



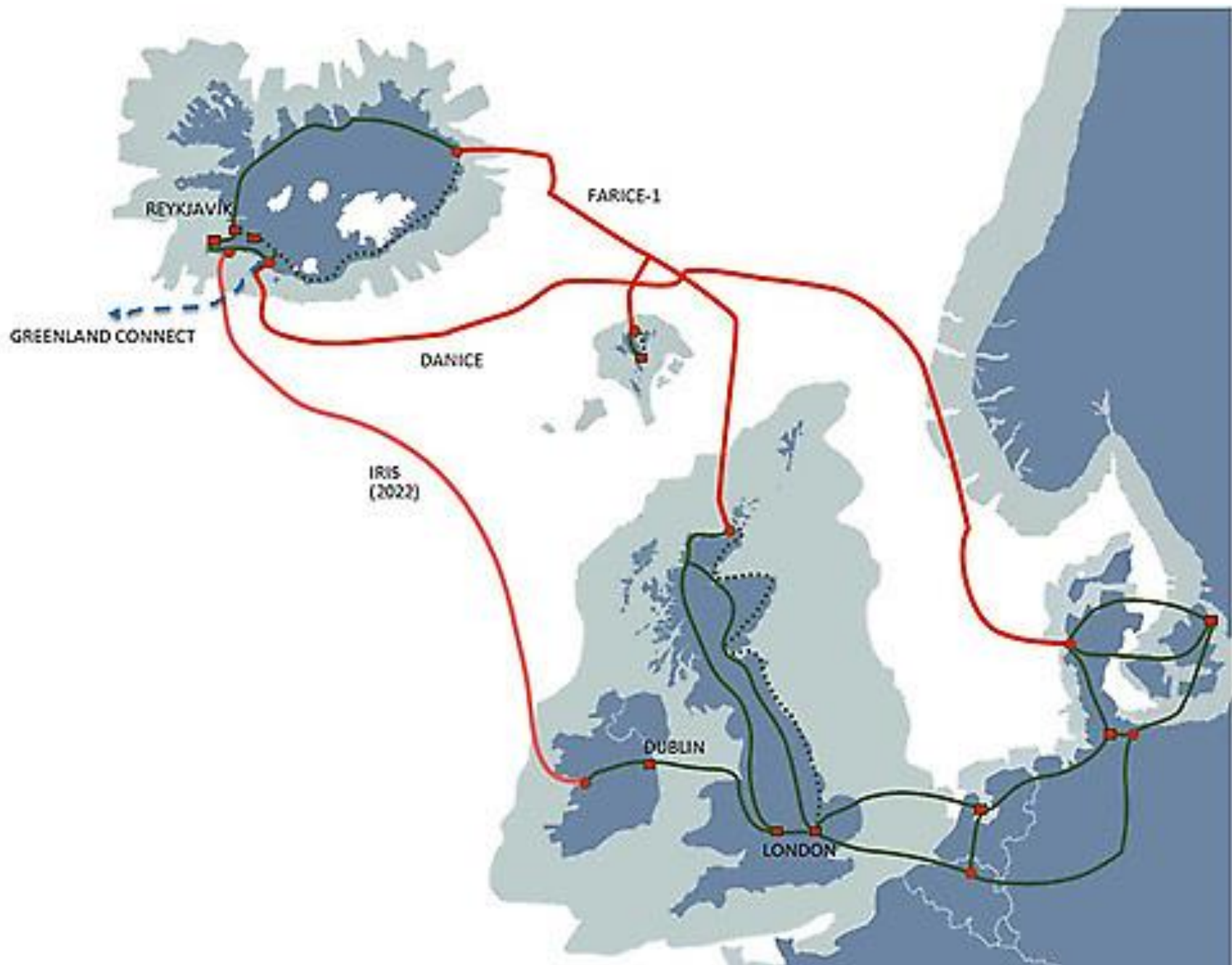
Ethics and AI in Translation

Éthique(s) et traduction à l'ère contemporaine
Avignon 2023

Joss Moorkens

SALIS/ADAPT Centre

Dublin City University



Ethics, Sustainability, & Neural MT

- Business Ethics
 - Corporate-social responsibility
- Technology Ethics
 - NMT System Development
 - NMT in Professional Workflows
- Sustainability and Diversity

Machine translation for everyone

Empowering users in the age of artificial intelligence

Edited by
Dorothy Kenny

ROUTLEDGE INTRODUCTIONS TO TRANSLATION AND INTERPRETING

TRANSLATION ETHICS

Joseph Lambert

Translation Spaces

SPECIAL ISSUE
Fair MT
Towards ethical, sustainable Machine Translation
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Helena Moniz
Carla Parra Escartín Editors

Towards Responsible Machine Translation

Ethical and Legal Considerations in Machine Translation

Springer

ROUTLEDGE BOOKS

The Routledge Handbook of Translation and Ethics

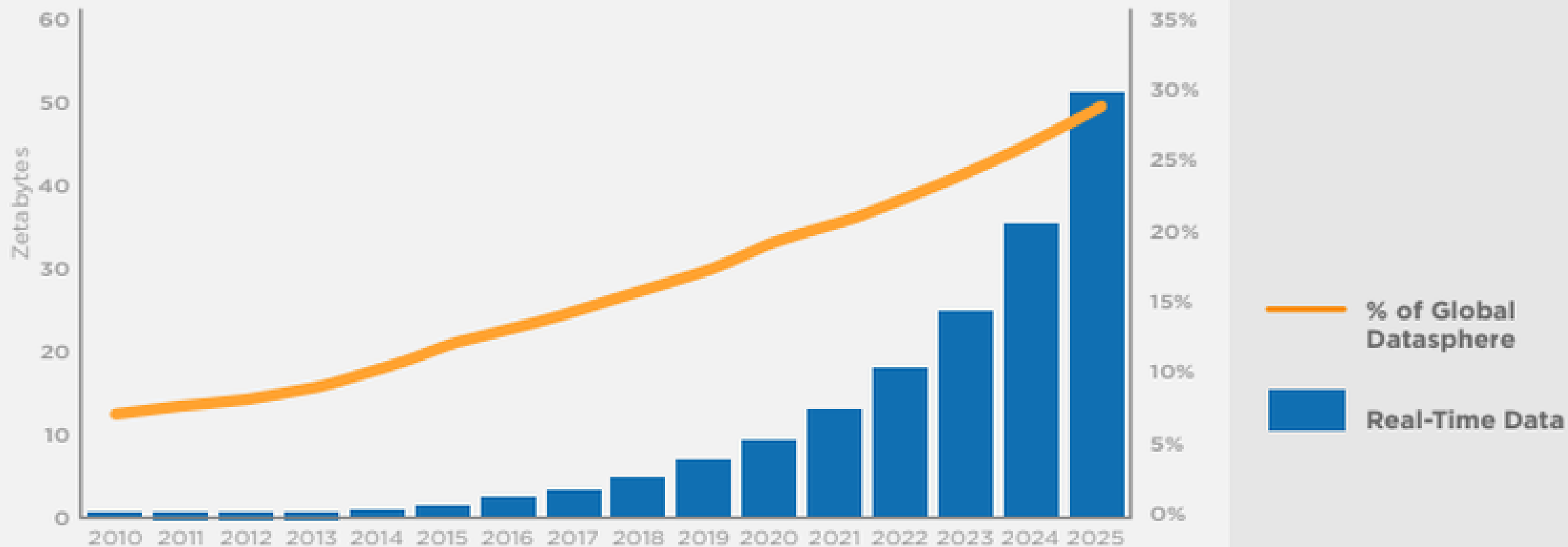
Edited by Kaisa Koskinen and Nike K. Pokorn



Ethics in Translation

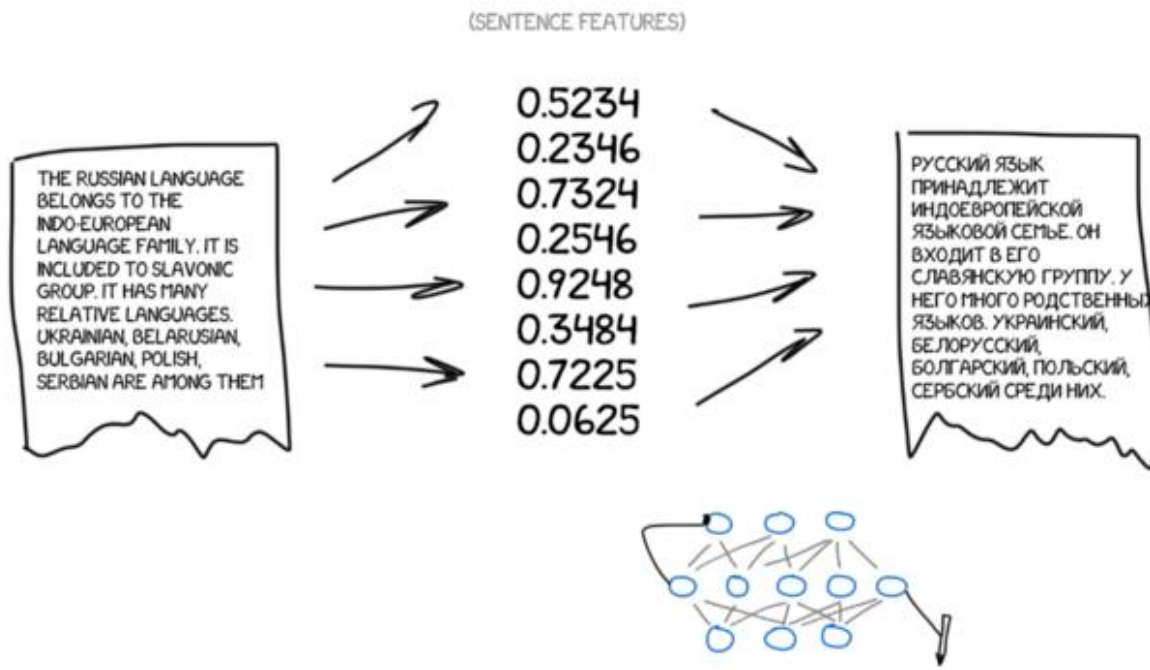
- Ethics as fidelity
- Chesterman (1997, 2001) and Pym (1997/2012) on relationships and trust, turn to Translator Ethics
- Koskinen (2000) highlights complexity in practice
- Tymoczko (2007) and Abdallah (2010) on asymmetries of power
- Drugan (2017) on social responsibility and responsibility to clients
- Cronin (2012) and Firat (2021) on distributed production networks
- Koskinen & Pokorn (2020: 4) 'translational activities are by definition located in an intersection, in transit areas between entities, and they involve more than one language, culture, readership and interlocutor, they are ripe with bigger and smaller ethical dilemmas'

How Much of Global Datasphere is Real-Time?



Source: International Data Corporation (IDC) 2018

NMT & LLM: Mathematisation and Prediction



Subsymbolic AI programs do not contain human-understandable language. A subsymbolic program is essentially a stack of equations—a thicket of often hard-to-interpret operations on numbers.

- Mitchell (2019)

HIGH

10

The computer decides everything, acts autonomously, ignoring the human,

9

informs the human only if it, the computer, decides to

8

informs the human only if asked, or

7

executes automatically, then necessarily informs the human, and

6

allows the human a restricted time to veto before automatic execution, or

5

executes that suggestion if the human approves, or

4

suggests one alternative

3

narrows the selection down to a few, or

2

the computer offers a complete set of decision/action alternatives, or

1

the computer offers no assistance: humans must take all decisions and actions.

LOW

Levels of automation of decision & action selection

Automation refers to the full or partial replacement of a function previously carried out by the human operator.

This implies that automation is not all or none, but can vary across a continuum of levels, from the lowest level of fully manual performance to the highest level of full automation (Parasuraman et al 2000)

Adaptable automation versus adaptive automation (the system assigns automation level) (Calhoun 2021)

Four approaches to automation

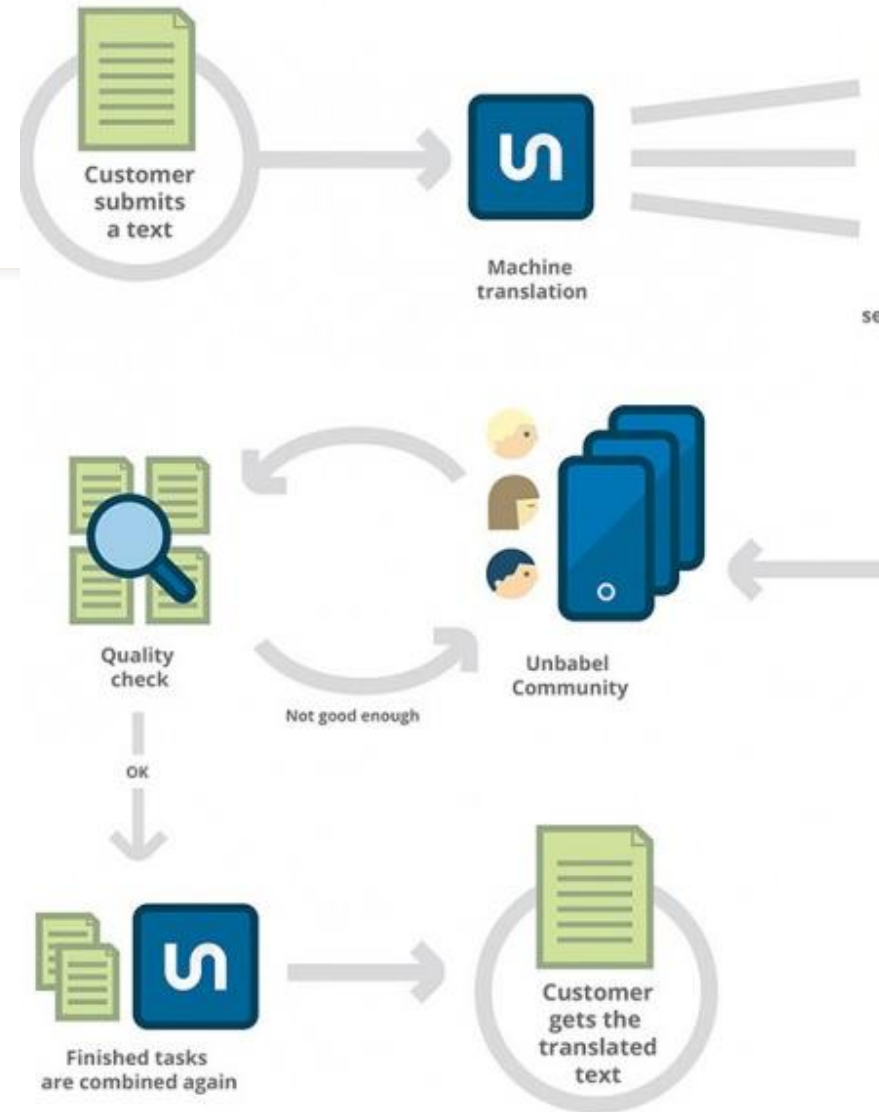
Decision may depend on company strategy:

- A **cost strategy** uses technology to reduce costs, especially by reducing labour
- A **value strategy** aims to increase value by complementing labour with technology or reassigning labour to higher-value work
- Schatsky & Schwartz (2015)



Digital Taylorism & multimedia translation

- Crowdwork
 - Unbabel
 - Lionbridge
 - Transperfect
- Translation jobs are becoming smaller in some domains, where “the notion of a text, with a beginning, middle and end, has changed radically” (O’Brien 2012)

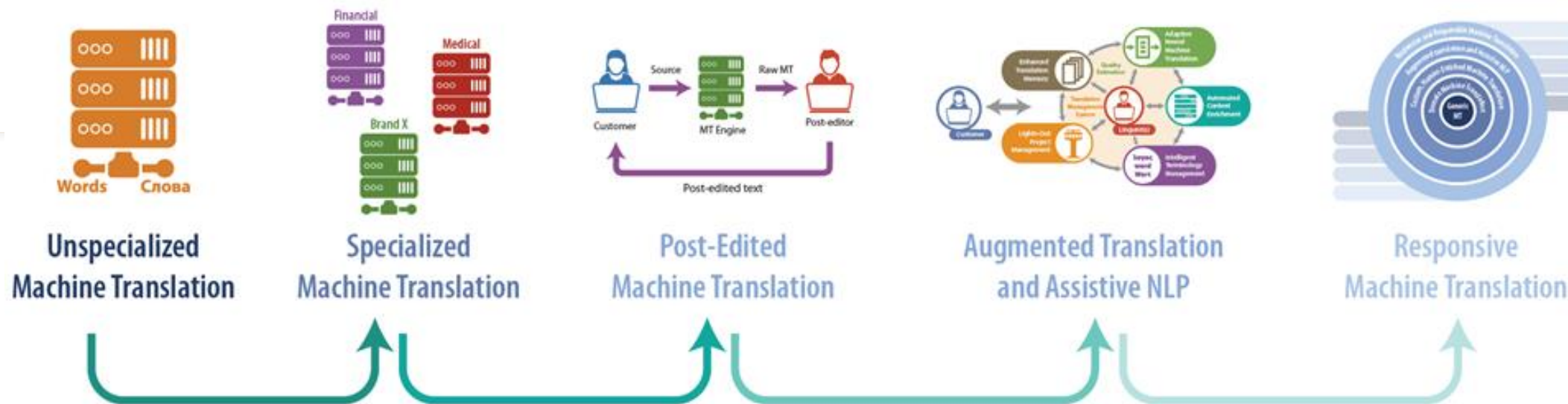


High-availability localization (HAL)

A localization system that is configured to handle different types and volumes of content continuously, with minimal or no downtime.

Category of Translation	Definition for People Working in Software	L10N Industry Equivalent
Touchless	Completely automated workflow with no human involvement	MT, most likely NMT
Low-Touch	Largely automated workflow with minimal human involvement	MTPE
High-Touch	Tech-enabled workflow with substantial human involvement	CAT+TMS-enabled HT with TM and TE or TEP

The Path to Responsive Machine Translation



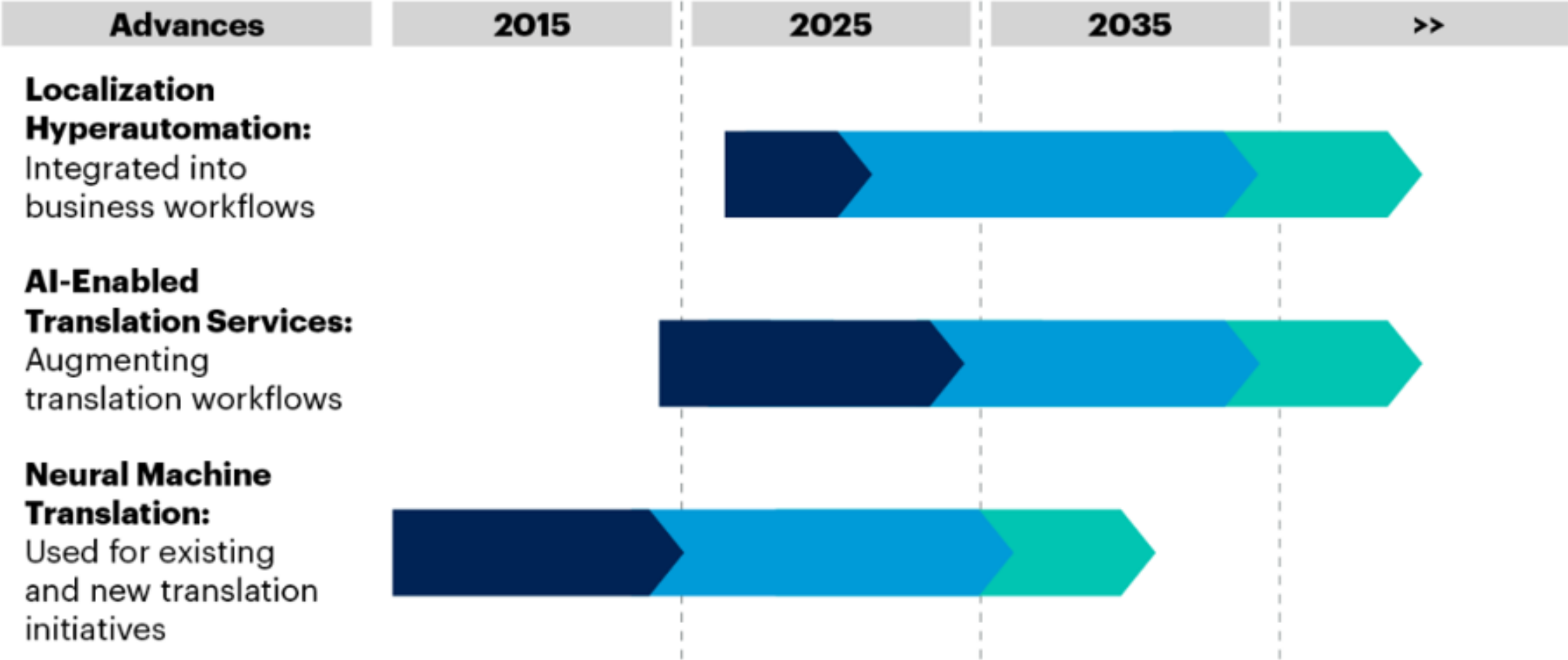
© CSA Research

Arle Lommel
CSA-Research 2021

- Automatic domain adaptation
- Contextually aware
- Adaptive based on feedback & incorporating user resources
- Automatically match with requirements for applicability and usability

AI-Enabled Technology Phases

Early Adopters (0% to 20%) Mainstream Adopters (20% to 60%) The Rest (60% to 100%)



Translation and LLMs

translate this sentence into pt-br in fewer than 45 characters including spaces: I want to know what I may take away with me, and I certainly don't wanna be accused of stealing.

Não quero ser acusado de roubo, o que posso levar?



how many characters including space is there in the previous sentence?



The previous sentence contains 45 characters including spaces.



no, it has 60 characters

I apologize, you are correct. The previous sentence has 60 characters including spaces.



“GPT-3.5 for MT post-editing of the English-to-Arabic translation obtained from OPUS, the quality significantly surpassed that obtained from both OPUS and Google Translation API”
- Moslem, Haque & Way 2023

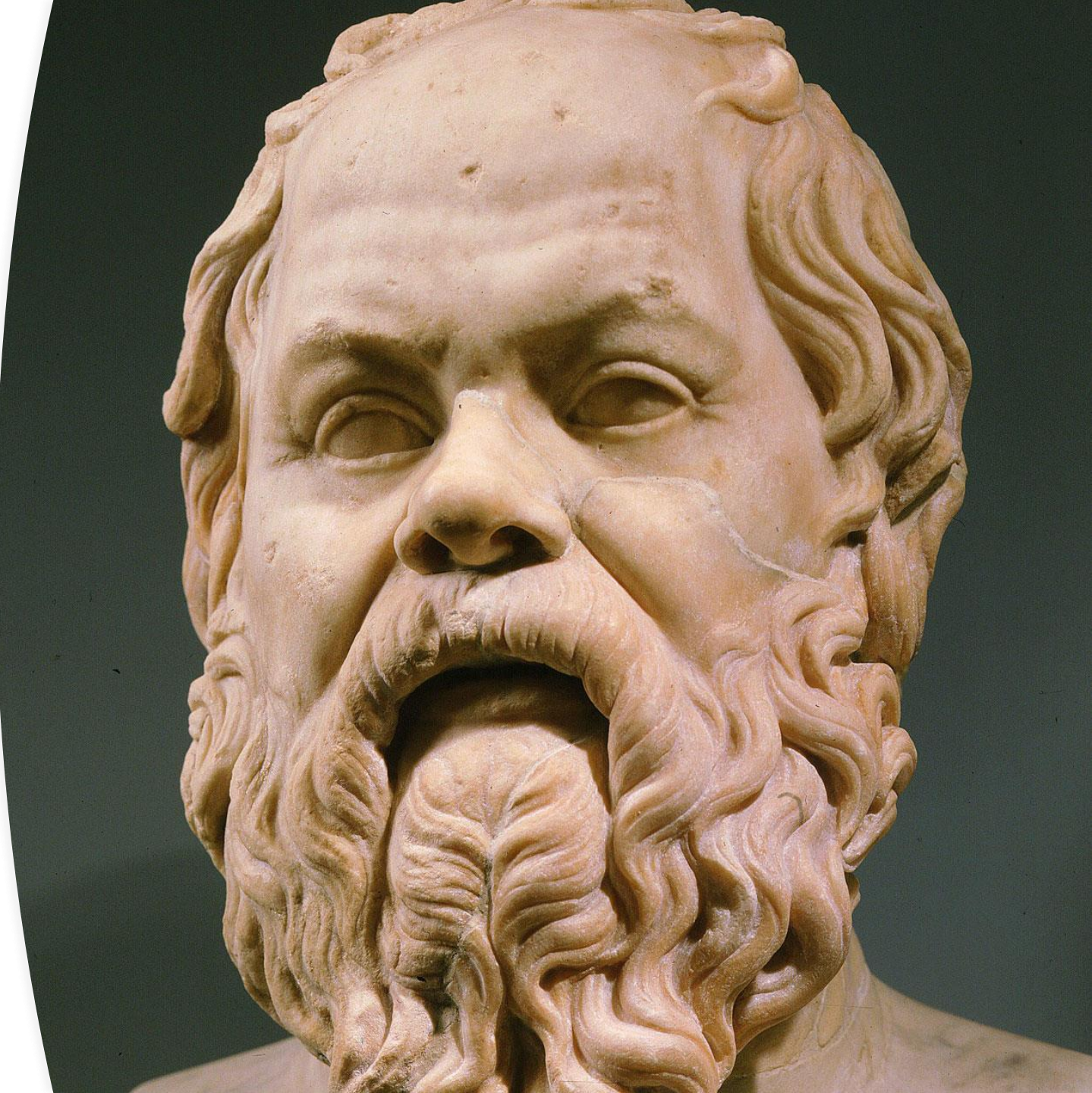
Measuring: Counting words

Object	AnyCount counts	MS Word 97 counts	MS Word 2000 counts	MS Word 2003 counts	MS Word 2007 counts	MS Word 2010 counts
Text	446	430	430	430	430	430
Text boxes	268	No	No	No	268	268
Shapes	25	No	No	No	No	No
WordArt	5	No	No	No	No	5
Running headers	28	No	No	No	No	No
Running footers	24	No	No	No	No	No
FootNotes	34	No	No	34	34	34
End Notes	19	No	No	19	19	19
Embedded documents (i.e. XLS table embedded in DOC file)	126	No	No	No	No	No
Linked documents (i.e. XLS table linked with DOC file)	31	No	No	No	No	No
Comments	9	No	No	No	No	No
Hidden text	16	No	No	No	No	No
Total	1010	430	430	483	751	764

- “Defining what a word is is not always straightforward” – Roturier (2020)
- Introduction of Global Information Management Metrics eXchange (GMX) standard for defining a localisation job – Zydrón 2014, 2017 (table)

The Good Life

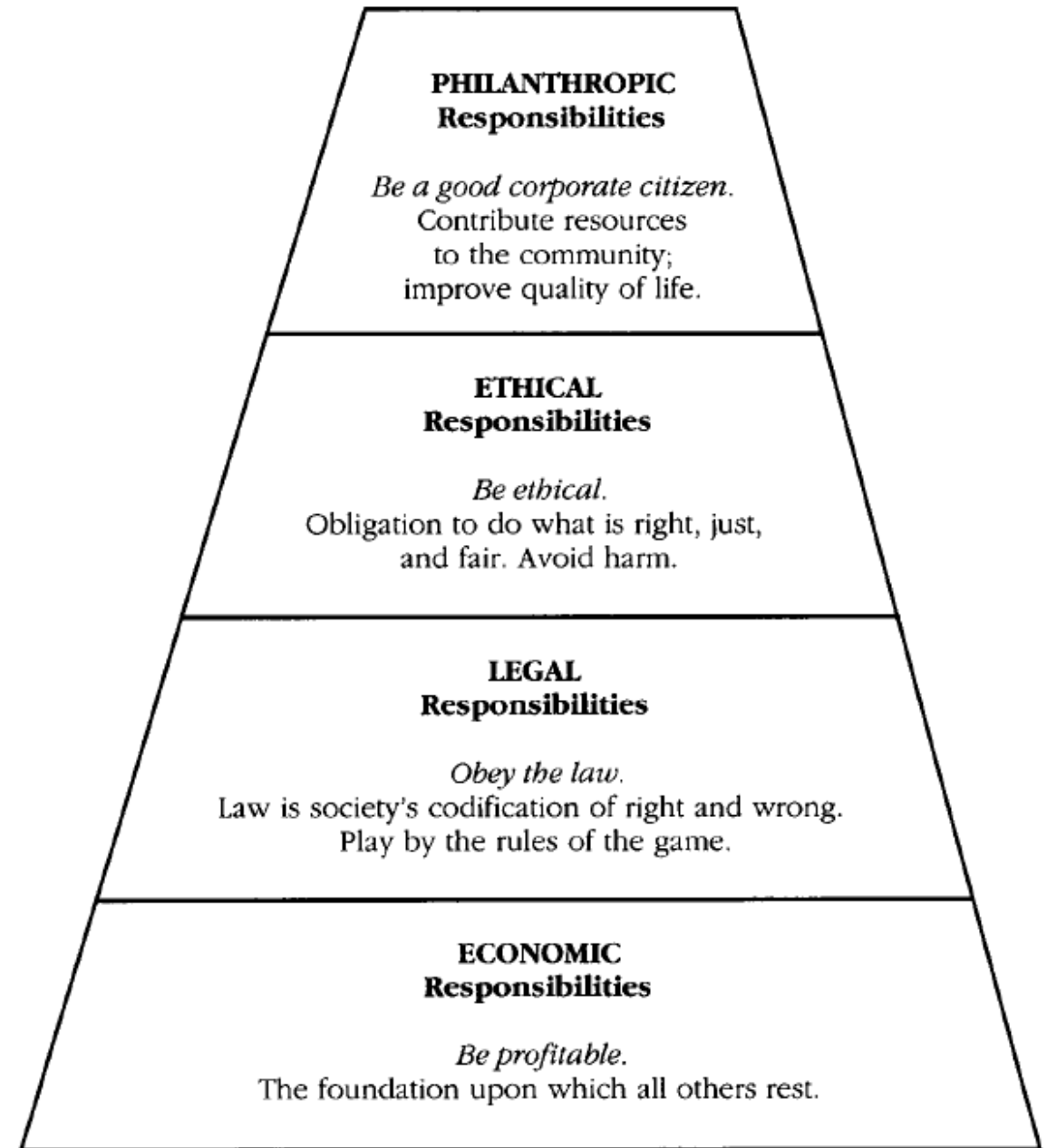
- **Meta-ethics** asks about the nature of moral judgements
- **Theoretical ethics** asks: what is the best theory of the good life?
- **Applied ethics** asks: how should we act in this or that situation, based upon our best theories of ethics?
- **Ethics in Translation:** 'The subfield that aims to understand what is good and bad, right and wrong in translatorial praxis'
Koskinen & Pokorn (2020: 3)

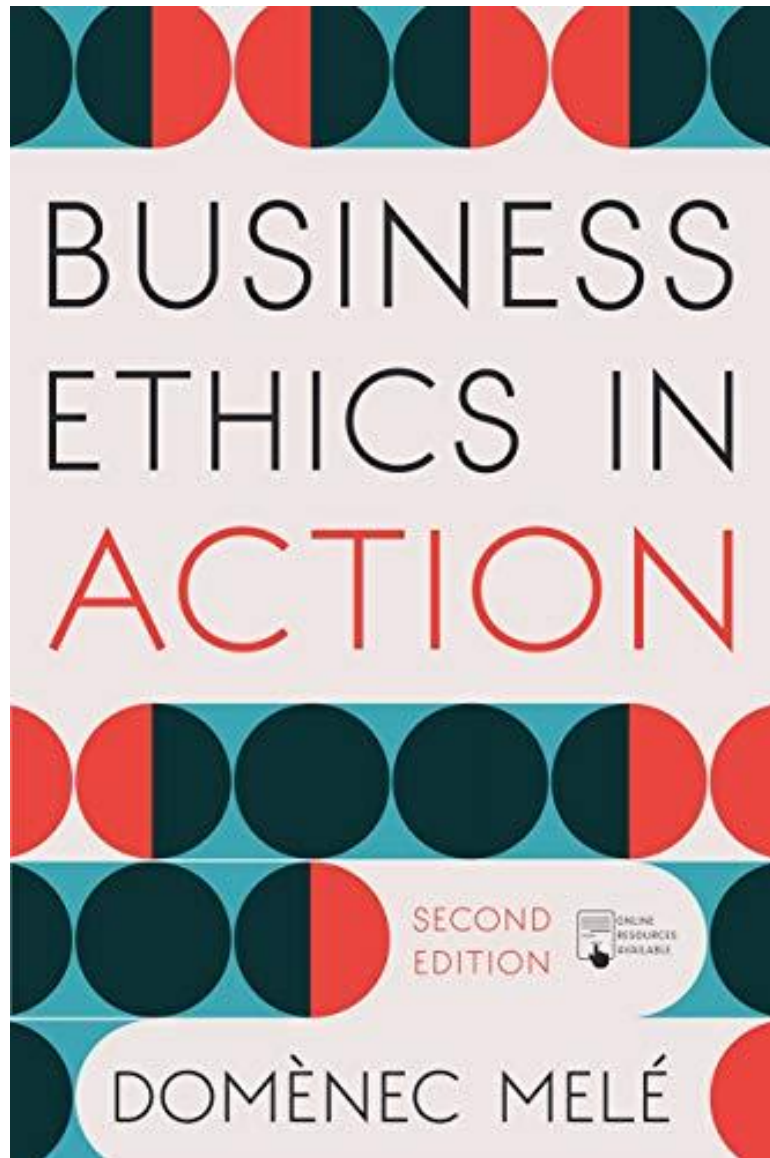


Business Ethics

- Profit (Friedman 1970)
- Corporate-social responsibility
 - The profit motive is limited by the law.
 - Carroll (1991, right) suggests additional but subordinate motivations
- Triple bottom line (Elkington 1994, 2018)
- 'Respect the rights of employees, consumers, and society in general' (De George 2014)

The Pyramid of Corporate Social Responsibility



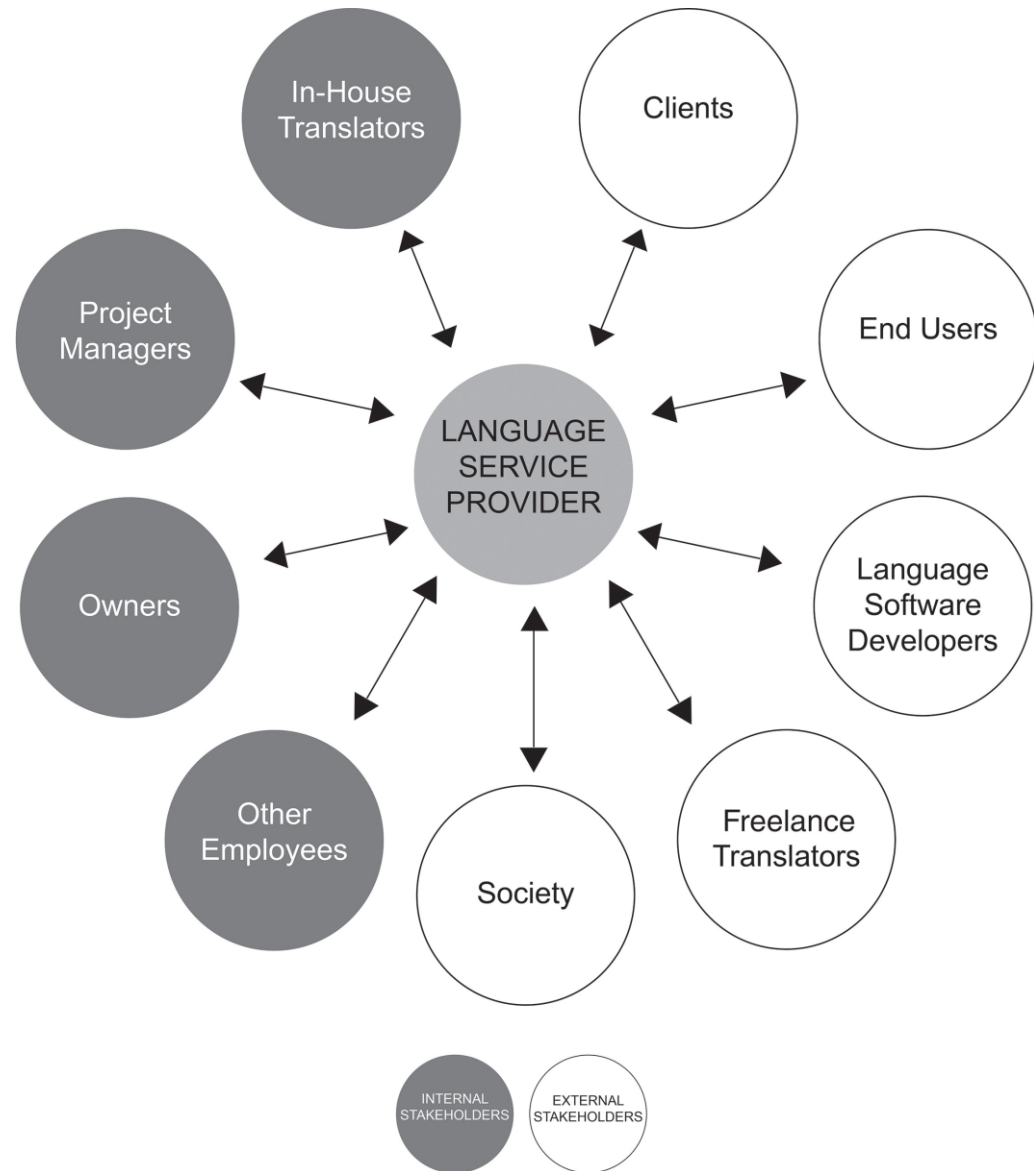


What is the purpose of a company? (Melé 2019)

- Shareholder approach
 - Stakeholder approach
 - Common good approach
-
- Taking ethics as a guide for human excellence, business ethics can be a guide for human excellence in business organisations (Melé 2019)

Stakeholder theory (Freeman 1984)

- Considers 'any group or individual who can affect or is affected by the achievement of the organisation's objectives' (Freeman 2010)
- Further division between normative and derivative stakeholders (Phillips 2003)
- In translation, we* consider disparities of power, ownership of resources, sustaining employment, ethics training as CPD, the importance of trust (see Chesterman 1997)



Source: Moorkens and Rocchi (2021)*

Ethics and Technology

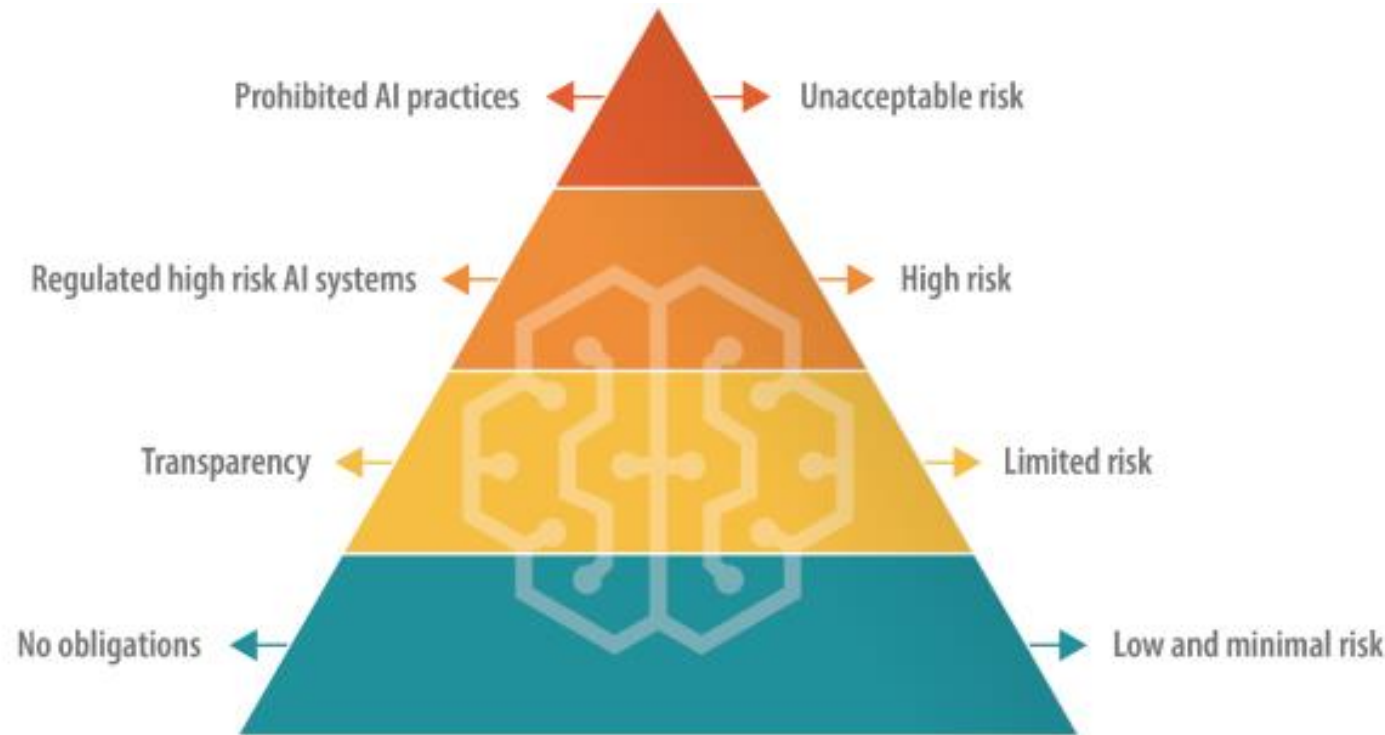
- Growing consensus about importance of ethics in technology
- Technology increasingly shapes how human beings seek the good life, and with what degree of success
- Technologies are not ethically 'neutral' (Winner 1983, Kranzberg 1986, Ihde 1990, Feenberg 1999)
 - They reveal and shape what humans value and think 'good'



Why tech ethics now?

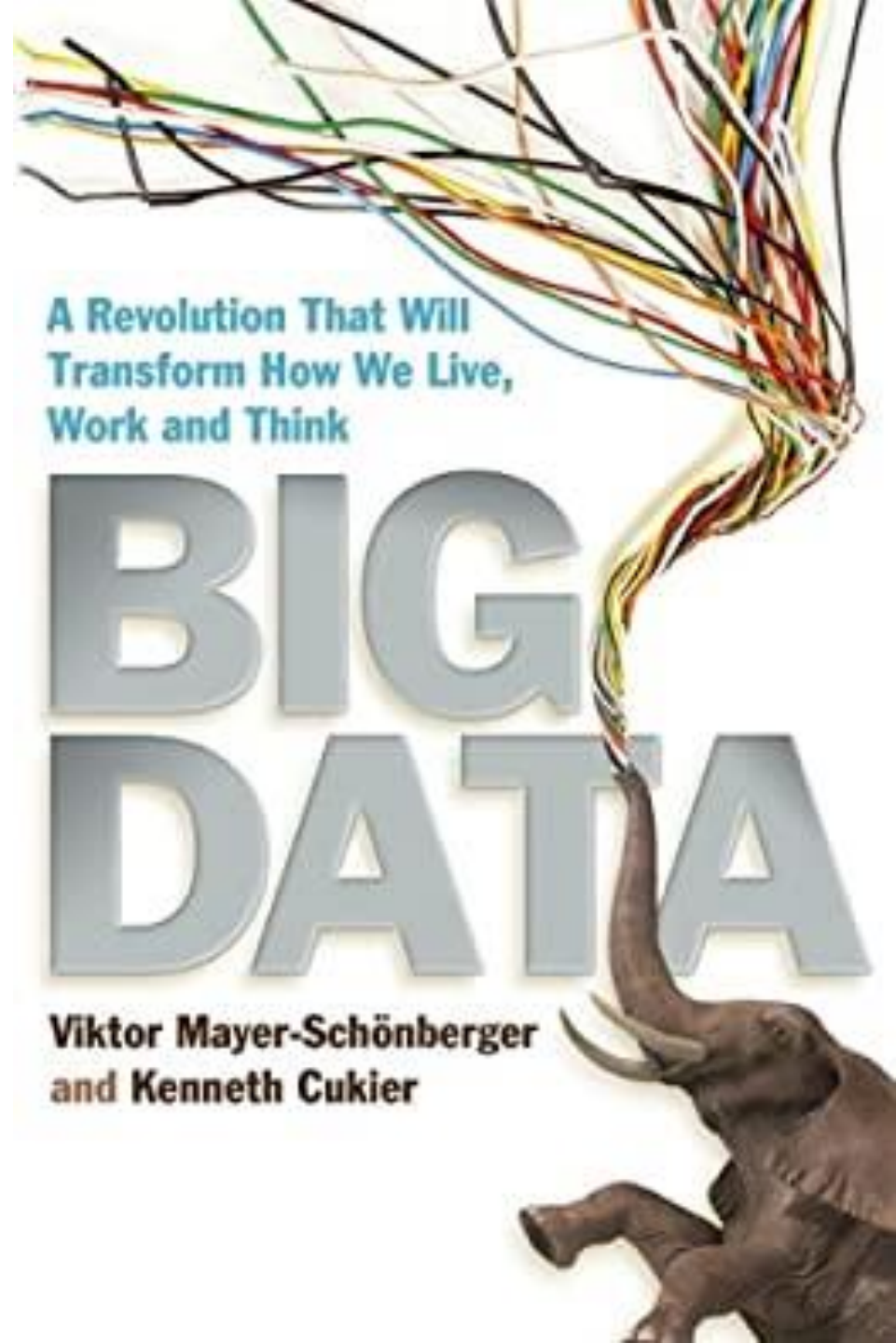
Fairness. Justice. Responsibility.

- Speed, scale, and pervasiveness of technology
 - Policy and law is inevitably (at least) one step behind
- 21st century technologies are reshaping the global distribution of power, justice, and responsibility
 - Positive and negative impacts are often distributed unevenly
- **How do we ensure that access to the enormous benefits promised by new technologies, and exposure to their risks, are distributed in the right way?**



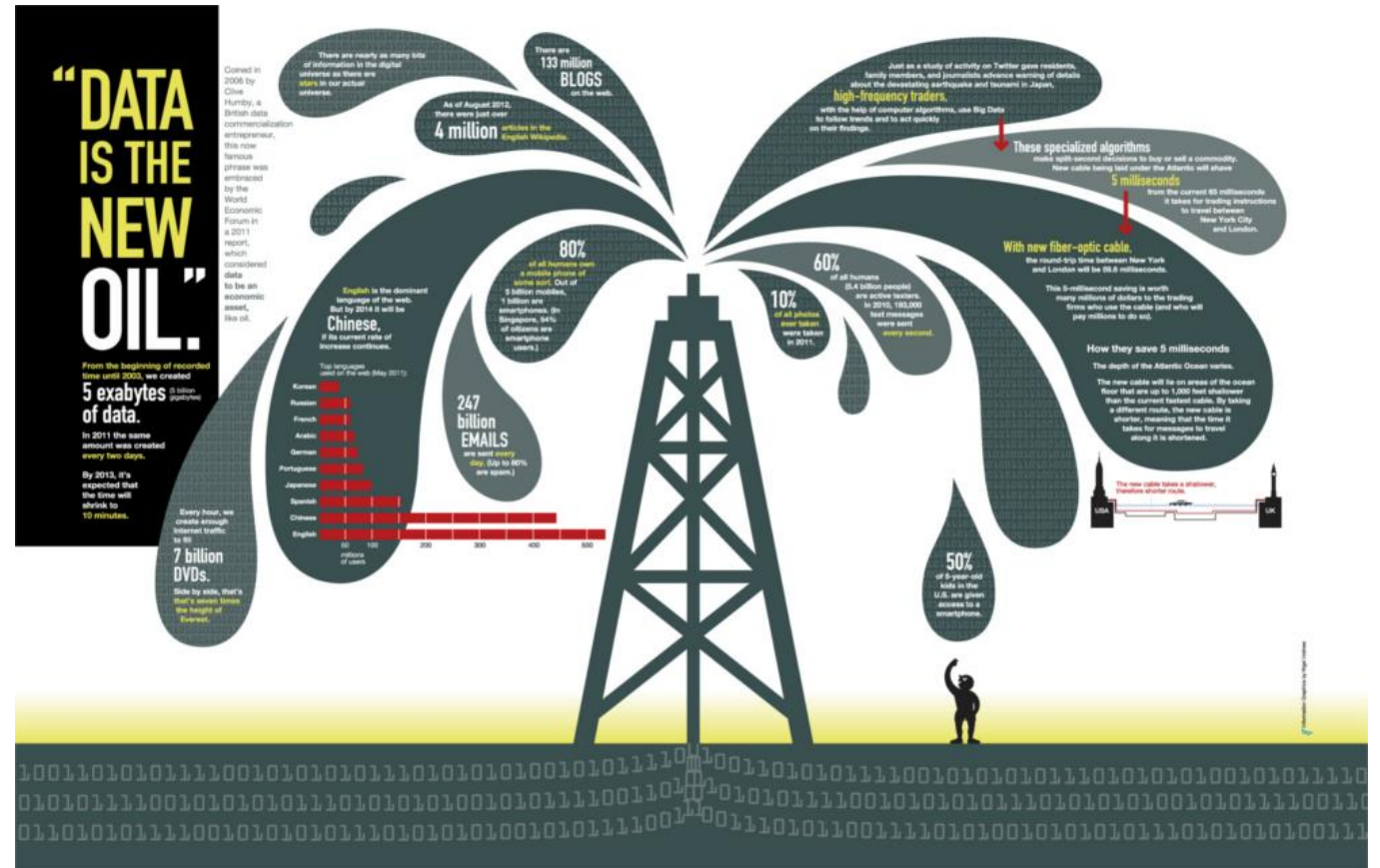
Big Data

- **Large digital datasets** + new techniques, organizations, and processes to transform those datasets into valuable human knowledge.
- Big data's value is in current and potential future use (Mayer-Schönberger & Cukier 2013)
- Both big data and artificial intelligence are economic and political constructions that disenfranchise most people (Lanier 2013)



Why translation data ethics?

- Huge growth in production of digital data
- More types of data gathered in translation than ever before
- Big data is driving new businesses and processes
- Consideration of ethics can help with decision-making and may also present opportunities
- Pym 2013: "learn to trust and mistrust data"



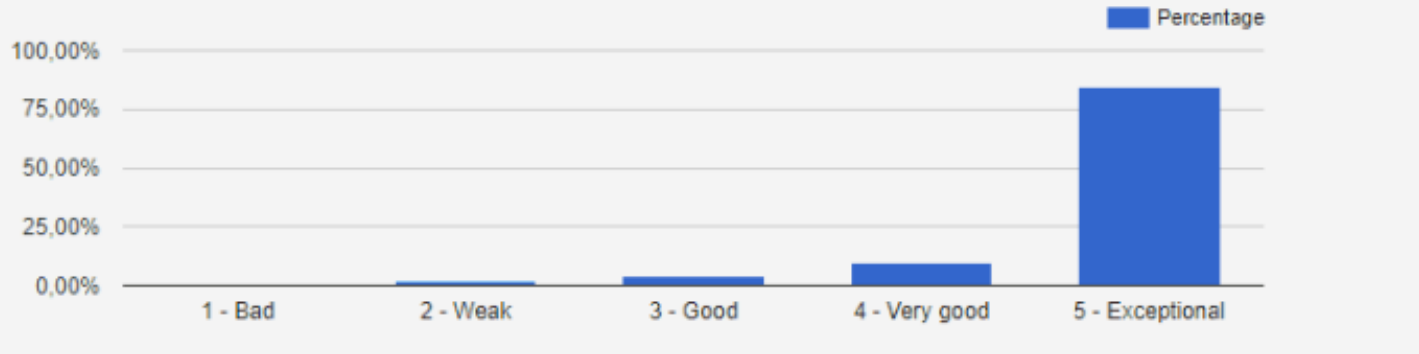
What types of data are collected in translation?

- Bilingual translation data
- Timing data (how long did it take to translate a segment or document?)
- Timing data (how long was the user active on this task?)
- Keystrokes
- Mouse clicks
- Translation Quality Evaluation
- Timeliness of delivery
- Communication skills
- Job and domain type
- Adherence to instructions and deadlines (e.g. layout and formatting)
- Demographic data

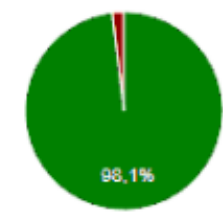
Wordbee quality ratings

(Vela Valido 2021)

KPI	Definition	Data input
Capacity Utilization Ratio (CUR)	Output produced in a given time frame (Capacity)	Daily worked volume Daily assigned volume
DIFOT (Delivery In-Full, On-Time) rate	Ability to fulfil orders and meet customer expectations (Timeliness)	Job acceptance time Timeliness rating
FPY (First Pass Yield) rate	Percentage of units coming out of a process (Effectiveness)	Adherence to instructions Reliability
Order Fulfilment Cycle Time (OFCT)	Average time to deliver a service from order to customer receipt (end-to-end delivery capacity)	Jobs completed on time Timeliness rating
Rework Level	Percentage of items inspected requiring rework (Quality)	Work Quality rating Segments requiring correction



Good vs Not good



(All)
4.8
52 ratings submitted. All categories combined.

Work quality
4.6
16 ratings submitted.

Timeliness
5.0
19 ratings submitted.

Friendliness
4.8
17 ratings submitted.

Orders rated
0.60%
Total 3 154 orders rated

Outsourced uses of activity data: Prodoscore Happiness Index (Prodoscore 2022)

Prodoscore Happiness Index Ranking	
20838	7.92
23022	6.72
20869	5.11
22295	5.06
27432	4.92
24782	4.82
25652	4.56
23023	4.55
13135	3.26
24842	3.12
980	3.07
23187	3.02
25651	0.91

In this example, the higher the number appears, the more positive the employee's general communication.

Statements with 0 LIWC2015 Negative Emotional Attribution

"I met the XXXX team last week, not impressed"
"wow bunch of bs is right im with you"
"all didnt go well"
"Well this is a bust."
"this guy is a total joke"
"that's not fair"
"my brain subconsciously does not like him"
"im not good with that"
"Not happy man!"
"I do not feel good"

Algorithmic Norms

Expectancy norms



Professional norms



accountability norm (ethical norm)

communication norm (social norm)

relation norm (linguistic norm)

- Adorno and Horkheimer (1947 p. 23): workers 'must mould themselves to the technical apparatus, body and soul'
- Jarrahi and Sutherland (2019, p. 587) the 'ability to understand and make use of algorithms has... become a core competency of workers attempting to retain autonomy'

Case studies of data use in translation

What issues do you see here?

Translator A has freely signed a contract with their regular employer to carry out a translation on a freelance basis using a proprietary web-based platform, giving explicit permission for their translation data to be reused for MT training. The employer trains MT systems using the data from Translator A and others.

In time, NMT quality improves for Translator A's language pair to the extent that the company moves its translation work to post-editing and imposes a unilateral 30% discount on their per-word payment rate.

This discount is applied on the basis that productivity has generally improved by roughly 30%, visible to the company from the translation activity data gathered via the translation platform.

In order to raise revenue, the company decides to sell MT services externally. This includes some work for an arms manufacturer.



Case studies of data use in translation

What issues do you see here?

Translator B is opposed to MT as a matter of principle. B accepts work for a company that expects translators to submit their translation memory with translated target texts, which they will repurpose for future human translation.

Translator B is not aware that the work has been automatically assigned by an automated project management system, but there is no translation brief and no direct communication with the company.

Translator B is also not aware that the company will soon be acquired by a large conglomerate who will use all available data for MT training and offer it for sale.

The data should have all personal information removed before being shared, but this information is retained by accident when the data is uploaded to one purchaser. The company tries to keep this quiet so as to avoid liability.



MT System Training

- Data Ownership
- Permission to Use Data
- Data Distribution
- Privacy, Personal Data

CONVENTION

CONCERNANT

A CRÉATION D'UNE UNION INTERNATIONALE

POUR LA

PROTECTION DES ŒUVRES LITTÉRAIRES ET ARTISTIQUES.



MT in professional workflows

- Stakeholders
 - Client
 - Agency
 - Shareholder
 - Translator
 - End User
 - Tool Developers
- Risk and Liability

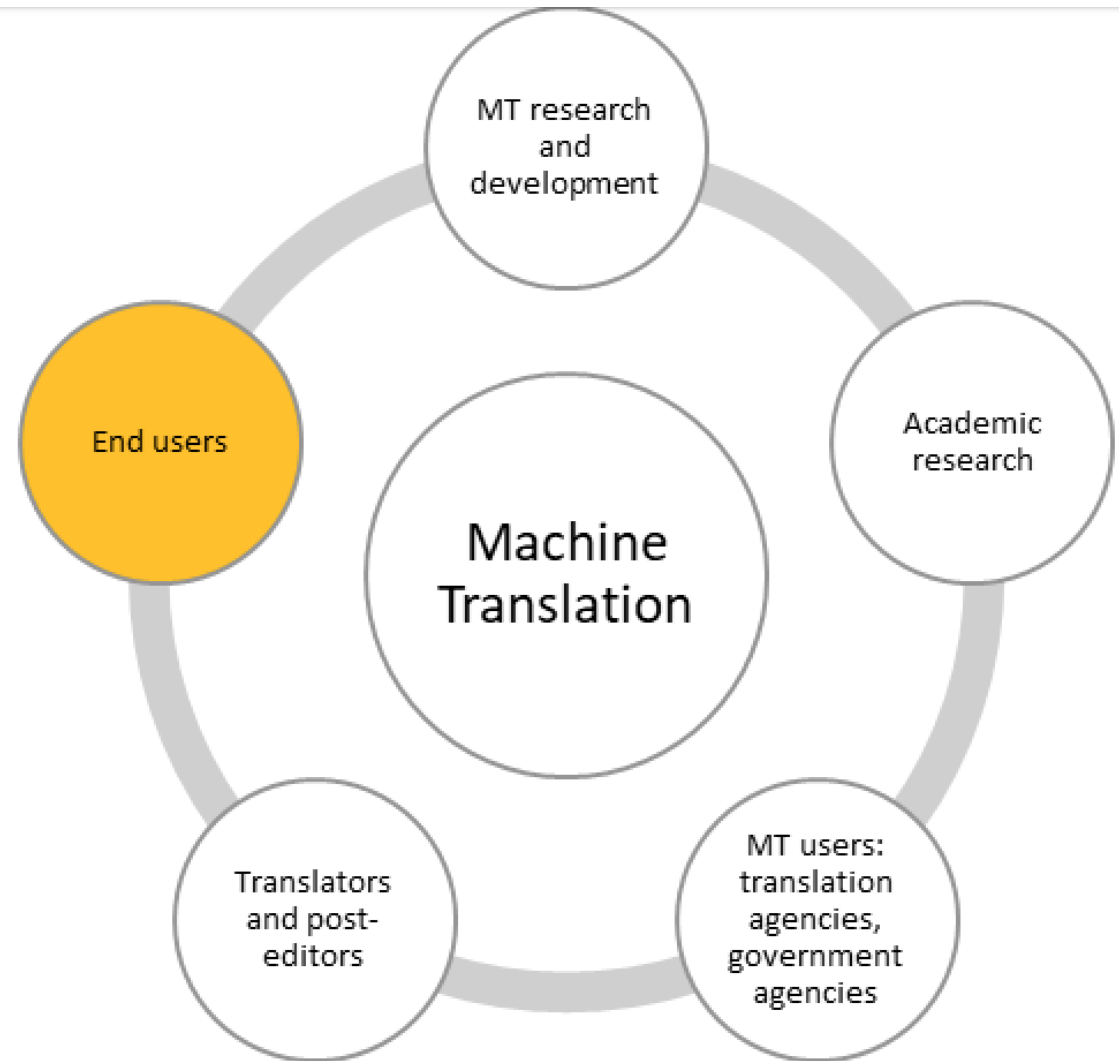


Figure: MT Stakeholder Ecosystem (Guerberof Arenas & Moorkens 2022)

Translation Risks

(Canfora & Ottmann 2018)

- Communication impaired or impossible
- Loss of reputation
- Financial damage
- Legal consequences
- Damage to property
- Injury or death



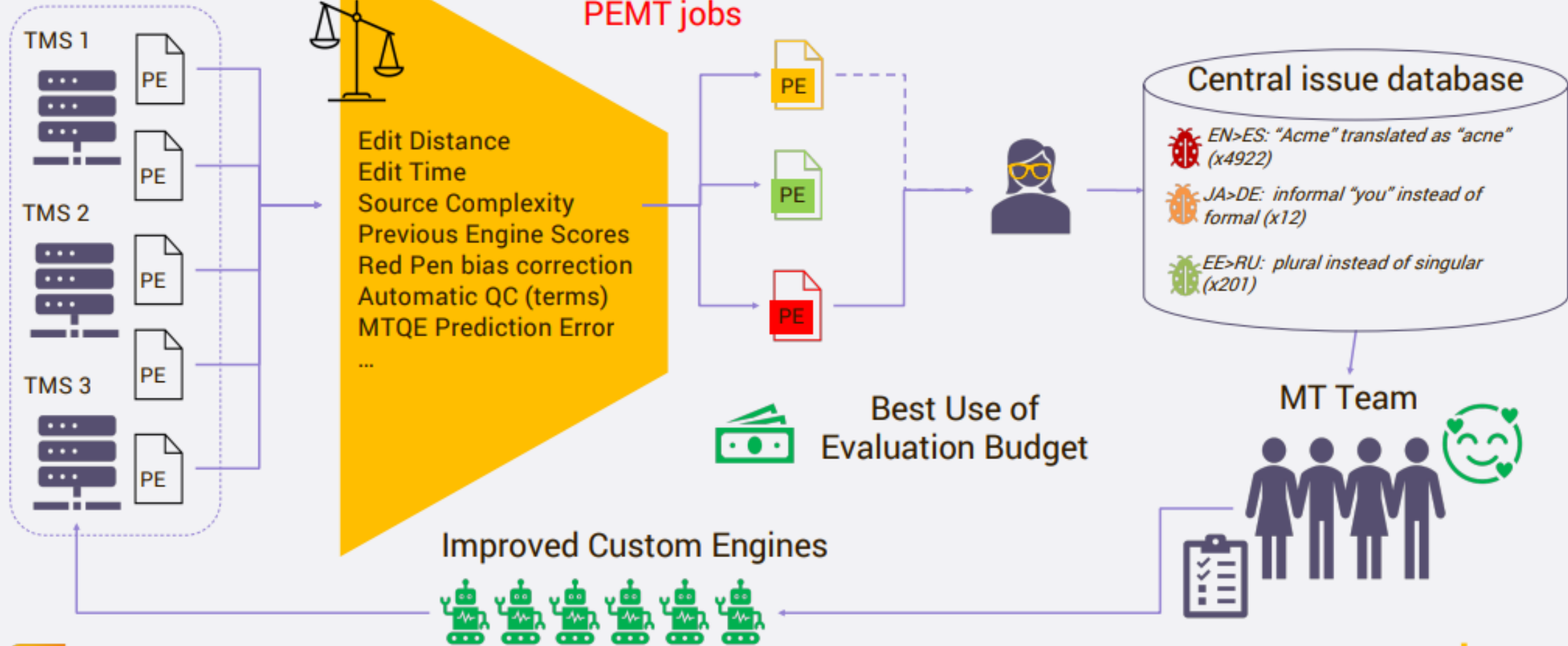
risk-driven sampling

Continuously calculated ED / MTQE

Auto risk scoring and budget-limited sampling of PEMT jobs

Human evaluation

Specific, actionable MT quality error reports



A photograph of a tree with green leaves and small white flowers, with a blurred path leading into the distance. The text is centered over the image.

Sustainability

Social & Environmental

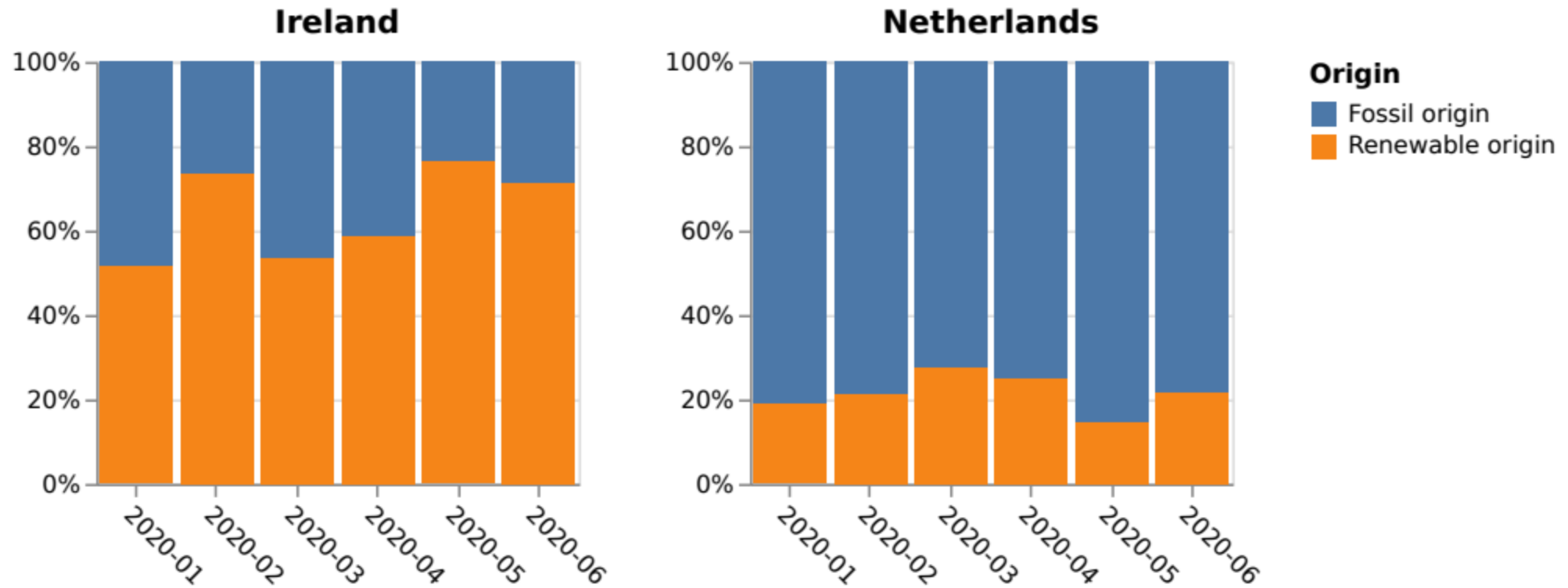
Environmental Sustainability

- Researchers should prioritize computationally efficient hardware and algorithms (Strubell et al. 2019)
- Use software carbon intensity information to reduce environmental impact (Dodge et al. 2022)

Consumption	CO₂e (lbs)
Air travel, 1 passenger, NY↔SF	1984
Human life, avg, 1 year	11,023
American life, avg, 1 year	36,156
Car, avg incl. fuel, 1 lifetime	126,000
Training one model (GPU)	
NLP pipeline (parsing, SRL)	39
w/ tuning & experimentation	78,468
Transformer (big)	192
w/ neural architecture search	626,155

Table 1: Estimated CO₂ emissions from training common NLP models, compared to familiar consumption.¹

Ecological Sustainability



- (Shterionov & Vanmassenhove 2022)



Diversity

- Developers and Users
- In MT Output
 - Bias, discrimination, and misinformation (see Vanmassenhove 2019, Sólmundsdóttir 2022)



Future Directions in Translation Ethics Research

- Applied ethics: stakeholder theory, frameworks from philosophy of science
- Trust: compared traditional models of trust with trust in technology systems (e.g. van der Werff, Real, and Lynn 2018)
- Feminist, deconstructivist, and decolonialist ethics
- Ethics of Care: identifying the most vulnerable and basing ethics on their care

In Closing

- As MT quality improves, it facilitates more communication
- Consider value, risk, shelf-life of text
- Ethical concerns to be considered by MT developers, translation buyers, translation agencies, translators, and consumers of translation
- When working with and using MT: Consider how it should be incorporated and the fit with your values, purposes, and principles



Merci!



say thank you for your attention in seven words



Thank you for your kind attention.

- Email: joss.moorkens@dcu.ie
- Tweet @jossmo



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