

THE FUTURE AND ACCESSIBILITY

A DISCUSSION ON AUTOMATED SUBTITLING.

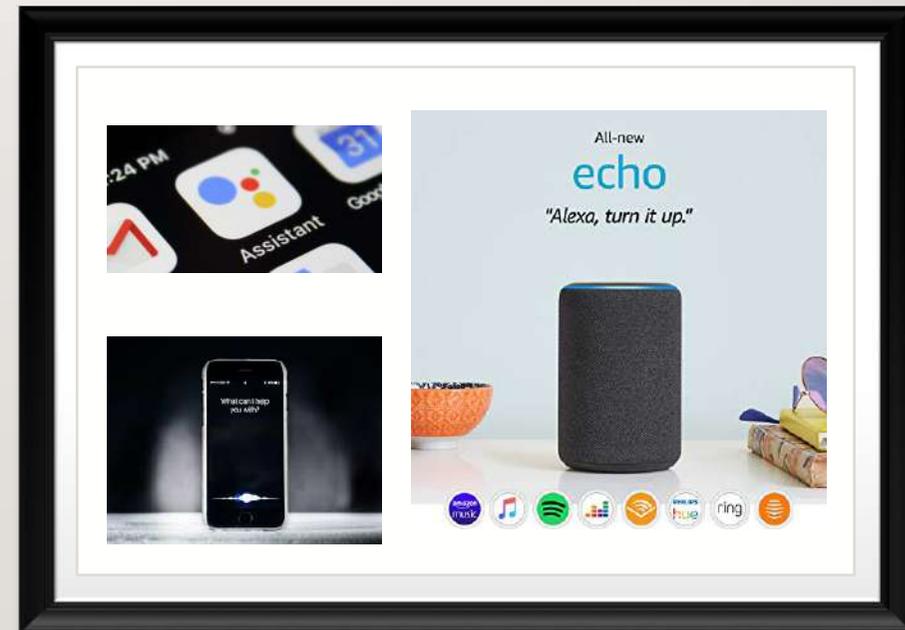
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WHAT IS AUTOMATED SUBTITLING?

- It's the generation of captions through advanced signal processing technology

HOW DOES THIS TRANSLATE INTO INCREASING ACCESSIBILITY AND FUTURE DEVELOPING TECHNOLOGIES?

- Signal processing, machine learning and AI are areas of development that are, among other things, working to facilitate the interaction between humans and digital or virtual interfaces.



WHY IS THIS IMPORTANT FOR EDUCATION?

How are students with disabilities affected?

Format	Barrier	Accessible Alternative
Printed text(paper)	Incompatible with screen readers used by blind/low vision students and students with learning disabilities	Supplement with audio, provide an electronic copy of text
Audio	Hearing impaired students may not hear it, students with LD (auditory processing) may have difficulty understanding it.	Supplement with printed text
Video	Blind/low vision students may not see it, students with LD (auditory processing) may have difficulty understanding it.	Provide description, captions or written transcript
Picture	Blind/low vision students may not see it	Add description/caption
Synchronous (real time) discussion	Blind/low vision students, students with LD and ADHD, students with medical/physical/ physiological disabilities may have difficulty following up and keeping up	Use asynchronous (online) format for all or some discussions to allow more time for processing and responding
Tests/quizzes	Many students with disabilities have slower processing speeds that impact performance	Provide extended time/ Supplement with audio/provide large text size option

See References

WHAT DOES IT MEAN FOR EDUCATIONAL MATERIAL TO BE ACCESSIBLE?

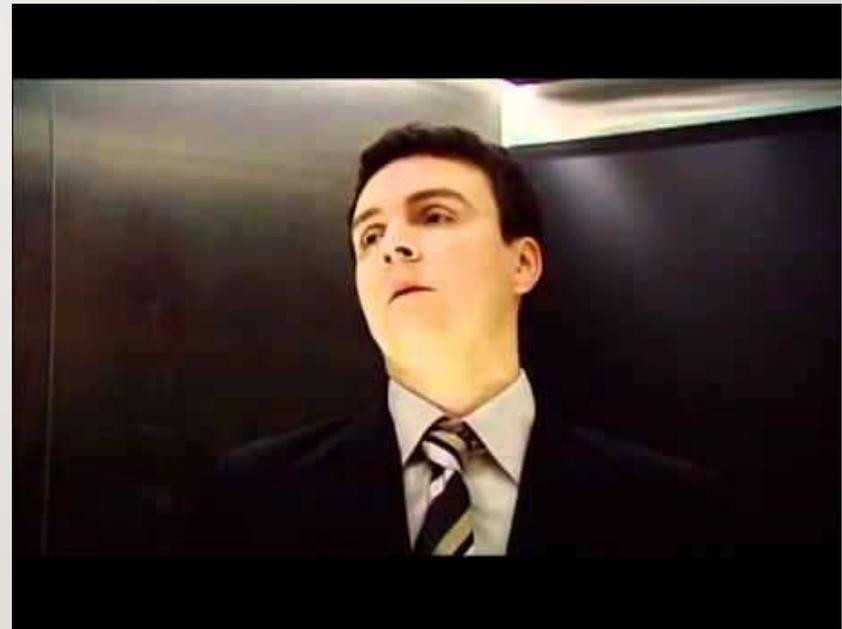
- The necessity for educational material to be accessible has grown in recent years.
- Such a movement towards accessibility offers individuals a sense of confidence.
- It is important to ensure that the needs of all possible demographics are sufficiently addressed.
- Digital tools play an important role in establishing ease of access.

SO, WHAT ARE THE ISSUES?

“I have not yet found a digital tool that replaces human knowledge and experience when it comes to accessibility... I liken it to a warning light in their car -- it lets you know there's an issue, but you still need to know whether that's a serious thing or something that's not that big of a deal.” (Moore, in Lieberman, 2018)

AUTOMATED SUBTITLING IN UNIVERSITY: A CASE STUDY

(A video demonstrating how it's difficult for software nowadays to pick up on certain types of accents)



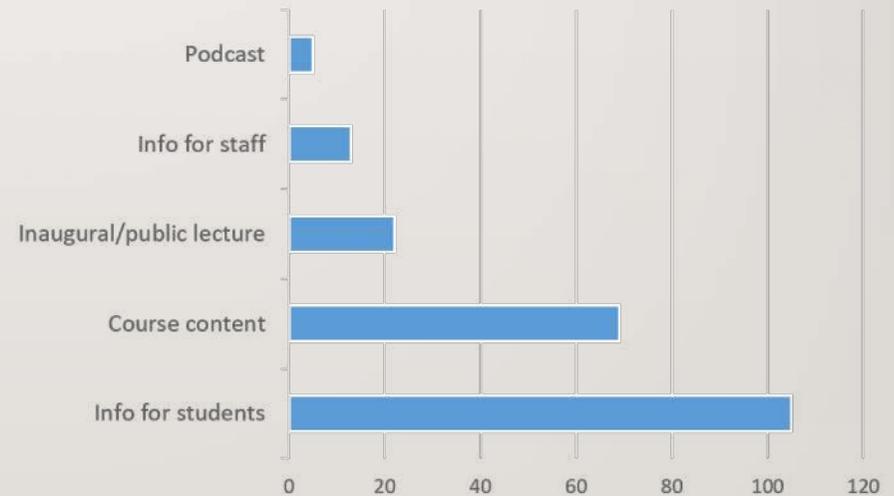
AUTOMATED SUBTITLING IN UNIVERSITY: A CASE STUDY



(A video with automated captions from YouTube to give an idea of the kind of difficulties some content can provide.)

WHAT DID WE DO?

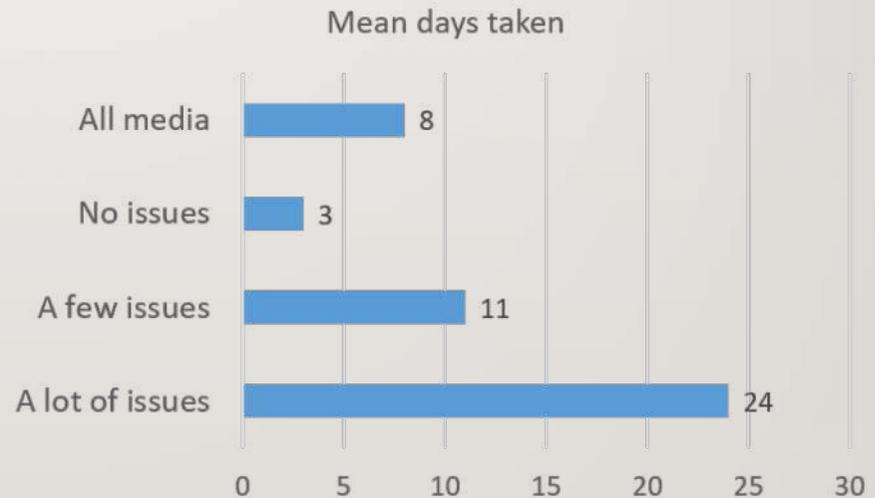
- 10 students
- 1,312 hours worked over 12 weeks
- Total hours per person = 294 (not including recruitment)
- Just over 3 days per week on average*



*All data and figures provided by Karen Beggs, Project Manager, IT department

PROCESS

- Identify media, check suitability
- Request automated captions from Kaltura (24-hour turnaround)
- Correct words, punctuation and align timing
- Full peer review by a second editor
- Average time taken: 15 minutes per one minute of content
- Contact content owner and highlight any **[INDAUDIBLE]** words*



*All data and figures provided by Karen Beggs, Project Manager, IT department

SOME ISSUES ALONG THE WAY



"Very clear audio, but speaker's accent/inflections were tricky to decipher at times"



"A very, very strong non-native accent made it necessary for the video to almost be hand transcribed"

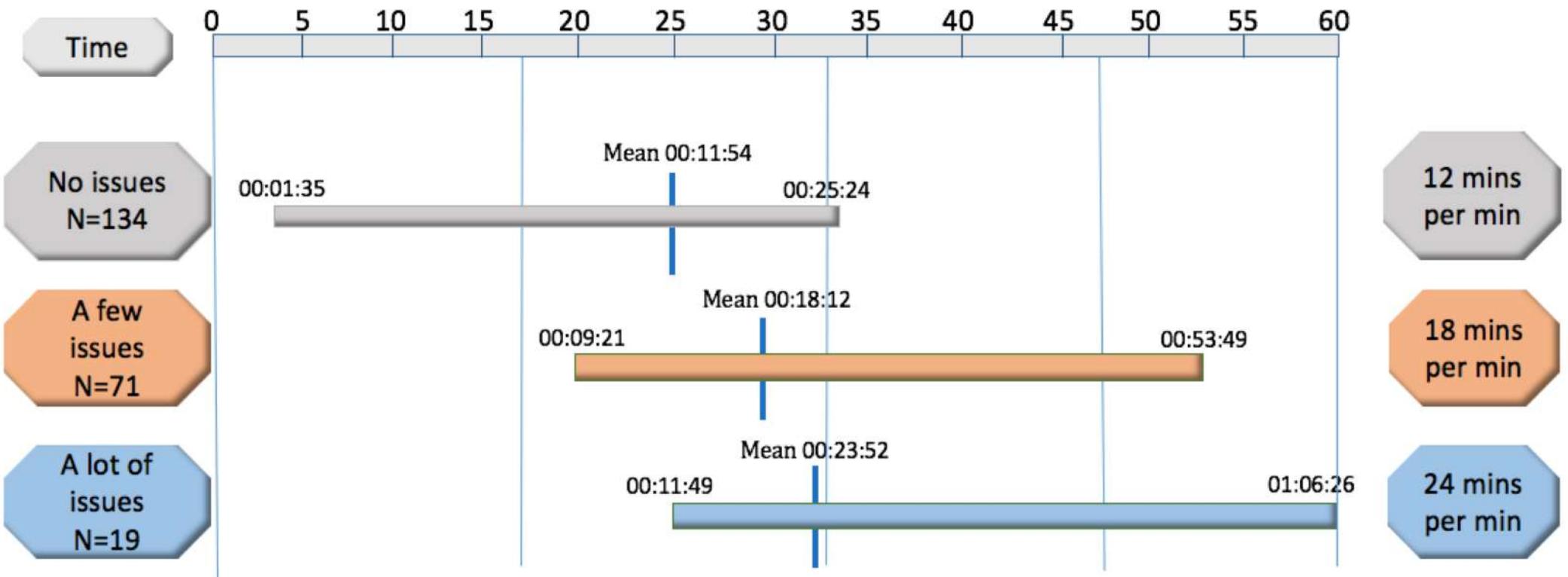


"Lecturer stutters a lot, also bad mic management from the audience"



"Lots of references to other scholars, non-English names of places, etc"

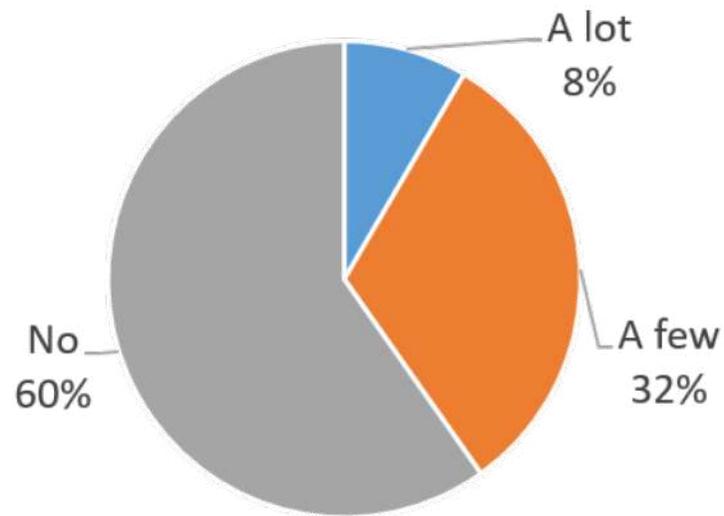
Minutes taken per minute of content (minimum, mean & maximum) to correct words and punctuation, adjust timings and complete a full review by a second person



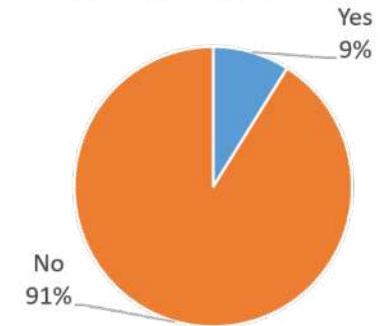
*All data and figures provided by Karen Beggs, Project Manager, IT department



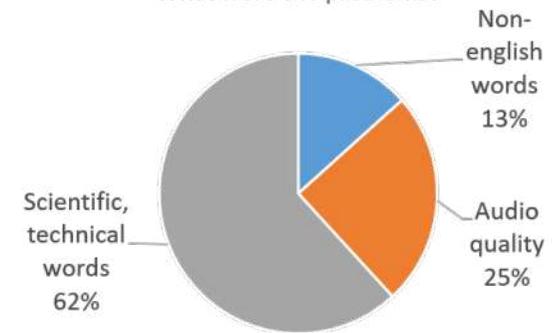
Did you have any problems?



Was a transcript available?



What were the problems?



All data provided by Karen Beggs, Project Manager, IT services

WHAT'S NEXT?

“On the downside, subtitling rates have come under serious pressure in recent years, which in turn has brought quality levels into disrepute, with many holding the belief that the loss of quality is a natural by-product of the pricing slide and is not compensated by the technological advances... the reality is that the subtitling industry has experienced a massive growth in the number of companies entering the market, with many of them specialising solely in this field and morphing into multinationals. As far as viewers are concerned, the hike in the volume of subtitles means that they can expect to enjoy subtitles in a greater number of programmes and contexts.” - Jorge Díaz-Cintas

WHAT'S NEXT?

- Projects such as these also do more than provide accessibility ease; it it benefits the student community (as a give and take service); resources of the university spent **on students** and generated **by students for the student body**.
- Outsourcing is not ideal, there's a level of contextual comprehension needed, outsourcing workers are not invested in the appropriate comprehension of the material.

AND WHY?

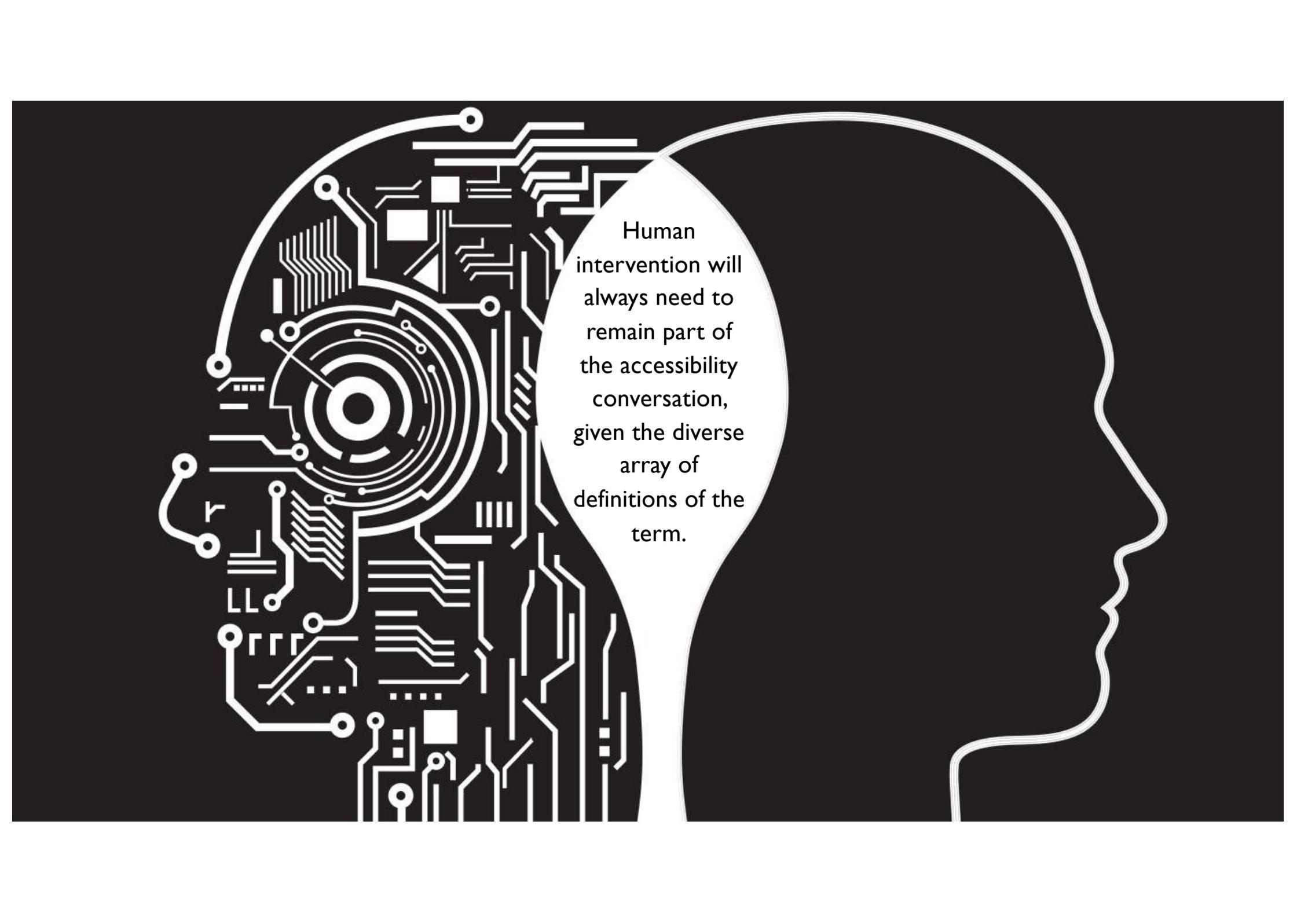
- Establishes the university as a space that offers practical experience along with theoretical knowledge to its students.
- Plus, supporting local business also means supporting your students and peers! It's a circle of good will where everyone in the community receive benefits with or without active participation within the same circle.
- Technology is not yet a plug-and-play solution; still needs human intervention to unlock its maximum potential.

CONCLUDING NOTES

Technology by itself is not the complete solution.

But it can be part of a broader accessibility effort that makes universities that all-inclusive space it ought to be!

What makes it an exciting challenge to figure out how we can do this.



Human
intervention will
always need to
remain part of
the accessibility
conversation,
given the diverse
array of
definitions of the
term.

REFERENCES

- Credits and gratitude to Karen Beggs, project manager for the pilot, who kindly shared her overview slides and reports with us. Figures, information, support and guidance. Thank you, Karen!!
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