"But does it safely solve our actual business problem…?"

Technology can be very helpful – but only if it safely solves actual business problems, and does so without introducing a new set of unforeseen problems or risks.

> *"Language Technologies"* are becoming increasingly popular, sparked by developments in "computer translation" systems (sometimes called "machine translation"). Many new and recent **Language Technologies** turn-out simply to be attractive-looking user-interfaces to "computer translation" systems which don't properly address organisations' actual business problems whilst also introducing new problems because of their reliance on "computer translation", which is still too inaccurate and unreliable for many situations.
> The main benefit of many technologies is that they seem to be cheap to use and easy to access but – as is often the case – "the devil's in the detail".

In selecting a **Language Technology**, organisations should be sure to consider **5** key points:

1. **Business-Problem Solution:** *Does the technology actually solve our business problem?*
    For example, if the *real* business-problem is long queues forming while non-English-speakers are processed (using interpreters) – *does the technology actually reduce conversation-times?*

2. **Accuracy & Consistency:** *Can the technology solution deliver both human-translator accuracy where this is needed as well as the flexibility of "computer translation" where precise accuracy isn't required?*
    For example, some aspects of conversations may require the 'certified accuracy' that can *only* come from certified, human-done translation whereas for other aspects "getting the gist" through a computer translation system may be good enough – *does the technology provide access to both?*

3. **Automation:** *Does the technology provide choices as to how much of a conversation can happen automatically versus aspects that require direct operator interaction?*
    For example, many conversations begin with gathering a set of "standard information" such as identification, dates-of-birth and nationality etc., and then proceed to more context-specific aspects where the questions depend on the circumstances – *does the technology provide both fully-automated and question-by-question features?*

4. **Whole Business Processes & Conversations:** *Can the technology be set up to understand whole business-processes and associated conversations; be able to deliver work-flow, operator prompts and tips during delivery of conversations; and include conversation aspects focused on outcomes?*
    For example, if a person responds to a question with a particular answer, can the technology flag to the operator that this has happened and provide suggestions or reminders as to appropriate next steps – *is the technology focused on the real business problem rather than simply one-phrase-at-a-time "computer translating"?*

5. **Risks:** *Does the technology introduce any new risks, particularly in regard to mistranslation and any legal consequences of such mistranslation and consequent misunderstandings?*

A good **Language Technology** solution will include suitable treatment of all **5** of the areas outlined above.

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More About *"Computer Translations"*

Probably **the** most important aspect of any **Language Technology** is that it cannot rely *entirely* on *"computer translation"* for everything. But why?

For those aspects of any multi-language conversation that *must* be accurate (and be known to be accurate) there is no current alternative to certified, human-done translations. This is because *"computer translation"* systems are still too inaccurate, inconsistent and unreliable.

This is because computer translation systems cannot understand **meaning**.

Human translation/interpreting is, essentially, a 3-step process:

1. Read/hear a word, phrase or sentence in one language;
2. ***Understand the <u>meaning</u> of what is being expressed***;
3. Write/say words, phrases or sentences that convey the <u>***meaning***</u> understood in step 2.

"Computer translation" systems all use a "proxy" for step 2 above – because they *cannot* understand **meaning**, they:

1. Read/hear a word, phrase of sentence in one language;
2. ***Use statistics or rules to <u>guess</u> the "most likely" translation***;
3. Write/say words, phrases or sentences that convey the <u>***guess they made***</u> in step 2.

The proxies used are either *statistical* or *rule-based*.

Statistical proxies attempt to "guess" the correct translation on the basis of having previously seen a high volume of similar words, phrases and sentences; rule-based proxies attempt to work-out the correct translation using a set of pre-arranged rules.

Both types of system produce inaccurate, inconsistent - and hence unreliable – translations, where *meaning* and *accuracy* are easily lost. No *"computer translation"* system, for instance, can reliably and accurately re-translate its own translations back into the *original* language – a clear indication that meaning can easily be lost.

Studies of *"Computer Translation"* Accuracy and Reliability

1. A study by the University of Mississippi (published in Translation Journal) indicated that statistical-based computer translation was around 68% accurate but that this accuracy was very variable and highly dependent on the specific languages (Asian languages being disproportionately less accurately translated) [i]

2. A study by Transifex references a study published in the British Medical Journal (BMJ) which found *"computer translation"* to be: *"…less than 58% accurate"* and regarded its use where accuracy is important to be *"potentially life-threatening"* [ii]

3. A 2015 study by human translators found that, at best, *"computer translation"* systems' translations: *"…were too raw <u>to be used for any professional purpose</u>, and readability was often compromised by poor word choices and questionable grammar."* [iii]

4. A Washington Post article in 2016 commented that even the best *"computer translation"* systems can produce: *"…a translation that is accurate, mediocre, **or** utterly useless—but the user has <u>no way of knowing which one they have</u>"* [iv]

5. Danish police used Google Translate[TM] in a terrorism investigation which went wrong because of mistranslation and meaning-loss, and have said that it was clearly a "mistake" to use *"computer translation"* and that they won't be using it again [v]

Summary

The current evidence from both academic and commercial research indicates that – for any professional or official aspects of multi-language conversations – *"computer translation"* alone should not be relied upon because of its inherent potential for inaccuracy, meaning-loss and resulting misunderstandings.

The test for any **Language Technology**, then, is whether that technology can provide the appropriate level of security in sensitive areas of conversations that can only come from certified, human-done translations *as well as* providing access to *"computer translation"* where this is deemed appropriate by end-user organisations.

Overall, **Language Technologies** need to address several aspects of multi-language communication such as:

- **Business-Problem Solution:** *Does the technology actually solve the business problem?*

- **Accuracy & Consistency:** *Can the technology solution deliver both human-translator accuracy where this is needed as well as the flexibility of "computer translation" where precise accuracy isn't required?*

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- **Automation:** *Does the technology provide choices as to how much of a conversation can happen automatically versus aspects that require direct operator interaction?*

- **Whole Business Processes & Conversations:** *Can the technology be set up to understand whole business-processes and associated conversations; be able to deliver work-flow, operator prompts and tips during delivery of conversations; and include conversation aspects focused on outcomes?*

- **Risks:** *Does the technology introduce any new risks, particularly in regard to mistranslation and any legal consequences of such mistranslation and consequent misunderstandings?*

References:

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