An LSP Perspective: The Business and Process Challenges of implementing Machine Translation Solutions: Is MT really delivering the expected value?

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Abstract

Machine translation resurfaced as a viable business solution about 5 years ago, with much hype. With the amount of content requiring translation, and a mellowing of user expectations about translation quality, it seemed there was real business value in developing machine translation solutions. Since then, however, the discounts offered to enterprise customers have remained stubbornly meager in the 10-20% range, with high, up-front costs—far from the anticipated savings.

This paper provides an overview of the challenges encountered in the value chain between customer and Language Service Provider (LSP) which keep translation costs high and limit machine translation adoption, discusses existing and potential solutions to these challenges, and offers suggestions on how to enlist the support of the LSP and freelance translator community to address these challenges.

1 Selling the Dream

In 1992, Guy Kawasaki, the famous promoter of the Apple Macintosh, published a seminal work on product marketing called, "Selling the Dream", and coined a new marketing phrase—evangelism.

Evangelism, according to Kawasaki, is the art of selling a dream—inspiring others to believe in your product or service for the purpose of creating a community of customers, users, and fans (Kawasaki, 1992). This approach worked for Apple computer in the 1980's and continues as a chief pillar in marketing strategy for many technology companies today.

1.1 Evangelizing Machine Translation

Although, machine translation is not new, it is arguably in the same position as an emerging technology vis-à-vis product marketing. Perhaps the key to broader market adoption of machine translation, then, is related to more effective evangelism—selling the dream of ubiquitous, instantaneous translation services.

The idea of low-cost or no-cost translation services is attractive to content producers for obvious reasons. Leveraging content across languages not only reduces production costs, but also increases revenue opportunities in new markets—more content for less. And, considering that actionable data, including multilingual content, is the most saleable asset in the information age, revenue is directly connected to the availability of translated content.

Machine translation unlocks the dream of universal access to saleable multilingual content for little or no cost and at blazing fast speeds to boot. It is quite easy for machine translation developers, corporate users, and interest groups to

buy-in to this message. Make the translation free and non-profit agencies readily buy-in, too.

1.2 The Wrong Dream?

There is only one problem with the machine translation dream—it isn't possible without human linguists and, in particular, professional linguists. By definition, professionals want to be paid for their work. The natural tension between customer and supplier over the value of professional services is quite pronounced in the localization industry. So much so, in fact, that most discussions about machine translation are overshadowed or even derailed by the straw man argument that content producers want professional translators to work for free—an indication that translators feel devalued and dismissed in the machine translation debate.

By and large, professional linguists are not currently counted among the machine translation "believers"; and the reasons are manifold. So the main obstacle to greater machine translation adoption is not simply a matter of better learning algorithms or more funding for development, etc., which summarizes most efforts to promote machine translation today. The main challenge for machine translation evangelism is to win over LSPs and translators on an emotional level.

Progress on this front has been slow for the simple reason that machine translation evangelists are selling the wrong dream to translators. The idea of mass-producing multilingual commodities for pennies is, understandably, not an inspiring dream to most language professionals.

1.3 Or, the Wrong Message?

Consider the implications of the current message about the purported benefits of machine translation to the community of language professionals who actually implement the benefits for the customer:

1. Reduced costs equals less pay
2. More volume equals more overhead
3. Reduced time equals more pressure
4. More tools equals more points of failure
5. More outsourcing equals less control
6. Higher quality equals more rework

The benefits of machine translation for content producers are, in fact, the very drawbacks that cause professional translators to steer clear of machine translation projects altogether. There are benefits for translators, too, of course, but they are currently not being emphasized by machine translation advocates. Machine translation might be the right dream, but the message is spinning the wrong direction for LSPs and translators.

2 Reaching the Translator Community

DePalma (2011) concluded that the momentum of machine translation adoption in the enterprise will force professional translators to adopt it, as well. Specifically, he declared,

> "Translators will get over it. Whether they're comfortable with the technology or not, professional translators will learn that machine translation is simply a productivity tool and will learn to use it. Some will even find that specializing in post-editing MT output can be more lucrative than doing it all by head and hand" (DePalma, 2011).

This statement is reasonable if you believe that machine translation is actually productive and that post-editing MT output is actually lucrative. Unfortunately, most translators don't believe either of these propositions. Based on their direct experience, many translators report that use of machine translation actually makes their work less productive and that post-editing MT output is tedious, unrewarding, and unprofitable (Jonckers Translation and Engineering, 2012). The challenging new reality for LSPs is that while customers are increasingly requiring the use of machine translation to reduce costs, the most qualified and experienced translators are rejecting the work out of hand.

2.1 A Survey of Professional Translators

In August of 2012, Jonckers Translation and Engineering, Inc. conducted an online survey of 298 translators on the subject of machine translation experience to learn more about translators' attitudes regarding machine translation. The survey consisted of 13 multiple choice questions in categories of demographic information, experience, and perceptions.

2.2 Survey Results

The survey results may not generalize to all types of professional translators or all situations as the sample population consisted mainly of veteran

translators (10+ years of experience) in the IT vertical. It may be that younger translators or translators in different domains may have different experiences and, therefore, different opinions about the value of machine translation.

Of the translators surveyed, only 32% indicated that machine translation is part of their translation strategy or toolset. The primary interest that translators have in machine translation is the desire to meet customer requirements and, shockingly, 19% of translators surveyed have no interest in machine translation, at all. More than half of the participants indicated that they don't spend any time at all with machine translation. And 32% said they have no incentive to adopt machine translation. For those that do currently use machine translation, more than half of them play the role of post-editor.

The largest concern about machine translation, unsurprisingly, is the lack of quality output. Overwhelmingly, translators said they would not recommend the use of machine translation to either customers or fellow translators. About 60% of translators say their information about translation comes from direct experience, including interaction with clients, with only 10% of translators indicating that they participate in user forums like TAUS and AMTA. Nearly 78% of translators do not feel like machine translation developers or LSPs are addressing translator concerns about machine translation (Jonckers Translation and Engineering, 2012).

2.3 Implications of the Survey

The implication of the survey is clear—on the whole, translators are not buying-in to the machine translation dream. And, based on their experience so far, why would they? Consider the machine translation scenario applied to different industries:

1. You are a janitor. Your goal is to keep things clean and tidy, but your supervisor requires you to use a new vacuum that randomly dumps the filthy contents of the vacuum bag on the floor. You are told the result is good enough because you are cleaning a large room and you can always sweep up the dirt piles by hand later.
2. You are a dentist. Your goal is to help people keep their teeth clean, healthy, and attractive, but the parent of your young patient asks that you only do quality work on the front teeth to keep the costs down because no one will ever see the teeth in the back of the mouth.
3. You are a musician. Your goal is to provide engaging and entertaining music to your loyal listeners, but your producer insists you overlay a heavy electronic dance beat over your melody since the audience only really needs to get the vibe of the music.

These examples are somewhat facetious, but they illustrate the automation dilemma in a way that helps us understand the concerns of the professional translator a little more—automation is only productive if it produces a better result than what the technician can produce on their own, or if it frees up the technician to focus on high-value tasks.

Regarding the example of the musician, it is true that musicians today benefit greatly from advances in music and sound automation. In fact, you can hardly find a piece of professionally recorded music today that is not built with these tools. So how did musicians buy-in to the concept of pro audio tools? Did they simply "get over it" because it was pushed on them by record companies or recording studios? It is more likely that they were inspired by the possibility of more "goodness" in the music.

3 Challenges in the LSP Value Chain

In addition to the challenge of reaching the professional translator community, there are several challenges managed by the LSP that contribute to the slow uptake of machine translation.

3.1 Translator Resistance

The issue of translator resistance has already been discussed from the translator's point of view, but it is important to highlight some of the challenges that this issue poses for LSPs, too. The main problem for LSPs is to source qualified translators who are willing to work with machine translation.

If none are to be found, the LSP cannot accept the work, or is put in the position of charging more money to the customer at the risk of losing the job to cover the premium required to bribe qualified translators, or worse, has to accept the job at rock bottom prices and burn up its profit margin training

unqualified translators, who might not be able to produce the best translations.

3.2 High Setup Costs

Setup and licensing costs for MT engines is coming down as the market becomes more competitive, but generally speaking, setup costs for an MT engine is still high. Open source engines, which presumably are free, still cost $15k to $20k to set up when you factor in the number of man-hours required by technical staff. When you include the cost of evaluating and integrating the engine with existing processes and tools, the costs can reach as high as $50k (Jonckers Translation and Engineering, 2012). For small LSPs, this hurdle is can be prohibitive unless the cost is passed on to the customer.

3.3 Training Engines

In addition to the cost of training an engine, there is an additional challenge to produce quality output. Most engines get better with large amounts of domain-specific content, but this is not always easy to come by, especially since LSPs don't own the intellectual property for the content they translate. Sourcing clean data, or cleaning dirty data is time-consuming and data freely available on the internet is unreliable.

Even if a large corpus of material can be sourced, there is an inherent conflict between the requirement to produce domain-specific translations and the requirement to use as much data as possible to train the engine. Amassing data from general sources rarely works for product-specific translations, so the only way an LSP can create a quality MT engine is to be commissioned by the customer to create a product-specific MT engine using the customer's own resources. There is little opportunity to leverage this effort across multiple languages or projects without infringing on the customer's intellectual property rights.

3.4 Not all MT Engines are Created Equal

Even if MT engines can be sufficiently trained for each language, there is the additional problem that MT engines rarely provide quality results across the board for multiple languages. Some languages will perform well, others will not. The poor languages will require extra effort to bring the translation quality up to par. For the LSP, this means that any productivity or profit gains achieved on one language will quickly be eaten up by the languages which require more attention. And, the LSP will have to be familiar with multiple technologies, or have partnerships with multiple parties, or only receive one or two languages where they have developed some expertise.

As an example, one LSP reported seeing a 30% increase in productivity on one language, but a 17% decrease in productivity on another language (Jonckers Translation and Engineering, 2012).

3.5 Low Productivity

Low post-editing throughputs lead to low discounts for customers because LSPs can't afford to subsidize the customer's MT R&D efforts. LSPs are loathe to reduce rates for translations until translators demonstrate higher productivity. It is typical for productivity to decrease when MT is deployed by as much as 15% (Jonckers Translation and Engineering, 2012).

3.6 Complexity of Scoring Methodologies

Once the translation is completed, there is the challenge of measuring quality and performance. Does machine translation actually deliver the promised results? How do we know? Most existing methodologies to evaluate machine translation quality like BLEU are unintelligible and useless to linguists. Wiggins (2012) suggested that the best way to evaluate machine translation quality is to use human translators to evaluate MT on a 4 point scale, as in the case of the Butler method. And the best way to calculate ROI is to consider the time savings, but the results are still too varied to be a reliable indicator of success. If LSPs can't measure quality or productivity, they can't manage the process toward profitability.

3.7 Complexity of Price Negotiations

Since LSPs can't be sure if they are profitable from one project to the next on MT, it's difficult to settle on a standard price with their customers for this service. This often leads to a situation where LSPs have to choose to be profitable at the risk of losing the work. Unfortunately, many LSPs accept MT projects at unprofitable prices, creating a vicious cycle in the industry and setting the wrong expectations about the amount of effort truly required to produce quality machine translations.

Customers are culpable in this situation, too, especially since many customers are privy to information about machine translation costs. The best way to remedy the price-cutting war is to use standard measures of quality and productivity as the basis for discussions about pricing and discounts as a way to "keep each other honest".

4 Potential Solutions

The main challenge blocking machine translation adoption is ownership. LSPs and translators feel the pain of the business and process challenges associated with machine translation, but they don't own the solutions. Until LSPs and translators are able to implement their own solutions using their own intellectual property, they will not be able to reduce the costs associated with machine translation and they won't be able to profit from their own ingenuity.

4.1 Innovation

The localization industry is upside-down regarding innovation—the customers are innovating and requiring the LSPs to use the innovations. LSPs and translators would be in a better situation if they developed their own tools. Considering the barrier to entry is too high for most LSPs and freelance translators, LSPs should at least consider partnering with technology providers that have the interests of the translation community at heart—the LSPs need to keep their profits or the industry will continue to languish for lack of innovation.

4.2 Post-editing Tools

Currently, most LSPs are integrating MT with TM and CAT tools, but perhaps this is the wrong approach for post-editing work. Flournoy (2012) indicated that translation and post-editing are actually different skillsets, and, therefore, LSPs should provide tools specifically for the task of post-editing—tools with drag and drop operations to allow editors to reorder words and fix sentence patterns. Just like building drum loops on a synthesizer is not the same work as composing symphonies, post-editing is not translation. With that in mind, LSPs and translators should build post-editing tools that are independent of the traditional translation toolset. The reason translators don't like post-editing work is because they are being asked to create drum loops with a violin. More people would take interest in post-editing if they had the right tools.

4.3 Standard Methodologies

All parties would benefit from standard methodologies regarding machine translation quality assessment and scoring. Using a consistent and reliable ruler is the first step in measuring and managing results. This will be the basis for standard pricing for machine translation, which will ease concerns about cost savings for producers and profitability for suppliers. User groups are probably the best place to evangelize the benefits of standard methodologies, but eventually a consortium of influential industry players will need to drive this forward. In any case, machine translation user groups need to do more to reach out to and embrace translators, not only to educate them, but, more importantly to sell them the dream—the right dream.

4.4 Adventurous Spirit

The ultimate way to increase machine translation adoption is for translators to go beyond the traditional message from MT evangelists that machine translation is a productivity tool and to start seeing MT as a game-changing technology. Adventurous LSPs and translators who are willing to break with tradition and change their business model, pricing scheme, technical processes, and supply chain partnerships to take advantage of opportunities opened by machine translation technology are the ones who will come out ahead in the long run.

References

DePalma, D. (2011, October). *Trends in Machine Translation.* Retrieved from Common Sense Advisory: http://www.commonsenseadvisory.com/

Flournoy, R. (2012, August 9). Machine Translation Experience. (R. Gibbs, Interviewer)

Jonckers Translation and Engineering. (2012, August 15). Survey of Machine Translation Experience. Brussels, Belgium: Jonckers Translation and Engineering.

Kawasaki, G. (1992). *Selling the Dream.* New York: HarperBusiness.

Wiggins, D. (2012). How to Measure the Success of Machine Translation. Singapore.