9 July 2019

# DQF BI Bulletin - Q2 2019

## How efficient is your translation process?




By tradition, translation is paid by the number of translated source words. This is a solid model, and one of the advantages is that pricing can be determined beforehand. Translation memory introduced the notions of pretranslation and fuzzy match and automated some of the tasks. Depending on the leverage of the translation memory, it removed a certain portion of the hard work. But that in itself didn't affect the paradigm of payment per source word. By analyzing what part of the source text is covered by the translation memory, it is still possible to make a good estimation of the remaining translation effort. This estimation is expressed in the number of source words, but in fact adds the notion of 'billable' and 'non-billable' words to the calculation. With machine translation things are different.

Last year's BI Bulletin showed that machine translation can boost productivity when there is no suitable translation memory available, but it is not clear in advance to what extent machine translation contributes to the translation. Estimating the suitability of the automated translation and thus the relative effort of the translator to lift it to the expected quality level becomes dependent on claims of the machine translation engine providers about the effectiveness of their product. And this is a problem, because effectiveness of machine translation varies greatly across different languages, content types and even the sentence length. Most importantly, the contribution of machine translation to the translation is not static, it is supposed to increase over time with the training of the engine.

Therefore, new payment models are considered: instead of the number of source words, can translation effort be measured by the amount of time spent on editing the target content, or maybe even by the number of edits done by the translator? It is the right time to explore the triangle: translated words - time spent - number of edits.

# Localization Conversion Rates

With the statistics from DQF, let's build a case to see if there is any relation, or a conversion rate, between the amount of translated source words, the time spent on it and the edits made during translation. For this experiment, we've created a sample from the DQF database that includes data between 1 April and 15 June, 2019. Within this time frame, DQF registered almost 29 million words, 14329 hours of translation work, and over 28 million edits.The majority of the translations came as 100% matches from translation memory (including the 'above' 100% matches, such as in-context-matches). As expected, translators only spend a small portion of the total time on these 100% matches, while a relatively big part of their time is devoted to post-editing MT, and even more so to human translation.

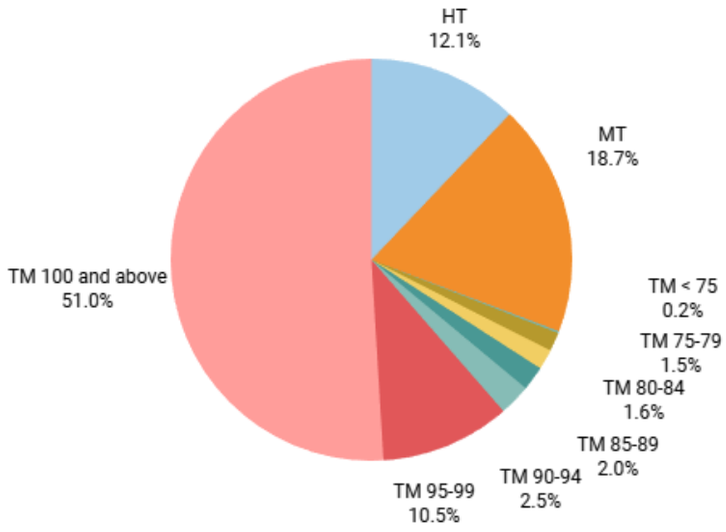



Figure 1: Number of words in DQF, April 1 - June 15 2019: 28,882,742

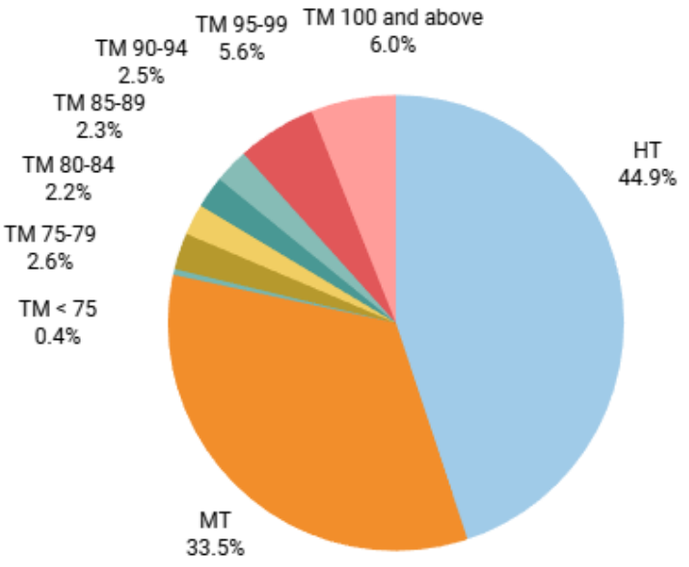



Figure 2: Time spent on translation in DQF, April 1 - June 15 2019: 14,329:53 hours

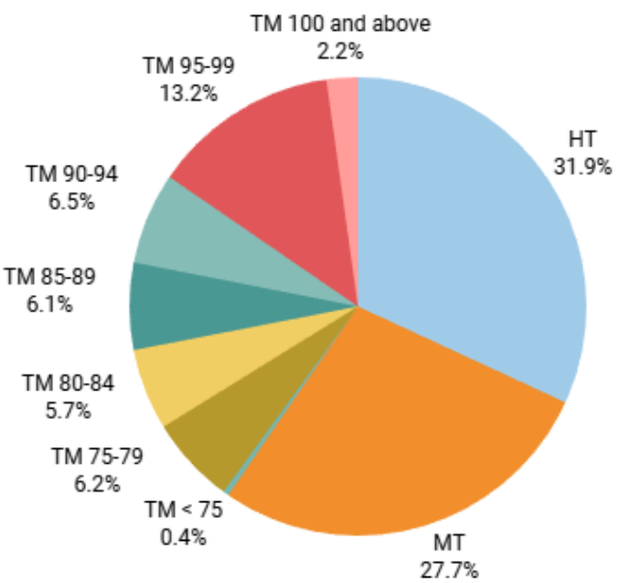



Figure 3: Edits in DQF, April 1 - June 15 2019: 28,244,854

The productivity totals up to an average of 2004 words per hour, which is quite high, compared to the previous months. The increased productivity can be explained simply because translators made fewer edits than in the previous months. There was in the last quarter a drop in the rate of edits per word: from 1.0 to 0.89. When making fewer edits per word, it is to be expected that the rate of translated words per hour goes up. This relation is illustrated by the first two sets of columns in figure 4. Compared to these two trends, the rate of edits per hour increased only slightly.

The comparison between the two quarters seems to show that, over time, the rate of edits per hour doesn't change as much as the rate of words per hour on the one hand, and the rate of edits per word on the other. Put differently, if the words per hour always increase when the edits per word decreases, could that mean that translators have a steady pace of making their edits, or are there are any other factors impacting the edits per hour?

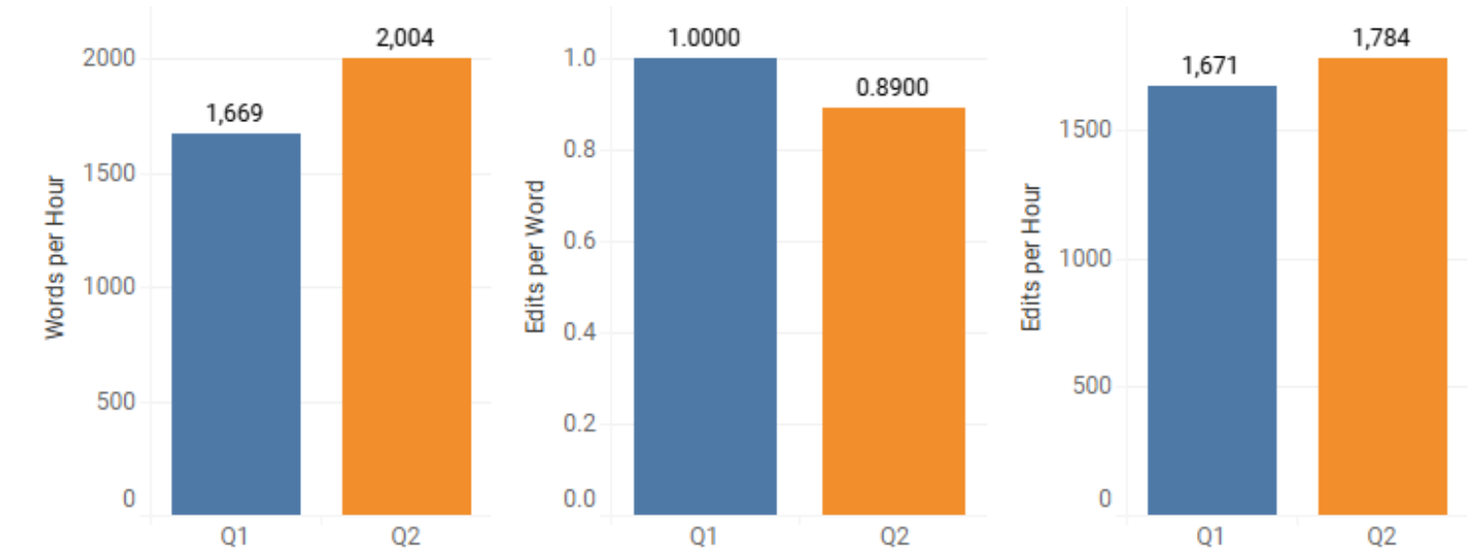



Figure 4: Q1 and Q2 2019 compared on productivity

# Efficiency Comparison in TM and MT

Even if the rate of edits per hour is fairly stable over time, it might not be stable over the different segment origin categories. So let's revisit the current sample and trace back the averages in productivity to the segment origins.

Figure 5 shows that the average productivity rate, as expected, increases as the TM match rate gets higher. As was shown in the previous BI Bulletin, the MT is in the same league with the lower TM matches. The productivity rate for MT is not static, it varies per language, and is expected to increase over time.

For the number of edits per word, we see a pattern that is quite similar, but in reverse, as shown in figure 6.

The two charts in figures 5 and 6, at first glance, seem to confirm the same trend and therefore cancel each other out, so you might expect the third point in the triangle to be constant. So how does that work for the number of edits per hour? Figure 7 shows the number of edits per hour for all the segment origin and match rate categories.

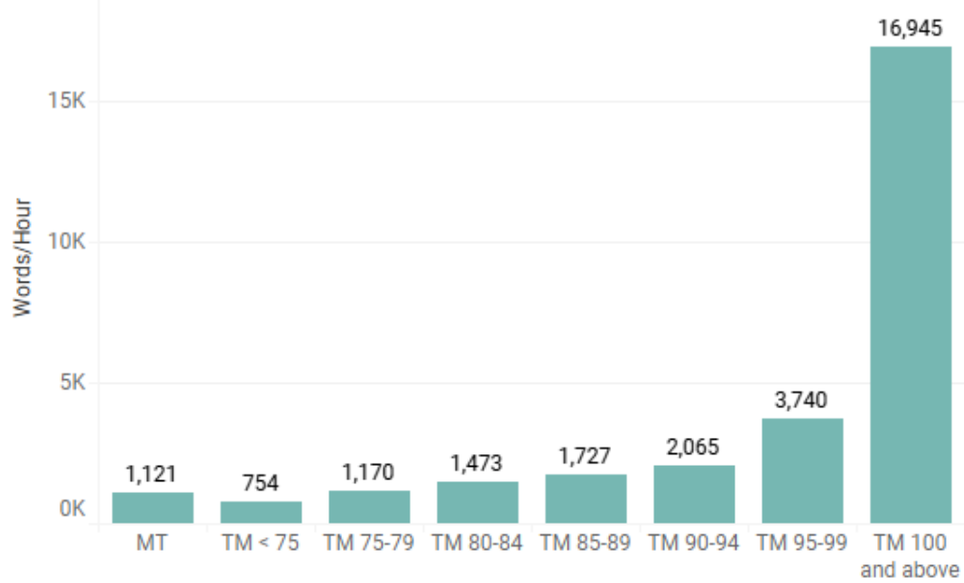



Figure 5: Words per hour for each of the segment origins and match rates

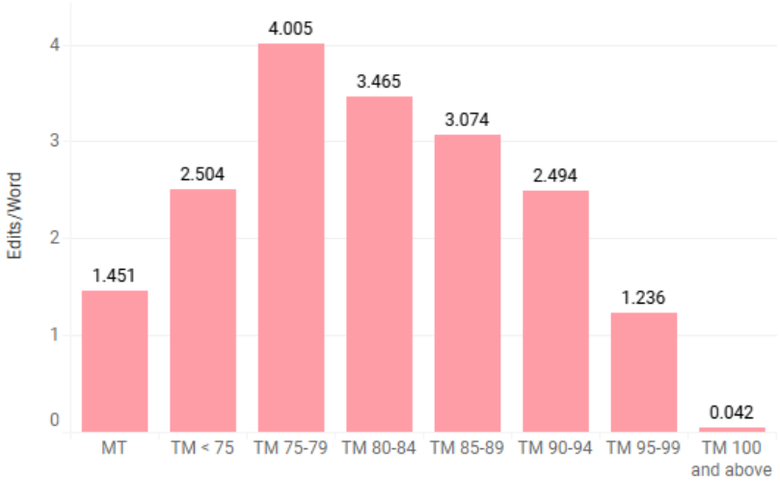



Figure 6: Edits per word for each of the segment origins and match rates

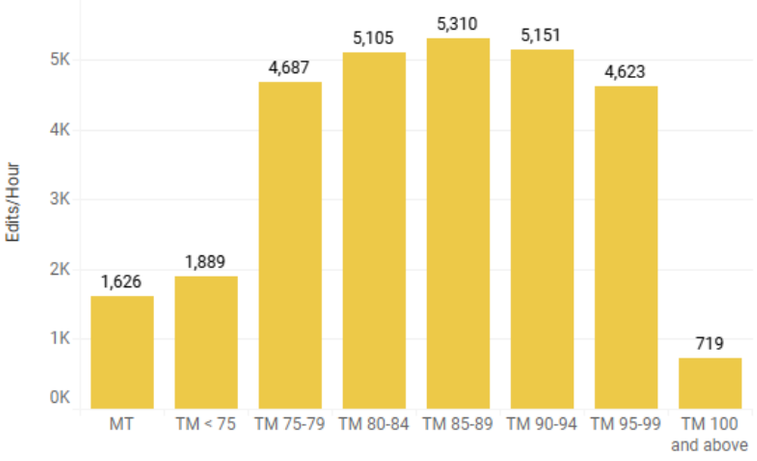



Figure 7: Edits per hour for each segment origin and match rate category

It turns out that segment origin and match rate also impact the speed of edits. In the continuum from 100% match to lower match TM to MT, there is a sweet spot where edits are done much quicker than in any other match rate or segment origin category. This sweet spot lies in the medium to high fuzzy matches.

Approached differently, you can make a distinction between costly and less costly edits. In 100% matches and MT, edits are relatively costly. In terms of time per edit, edits in the medium and high fuzzy range are well below one second, which makes edits in MT and human translation more than three times more expensive and edits in 100% matches even seven times more expensive.

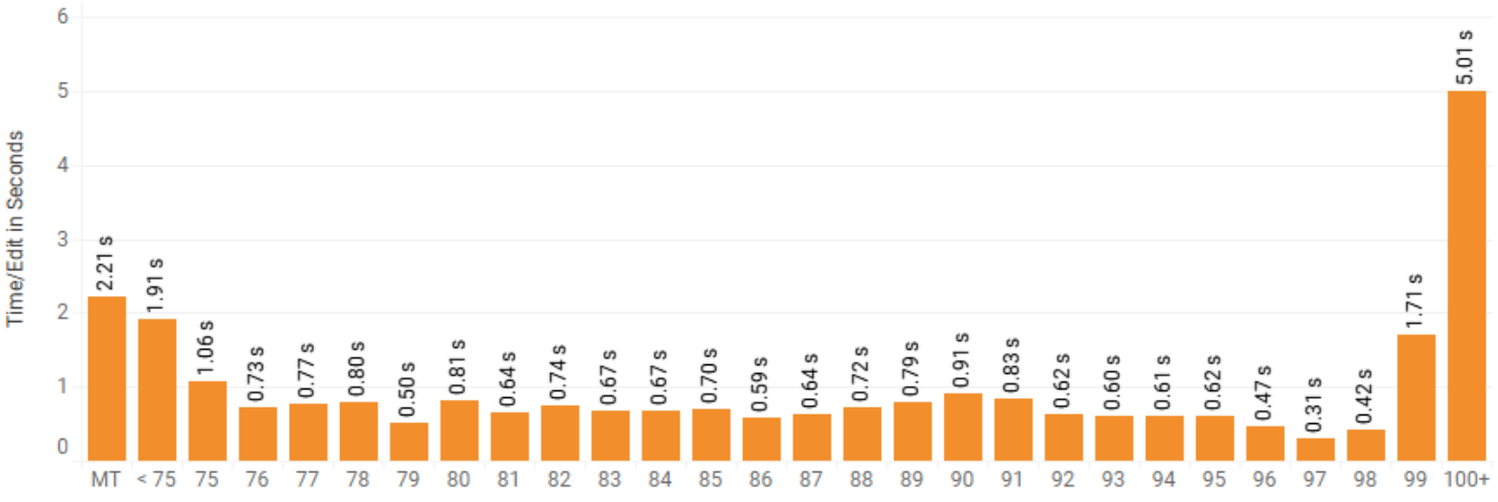



Figure 08: Time per edit for each of the segment origin types and TM match rates

From this perspective, there is something very efficient in working within the fuzzy match range, and this efficiency is missing when editing MT and 100% matches. It is easy to see why that is true for 100% matches: in this range translating becomes similar to reviewing, and translators are searching relatively long for that single error that might or might not occur in the 100% match suggestion. The low frequency of possible edits combined with the lack of visual guidance from the CAT tools where to find them lead to lower efficiency.

For MT, things are slightly different. As can be concluded from figure 6, the relative number of possible edits is much higher. But similar to 100% TM matches, most CAT tools don't indicate if and where the MT suggestions might require corrections, and as a result, the translator spends a relatively long time to check the translation, and spot the differences in meaning between the source text and the suggested translation. Without knowing the exact contribution of MT to the translation, there is reason to question whether the traditional model of payment per source word is still viable.

There is still a lot of ground to be covered when it comes to efficiency in machine translation, and even in 100% matches for that matter. A welcome game changer here would be an indication of confidence score of the translation, that would help the translators estimate the potential translation effort and allow them to focus on those parts where translation effort is really needed.

With machine translation getting a prominent place in the localization process, a new analysis is needed of what constitutes an efficient translation environment. Combining data in new ways can surface otherwise hidden patterns. The data tracked via the DQF API, such as productivity rate, edit rate and edit density can serve as unique indicators of the effectiveness of your translation process, letting you measure the efficiency of your translation resources and chosen workflows.

**Request a DQF demo to find out more.**

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