



# MT Pilot Project

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# Background

Medical equipment user manuals

Subject: Ultrasound probes Data

Training: 4 bilingual

Tuning: 2 bilingual

Testing: 3 bilingual

PDF format

## Измерения и анализ



1. Выберите режим сканирования для измерения, чтобы добавить его в меню измерений.
2. Отметьте папку, в которую нужно добавить измерение.
3. Выберите измерение, которое нужно добавить.

Рис. 4-21: Настройка меню измерений

### Настройка таблицы результатов измерений

Если расчет AV CO (СВАК) не отображается в таблице *Measurement result* (Результаты измерений), выполните следующую процедуру:

1. Нажмите **CONFIG** (Конфигурирование) ( $F2$ ) и выберите категорию конфигурирования **Measure/Text** (Измерение/Текст).  
Отобразится вкладка *Measurement menu* (Меню измерений).
2. Так как расчет AV CO (СВАК) основан на измерении Doppler AV Trace (отслеживании аорты в режиме доплера), в папке *Aortic* (Аорта) выберите режим

## Initial Goals and Objectives

Productivity  $\geq$  22% HT

Cost 22% HT

## Quality Assurance

TAUS quality guidelines

SDL LISA QA

## Errors

Less than 10,000 parallel training sentences

Less than 2,000 parallel tuning sentences

Less than 2,000 parallel testing sentences

Poor sentence alignment

Too many sentences longer than 500 characters

Not enough unique sentences to build test set

A large magenta rectangle occupies most of the page. In the top right corner, there is a decorative pattern of overlapping triangles in various shades of magenta and dark red. The word "PROCESS" is centered in white, bold, uppercase letters.

**PROCESS**

PEMT Workflow

ATTEMPT	CLONED FROM	TRAINING	TUNING	TESTING	COMMENTS
<b>SYSTEM #1 FAILED BLEU 0</b>		5 bi pdf	1 bi pdf	1 bi pdf	Failure resulting from: <ul style="list-style-type: none"> <li>• Less than 10k parallel training sentences</li> <li>• Less than 2k parallel tuning sentences</li> <li>• Less than 2k parallel testing sentences</li> <li>• Poor sentence alignment</li> </ul>
<b>SYSTEM #1 Succeeded BLEU 23.22</b>	New project	4 bi directional PDF	2 bi directional PDF	3 bi directional PDF	<ul style="list-style-type: none"> <li>• Chose healthcare category instead of general</li> <li>• Found additional files that aligned better and got rid of poorly aligned ones</li> <li>• Added more parallel sentences</li> </ul>
<b>SYSTEM #2 FAILED BLEU 0</b>	Cloned from SYSTEM #1	4 bi DOC	2 bi DOC	3 bi DOC	Failure resulting from: <ul style="list-style-type: none"> <li>• Too many sentences longer than 500 characters</li> <li>• Too many duplicates</li> <li>• Potentially one testing doc is too similar to a tuning doc</li> </ul>
<b>SYSTEM #2 Succeeded 8.19</b>	Cloned from SYSTEM #2  *everything is the same except ONE pair of testing docs*	4 bi DOC	2 bi DOC	3 bi DOC  *ONE pair different from previous*	Reason for low score: <ul style="list-style-type: none"> <li>• Not enough unique sentences to build test set</li> <li>• Microsoft simply prefers PDFs</li> </ul>
<b>SYSTEM #3 Succeeded 17.39</b>	Cloned from SYSTEM #1/FAILED SYSTEM #2	4 Bidirectional TXT	2 Bidirectional TXT	3 Bidirectional TXT	<ul style="list-style-type: none"> <li>• Training took much longer (12 hours)</li> <li>• Training took a very long time, around 12 hours.</li> <li>• .TXTs don't seem to be better than .PDFs.</li> </ul>
<b>SYSTEM #4_revised SUCCEEDED 21.22</b>	Cloned from SYSTEM #4	4 Bidirectional DOC	2 Bidirectional DOC	3 Bidirectional DOC	<ul style="list-style-type: none"> <li>• 22 hours 58 minutes!</li> <li>• Files from SYSTEM #4 with formatting cleared</li> <li>• 2 warnings about poor sentence alignment</li> </ul>

<b>SYSTEM #5 SUCCEEDED BLEU 29.62</b>	Cloned from SYSTEM #4	4 Bidirectional <u>tmx</u>	2 Bidirectional <u>tmx</u>	3 Bidirectional doc	<ul style="list-style-type: none"> <li>• Less than 4 hours</li> <li>• Auto-aligned all docs in <u>Trados</u> but Hub refused to use <u>.salign</u> files</li> <li>• Auto-aligned all the pdfs in <u>Trados</u> and created TMXs</li> </ul>
<b>SYSTEM #6 SUCCEEDED 22.53</b>	Cloned from SYSTEM #1	4 Bidirectional PDFs	2 Bidirectional PDFs	3 Bidirectional PDFs	<ul style="list-style-type: none"> <li>• Added a 14 term dictionary</li> <li>• Hub refused to run TMX files with the dictionary. <u>Ran the system with PDFs instead.</u></li> <li>• It seems hub truly prefers PDFs</li> </ul>
<b>SYSTEM #7 FAILED</b>	Cloned from SYSTEM #5	4 Bidirectional <u>tmx</u> 3 Monolingual pdf	2 Bidirectional <u>tmx</u>	3 Bidirectional <u>tmx</u>	<ul style="list-style-type: none"> <li>• Added three monolingual PDFs</li> <li>• Updated dictionary to 35 terms</li> <li>• Failed almost instantly, "Not enough unique sentences to build a test set"</li> </ul>
<b>SYSTEM #7 FAILED</b>	Cloned from SYSTEM #5	4 Bidirectional <u>tmx</u> 3 Monolingual pdf	2 Bidirectional <u>tmx</u>	3 Bidirectional <u>tmx</u>	<ul style="list-style-type: none"> <li>• Same files as last one but removed the dictionary</li> <li>• Same error</li> </ul>
<b>SYSTEM #7 SUCCEEDED BLEU 23.10</b>	Cloned from SYSTEM #6	4 Bidirectional PDF 2 Monolingual PDF	2 Bidirectional PDF	3 Bidirectional PDF	<ul style="list-style-type: none"> <li>• Went back to PDFs, added two monolingual PDFs</li> <li>• Used expanded dictionary</li> </ul>
<b>SYSTEM #8 BLEU 24.03 BLEU 27.30</b>	Cloned from SYSTEM #8.1 SYSTEM #8.2	4 bidirectional <u>tmx</u> 2 monolingual pdf	2 bidirectional <u>tmx</u>	3 bidirectional doc/ <u>tmx</u>	<ul style="list-style-type: none"> <li>• Converted docs to TXTs and saved them with Unicode UTF-8 encoding</li> <li>• Aligned all TXTs with aligning software</li> <li>• Added monolingual PDFs to TMXs in training, used dictionary too</li> <li>• Uploaded the <u>youalign</u> TMXs to drive Looks like <u>Trados</u> alignment worked better and needs to be refined for better score</li> </ul>
<b>SYSTEM 9 BLEU 30.27</b>	Cloned from System #8.2	9 bidirectional <u>tmx</u>	2 bidirectional <u>tmx</u>	3 bidirectional <u>tmx</u>	<ul style="list-style-type: none"> <li>• Added 9653 parallel segments in training as TMX file created from <u>youalign</u>.</li> <li>• Segments were converted from pdf to doc to TXT into TMX</li> </ul>

TRAINING #	BLEU SCORE	PRODUCTIVITY points	PRODUCTIVITY %
1	23.22		
2	failed		
3	17.39	-5.83	-25
4	30.31 mistake	12.92	74
5	21.22	3.83	22
5	29.62	8.4	40
7	22.53	7.1	-24
8	failed		
9	failed		
10	failed		
11	23.10	0.6	3
12	27.30	4.2	18
13	30.27 mistake	2.97	11
14	failed		
15	28.02	0.7	3
16	29	0.98	3.5
ME training productivity gain			25

Productivity gain - 25%



# RESULTS



# QA Results\_PEMT

## PEMT Sample

	Minor	Major	Critical
Language			
Mistranslation	1	5	10
Terminology	1	5	10
Consistency	1	5	10
Accuracy	1	5	10
Spelling	1	5	10
Sentence structure	1	5	10
Grammar	1	5	10
Punctuation	1	5	10
Completeness	1	5	10
Style	1	5	10
Doc Formatting			
Layout	1	5	10
Typography	1	5	10
Graphics	2	5	10
TOC	1	5	10
Index	1	5	10
Total errors:	5	0	0

# QA Results\_PEHT

## PEHT Sample

	Minor	Major	Critical
Language			
Mistranslation	1	5	10
Terminology	1	5	10
Consistency	1	5	10
Accuracy	1	5	10
Spelling	1	5	10
Sentence structure	1	5	10
Grammar	1	5	10
Punctuation	1	5	10
Completeness	1	5	10
Style	1	5	10
Doc Formatting			
Layout	1	5	10
Typography	1	5	10
Graphics	1	5	10
TOC	1	5	10
Index	1	5	10
<b>Total errors:</b>	<b>2</b>	<b>0</b>	<b>0</b>

# PEMT VS HT

## Efficiency

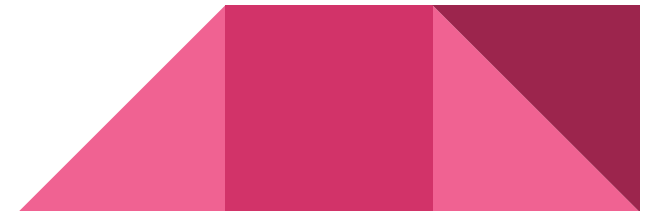
	PEHT	PEMT
words/hr	382	816
time for 1000 words	2.6	1.2
time for review at 1000 words/hr	1	1
total time	3.6	2.2
time saving with PEMT	1.4 = 39%	

PEMT = 39% faster

## Cost

	PEHT	PEMT
translation rate	\$0.12/word	\$0.09/word
subtotal	\$120	\$90
review rate	\$0.06/word	\$0.06
subtotal	\$60	\$60
total	\$180	\$150
cost saving with PEMT	37.5%	

PEMT = 37.5% cheaper



# Recommendations

Continue training with medical equipment documents; wider variety of material

Continue training with only PDF and TMX files

Add more documents to training data set

Try new combinations for tuning and testing files



# Recalculated quote

Task	Time	Quantity	Rate	Subtotal
Round of ME Training	1	10	\$25	\$250
File Processing	0.5	10	\$15	\$75
Dictionary	1 hr	1	\$25	\$25
HT	2 hrs/382 wrds		\$0.12/word	\$45.84
PEHT	0.5hrs	1	\$0.06/word	\$22.92
MT				
PEMT	2 hrs/816 wrds		\$0.09	\$73.44
<b>Total:</b>				<b>\$492.2</b>



Thank you!