

## Kot Translations

460 Pierce Street,  
Monterey, CA, 939400

# Updated Project Proposal

For: U.S. Department of State, Embassy of the United States, Moscow  
Bolshoy Devyatinsky Lane 8, Moscow, Russia, 121099

## Updated Project Objectives

Retrain/complete training the SMT engine to translate press release documents for U.S. Embassy in Moscow website, using higher-quality texts provided by the State Department.

## Goals

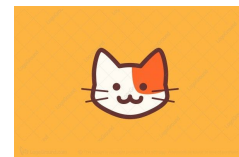
Efficiency	Cost	Quality
66% efficiency	44% savings	High enough quality to not cause an international incident--below 10 points with no critical errors.

## QA Metric

	Minor	Major	Critical
Language	1	5	10
Accuracy	1	5	10
Style	1	5	10
Terminology	1	5	10

Adapted from *TAUS Harmonized DQF-MQM Error Typology*:

<https://www.taus.net/evaluate/qt21-project?fbclid=IwAR3rDS82ah01Ba7KT3ysU7BKnpn4PvhAU5lqhurd4SzqnsEyjYsAFnLwL0Q#harmonized-error-typology>

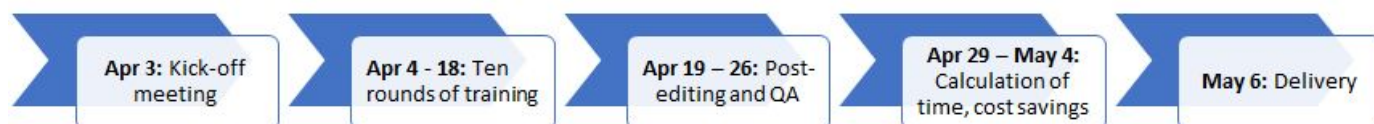


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### Data Sets

Glossary	Training Data	Tuning data	Testing data
Glossary file with names of people key to U.S.-Russia relations and abbreviations and full names of relevant organizations, agreements, etc.	A large volume of bitexts (at least 10,000 sentences) received from the State Department of texts related to U.S.-Russia relations	Bitexts of various kinds of texts filed under “press releases” on the U.S. Embassy’s website	A compilation bitext file with all the different kinds of documents filed under “press releases” on the U.S. Embassy in Moscow’s website

### Timeline



### Process:

<b>File Prep</b>	We have files for testing, tuning, and training already aligned, and we are requesting an additional bitext file or English-Russian file pair of at least 10,000 sentences from the U.S. Department of State so that we can remove the outside training data (U.N. bitext files) from our training.
<b>Training</b>	BLEU score will be evaluated each round. Tweaks will be made to the training and tuning rounds: additional texts, aligning some of the training data.
<b>Assessment</b>	Assessments will be made by Russian lead linguist, who will also do the post-editing. The metric above will be used to assess quality. Post-editing time will be compared to average speed of translation per page--30 minutes for a high-quality translation. Cost savings will be determined using the metric of \$45/hr.



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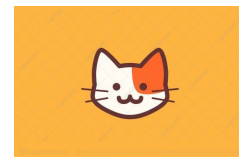
### Training Results:

Round	Change	BLEU Score
1	-	30.51
2	add more training from UN bitext file (aligned file of 2,992 sentences)	29.9
3	use model 1 and add tuning file (aligned file of 133 sentence pairs)	30.3
4	use model 1 and use tuning file from model 2 as training	29.7
5	use model 1 and add training file of 51 new aligned sentences from the newest texts on website	30.05
6	use model 1 and add glossary with names and abbreviations	30.3
7	use model 1 and add texts from both model 3 and model 5 as training	29.95
8	use model 1 and align one of the training texts	30.29
9	use model 1 and align another one of the training texts	30.24
10	use model 1 and align two of the training texts	29.67

### Training Conclusions and Recommendations

Our training results exceeded our expectations in terms of quality and efficiency. Our belief is that this domain is especially suited for machine translation, and training an engine completely will bring about better efficiency and great savings in both time and money.

While our training rounds did not show improvement from the first model, we believe this is due to the limitations of our training materials. We had to add texts from the U.N. bilingual corpora, since Microsoft Custom Translator now requires 10,000 training sentences, even if they are aligned. We would not have been able to finish the project by the deadline if we would have gotten all of our training data from the U.S. Embassy's website, since compiling a large file from this source is time-consuming. It was also difficult to add a large volume of new texts that would make a big difference in the BLEU score. We believe that our training will be even better with files exclusively from the State Department, and in addition, it would be



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better if the engine was trained without the use of outside I.P.

Another salient point is that while the round with the glossary produced a slightly lower BLEU score, we believe that the evaluations reveal that the BLEU score has limitations. Having the names of people and organizations greatly improves the end result, since people will not have to look them up, and SMT tends to not be very good with things like names. Thus, we propose the use of a glossary file. This glossary file should be updated every quarter to reflect personnel changes, new agreements, etc.

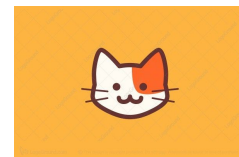
While doing post-editing and QA we came to a conclusion that SMT quality is good enough for our purposes and post-editing is not as time-consuming as we expected initially. We detected no critical errors and the total points according to our QA metric is under 10. That brings us to greater cost savings and increased efficiency compared with HT.

### Post Edit and QA Results:

QA	Model 1 (BS 30.51)	Model 6 (BS 30.3)
Language	4	3
Accuracy	4	3
Style	1	1
Terminology	1	1
<b>Total:</b>	<b>10</b>	<b>8</b>
Post-edit estimate	2 hours	1.5 hours

### Costs:

Task	Estimated Hours	Rate	Subtotal
Document alignment	22.5	\$45.00	\$1,012.50
MT training	3.3		\$148.00
Glossary creation	10		\$450.00



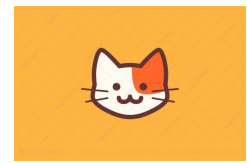
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Post-edit evaluation	2		\$90.00
QA	1		\$45.00
			<b>Total: \$1745.50</b>

### Estimated Costs for First Year

Month	SMT Cost	HT Cost
Month 1	\$1745.50	\$405
Month 2	\$90	\$405
Month 3	\$90	\$405
Month 4	\$90	\$405
Month 5	\$90	\$405
Month 6	\$90	\$405
Month 7	\$90	\$405
Month 8	\$90	\$405
Month 9	\$90	\$405
Month 10	\$90	\$405
Month 11	\$90	\$405
Month 12	\$90	\$405
<b>Total:</b>	\$2713	\$4860

**TOTAL COST SAVINGS: 44%**



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### Deliverables:

- SMT engine ready for deploy
- All associated files, including the glossary, so the SMT engine can be maintained and updated
- Records of results of engine training and BLEU score and post-edit evaluation.

**U.S. Department of State,  
Embassy of the United  
States**

**Kot Translations**

**Name:**

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**Title:**

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**Date:**

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**Signature:**

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