intelligence collector, screener, analyst, mission manager).	1	2	3.33	4	5
eViTAP data entry and query capabilities were adequate.	1	2	3.56	4	5
The machine translations provided by eViTAP were understandable and effectively supported operations	1	2	3.89	4	5
eViTAP was adequate for collecting data to be exported to other applications.	<i>1</i>	2	3.44	4	5
eViTAP provides effective tools for analysts or linguists to support prioritizing broadcasts for human translation.	1	2	4.22	4	5
eViTAP is an effective means to gather current information.	1	2	4.22	4	5
The eViTAP tool set effectively supports local exploitation of information.	1	2	3.67	4	5
If I had a real world mission tomorrow, I would want to be able to use eViTAP.	1	2	3.56	4	5

eViTAP – the amount of information I had to enter manually was:

 Too Much 1 Just enough 6 Enough Not enough 2 No reply

Remarks: *Easy to use.*

eViTAP failed to provide a means for entering the following information that I thought necessary.

Hands on training vs briefing.

I would like to see the following capabilities added to eViTAP.

See main report.

Remark on eViTAP overall effectiveness:

Very good tool. Good for HQ level. Good for watch standers, not for 0261's

SUITABILITY	Strongly Disagree			Strongly Agree	
	1	2	3	4	5
eViTAP's news story search speed is adequate.	1	2	4.00	4	5
Web browser access is a suitable means for accessing eViTAP information.	1	2	3.78	4	5
The eViTAP is suitable for storage of news story information for both inventory and identification purposes.	1	2	3.78	4	5
The eViTAP was adequate for simultaneous multiple user access.	1	2	3.89	4	5
The eViTAP screen navigation is sufficient for rapid access of material.	1	2	3.67	4	5
eViTAP's word tracking in translated broadcasts is easy to follow	1	2	3.56	4	5
The automated processing of news broadcasts in multiple languages provides a capability that is needed right now	1	2	3.78	4	5
eViTAP is suitable for an operational environment	1	2	3.44	4	5
eViTAP is ready for immediate deployment	1	2	3.22	4	5

Identify any system or software failures, or specific weaknesses:
See main report.

Remark on eViTAP overall suitability:

Very good. Applicable to MEF and MEU levels.

USABILITY	Strongly Disagree					Strongly Agree
	1	2	3	4	5	
The training I received on the eViTAP was adequate for this demonstration.	1	2	3	4.11	5	
The eViTAP user functions are easy to learn.	1	2	3	4.11	5	
<i>It was easy to obtain a summary of all responses to my query</i>	1	2	3	4.22	5	
Foreign language broadcast clips in the response index provided adequate English language keywords/phrases	1	2	3	4.22	5	
The Advanced Search data entry fields were comprehensive and sufficient for generating complex queries	1	2	3	4.22	5	
The Search and Query functions were easy to understand and use.	1	2	3	4.00	5	
It is easy to access information with eViTAP.	1	2	3	4.00	5	
eViTAP is easy to troubleshoot. (SysAdmin Only).	1	2	N/A	4	5	

Remark on eViTAP overall usability:

Good alternative when translators not available. Easy to learn and use.

I would like to have more training in the following areas prior to using eViTAP.

Sharing projects and capabilities.

Sysadmin.

What did you like most about using the eViTAP?

*Real world application.
Indexing and search capability.
Easy to learn and use.
User friendly.
The translation capability.
Integration with Powerpoint.*

What did you like least about using the eViTAP?

Translation context. Width of translation window (too narrow).

Do you know of other commercially available systems that provide the same or similar capabilities?

No.

What are your expected user training and system maintenance requirements for eViTAP as a deployed system?

TBD.

Overall Comments:

*Great system.
Usable for watch floor analysts.
Looking forward to seeing it deployed.*

User Profile:

MOS _____ **Rank** _____

Are you a Linguist? __Yes __No **Proficiency Level:** _____

If yes, what language(s): _____

Are you an Analyst? __Yes __No **Computer Efficiency Level:** __High __Med

See summary table of users in main report.



Enclosure 3

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CAMP PENDLETON, CALIFORNIA 92055-5300

IN REPLY
REFER TO:
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TRIP REPORT

Subject: Demo of Enhanced Video Text & Audio Processing Systems (eViTAP)

Classification: UNCLASSIFIED

Prepared by: Capt Hourin, I MEF G-9 Asst Operations Officer, DSN 361-4748

Purpose: Expose Intel Bn and MEF G2 to this capability

I MEF Participants:

NAME	RANK	MOS	UNIT
Rodriguez,A.L.	GYSGT	0211	CI HUMINT CO
Kylaz,K	SSGT	0211	CI HUMINT CO
Carvalho,L	SGT	0231	AFP(S3 ops)
Nordby,G.W	SSGT	0261	TOPO PLT/INTEL BN
Boyd,T.J	SSGT	2629	AFP/P&A CO/1st INTEL BN

Exercise Overview:

eViTAP was developed under the DARPA TIDES (Translingual Information Detection, Extraction and Summarization) program by Virage out of Massachusetts. It is software that enables analysis of non-English broadcast TV news reports. This is not full and final analysis but rather a way for a non-linguist to “triage” news broadcasts in another language, to include Arabic, for important information that requires further analysis by a linguist. Triage is accomplished through the following.

- It breaks the video into clips corresponding to news segments
- transcribes the audio to text through speech recognition
- translates the text with machine translation engine
- indexes the text for searching.
- Uses facial recognition to index video clips by the News Anchor
- The text is kept in sync with the video to display both in search results.

The quality of translation is what makes this a system for triage rather than analysis. Currently machine translation is only good enough to enable a human to get the gist of what is being said in another language, not a 100% translation. Below is a sample of the translation.

Pakistani military spokesman confirmed the two, General Sultan, said the Ouane northwest Pakistan carried out by the army against the Taliban and al-Qaeda had expired today and resulted in the arrest of a number of foreigners without specify the nationality of those on both, but he denied the presence of senior leaders of al-Qaeda in the area of aggression which returned to the front events of a new force has undergone intensive Pakistani army operations in search of al-Qaeda elements which they suspect of the Pakistani authorities their presence in this region bordering the border with Afghanistan, are repeated attacks on US forces found no eye-witnesses said the island's demolition of houses.

Notice the lack of punctuation, this enhancement is planned for a future version.

The demo included low-level user training on the system and its interface. It appears to be very intuitive and easy to learn how to use. It should not require much training at the user level.

The base system contains three computers that schedule news broadcast captures, store all processed data for retrieval by a user, and store video files for playback. eViTAP consists of three additional computers for each Arabic channel to be processed. These three computers manage the video and audio processing, the speech recognition, and the machine translation. Only two computers are required for an English source, since there is no machine translation component. A 2-channel Arabic eViTAP system thus consists of 9 computers. It fills about half of a standard equipment rack and should be operated in an air-conditioned environment.

Key Issues Relevant to I MEF:

- Non-linguist analysis of non-English TV
 - This capability could drastically improve the productivity of intel collections.
 - Considering the current shortage of linguists this could be a very valuable asset to USMC Intel
- IT investment
 - Licensing is estimated at \$280k for a two-broadcast feed system
 - Since this is a product of a DARPA program there could be external funding available
 - Could be a possibility of gaining access to another agency's servers rather than stand up I MEF dedicated servers.
- Bandwidth considerations
 - Streaming video is likely to have a significant effect on the available bandwidth in theater.
 - There seem to be reach-back options for deployment that may alleviate this problem
- Funding
 - A proposal to CENTCOM for eViTAP prices it at the following
 - Hardware, including shipping: \$ 40K
 - Commercial software licenses: \$190K
 - Travel, training, support: \$50K
 - TOTAL \$280K