Latvian Language in the Digital Age: The Main Achievements in the Last Decade

Inguna Skadiņa, *Baiba Saulīte, Ilze Auziņa, Normunds Grūzītis, Andrejs Vasiļjevs, Raivis Skadiņš, Mārcis Pinnis*

Institute of Mathematics and Computer Science
University of Latvia

TILDE

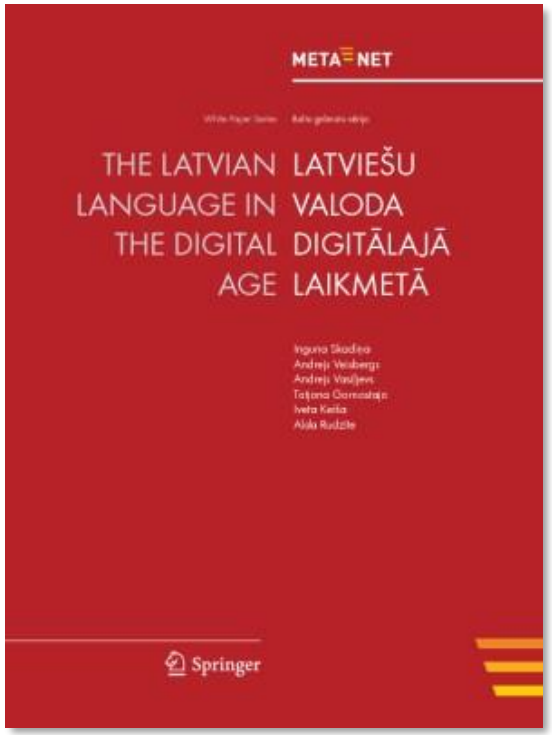
Background

- Language technologies in Latvia have a long history, starting at the end of the 50s

- Overview of HLT in Latvia from 1984 has been presented at several Baltic language technology events:

  - “Language and Technology in Europe 2000” in 1994
  - First Baltic conference on Human Language Technologies in 2004
  - Fourth Baltic conference on Human Language Technologies in 2010
  - Sixth conference on Human Language Technologies in 2014
  - Seventh conference on Human Language Technologies in 2016

Language resources and tools for European languages



English

Dutch
French
German
Italian
Spanish

Catalan
Czech
Finnish
Hungarian
Polish
Portuguese
Swedish

Basque
Bulgarian
Danish
Galician
Greek
Norwegian
Romanian
Slovak
Slovene

Croatian
Estonian
Icelandic
Irish
Latvian
Lithuanian
Maltese
Serbian

good support through Language Technology → *weak or no support*

Georg Rehm. The META-NET White Paper Series: Languages in the European Information Society

European Parliament resolution of 11 September 2018 on language equality in the digital age

European Parliament

Voting (11 Sept. 2018): **592 yes** – 45 no

Index | Previous | Next | Full text

Procedure : **2018/2028(INI)**

Document selected : A8-0228/2018

Texts tabled :	Debates :	Votes :
A8-0228/2018	PV 10/09/2018 - 27 CRE 10/09/2018 - 27	PV 11/09/2018 - 6.15 Explanations of votes

Texts adopted

Tuesday, 11 September 2018 - Strasbourg

Language equality in the digital age

European Parliament resolution of 11 September 2018 on language equality in the digital age (2018/2028(INI))

The European Parliament,

– having regard to Articles 2 and 3(3) of the Treaty on the Functioning of the European Union (TFEU),

– having regard to Articles 21(1) and 22 of the Charter of Fundamental Rights of the European Union,

– having regard to the 2003 UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage,

– having regard to Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information[(1)],

– having regard to Directive 2013/37/EU of the European Parliament and of the Council of 26 June 2013 amending Directive 2003/98/EC on the re-use of public sector information[(2)],

– having regard to Decision (EU) 2015/2240 of the European Parliament and of the Council of 25 November 2015 establishing a programme on interoperability solutions and common frameworks a means for modernising the public sector[(3)],

– having regard to the Council resolution of 21 November 2008 on a European strategy for multilingualism (2008/C 320/01)[(4)],

European Parliament
2014-2019

TEXTS ADOPTED
Provisional edition

P8_TA-PROV(2018)0332

Language equality in the digital age

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– having regard to Decision (EU) 2015/2240 of the European Parliament and of the Council of 25 November 2015 establishing a programme on interoperability solutions and common frameworks for European public administrations, businesses and citizens (ISA2 programme) as a means for modernising the public sector[3],

– having regard to the Council resolution of 21 November 2008 on a European strategy for multilingualism (2008/C 320/01)[4],

– having regard to the Council decision of 3 December 2013 establishing the specific programme implementing Horizon 2020 – the Framework Programme for Research and

1 OJ L 345, 31.12.2003, p. 90.
2 OJ L 175, 27.6.2013, p. 1.
3 OJ L 318, 4.12.2015, p. 1.
4 OJ C 320, 16.12.2008, p. 1.

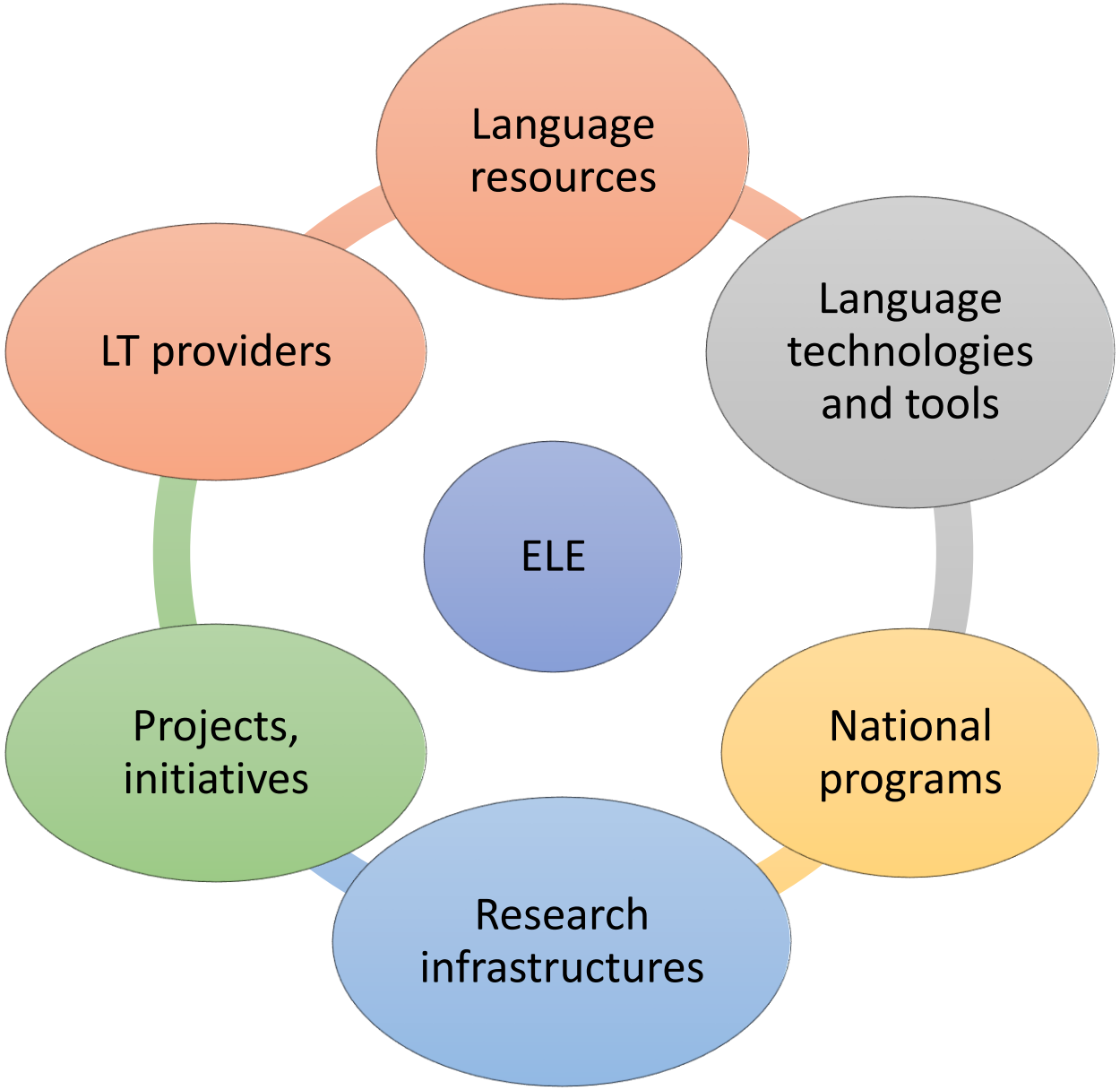
https://www.europarl.europa.eu/doceo/document/TA-8-2018-0332_EN.html

The European Language Equality (ELE) project develops a strategic research, innovation and implementation agenda as well as a roadmap for achieving full digital language equality in Europe by 2030.

European Language Equality (european-language-equality.eu)

D1.17	Report on Greek
D1.18	Report on Hungarian
D1.19	Report on Icelandic
D1.20	Report on Irish
D1.21	Report on Italian
D1.22	Report on Latvian
D1.23	Report on Lithuanian
D1.24	Report on Luxembourgish

https://european-language-equality.eu/deliverables/

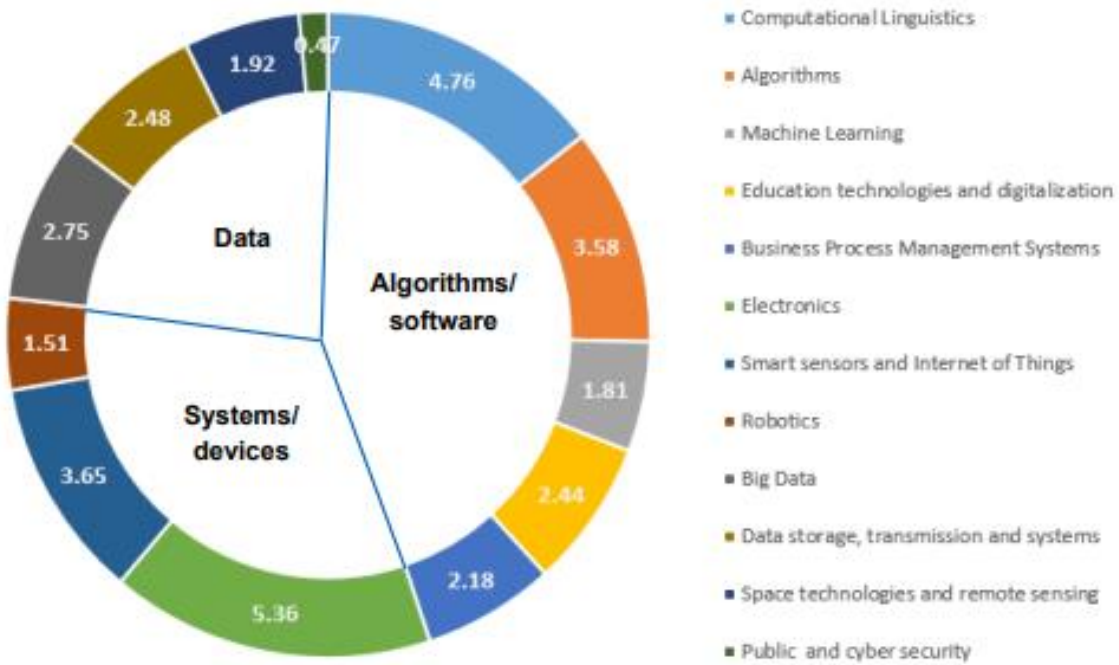


National programmes and initiatives

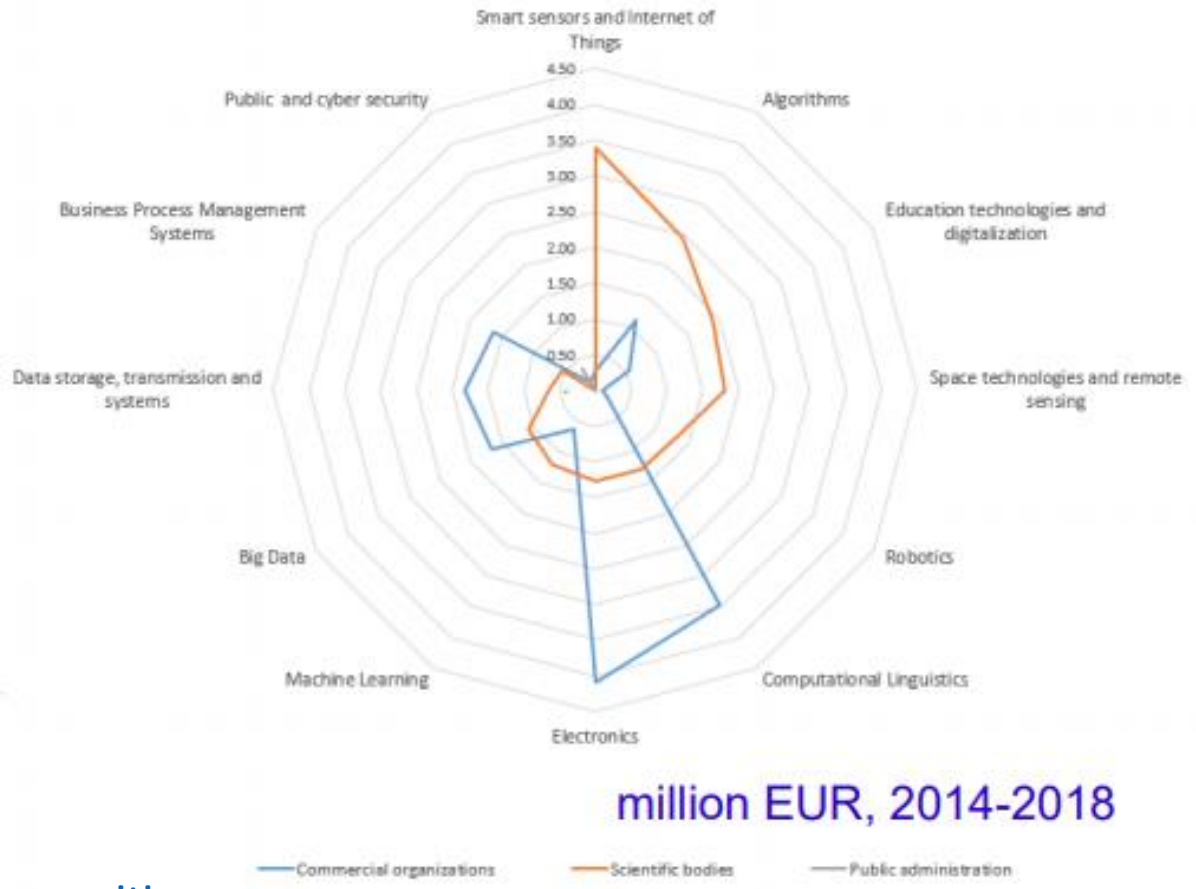
researchLatvia
Value Through Knowledge

LANGUAGE TECHNOLOGIES IN ICT

Funding for R&D projects in RIS3 ICT thematic areas, scientific and commercial institutions



million EUR, 2014-2018



million EUR, 2014-2018

[Mārtiņš Aleksandrs Blūms. Language technologies in the digital humanities ecosystem https://www.clarin.lv/attachments/IZMprez%200503-clarin_fin.pdf]

Actual policy planning documents

- **State Language Policy Guidelines for 2021-2027** lists several activities related to the creation and further development of Latvian language resources and tools. Since 2022 the guidelines are being implemented through the three-year State Research Programme “Letonica – Fostering a Latvian and European Society”.
- **Digital Transformation Guidelines for 2021-2027** include actions to enable Latvian citizens to access European Digital Space in their native language and to support development of the most important language resources for sustainable and wide use in digital services.
- **Report on National AI strategy on Developing Artificial Intelligence Solutions** lists several directions of action related to the development of AI-based language technologies, such as machine translation, speech technologies, inclusive technologies and terminology databases.

Language technologies in the **Recovery and sustainability plan**

- Development and implementation of high-level skills in three areas: **language technology** (5M EUR), quantum computing, and HPC
- Establishment of **Excellence Centre for Language Technology** to prepare curriculum for LT teaching, to advance language resources and create platforms and tools for studying and experimentation, and to conduct research involving young researchers
- The main research activities:
  - development of language resources for speech and text processing,
  - advancement of large pre-trained language models,
  - advancement of state-of-the-art speech technologies and machine translation,
  - development of software platforms and a shared technical infrastructure for education and research.

National initiatives and projects

Competence Centre Programmes

- In 2011, major IT companies and research institutions have established the IT Competence Centre (ITCC) **to create innovative language technology solutions**

- More than **10 projects** have been supported through the ITCC programme:

  - Creation of the first orthographically and phonetically transcribed Latvian speech corpus, followed by several projects on speech recognition
  - Several projects addressed machine translation
  - Others were devoted to intelligent human-computer interaction
  - As well as semantic parsing for media monitoring

ERAF
EIROPAS REĢIONĀLĀS ATTĪSTĪBAS FONDS

KOMPETENCES CENTRS

Industry-Driven Research Programme

Five large-scale research and development projects have been supported through an industry-driven research programme (European Regional Development Fund):

- development of language resources and tools for natural language understanding and generation
- development of neural network solutions for less resourced languages, multilingual affective human-computer interaction
- application of speech technologies for multilingual meeting management, and the transcription of medical speech
- development of Latvian speech recognition and synthesis for medical applications

NATIONAL DEVELOPMENT PLAN 2020

EUROPEAN UNION
European Regional Development Fund

INVESTING IN YOUR FUTURE

Latvian Council of Science

- State Research Programme, project **Digital Resources for Humanities** (2020-2022) has developed integrated language resources and tools for Digital Humanities

- State Research Programme, project **Research on Modern Latvian Language and Development of Language Technology** (2022-2024) aims to advance research on the grammatical, lexical-semantic, phonetic and phonological systems of modern Latvian and the Latvian sign language, using data-driven methods

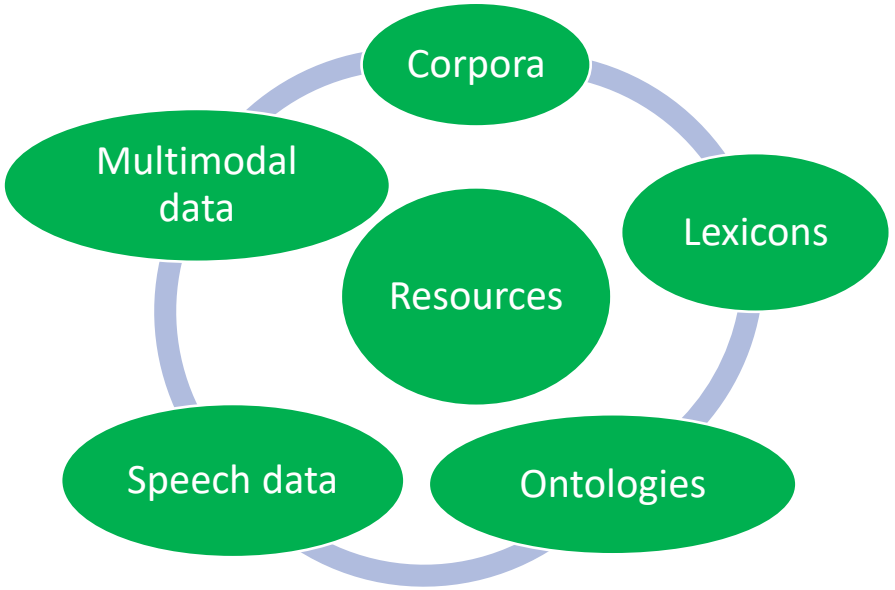
- Since 2018, several projects have been also supported by the Latvian Council of Science, including:
  - the development of Latvian Learner Corpus
  - creation of a pilot Latvian WordNet and means for neural word-sense disambiguation
  - research on natural language understanding and generation for human-computer interaction

International projects and cooperation

During the last decade, the Latvian language technologies have been part of research, innovation and deployment actions in several FP7, Horizon 2020 and CEF projects on automated translation, speech technologies, human-centred AI, etc.

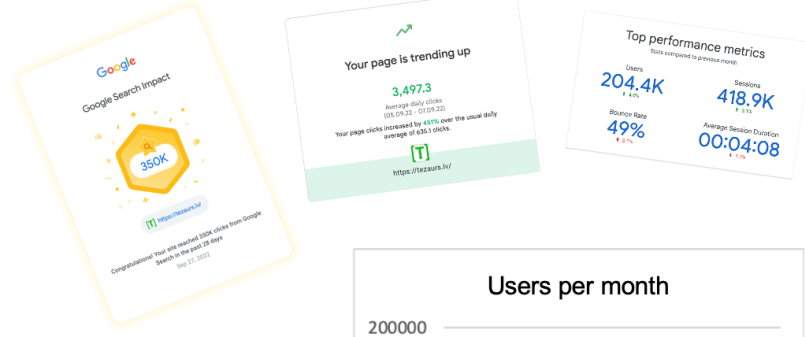
EUROPEAN LANGUAGE EQUALITY

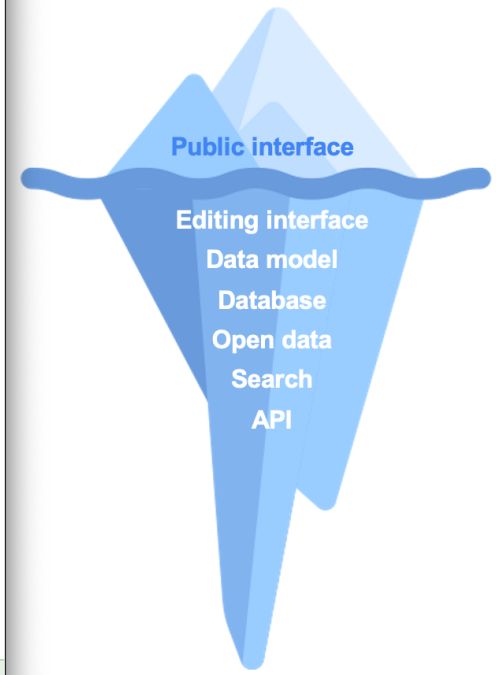
EUROPEAN LANGUAGE GRID

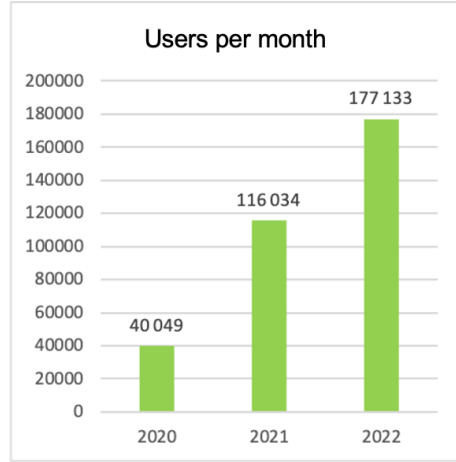


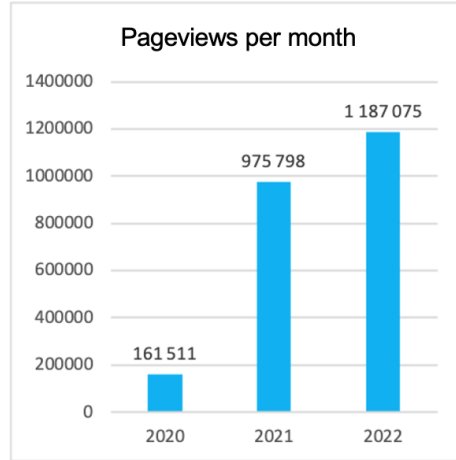
Lexical, text and speech resources

The Tēzaurs.lv platform

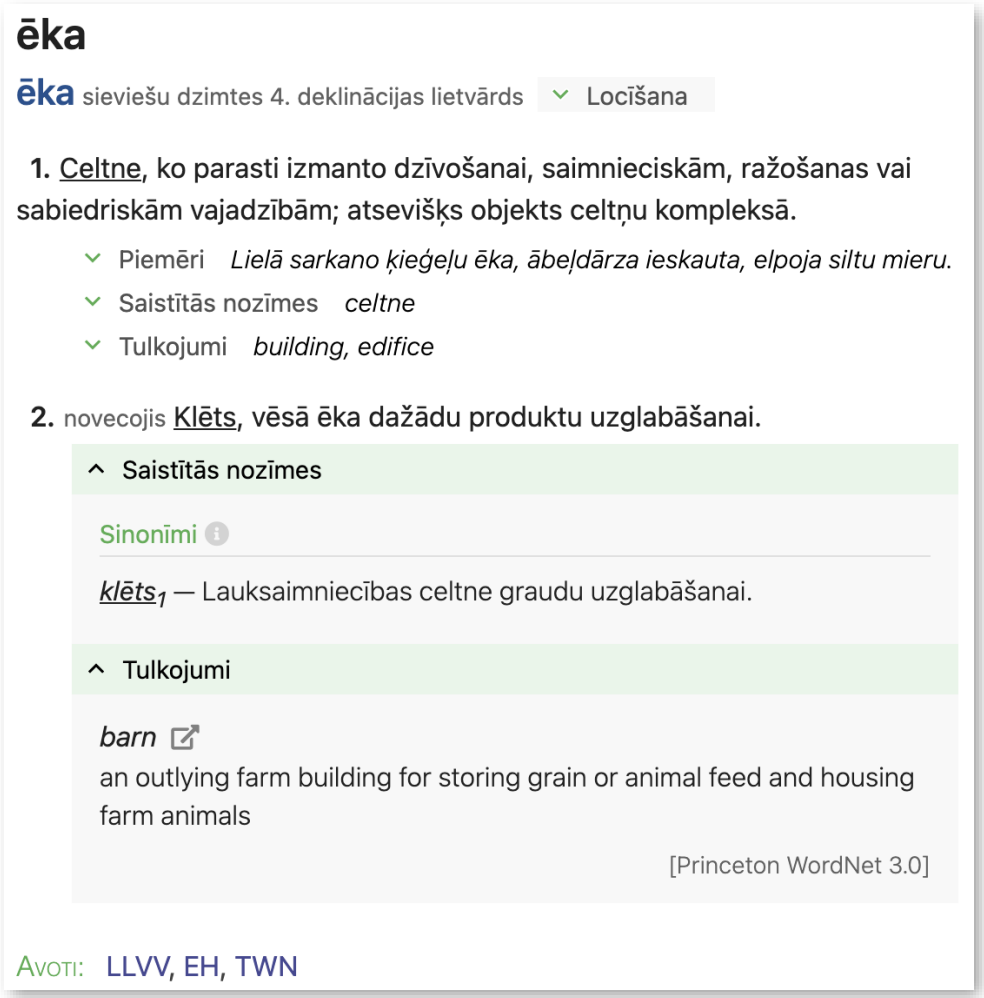








Latvian WordNet



ēka

ēka sieviešu dzimtes 4. deklinācijas lietvārds ⌄ Locīšana

1. Celtne, ko parasti izmanto dzīvošanai, saimnieciskām, ražošanas vai sabiedriskām vajadzībām; atsevišķs objekts celtņu kompleksā.

- ⌄ Piemēri *Lielā sarkano ķieģeļu ēka, ābeļdārza ieskauta, elpoja siltu mieru.*
- ⌄ Saistītās nozīmes *celtne*
- ⌄ Tulkojumi *building, edifice*

2. novecojis Klēts, vēsā ēka dažādu produktu uzglabāšanai.

⌃ Saistītās nozīmes

Sinonīmi

klēts$_1$ — Lauksaimniecības celtne graudu uzglabāšanai.

⌃ Tulkojumi

barn

an outlying farm building for storing grain or animal feed and housing farm animals

[Princeton WordNet 3.0]

Avoti: LLVV, EH, TWN

Spektors, A., Auziņa, I., Darģis, R., Grūzītis, N., Paikens, P., Pretkalniņa, L., Rituma, L., Saulīte, B. Tēzaurs.lv: the largest open lexical database for Latvian. Proceedings of the 10th International Conference on Language Resources and Evaluation (LREC), 2016; https://tezaurs.lv

Lokmane, I., Rituma, L., Stāde, M., Klints, A. Latvian WordNet and Word Sense Disambiguation: Challenges and Findings. Proceedings of the 7th International Conference on Electronic Lexicography (eLex), 2021; https://wordnet.ailab.lv

natural-language understanding

No Visas valodas

Uz Visas valodas

Nozare Visas nozares

Rādīt detalizēti

Atrasts 1 rezultāts pieprasījumam "natural-language understanding"

EN **natural-language understanding**

EN **natural-language comprehension**

LV **dabiskās valodas saprašana**

LZA TK ITTEA protokoli

149 līdzīgi termini

EN **natural language**

EN **understanding**

EN **controlled natural language**

EN **natural language generation**

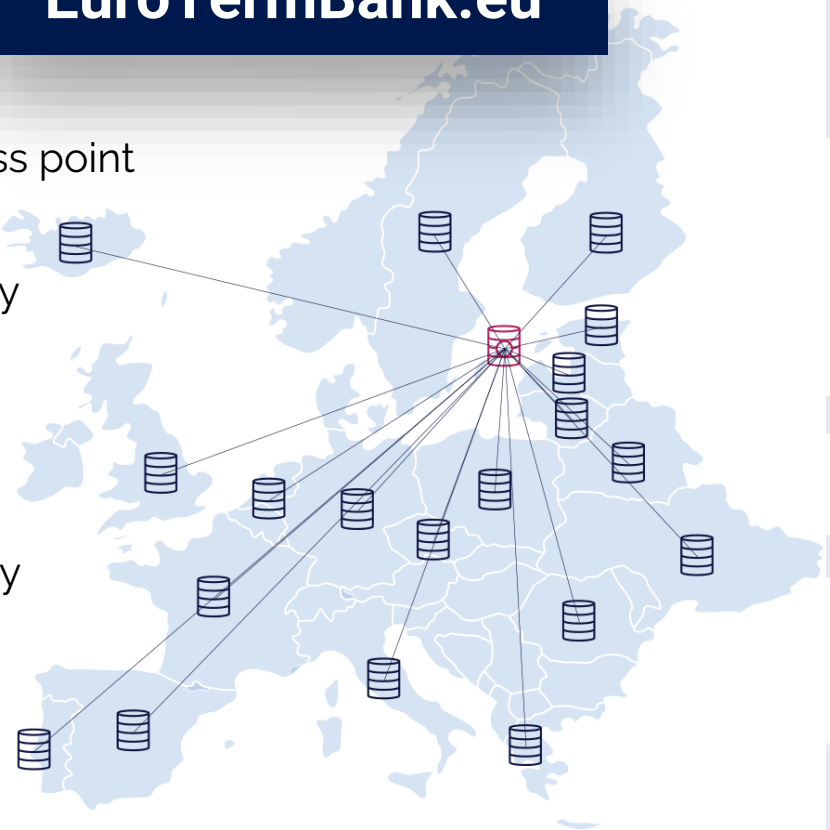
EN **quasi-natural language**

eurotermbank
FEDERATED NETWORK

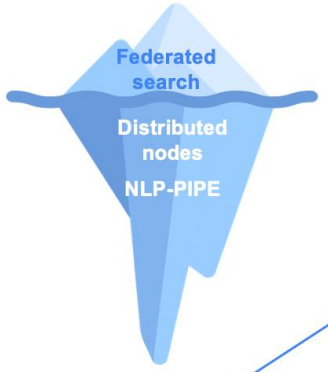
EuroTermBank

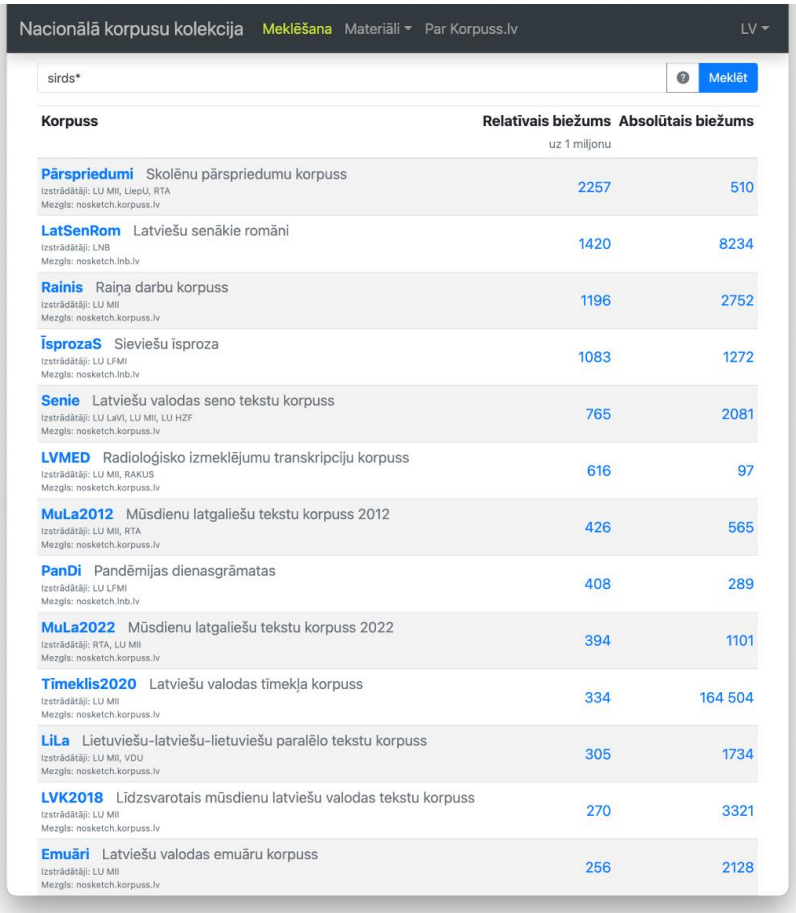
EuroTermBank.eu

- eurotermbank.com - single access point for terminology search
- Interlinked with other terminology banks and resources
- Aligning methodologies and standards
- Freely available under community license
- 680 collections in 45 languages, 3.9m entries, 14.5m terms

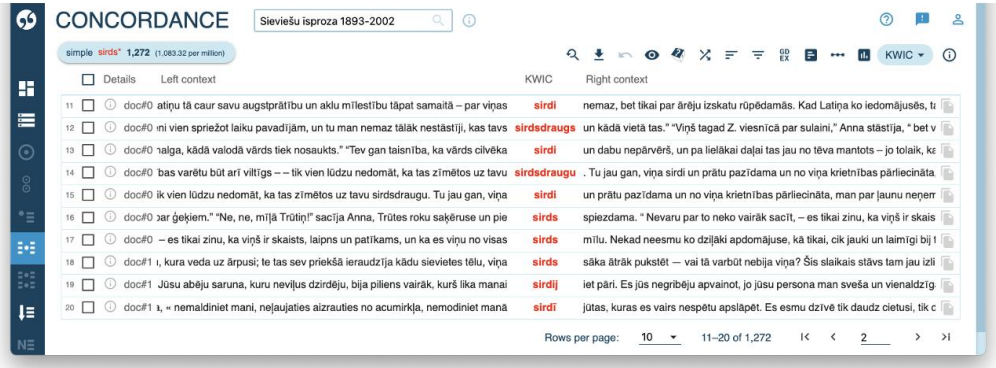


The Korpuss.lv platform

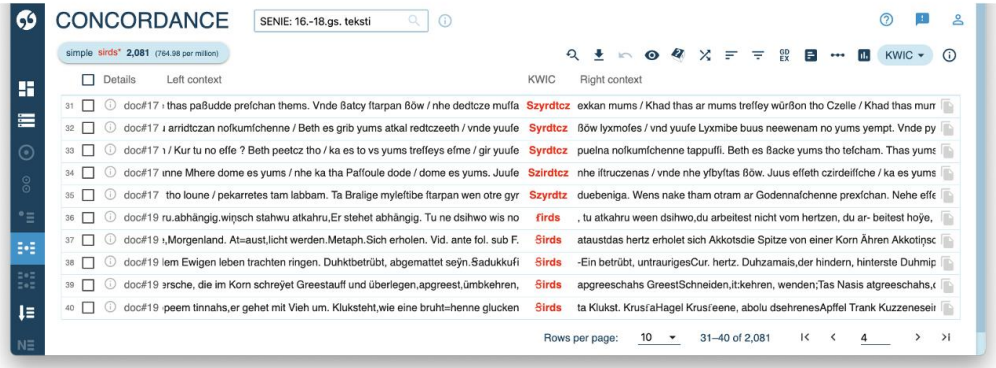




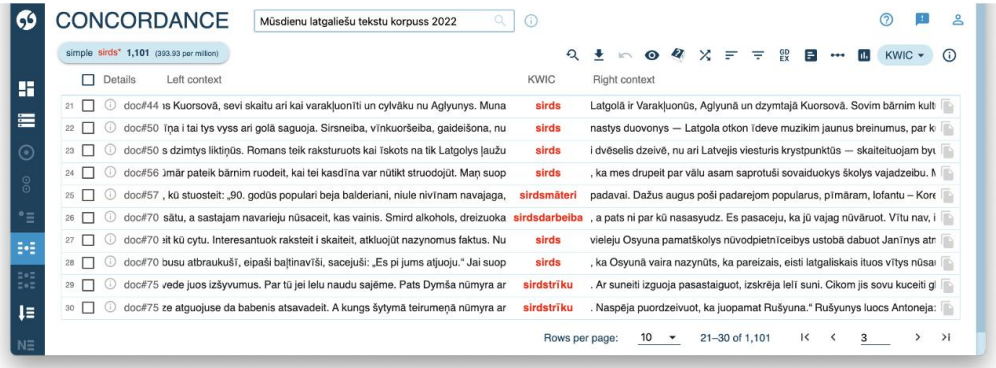
Developer: LU LFMI
Node: nosketch.lnb.lv



Developer: LU LaVI, LU MII, LU HZF
Node: nosketch.korpuss.lv



Developer: RTA, LU MII
Node: nosketch.korpuss.lv



20+ corpora, 10+ institutions, 3+ nodes

NLP-PIPE: Latvian NLP Pipeline as a Service

Used by: Korpuss.lv, National Library of Latvia, News agency LETA, IT students, etc.

Select a sample text

2022. gada 6.-7. oktobrī Rīgā norisinās Baltijas Valodu tehnoloģiju konference, ko rīko LU, LU MII un Tilde, pastāstīja programmkomitejas vadītāja Inguna Skadiņa.

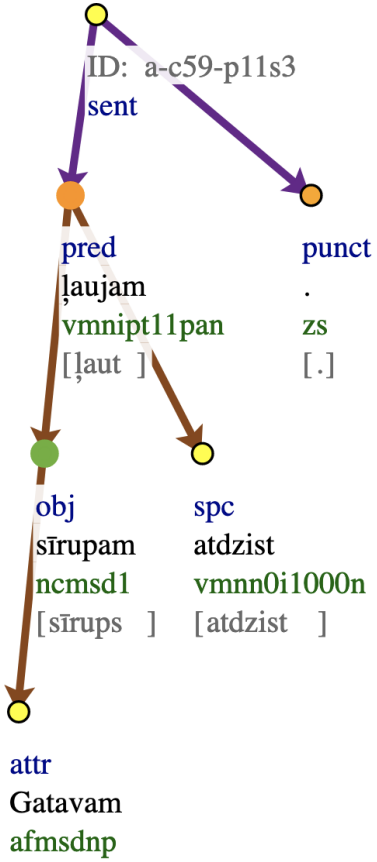
Go | tokenizer × | ner × | morpho × | parser × | Visual | CoNLL | JSON

2022. gada 6.- 7. oktobrī time Rīgā GPE norisinās Baltijas Valodu tehnoloģiju konference event , ko rīko LU organization , LU MII organization un Tilde organization , pastāstīja programmkomitejas vadītāja Inguna Skadiņa person .

INDEX	FORM	LEMMA	UPOSTAG	XPOSTAG	FEATS	HEAD	DEPREL
#text=2022. gada 6.- 7. oktobrī Rīgā norisinās Baltijas Valodu tehnoloģiju konference , ko rīko LU , LU MII un Tilde , pastāstīja programmkomitejas vadītāja Inguna Skadiņa .							
1	2022.	2022.	ADJ	xo	NumType=Ord	2	amod
2	gada	gads	NOUN	ncmsg1	Case=GenlGe	3	nmod
3	6.-	6.-	NUM	xn	NumType=Car	5	amod
4	7.	7.	ADJ	xo	NumType=Ord	5	amod
5	oktobrī	oktobris	NOUN	ncmsl2	Case=LoclGen	7	obl
6	Rīgā	Rīga	PROPN	npfsl4	Case=LoclGen	7	obl
7	norisinās	norisināties	VERB	vmyip_330an	Evident=FhlMc	22	ccomp
8	Baltijas	Baltija	PROPN	npfsg4	Case=GenlGe	9	nmod
9	Valodu	valoda	NOUN	ncfpg4	Case=GenlGe	10	nmod
10	tehnoloģiju	tehnoloģija	NOUN	ncfpg4	Case=GenlGe	11	nmod
11	konference	konference	NOUN	ncfsn5	Case=NomlGe	7	nsubj
12	,	,	PUNCT	zc	_	14	punct
13	ko	kas	PRON	pr000an	Case=AcclPro	14	obj
14	rīko	rīkot	VERB	vmnipt230an	Evident=FhlMc	11	acl
15	LU	LU	PROPN	yp	Abbr=Yes	14	nsubj
16	,	,	PUNCT	zc	_	17	punct
17	LU	LU	PROPN	yp	Abbr=Yes	15	conj
18	MII	mii	X	y	Abbr=Yes	17	iobj
19	un	un	CCONJ	cc	_	20	cc
20	Tilde	tilde	NOUN	ncfsn5	Case=NomlGe	18	conj
21	,	,	PUNCT	zc	_	7	punct
22	pastāstīja	pastāstīt	VERB	vmnist330an	Evident=FhlMc	0	root
23	programmkomitejas	programmkomiteja	NOUN	ncfsg4	Case=GenlGe	24	nmod
24	vadītāja	vadītāja	NOUN	ncfsn4	Case=NomlGe	26	nmod
25	Inguna	Inguns	PROPN	npmsg1	Case=GenlGe	26	nmod
26	Skadiņa	Skadiņa	NOUN	ncfsn4	Case=NomlGe	22	nsubj
27	.	.	PUNCT	zs	_	22	punct

http://nlp.ailab.lv

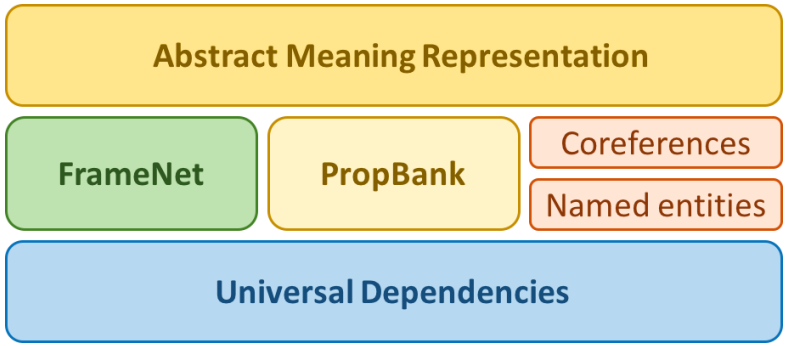
Latvian Treebank & Latvian UD Treebank

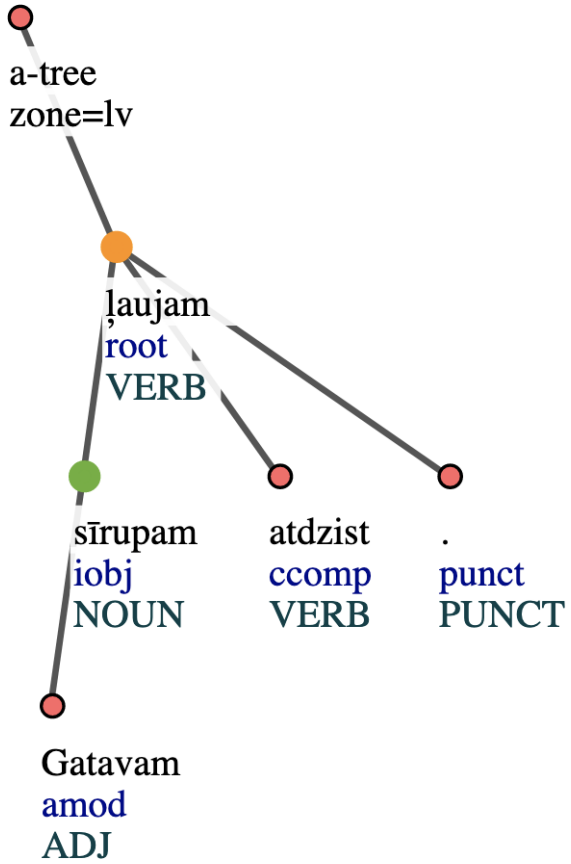


PML Tree Query: https://lindat.mff.cuni.cz/services/pmltq/
(incl. LVTB & UDLV; UDLT)

```
a-node [
  role="obj"
    and m/tag~"n...d.",
  parent
    a-node [m/tag~"vm.*"]];
```

```
a-node [
  deprel="iobj"
    and tag="NOUN",
  parent
    a-node [tag="VERB"]];
```





Grūzītis, N., Pretkalniņa, L., Saulīte, B., Rituma, L., Nešpore-Bērzkalne, G., Znotiņš, A., Paikens, P. Creation of a balanced state-of-the-art multilayer corpus for NLU. Proceedings of the 11th LREC Conference, 2018

Latvian FrameNet

http://framenet.korpuss.lv

570 BFN frames
2900 lexical units (5.1 per frame)
25897 annotation sets (8.9 per LU)

Semantiskie freimi | Leksiskās vienības | Korpusa piemēri | Atsauces | Latvian FrameNet

palīdzēt.VERB (Assistance)

Visi leksiskās vienības lietojuma piemēri: 83

Freima elementi, to biežums un gramatiskā realizācija:

Freima elementi	Piemēri	Realizācija
Benefited_party	45	iobj NOUN (23) iobj PRON (17) iobj PROPN (2) iobj NUM (1) iobj VERB (1) ccomp VERB (1)
Focal_entity	4	obl NOUN (3) iobj NOUN (1)
Goal	56	ccomp VERB (53) iobj VERB (1) acl VERB (1) dep VERB (1)
Helper	64	nsubj NOUN (21) nsubj PRON (33) nsubj PROPN (5) nsubj X (2) obj NOUN (1) nsubj:pass PRON (1) nsubj VERB (1)
Time	1	obl PRON (1)

X [a-p1039-p3s5] Varbūt tas ir vairāk ārēji - vainadziņi , svecītes , bet gaišums noteikti PALĪDZ arī iekšēji cilvēkiem justies labāk .

X [a-p159-p33s2] Kad viņš atgriezās uz dzīvi šeit , daudz ziedoja dažādiem projektiem - lāpīja jumtus , PALĪDZĒJA skolām iegādāties datorus un grāmatas .

X [a-p1604-p2s2] Ģimenes , kurām PALĪDZĒT , tika izvēlētas , sadarbojoties ar Sociālo lietu pārvaldi un Izglītības pārvaldi .

X [a-p2379-p9s2] Viņa informēja , ka Latvijā patlaban ir recepšu medikaments « Champix » , kas efektīgi PALĪDZ smēķētājam atmest kaitīgo ieradumu .

X [a-p3129-p19s1] PALĪDZIET savam mazulim izvēlēties mīļāko grāmatu par dzīvniekiem .

X [a-p3344-p6s5] Bet manā uztverē apkalpojošā sfērā strādājošajiem ir JĀPALĪDZ cilvēkiem !

X [a-p3315-p3s12] Ar māsu mums ir labas attiecības , viņai ir divas lielas meitas , mēs PALĪDZAM viena otrai .

X [a-p2098-p7s2] Valdošā Afrikāņu Nacionālā Kongresa vēlēšanu manifestā Zuma solīja darīt vairāk , lai PALĪDZĒTU viņiem .

X [a-p14546-p4s1] Paredzēts , ka viņš PALĪDZĒS pacientiem , kas sirgst ar Alcheimera slimību un citām vecuma plānprātības formām .

X [a-p1297-p4s10] Jēkabam izdzīvot PALĪDZĒJIS tas , ka vienmēr pratis ievērot mērenību , arī ēšanā .

Assistance

Definition:

A Helper benefits a Benefited_party by enabling the culmination of a Goal that the Benefited_party has. A Focal_entity that is involved in reaching the Goal may stand in for it.

FEs:

Core:

Benefited_party	The Benefited_party receives a benefit from the action of the Helper.
Focal_entity	This FE identifies a Focal_entity involved in achieving the Goal.
Goal [Goal]	The desirable state of affairs that the Benefited_party is involved in and which is enabled by the Helper.
Helper	The Helper performs some action that benefits the Benefited_party.

Frame-frame Relations:

Inherits from: Intentionally_act
Is Inherited by: Supporting

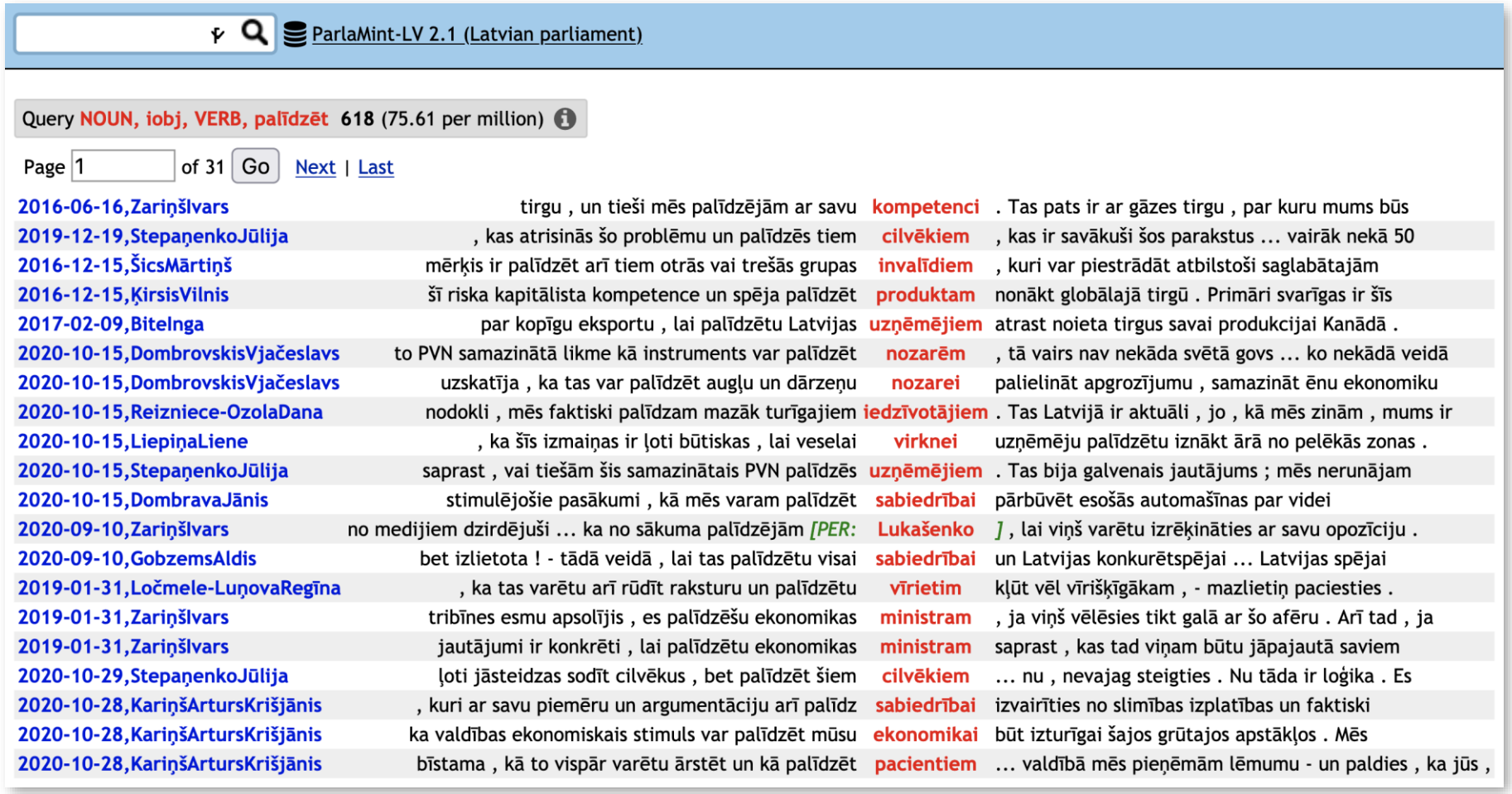
Grūzītis, N., Nešpore-Bērzkalne, G., Saulīte, B. Creation of Latvian FrameNet based on Universal Dependencies. Proceedings of the International FrameNet Workshop, 2018

Parallel corpora

European Language Resource Coordination
Connecting Europe Facility
ELRC-SHARE

https://elrc-share.eu/repository/search/?q=&selected_facets=languageNameFilter_exact%3ALatvian&selected_facets=multilingualityTypeFilter_exact%3AParallel

ParlaMint: UD-annotated comparable corpora



CQL query:

```
[pos="NOUN"
 & dep="iobj"
 & dep_head_pos="VERB"
 & dep_head_lemma=
            "palīdzēt"]
```


Erjavec, T., Ogrodniczuk, M., …, Darģis, R., …, Krilavičius, T., et al. ParlaMint: Comparable Corpora of European Parliamentary Data. Proceedings of the CLARIN Annual Conference, 2021

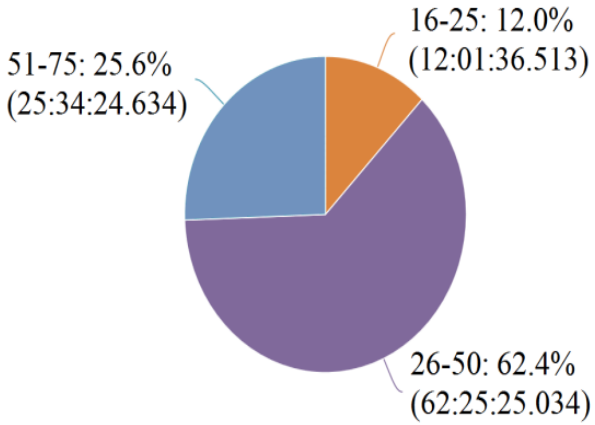
https://www.clarin.eu/content/parlamint-towards-comparable-parliamentary-corpora

CLARIN.SI

NoSketch Engine

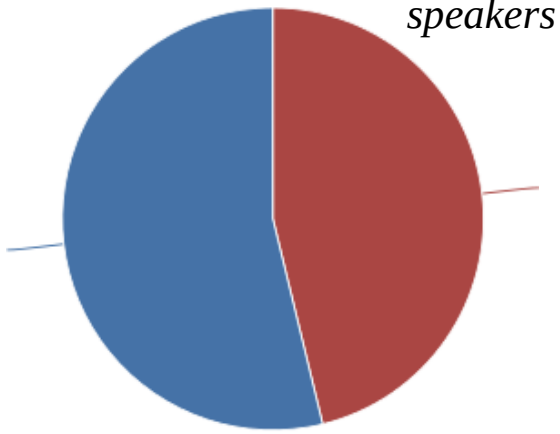
Latvian speech corpus

The **first** Latvian speech corpus (2013) is designed specifically for speech recognition purposes. Contains an orthographically (100h) and phonetically (4h) annotated data.



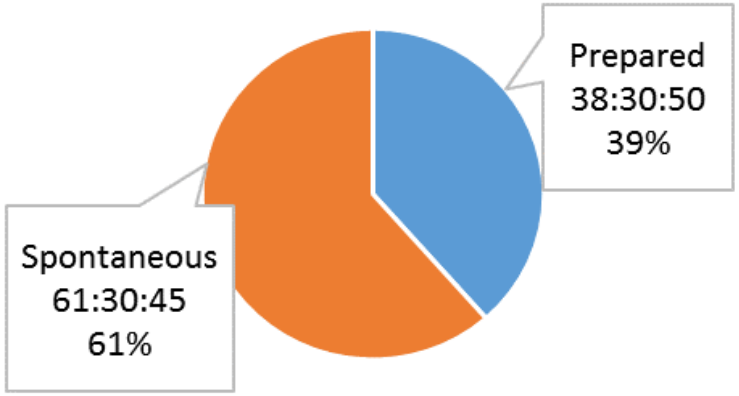
Data distribution with respect to the age of speakers

Data distribution with respect to the gender of speakers



Women: 46.2%
(46:12:12.277)

Men: 53.8%
(53:49:13.904)



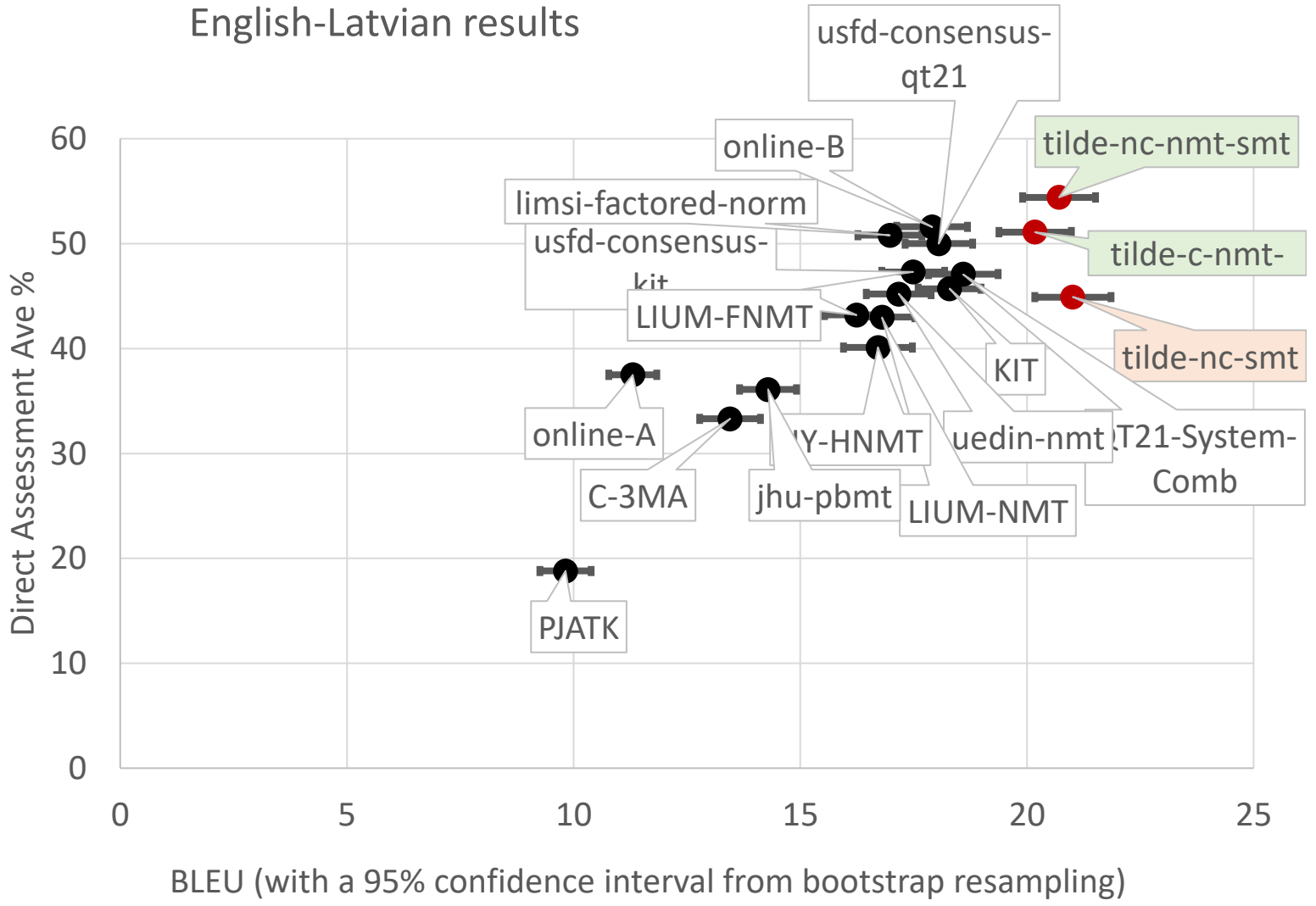
Duration of segmented recordings (hh:mm)

	Total dur of recordings	Word- and segment
Dial.	76:41	74:13
Monol.	12:51	9:05
Total	89:32	83:19

Machine Translation

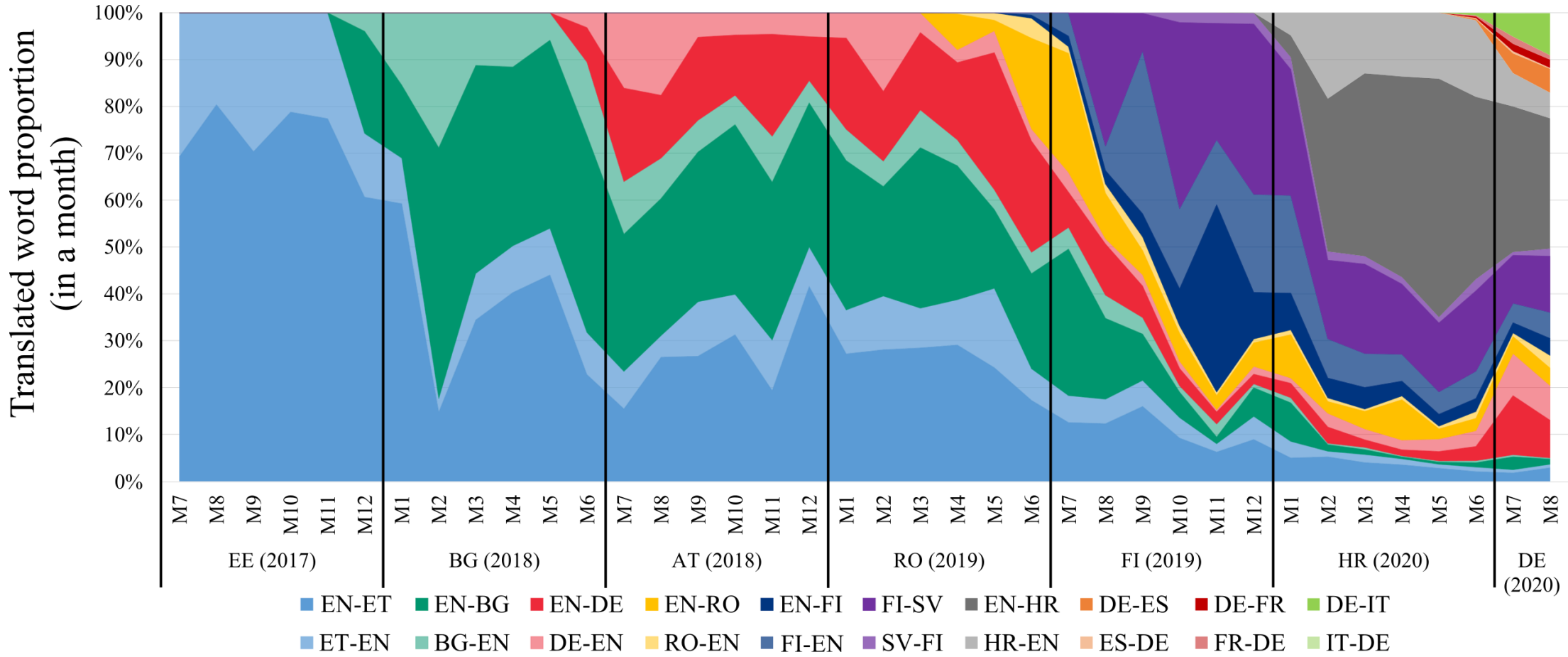
Latvian in WMT 2017

- In 2017, Latvian was included in the WMT shared task on news translation
- Tilde's NMT systems were the best-ranked systems that year
- Tilde's systems were also best-ranked for Estonian in 2018 and Lithuanian in 2019



EU Council Presidency Translator

- Tilde's EU Council Presidency Translator has served officials, translators, delegates, and visitors of 8 EU Council Presidencies since 2015.



What are the recent and current research topics of NMT for Latvian?

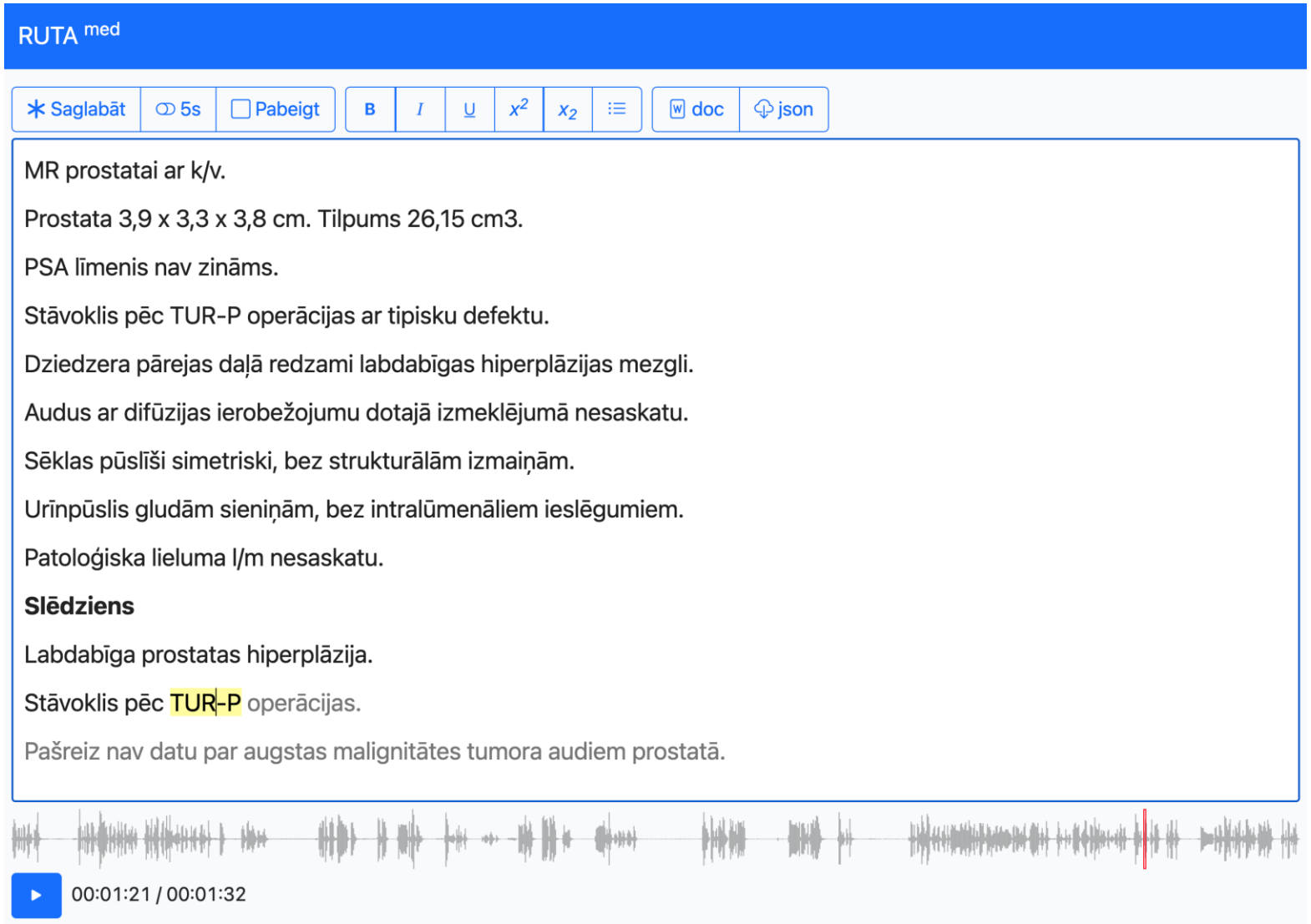
Some examples are:

- Terminology integration in NMT (Bergmanis and Pinnis, 2021a, 2021b)
- Analysis of biases in NMT systems (Stafanovičs et al., 2020)
- Robustness of NMT systems (Bergmanis et al., 2020)
- Speech translation (Alves et al., 2020)

Speech processing

Today speech recognition technologies can recognize about 80% of spoken text, if the quality of the audio recording is good enough, and could reach 94% accuracy in specialized applications.

RUTA:MED - automatic transcription of medical records



A prototype developed by IMCS at University of Latvia in cooperation with Riga East University Hospital

Being tested already by several hospitals and clinics

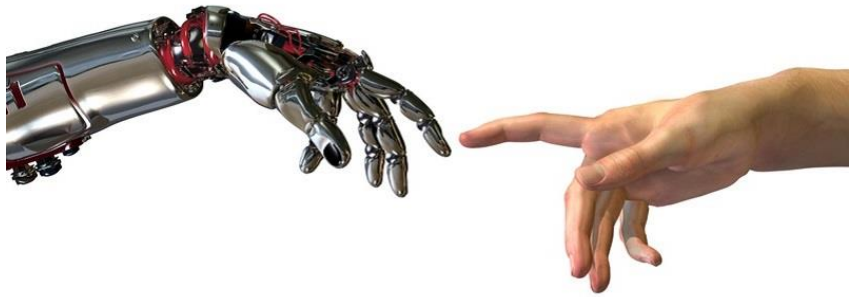
Znotiņš, A., Darģis, R., Grūzītis, N., Bārzdiņš, G., Goško, D. RUTA:MED – Dual Workflow Medical Speech Transcription Pipeline and Editor. In Proceedings of the 27th NLDB Conference, 2022

1.1.1.1/18/A/153

NATIONAL DEVELOPMENT PLAN 2020

EUROPEAN UNION
European Regional Development Fund

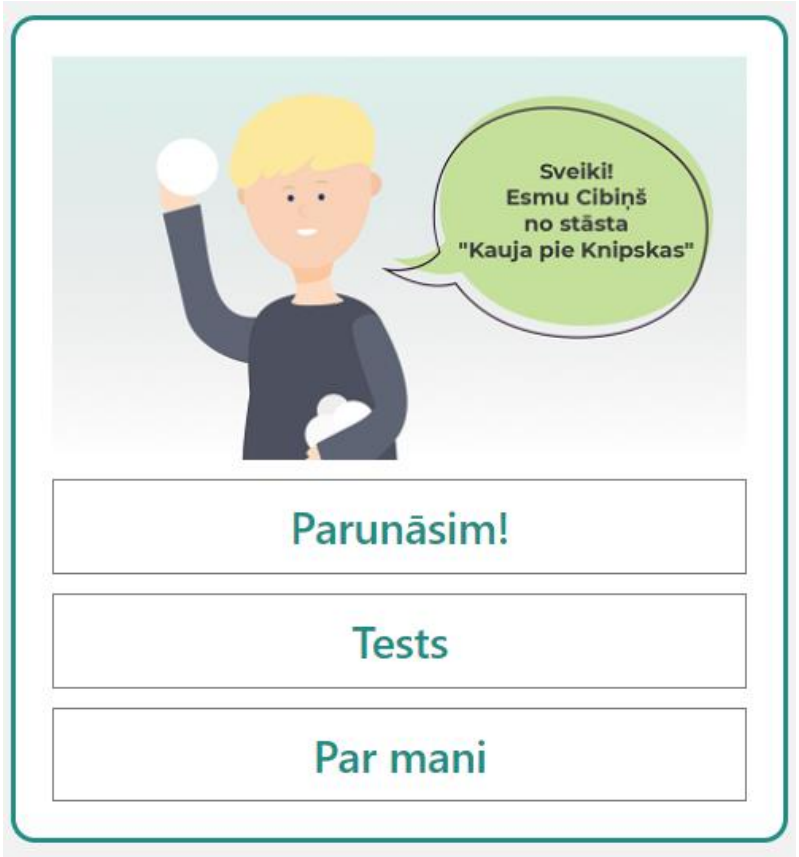
INVESTING IN YOUR FUTURE



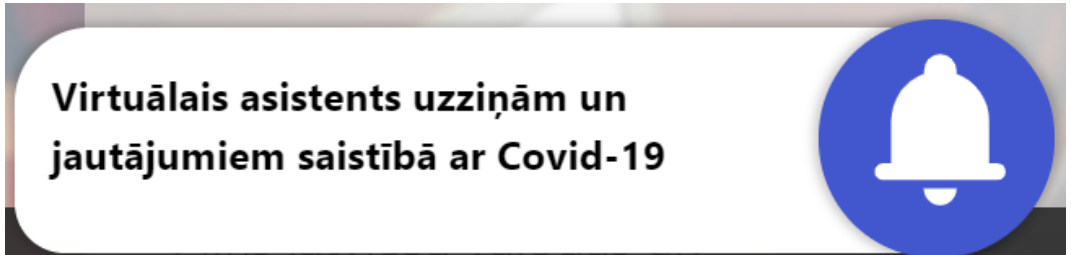
Human-computer interaction

Human-computer interaction

- Latvian-speaking virtual assistants “work” in several public administration institutions, including the Bank of Latvia, the State Revenue Service, the Latvian State Radio and Television Centre and many others.



- Virtual assistants are used in education, call centers and user support services



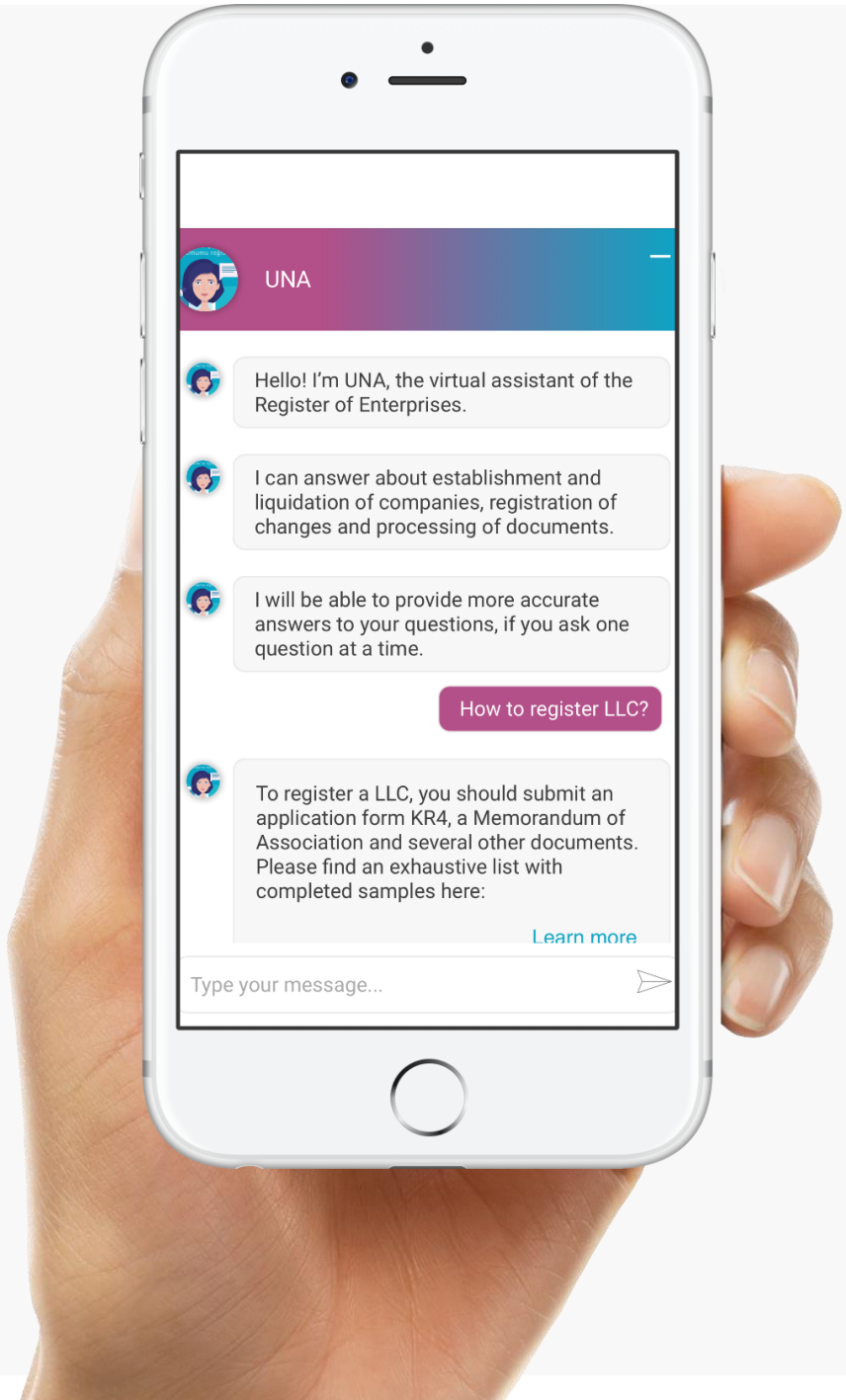
SHOWCASE
Virtual Assistant UNA

Solution: Automated Customer Support

- Helps by providing replies to frequently asked questions in **Latvian** and **English**
- Customer-oriented tool - available at any time and communicates in a clear business-like manner
- Has been trained to understand questions and respond in natural language

30% OF ALL CLIENT INQUARIES ARE SOLVED BY UNA

70 631 UNIQUE CLIENTS SINCE JUNE, 2018

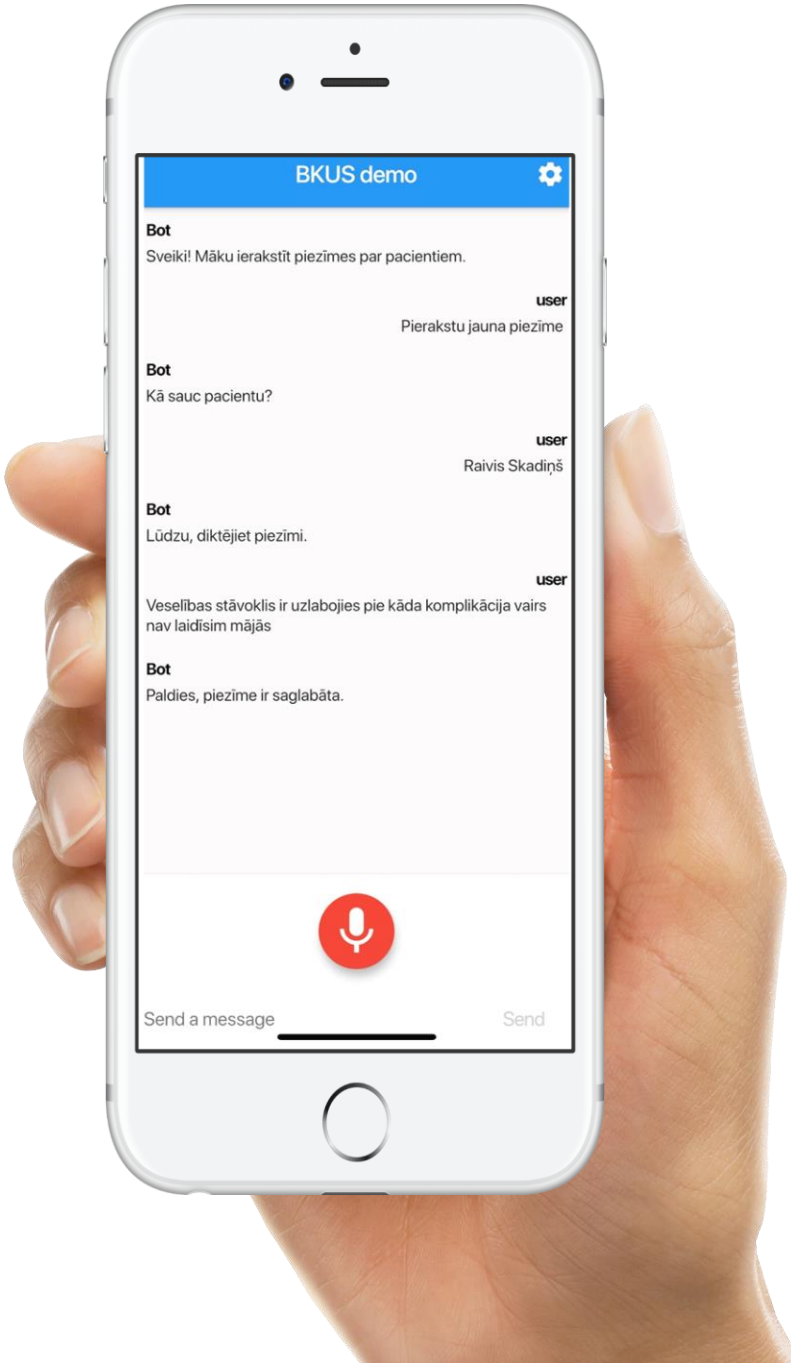


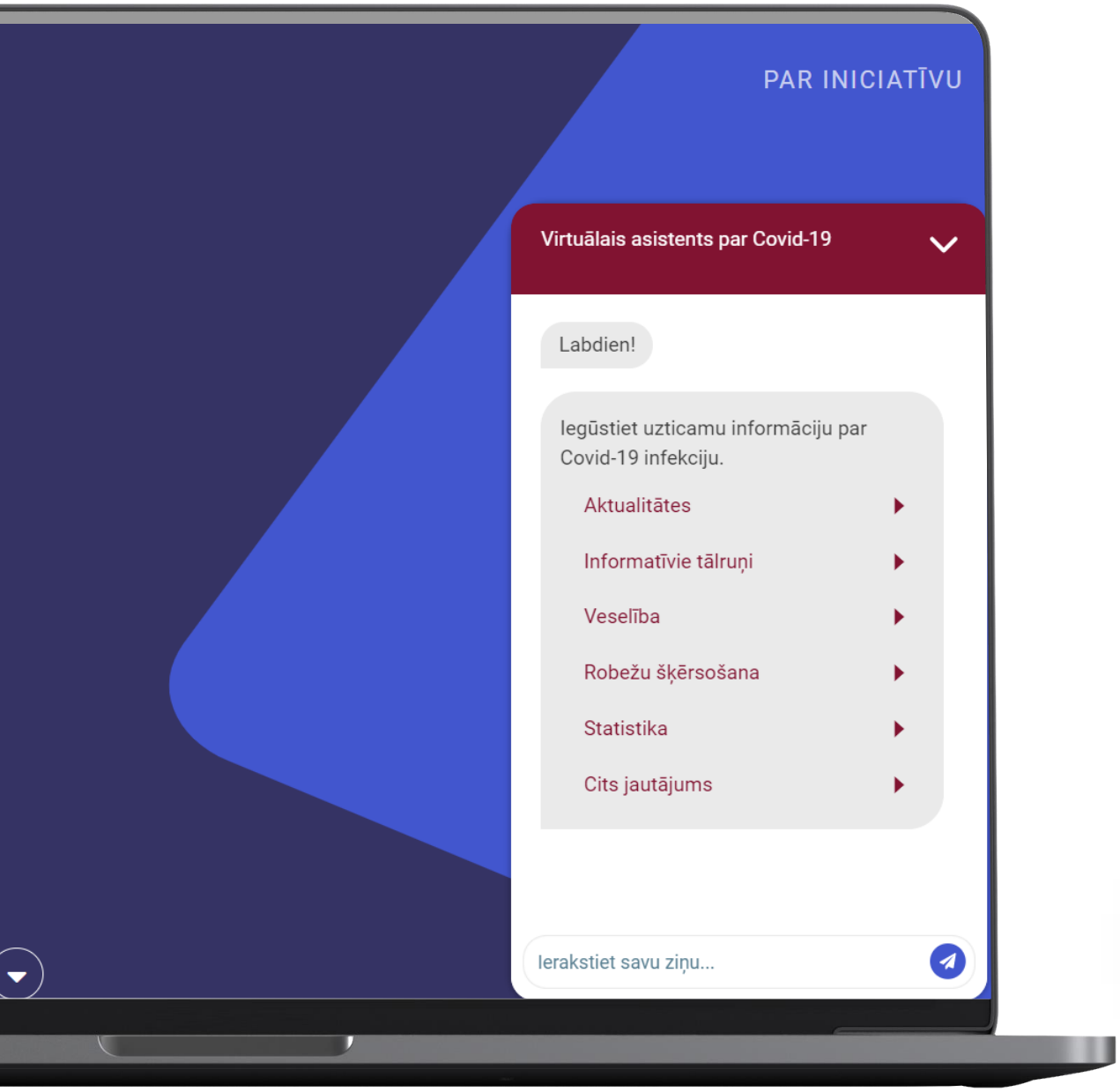
Use Case

Doctors' virtual assistant for Children Clinical University Hospital

Bērnu klīniskā universitātes slimnīca

COMPRISE





Covidbots.lv

AI enabled language technologies can help citizens in a global pandemic

15+ institutions and organisations deployed solution

Covidbot is deployed on the official websites of 13 municipalities and several NGOs .We have received positive feedback regarding bot as it has reduced the workload of staff responsible for communication and support, providing instant and trustworthy information to citizens' 24/7.

25 000 + users (and counting)

This prior experience of using chatbots as a communication channel with state and local institutions has had an impact on our Covidbot's popularity

Infrastructures

What's New

Corpus — CLARIN Centre Of Latvian Language Resources And Tools

Corpus of Legal Acts of the Republic of Latvia (Likumi)

Author(s):
Darģis, Roberts

Description:

The corpus contains all legal acts of the Republic of Latvia published on the website likumi. lv (until February 2022).

This item contains 1 file (335.26 MB).

Publicly Available

Corpus — CLARIN Centre Of Latvian Language Resources And Tools

Latvian Wikipedia

Author(s):
Darģis, Roberts

Description:

The corpus consists of all information published on Latvian Wikipedia until February 2022.

This item contains 1 file (108.92 MB).

Publicly Available

Corpus — CLARIN Centre Of Latvian Language Resources And Tools

LVTB - Latvian Treebank v2.10

Author(s):
Rituma, Laura ; Pretkalniņa, Lauma ; Saulīte, Baiba ; Nešpore-Bērzkalne, Gunta and Grūzītis, Normunds

Description:

Latvian Treebank (LVTB) is being developed since 2010. It is manually annotated according to a hybrid dependency-constituency grammar model. This version of LVTB contains data used for deriving the corresponding version ...

This item contains 2 files (38.34 KB).

Publicly Available

CLARIN-LV

CLARIN-LV: most viewed items (total)

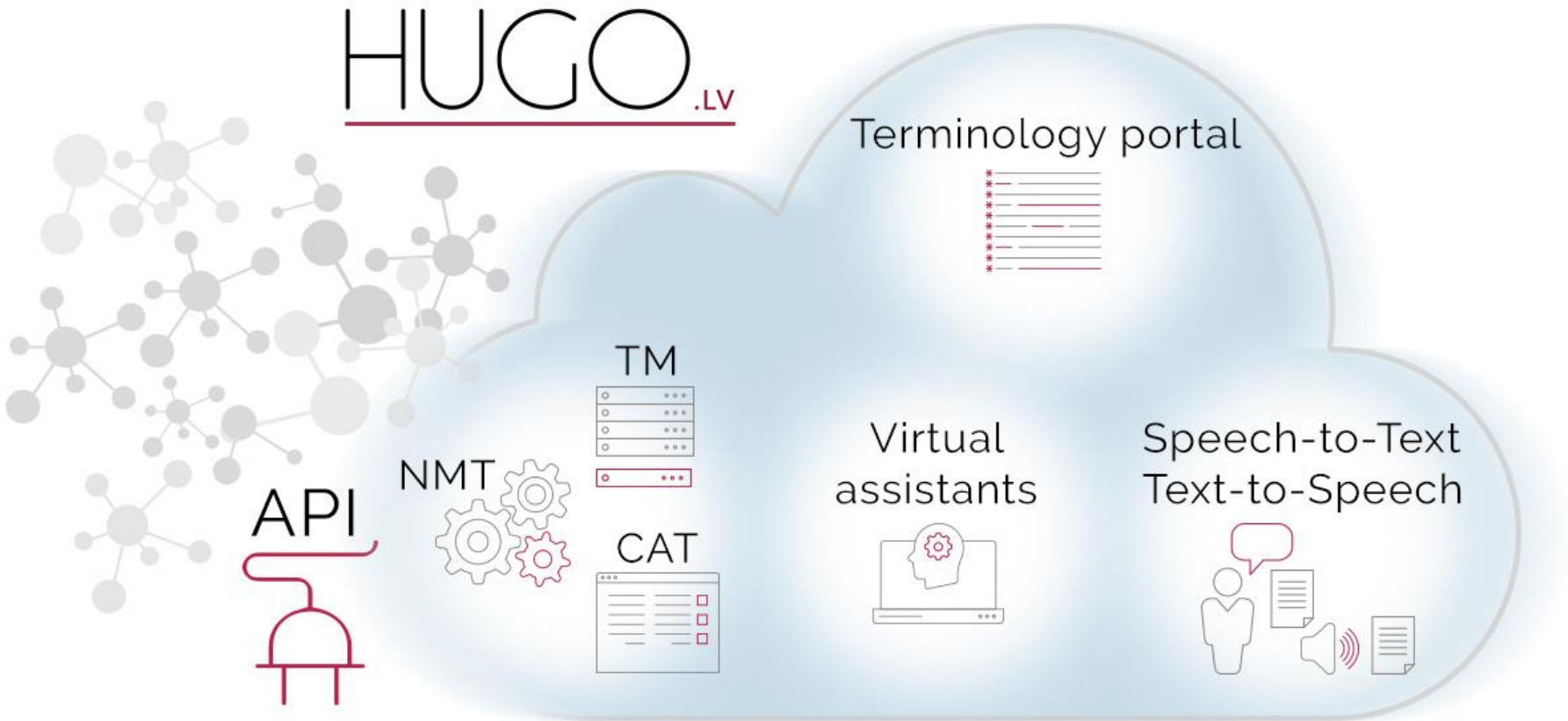
Items Viewed

(more than 20 times)

Item/Handle	Number of views
Tēzaurs.lv 2020 (Spektors, Andrejs et al) (20.500.12574/9)	2969 [+bots: 3151]
Latvian Treebank v2.5 (Rituma, Laura et al) (20.500.12574/10)	1894 [+bots: 2002]
Balanced Corpus of Modern Latvian (LVK2018) (Levāne-Petrova, Kristīne et al) (20.500.12574/11)	1759 [+bots: 1811]
NLP-PIPE: Latvian NLP Tool Pipeline (Znotiņš, Artūrs) (20.500.12574/4)	1597 [+bots: 1668]
Historical Dictionary of Latvian (Andronova, Everita et al) (20.500.12574/3)	1249 [+bots: 1293]
Latvian AMR Sembank (Znotiņš, Artūrs et al) (20.500.12574/40)	1244 [+bots: 1287]
Latgalian Corpus (MuLa) (Sperga, Ilze et al) (20.500.12574/8)	1226 [+bots: 1270]
Latvian Treebank v2.8 (Rituma, Laura et al) (20.500.12574/55)	1213 [+bots: 1238]
LVBERT - Latvian BERT (Znotiņš, Artūrs) (20.500.12574/43)	1195 [+bots: 1243]
Latvian Language of Science (Dubova, Agnese et al) (20.500.12574/30)	1188 [+bots: 1215]

Culture Information Systems Centre
Republic of Latvia

HUGO.LV – LANGUAGE TECHNOLOGY PORTAL FOR LATVIAN E-GOV



Hugo.lv | Factsheet

Tilde partnered with the Latvian public administration to create a language technology platform with MT, speech, and terminology management functionalities

- Platform provides i**ntegration** with governmental websites and information systems enabling **dynamic content translation**

- The next phase of the project will introduce a set of virtual assistants to **improve accessibility** to public services

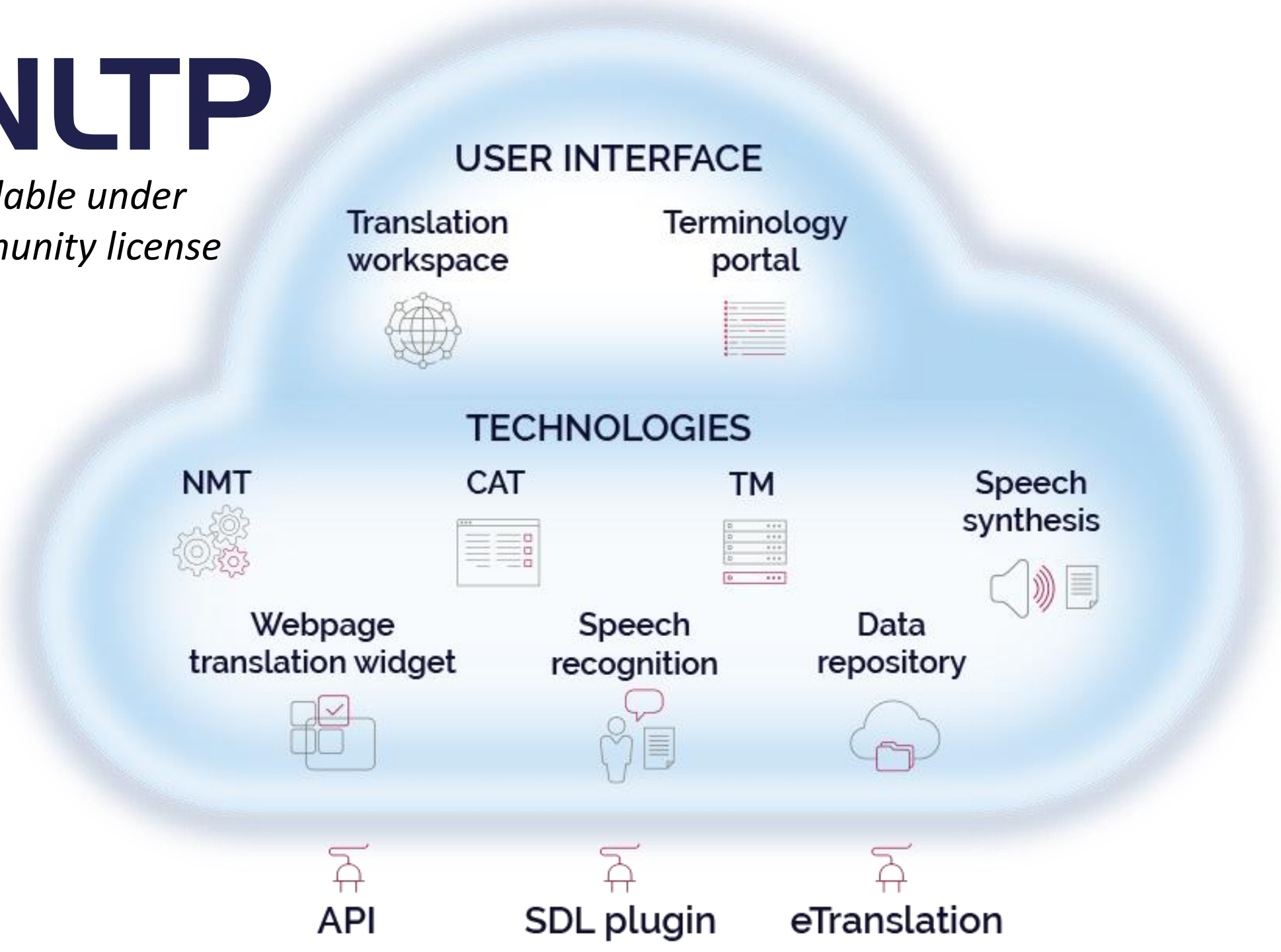
149 M **TRANSLATED WORDS USING MT**
in 6 months

8.1 M **RECOGNIZED WORDS**
in 6 months

5.4 M **SYNTHESISED WORDS**
in 6 months

NLTP

Freely available under open community license



Conclusions

- Although the Latvian language is used by a rather small number of speakers, and it is often categorised as less resourced, it is represented rather well not only by different language resources (digital libraries, text and speech corpora, lexicons, etc.) but also by core language technologies.
- Latvian has a reasonably good support for machine translation, speech recognition and synthesis, while solutions that involve deep state-of-the-art natural language understanding, like virtual assistants and text summarisers, are less developed.
- There are still significant gaps with respect to availability, size and technology readiness level (TRL) of language resources.
- There is insufficient amounts of quality corpora, including monolingual corpora, currently available for Latvian, as well as insufficient computational resources, for training large-scale SOTA language models.
- Limited availability of human resources leads to gaps and limitations also in language technology development.
- Gaps and fragmentation in research and development activities related to LT is a result of short, project-based research and development funding.
- Strong national and international support is necessary for further Latvian language research and development activities, including dedicated long-term LT programs that provide equal support for both research and industrial activities.

Thank you!

EUROPEAN
LANGUAGE
EQUALITY

CLARIN-LV

HUMANE AI

COMPRISE

VPP
Valsts pētījumu
programma

FLPP
FUNDAMENTĀLIE UN
LIETIŠĶIE PĒTĪJUMU
PROJEKTI

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