MT Impact – Horizon 2020 (and beyond)

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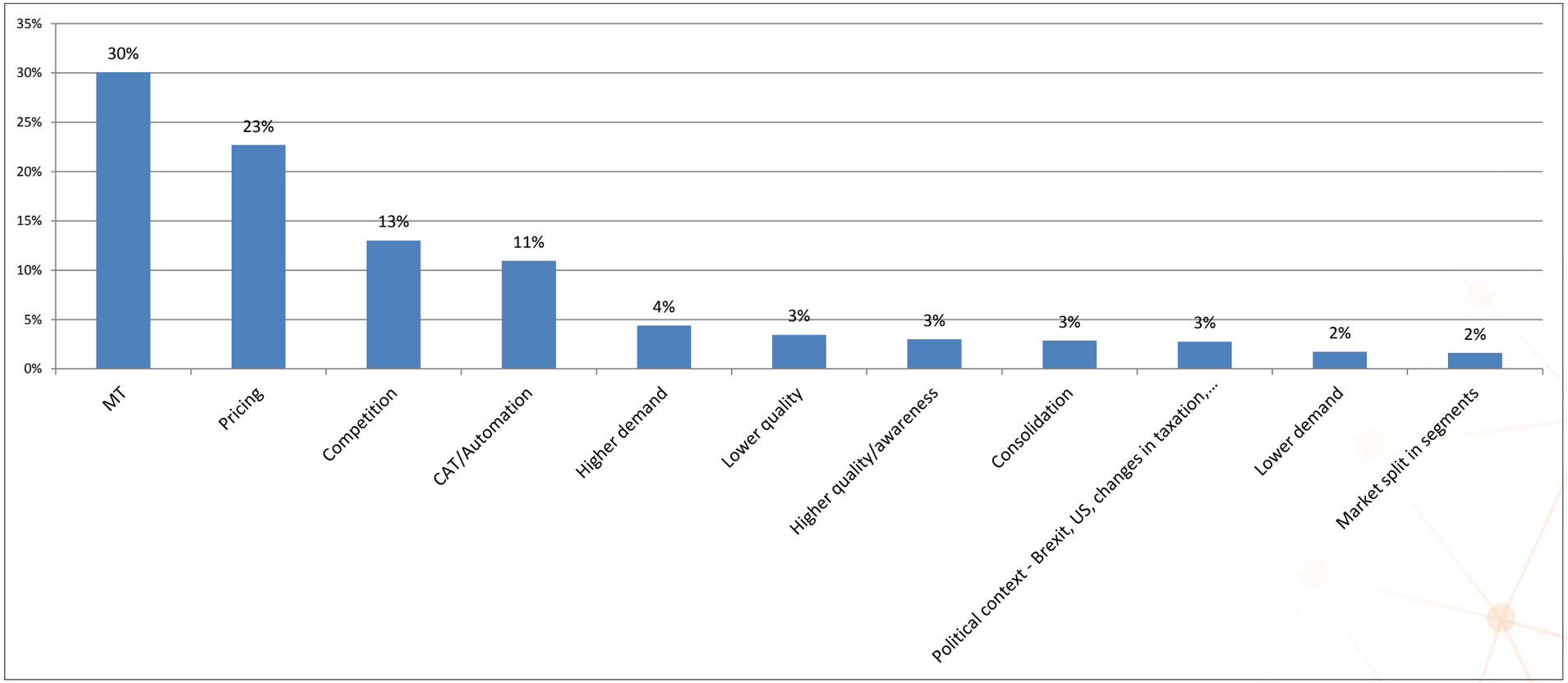
Agenda

- MT usage today
- NMT vs SMT
- Post-editing
- MT usage tomorrow
- Machine vs Human

MT usage

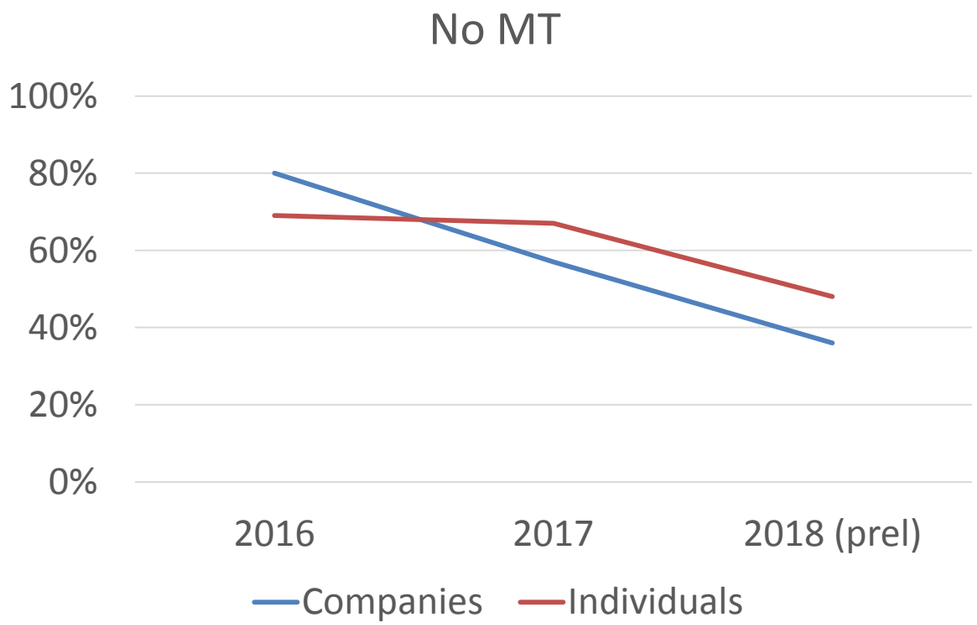
2017 Language Industry Survey - Trends



2018 – the year of MT

No MT usage	2016	2017	2018 (prel.)
LSP's	80%	57%	36%
Freelancers	69%	67%	48%

Source: European Language Industry Survey



What about Neural ?

Neural MT – why the hype ?

Where do you find neural MT today?

- Google Translate
- Skype Translate
- Microsoft Translator Live
- Facebook
- Amazon

…

- DeepL
- Omniscien
- SDL
- Systran
- KantanMT
- Tilde

…

The new Wild Wild West in machine translation

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SMT vs NMT : main differences

Statistical Machine Translation (SMT)

- Phrase-based
- Separate language model, translation model and reordering model
- Fast training

Neural Machine Translation (NMT)

- Uses (recurrent) neural networks (« deep » NMT uses several layers of neural networks)
- Sentence-based
- One single sequencing model – simpler than SMT approach
- ‘Predicts’ next word
- Restricted vocabulary (max. 50,000)
- More time needed for training
- No easy solution for terminology
- Less tolerant for low quality source
- More pre- and post-processing required

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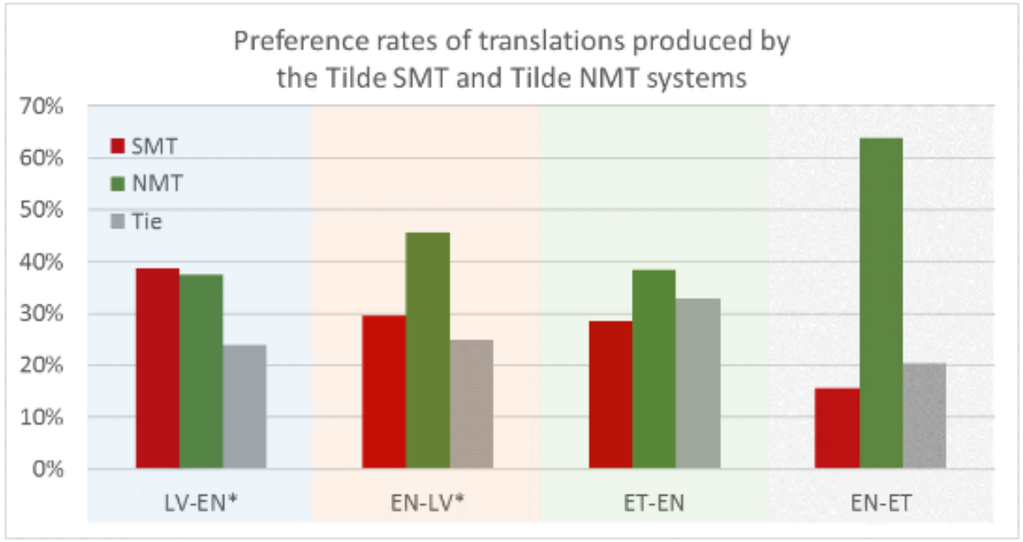
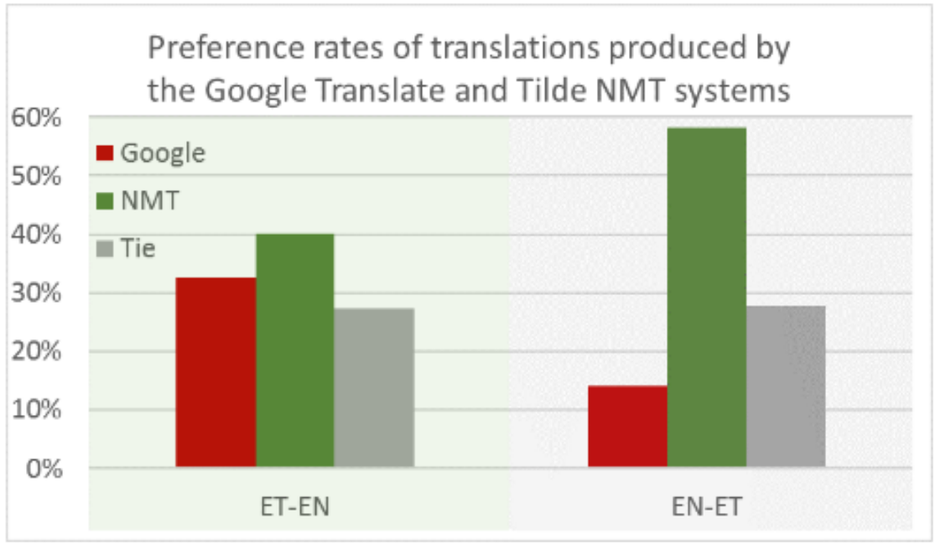
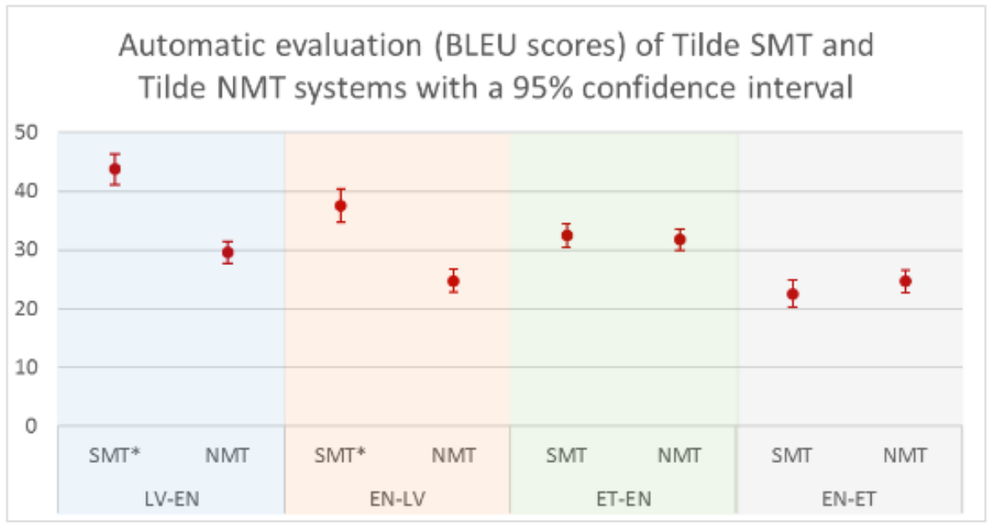
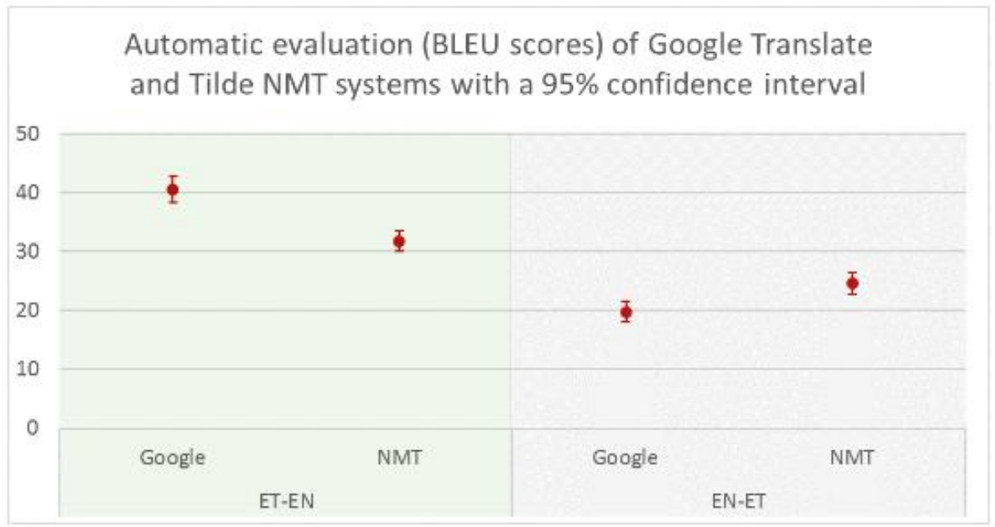
Is it really that good ?

Findings Tilde (*www.tilde.com/about/news/316*)









Findings DFKI/QT21 Project

Phenomenon	Occurrences	Percentage correct	
		NMT	Moses
Formal address	138	90%	86%
Genitive	114	92%	68%
Modal construction	290	94%	75%
Negation	101	93%	86%
Passive voice	109	83%	40%
Predicate adjective	122	81%	75%
Prepositional phrase	104	81%	75%
Terminology	330	35%	68%
Tagging	145	83%	100%
Sum/average	1453	89%	73%

Findings DFKI/QT21 Project

Source:
MultiLingual Jan ’18, John Tinsley

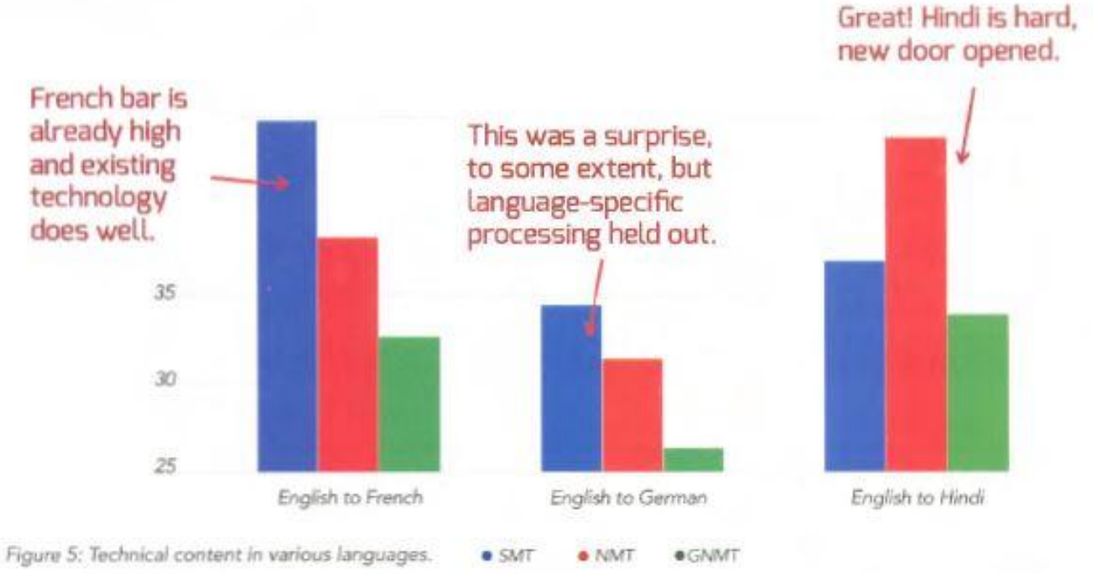


Figure 5: Technical content in various languages.

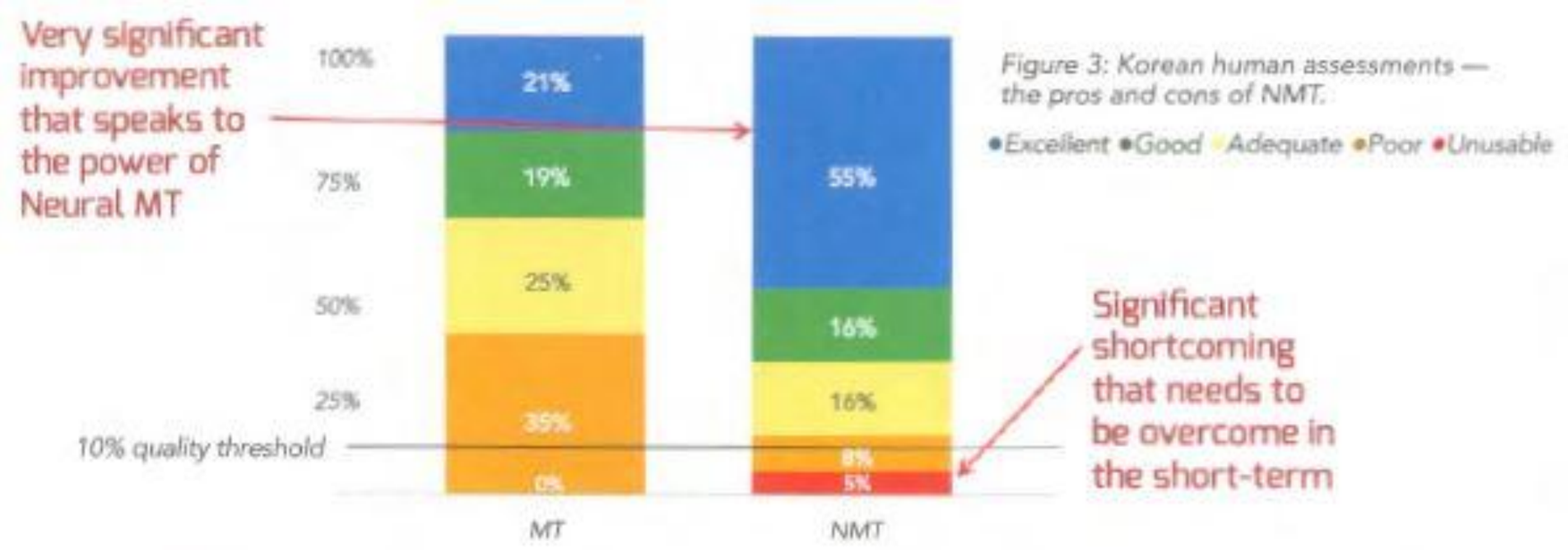


Figure 3: Korean human assessments — the pros and cons of NMT.

Excellent Good Adequate Poor Unusable

So, is it better ?

- NMT makes 3 to 5 times less errors in
  - Word ordering
  - Morphology
  - Syntax
  - Agreements

  Source: Tilde (EN>ET)

  This leads to more fluent translations, mainly on ‘difficult’ languages

- BUT
  - Older techniques (RBMT, trained SMT) can perform better on ambiguity (source:PBML, Aljoscha Burchardt et al., June 2017), terminology and tagging
  - Still quite some ‘dangerous’ errors, such as negation (although better than SMT)
  - Traditional automated evaluation methods (BLUE score) do not always agree with human evaluation results
  - Uneven results, depending on language pair

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Let’s talk Post-editing

Post-editing levels

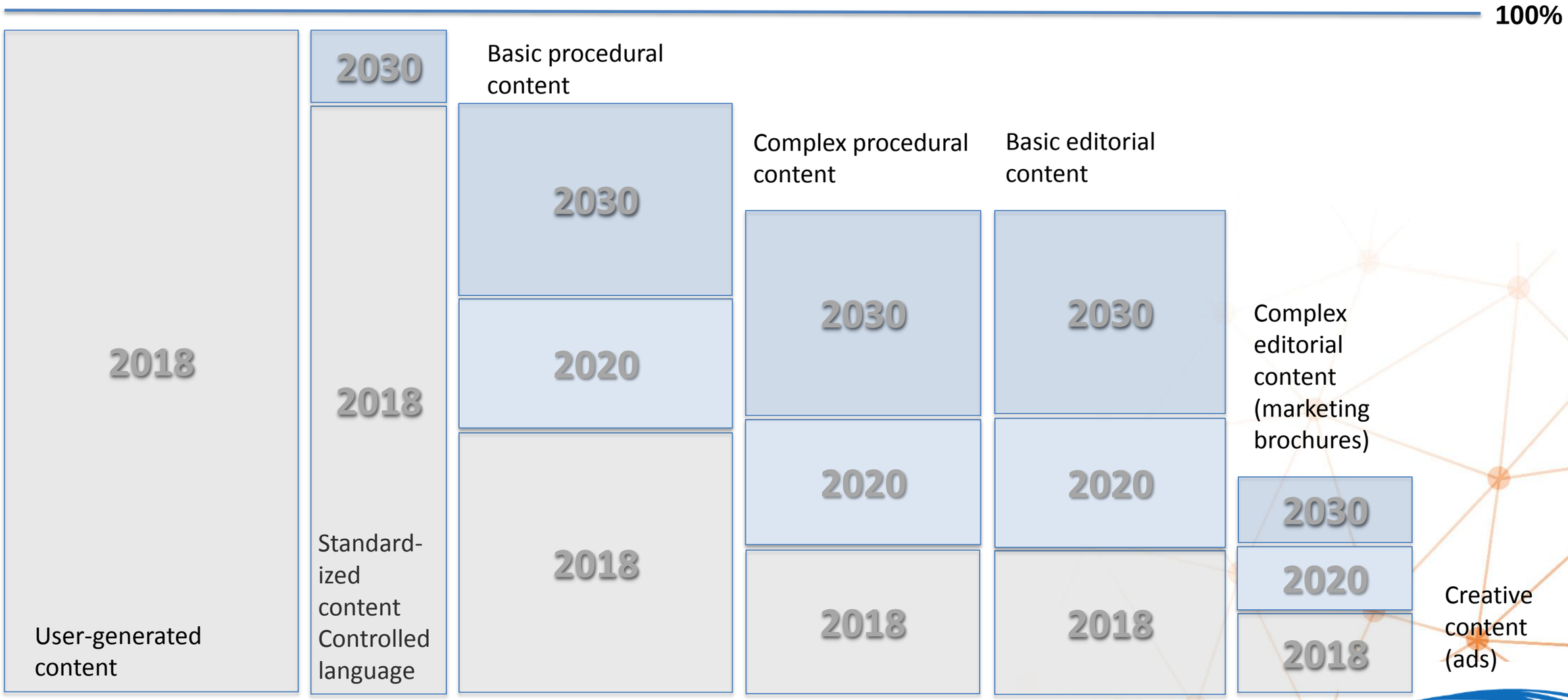
- Full MTPE
  - No distinction with full human translation
- Light MTPE
  - Correct understanding
  - No effort on stylistic aspects
  - Varying practices regarding linguistic accuracy
  - Run automated QA rules (ex. check for missing negation)
- Focused MTPE
  - Specific rules
    - Specific – highly visible – parts of the content
    - Check important elements like numbers, names, etc.
    - …

Traps

- Higher fluency misleads post-editor
- Terminology
- Tag order issues
- « Target first » approach not ideal

So where does that lead us ?

MT penetration – a personal view



Future role(s) of translator

« Machine translation will replace only those translators that translate like a machine »

**« The machine will take care of the keystrokes.
The translator will add the human dimension - the cherry on the cake.»**

- Non-MT content (<20% - same as non-CAT content)
  - Transcreator / Copy-editor
- MT content
  - Full post-editing
  - Light post-editing
  - Focused post-editing

Translator = Post-editor = [*Augmented Translator]* ?

- Do we need the same profile ?
  - Editorial translation
  - Full post editing
  - Light post editing (cf software testing)

- Do we need the same training ?
  - Creative writing
  - Pattern recognition (search for typical MT errors)
  - Eye for detail and critical sense
  - General (world) knowledge: disambiguation, logical errors

Workable MT is here. Are we ready to work with it ?

Will translation buyer expectations become realistic ?
Will translators embrace technology ?
Will translation companies find a workable business model ?
Will universities adapt training programmes to prepare future generations ?
Will translation tool providers be able to integrate and standardise ?

Come and see in 2, or rather 12 years !

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Q & A

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