NextGenRnD® OÜ

The Entrepreneur's Guide to the Programme for Applied Research — Exploiting Patent Information to Boost Return on Investment from Research & Development Projects

NextGenRnD® Solution No. 6 – Analysis report
July 2024

Legal Disclaimer

NextGenRnD OÜ (hereinafter "**NextGenRnD**")
Anyone who uses information included herein (hereinafter "**Customer**")
Analysis report (hereinafter "**Solution**")

Unless otherwise noted, information included herein is presented as of the dates indicated. NextGenRnD makes no representation of warranty, expressed or implied, with respect to the accuracy, reasonableness, or completeness of any of the information contained herein, including, but not limited to, information obtained from third parties. Hyperlinks (underlined) to third-party websites in these materials are provided for reader convenience only.

The information contained herein is not intended to provide, and should not be relied upon for, accounting, legal or tax advice and does not constitute an investment recommendation or investment advice. Investors and entrepreneurs should make an independent investigation of the information contained herein, including consulting their tax, legal, accounting or other advisors about such information.

NextGenRnD shall not be liable for any direct, indirect or consequential damage (including loss of profit, loss of data, loss of goodwill or business reputation) of the Customer which may be incurred to the Customer in relation with the information included herein, *i.e.*, in relation with the Solution.

The right to use the Solution is limited to the Customer and is non-assignable, non-transferrable and non-divisible. The Customer is allowed to use the Solution for its intended purpose. This right entitles the Customer to copy, modify, and create derivative works of the Solution. The Customer is allowed to use the information contained in the Solution and/or practice any processes specified in the Solution for personal purposes.

Sub-licensing, transferring, marketing, leasing, publishing, selling, reselling, or distributing the purchased Solution or part(s) thereof is prohibited.

For the full Terms of Use please see: https://nextgenrnd.com/TermsOfUse/

Contents I

info@nextgenrnd.com

Contents II

Contents III

Contents IV

Contents V

Contents VI

Contents VII

Part I: The Programme for Applied Research, aka The RUP, Rounds I – VI (*Rakendusuuringute programm, voorud I – VI*)

The RUP and Estonian RDIE strategy 2021–2035

Estonian Business and Innovation Agency (*EASi ja KredExi ühendasutus;* ***Ettevõtluse ja Innovatsiooni Sihtasutus****,* EISA) runs The RUP (*Rakendusuuringute programm,* Programme for applied research), which directly supports the development of technologies defined in Estonian Research and Development, Innovation and Entrepreneurship, RDIE, strategy 2021–2035 document (*TAIE, Teadus- ja Arendustegevuse, Innovatsiooni ning Ettevõtluse arengukava 2021–2035*).

THE RDIE FOCUS AREAS (with entrepreneurial and economic development potential, *i.e.,* **the areas of smart specialisation**)
DIGITAL SOLUTIONS ACROSS ALL AREAS OF LIFE
HEALTH TECHNOLOGIES AND SERVICES
VALORISATION OF LOCAL RESOURCES
SMART AND SUSTAINABLE ENERGY SOLUTIONS

Areas of smart specialization and topics (non-exhaustive list provided by EISA) of R&D projects eligible for The RUP:

- Digital solutions across all areas of life: *e.g.*, artificial intelligence, development of machine learning algorithms, large language models, Internet of Things and cyber security;
- Health technologies and services: *e.g.*, digital medicine, drug development, personal medicine, e-health, medical devices, diagnostics, *etc.*;
- Valorisation of local resources: *e.g.*, food technologies, valorization of wood, subsoil resources, secondary raw materials and waste, and new material technological solutions;
- Smart and sustainable energy solutions: *e.g.*, efficiency of energy production and use and resource efficiency, climate-neutral energy production and renewable energy, flexibility and storage technologies and smart grids.

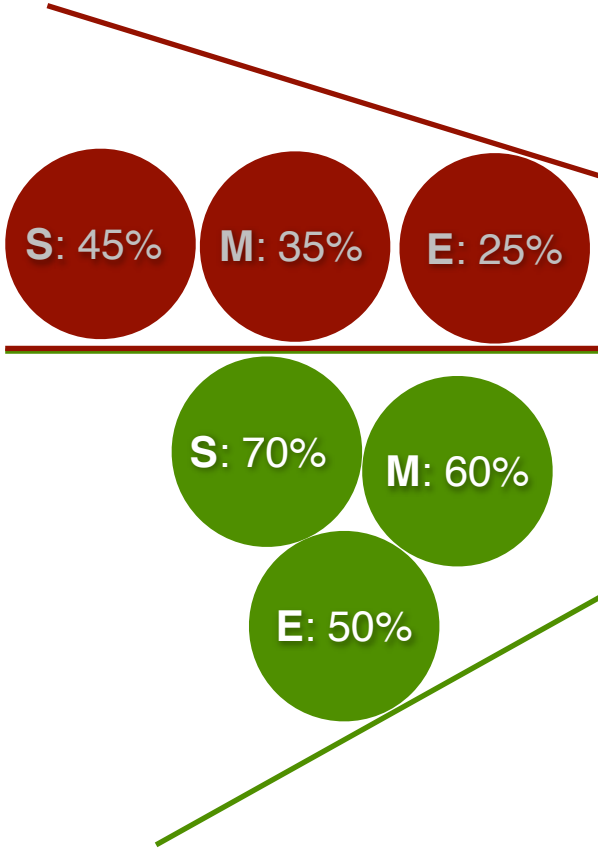
The RUP, RDIE strategy 2021–2035, and United Nations SDGs

Ideally, RUP R&D project should not only align with areas of smart specialization specifically defined in the RDIE strategy, but also should impact the achievement of the United Nations (UN) Sustainable Development Goals (SDGs). Explain in the proposal how your project addresses, achieves or impacts specific UN SDGs. According to RDIE Strategy 2035 and its Annexes, eight SDGs listed in the Table below contribute directly to the RDIE Strategy.

DIRECT RDIE CONTRIBUTION
SDG 4 (“Quality Education”) Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
SDG 7 (“Affordable and Clean Energy”) Ensure access to affordable, reliable, sustainable and modern energy for all
SDG 8 (“Decent Work and Economic Growth”) Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
SDG 9 (“Industry, Innovation and Infrastructure”) Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
SDG 11 (“Sustainable Cities and Communities”) Make cities and human settlements inclusive, safe, resilient and sustainable
SDG 12 (“Responsible Consumption and Production”) Ensure sustainable consumption and production patterns
SDG 13 (“Climate Action”) Take urgent action to combat climate change and its impacts
SDG 17 (“Partnerships for the Goals”) Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

The RUP support as a function of enterprise size and TRL achieved during project

The maximum RUP grant support (percentages in the circles below) can be obtained for **projects going from TRL 3 or TRL 4 to TRL 5** (Applied Research). However, the support also depends on the size of enterprise (**S**, small; **M**, medium; **E**, large). S: FTE < 50 & Turnover or Balance sheet total ≤ € 10 million; M: FTE < 250 & Turnover ≤ € 50 million or Balance sheet total ≤ € 43 million. **The enterprise must have enough money to cover the self-financing part of the project.**



R&D step	TRL	Description
Tech qualified through successful operations – Proof of Performance	9	Technology has proven successful in its mission operations (full commercial application)
Tech completed through test and demo	8	Technology completed and qualified through test and demonstration (first of the kind commercial system)
Prototype demo in operational environment	**7**	Integration and demonstration of industrial prototype system in the operational environment (demonstration system)
Prototype demo in relevant environment – Proof of Principle	**6**	Prototype system scale-up and demonstration of commercial-scale system in the intended environment
Tech validation in relevant environment	**5**	Testing and validation of discrete technology components' combination in the intended environment – synergy of technology components (prototype)
Tech validation in lab environment	**4**	Identification and validation of discrete technology components in the laboratory environment
Analytical & experimental Proof of Concept	**3**	Critical function of technology/application demonstrated through experimentation
Tech concept/application formulated	2	Technology concept/application development
Basic principles observed	1	Basic principles observed or postulated, no experimental proof or detailed analysis yet exists

Technology Readiness Level (TRL) scale is an industrially applied concept that outlines different R&D steps, which support the innovation and industrialization process of technologies to transform ideas to the market.

The self-financing part of The RUP – Entrepreneur's perspective (Blended Finance)

Currently, the maximum grant that can be awarded by EISA per project in The RUP is € 2 000 000.

The maximum RUP project total cost is € 8 000 000, € 5 714 286, and € 4 444 444 for large, medium, and small enterprises respectively if the **TRL is 6 to 7**.

If the **TRL is 3 – 5**, then the maximum RUP project total cost is € 4 000 000, € 3 333 333, and € 2 857 143 for large, medium, and small enterprises respectively.

The enterprise must have enough money to cover the self-financing part of the project in order to be eligible to get The RUP support. Thus, in every RUP project there is **the EISA funding** and **the Enterprise commitment** (**self-financing**). The total cost of the RUP project is the sum of the two (see Table below for details).

Table shows that the maximum amplification of funds happens when a small enterprise is applying into The RUP with a project having a TRL of 3 – 5. Ideally, the R&D project should start at TRL 3 and end at TRL 5 or the major part of it should be within TRL 3 – 5.

Enterprises can be funded through non-dilutive **grant funding** for Research and Development and **The RUP** is a classical example of such funding. However, if the Enterprise does not have self-financing component, then it can be provided through dilutive **equity financing** (*e.g.*, investors, venture capital). As a result, an **Investor or a VC maximizes the return on investment** (amplification of funds and independent critical evaluation of an R&D project by the EISA) and **Enterprise gains access to funds to perform the R&D project**.

TRL	SMALL		MEDIUM		LARGE		EISA FUNDING (TOTAL COMMITMENT)
	EISA	ENTERPRISE	EISA	ENTERPRISE	EISA	ENTERPRISE	
3 – 5	**€ 2 000 000**	**€ 857 143**	€ 2 000 000	€ 1 333 333	€ 2 000 000	€ 2 000 000	MAX
6 – 7	€ 2 000 000	€ 2 444 444	€ 2 000 000	€ 3 714 286	€ 2 000 000	€ 6 000 000	MAX
3 – 5	**€ 250 000**	**€ 107 143**	€ 250 000	€ 166 667	€ 250 000	€ 250 000	MIN
6 – 7	€ 250 000	€ 305 556	€ 250 000	€ 464 286	€ 250 000	€ 750 000	MIN

The RUP provides the most value to enterprises

The Programme for applied research (*Rakendusuuringute programm* or **The RUP**) is the unique hybrid of *Eurostars* and *EIC Accelerator* as it enables small and medium-sized enterprises (SMEs) and large enterprises, registered in the Estonian business registry, to get access to public funding for their **technology readiness level(TRL) 3 – 7** research and development (R&D) projects. Specifically, The RUP fully includes the *Eurostars* (TRL 4 – 6) and overlaps the earlier stages of *EIC Accelerator* (TRL 5 – 9) hence **providing the most value to the enterprises**. In addition, *Eurostars* maximum grant is only € 300 000 (in Estonia) and *EIC Accelerator* success rate is extremely low.

Here, we provide an analysis of the projects granted by The RUP. Specifically, we plot the Estonian Business and Innovation Agency (*EASi ja KredExi ühendasutus;* ***Ettevõtluse ja Innovatsiooni Sihtasutus***, EISA) total commitment to project cost versus company main activity code (according to EMTAK 2008). EMTAK, or *Eesti Majanduse Tegevusalade Klassifikaator*, stands for Estonian Classification of Economic Activities. Each granted project (shades of grey and black dots) has two coordinates: grant amount provided by the Estonian Business and Innovation Agency (*y-axis*) and company main activity code (*x-axis*). Dots designate the projects granted in first, second, third, fourth, fifth, and sixth rounds (*voorud* I, II, III, IV, V, and VI) of The RUP (**Figure 1**).

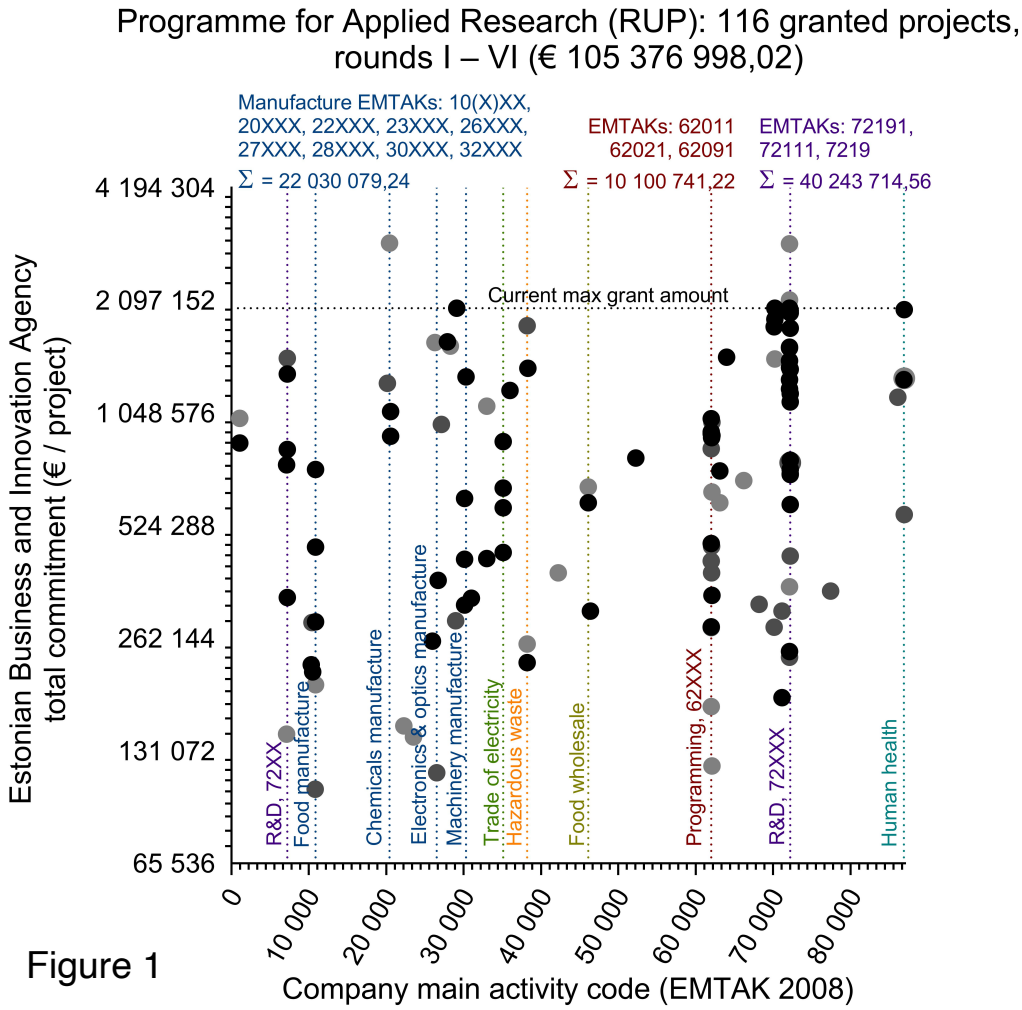


Figure 1

Data source: https://eas.ee/grants/rakendusuuringute-programm/
Prepared by NextGenRnD OÜ

First cluster of funding: Research & Development (R&D) 1 257 616 €/project

There are three major clusters of The RUP-supported projects (**Figure 1**). In the first major cluster, the projects are performed by the companies (enterprises) with the main activity in R&D: total amount of support **€ 40 243 714,56** for 32 projects.

EMTAK 2008	Enterprise	Project funding
72111	Nanordica Medical OÜ	1 573 590,95
72191	OÜ ELIKO Tehnoloogia Arenduskeskus	1 766 390,00
72191	Activate Health OÜ	772 500,00
72191	Find.Fashion OÜ	722 420,00
72191	KappaZeta OÜ	434 760,00
72191	LightCode Photonics OÜ	1 180 511,60
72191	OÜ Kerogen	785 269,50
72191	BiotaTec OÜ	1 941 159,00
72191	H2Electro OÜ	1 768 519,52
72191	GScan OÜ	1 969 538,40
72191	LightCode Photonics OÜ	1 121 948,43
72191	Activate Health OÜ	1 373 038,40
72191	KappaZeta OÜ	718 235,50
72191	Migrevention OÜ	740 671,90
72191	Techture OÜ	597 193,58
7219	GScan OÜ	1 468 500,00
7219	PowerUp Fuel Cells OÜ	1 332 396,04
7219	GScan OÜ	337 012,50
7219	Myceen OÜ	838 777,15
72111	Icosagen Cell Factory OÜ	2 105 548,89
72111	Icosagen Cell Factory OÜ	2 968 871,71
72111	Aktsiaselts Toidu- ja Fermentatsioonitehnoloogia	360 106,08
72111	GeneCode AS	1 998 632,40
72111	Aktsiaselts Toidu- ja Fermentatsioonitehnoloogia	232 964,00
72111	IVEX Lab OÜ	241 800,00
72111	IRISBIO OÜ	1 215 000,00
72111	äio tech OÜ	1 445 296,54
72111	BioCC OÜ	1 287 309,10
72111	Icosagen Cell Factory OÜ	1 997 783,84
72111	Icosagen Cell Factory OÜ	1 994 078,52
72111	GeneCode AS	1 567 121,90
72111	Icosagen Cell Factory OÜ	1 386 768,73

Second cluster of funding: Manufacturing

734 336 €/project

In the second major cluster, the projects are run by the companies active in Manufacturing: supported by at least **€ 22 030 079,24** for 30 projects.

EMTAK 2008	Enterprise	Project funding
26301	Osaühing Rantelon	1 617 768,80
26511	Glasstress OÜ	114 400,00
26701	LDI Innovation OÜ	374 345,00
27111	ELEON AS	978 559,16
27901	MultiCharge OÜ	1 625 978,43
28291	Cleveron AS	1 582 974,64
28991	OÜ Respiray	291 631,50
30111	Baltic Workboats AS	426 188,50
30111	Baltic Workboats AS	321 390,00
30111	Mindchip OÜ	619 340,00
30301	Volaron OÜ	1 308 908,00
30991	Optigon OÜ	335 346,75
32991	Solis BioDyne OÜ	1 094 560,00
32991	RAIKU Packaging OÜ	428 478,13
1089	AKTSIASELTS SALUTAGUSE PÄRMITEHAS	1 015 640,47
1089	AKTSIASELTS SALUTAGUSE PÄRMITEHAS	871 200,00
10321	Kasevetekohin OÜ	222 630,15
10411	Hemptec OÜ	288 556,03
10512	Andre Juustufarm Osaühing	212 885,00
10821	Chocolala OÜ	103 600,00
10891	OÜ Vegestar	196 882,00
10891	Vegetein AS	740 311,20
10891	OÜ Vegestar	290 220,00
10891	Funki Foods OÜ	459 846,56
20141	OÜ Fibenol	1 260 000,00
20411	Aktsiaselts CHEMI-PHARM	2 985 867,70
20591	UP Catalyst OÜ	908 353,00
20591	UP Catalyst OÜ	1 058 842,00
22291	aktsiaselts ESTIKO - PLASTAR	152 808,00
23511	Aktsiaselts Kunda Nordic Tsement	142 568,22

Third cluster of funding: Programming

594 161 €/project

The third major cluster is represented by Programming companies – total amount of support € 10 100 741,22 for 17 projects.

EMTAK 2008	Enterprise	Project funding
62011	HautAI OÜ	172 200,00
62011	Better Medicine OÜ	841 901,80
62011	Transformative AI OÜ	421 476,13
62011	Cybernetica AS	280 105,00
62011	Flowit Estonia OÜ	469 750,86
62011	TrackDeep OÜ	923 336,80
62011	Cybernetica AS	281 429,03
62011	FlowstepDesign OÜ	1 013 587,62
62011	Menken OÜ	933 249,72
62021	Mindworks Industries OÜ	461 400,00
62021	CybExer Technologies OÜ	392 000,00
62021	CybExer Technologies OÜ	901 600,00
62091	eAgronom OÜ	645 330,00
62091	Messente Communications OÜ	119 449,60
62091	SK ID Solutions AS	990 161,10
62091	TEXTA OÜ	341 366,51
62091	eAgronom OÜ	912 397,05

Topical funding: Healthcare

1 262 699 €/project

Healthcare companies – total amount of support € 7 576 194,63 for 6 projects:

EMTAK 2008

86101 Hospitalisation services

86902 Activities of medical laboratories, blood banks, sperm banks and other similar banks

86909 Other healthcare activities not classified elsewhere

EMTAK 2008	Enterprise	Project funding
86101	AS Taastava Kirurgia Kliinik	1 155 500,00
86902	Tervisetehnoloogiate Arenduskeskus AS	1 290 786,00
86902	Tervisetehnoloogiate Arenduskeskus AS	1 287 625,76
86909	OÜ Elsavie	1 298 343,75
86909	OÜ Cognuse	561 165,75
86909	HeBA Clinic OÜ	1 982 773,07

Topical funding: Management consultancies

1 478 708 €/project

Management consultancies – total amount of support **€ 7 393 538,15** for 5 projects:

EMTAK 2008

70101 Activities of head offices

70221 Business and other management consultancy activities

EMTAK 2008	Enterprise	Project funding
70101	VIRU KEEMIA GRUPP AS	280 608,30
70101	Eleon Capital OÜ	1 781 500,00
70221	OÜ Skeleton Technologies	1 464 223,58
70221	OÜ Skeleton Technologies	1 868 400,00
70221	Energiasalv Valdus OÜ	1 998 806,27

The RUP: average funding secured by enterprises for every cluster and topic

The average funding secured by the companies for the three major clusters (R&D, Manufacturing, and Programming) is based on many projects, whereas the topical funding was used to support only a handful of projects. Thus, the numbers for “Healthcare” and (Management) “Consulting” are not solid.

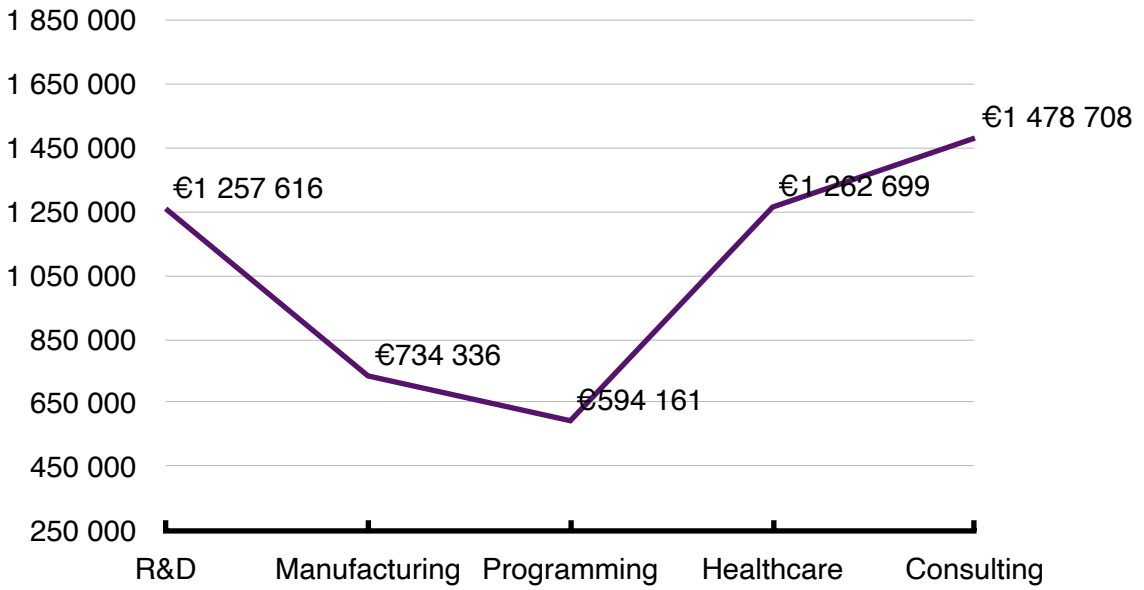
Specifically the average funding per project was calculated based on 32, 30, and 17 projects data for R&D, Manufacturing, and Programming clusters respectively.

Thus, on average, the cluster-specific commitment of Estonian Business and Innovation Agency was as following:

R&D:	€ 1 257 616 per project
Manufacturing:	€ 734 336 per project
Programming:	€ 594 161 per project

According to Figure 2, however, the most funding was provided to Management Consulting, whereas Healthcare was on par with R&D.

Figure 2



Enterprises that were funded multiple times

The total amount of support to be provided to SMEs and large enterprises, registered in Estonian business registry, through The RUP is estimated at **€ 105 376 998,02 for 116 projects** (round I: 23; round II: 26; round III: 27; round IV: 14; round V: 15; and round VI: 11).

Fifteen enterprises have two projects granted each (2x), two enterprises have three awarded projects each (3x), one enterprise has four awarded projects (4x), and one enterprise has five awarded projects (5x) (**Figure 3**). Thus, all in all, **90 unique enterprises** got their projects awarded.

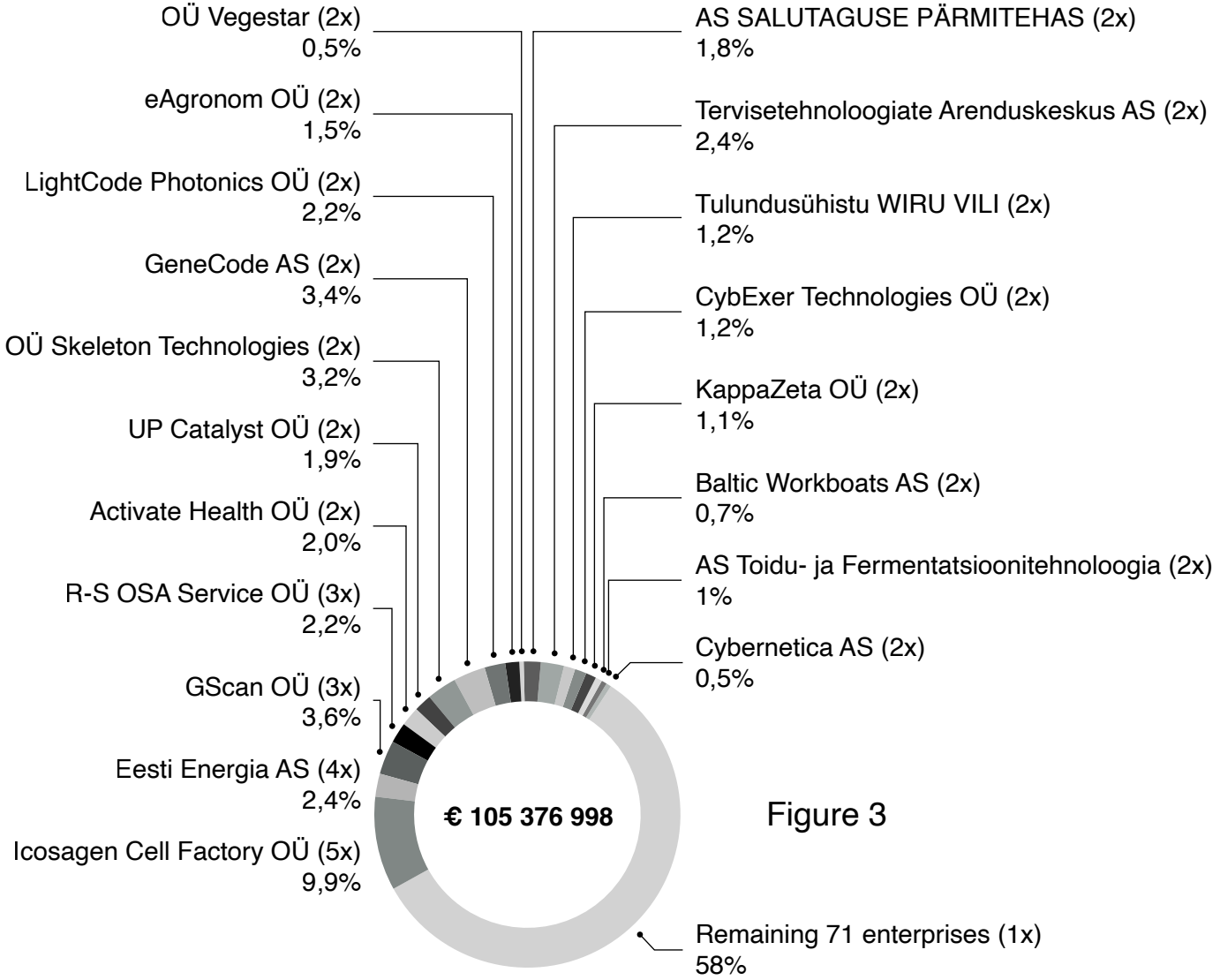


Figure 3

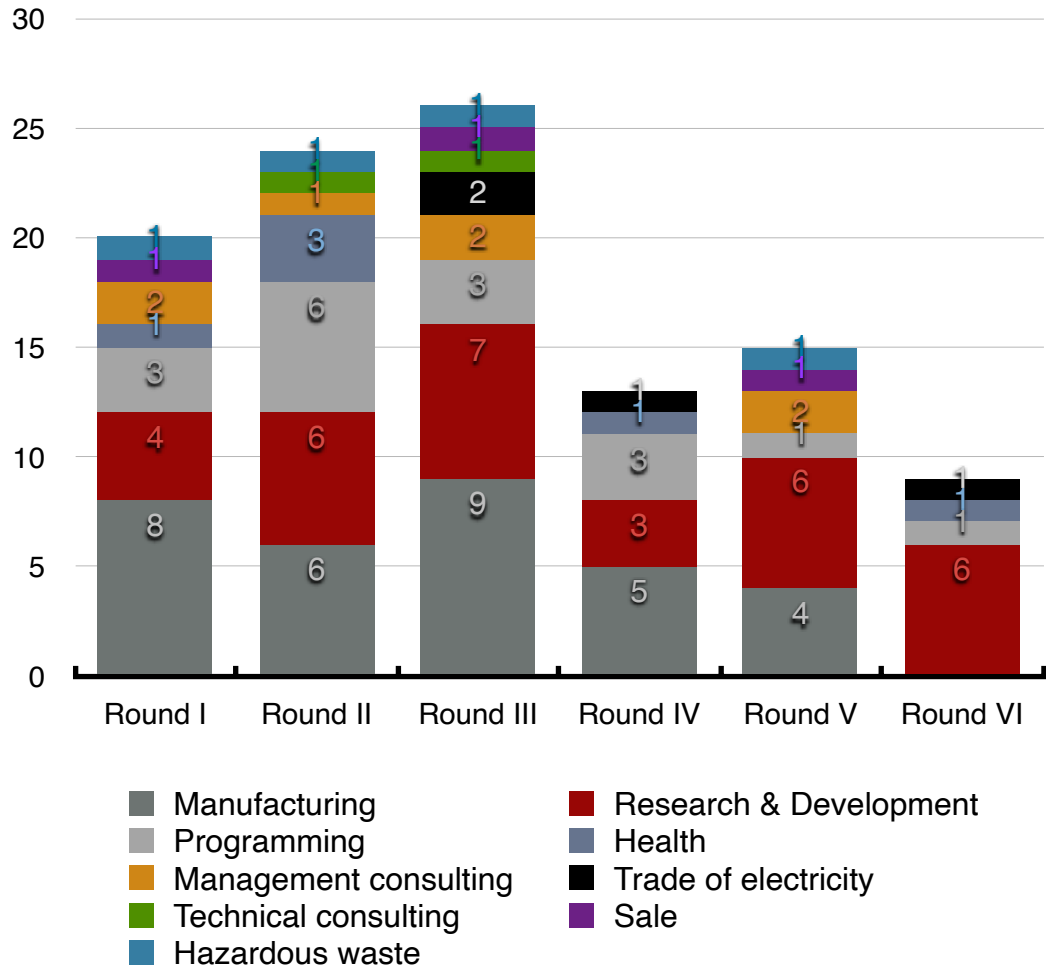
Funding trends through the rounds of The RUP

The graph in **Figure 4** shows the change in the number of selected cluster-specific and topic-specific projects (*y-axis*) supported by the Estonian Business and Innovation Agency through the Programme of Applied Research funding rounds (*x-axis*). Not all RUP projects are mapped.

Manufacturing, Research & Development, and Programming projects' clusters occupy *the bottom portion of the graph* dominating all remaining topic-specific projects. The Programming cluster, however, migrated into the topical category in the last two rounds. **No Manufacturing cluster projects were supported in the Round VI of the RUP.**

At the top portion of the graph are topical categories funded periodically and at low numbers: (1) "Management consulting" (yellow) consists of Viru Keemia Grupp AS, Eleon Capital OÜ, Energiasalv Valdus OÜ, and OÜ Skeleton Technologies enterprises; (2) "Technical consulting" (green) represented by Fermi Energia AS and AuVe Tech OÜ; (3) "Trade of electricity" (black) is represented solely by Eesti Energia AS; (4) "Hazardous waste" is represented mostly by R-S OSA Service OÜ; (5) "Sale" is represented by TÜ WIRU VILI and BugBox OÜ; and (6) "Health" is represented by Tervisetehnoloogiate Arenduskeskus AS, OÜ Elsavie, OÜ Cognuse, AS Taastava Kirurgia Kliinik, and HeBA Clinic OÜ.

Figure 4



The RUP: dynamics of total available per round funding

The graph in **Figure 5** shows the total commitment (or total available funding) of Estonian Business and Innovation Agency (*EASi ja KredExi ühendasutus*) for every funding round of The RUP (in euros).

Currently, the maximum support per project is € 2 000 000. However, in Round I, the maximum support per project was up to € 3 000 000.

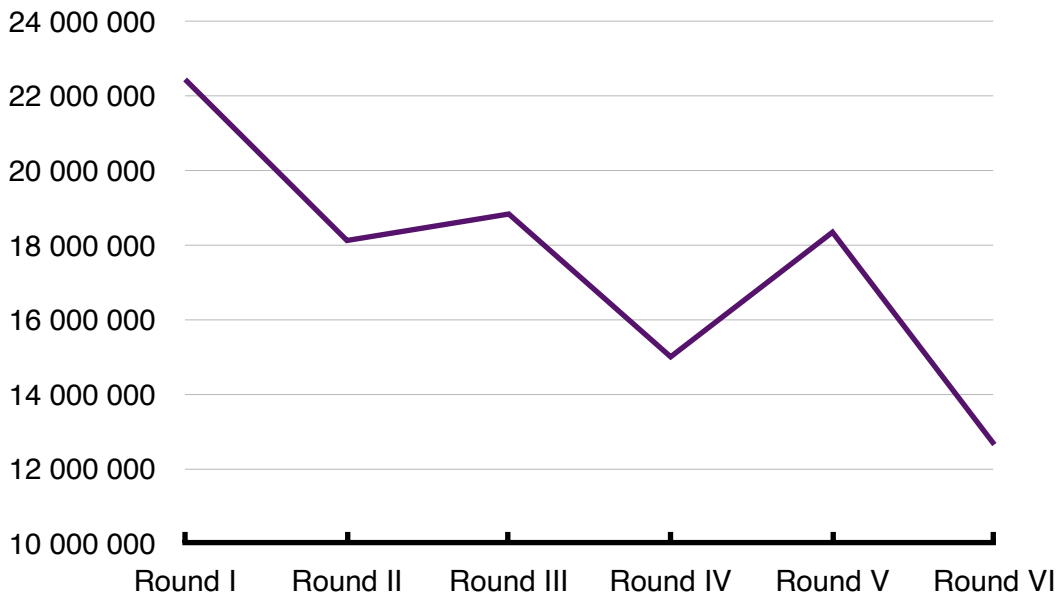
In some cases, funds not spent in any particular Round can be transferred into the next Round influencing the total funds available.

Alternatively, additional funds might be injected into any particular Round. For instance, in the Round V the projected EASi ja KredExi ühedasutuse total commitment was planned to be € 15 000 000. However, an additional € 3 000 000 were added into this round.

Thus, according to the graph, there is clearly a tendency for the reduction of total available funds in each successive round of The RUP. In Round VI, the total available funding was € 12 646 235,17.

However, according to Estonian Business and Innovation Agency's (EISA) 2024 consolidated Action Plan, **one more regular RUP round will be opened in 2024 (deadline for the seventh RUP round: 13.09.2024) with a volume of approximately 15 million euros.**

Figure 5



The RUP: success rate

The graph in **Figure 6** shows the success rate of projects submitted into The RUP. However, these success rates are for the projects that passed the preliminary evaluation successfully.

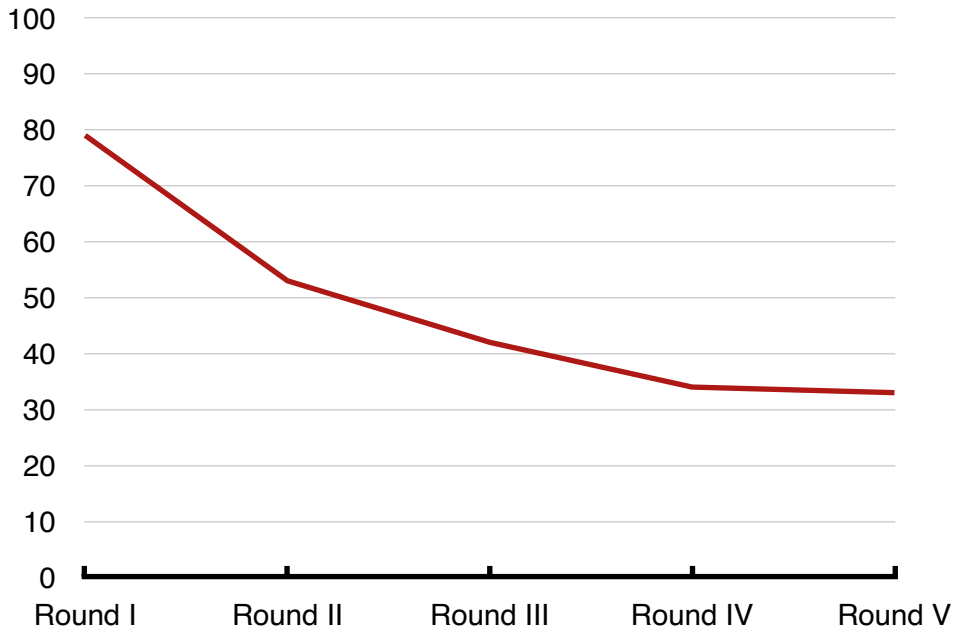
For instance, in Round III, 23 of 55 projects were awarded grants, whereas 68 projects were submitted initially.

In Round V, the success rate fell further to **23%**. However, additional funds were provided and as a result 5 additional projects were funded raising the success rate to 33%. No information is available regarding the Round VI.

The graph in Figure 6 clearly shows that **the competition for this lucrative funding scheme becomes fierce**. Essentially dropping from 80% to approximately 20% just after five rounds of funding. Thus, further success rate reduction within The RUP is expected.

It is of critical importance for enterprises to attend a mandatory preliminary consultation and afterwards to regularly meet with an expert assigned to their project.

Figure 6



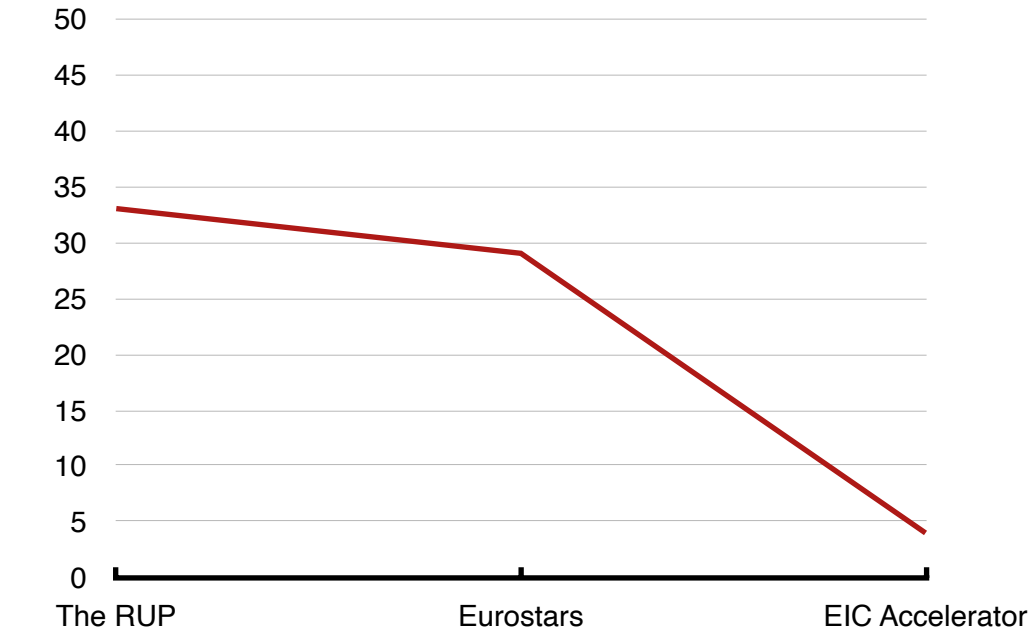
Success rate and technology control: The RUP versus *Eurostars* versus *EIC Accelerator*

The Eurostars programme is defined as “bottom-up” approach and is the only option for SMEs to get public funding for intermediate TRL levels without prerequisites (*EIC Transition* requires completion of *EIC Pathfinder*). The *Eurostars* programme (TRLs 4 – 6) precedes another "bottom-up" *EIC Accelerator* programme (TRLs 6 – 9) technologically. The RUP fully includes the *Eurostars* and overlaps the earlier stages of *EIC Accelerator* hence providing the most value to the enterprises.

Generally, in Europe, the *Eurostars-3* programme (2021 – 2027) will be ideal for SMEs willing to enter into trans-national innovative cooperation R&D projects, whereas the *EIC Accelerator* programme can be leveraged by the very same SMEs later, when the TRL of their R&D projects is 6 or above. However, there are two drawbacks for *Eurostars*. First, the project should be trans-national cooperation, meaning that the control of intellectual property is hard. Second, in Estonia, the maximum support per *Eurostars* project is at most € 300 000.

The **success rate** of ***Eurostars*** **is 29%**, whereas the success rate of ***EIC Accelerator*** **is only 4%** (Figure 7). Thus, **The RUP’s success rate is on par with *Eurostars* success rate.** However, **in The RUP,** an enterprise can get almost **up to 7 times more funding and retain the full control of their intellectual property and technology.**

Figure 7



The RUP: new developments in 2024 – more reasons to apply for funding

The RUP further directly supports the development of technologies defined in Estonian Research and Development, Innovation and Entrepreneurship, RDIE, strategy 2021–2035 document (TAIE, Teadus- ja Arendustegevuse, Innovatsiooni ning Ettevõtluse arengukava 2021–2035).

Estonian Business and Innovation Agency "… focuses on bringing successful, innovative or high-impact companies (including Estonian units of international corporations) to the program and initiating joint projects (including in research consortia and involving international competitive funding), because the mentioned companies most likely have the ability to develop products and services with high added value and export them."

According to Estonian Business and Innovation Agency's (EISA) 2024 consolidated Action Plan, two sub-programmes have been initiated in 2024:

(1) "**Preclinical drug development.** Our goal is that through the involvement of top-level international competence, trainings and our consulting, **at least one drug candidate developed in Estonia will reach the clinical development phase**. Our long-term goal is a successful Estonian pharmaceutical industry."

(2) "**Drone support.** We focus on the development of the drone sector in Estonia. The goal is **to increase the sales turnover of the sector to 200 million euros per year and the number of employees to 1,000 by the end of 2028** (approximately 65 million and 233 people as of the third quarter of 2023)."

Additional new activities according to Estonian Business and Innovation Agency's (EISA) 2024 consolidated Action Plan:

(a) "… a sub-programme for supporting circularity of material use, sustainability, nature-friendly solutions and technologies (so-called **clean-tech**)".

(b) "… optional advising of the Applied Research Center (Rakendusuuringute Keskus, RUK) on data mining, biomass refining, hydrogen technologies, and autonomous vehicles."

(c) "… An increasing number of companies are reaching a level of development where the need for financing for knowledge-intensive production activities or scaling is greater than RUP grants allow. We start cooperation with financial institutions (including EIB, NIB, local banks) to help companies raise financing."

The profile of enterprises funded in Round I

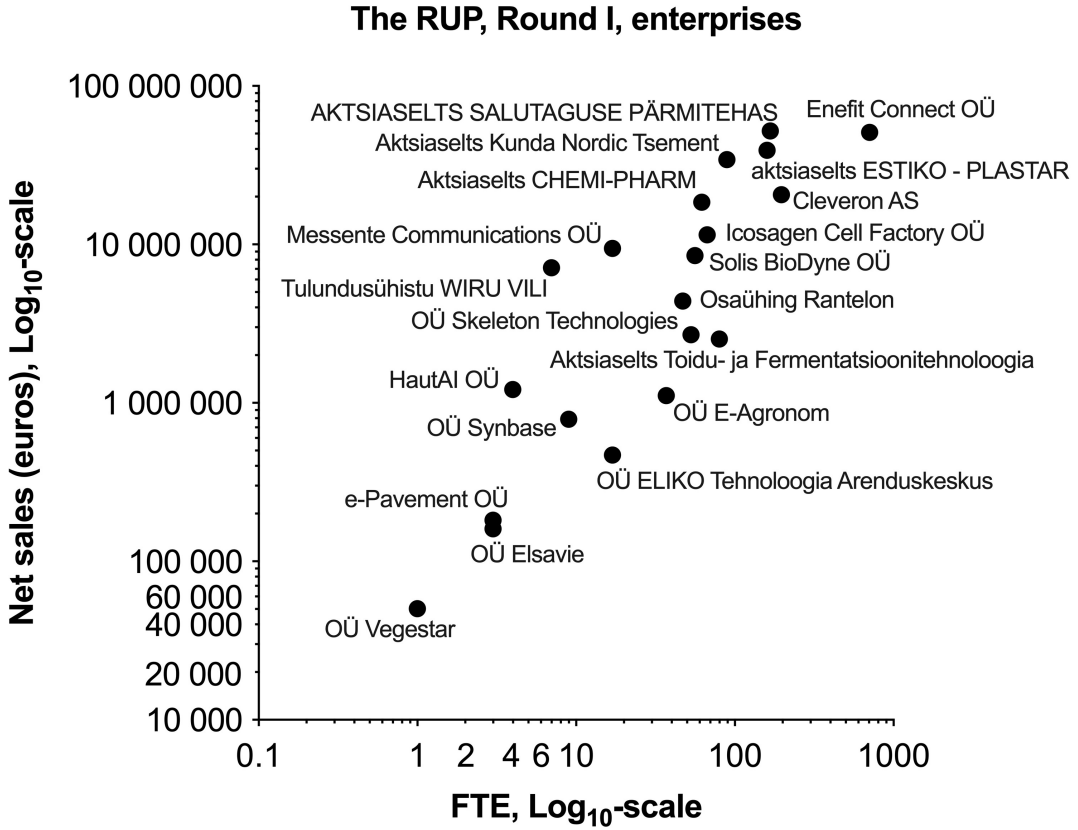
The graph in **Figure 8** shows the profile of enterprises that got their projects funded in The RUP, Round I.

Specifically, each point on the graph corresponds to a particular enterprise. The *x-axis* coordinates correspond to **full-time employees** (FTE) of an enterprise, whereas the *y-axis* coordinates indicate the **net sales** of an enterprise the year before funding decision was made. The scale of both axes is logarithmic (base-10, Log_{10}). Because the base-10 logarithm of 0 is not defined, the enterprises having either FTE = 0 or net sales = 0 are not plotted on the graph.

The majority of enterprises (17) that got their projects (18) funded in the Round I made more than € 400 000 in net sales and had **at least 4 FTEs**. Funding was also provided to: (i) two enterprises with 3 FTEs and net sales below € 200 000; (ii) one enterprise with net sales below € 60 000; and (iii) two enterprises with no net sales, whereas one of these also did not have any employees.

University of Tartu spin-off: Icosagen Cell Factory OÜ. Tallinn University of Technology spin-off: e-Pavement OÜ.

Figure 8



Not on graph due to logarithmic scale:
R-S OSA Service OÜ: FTE = 1, Net sales = 0;
Mifundo OÜ: FTE = 0, Net sales = 0.

The profile of enterprises funded in Round II

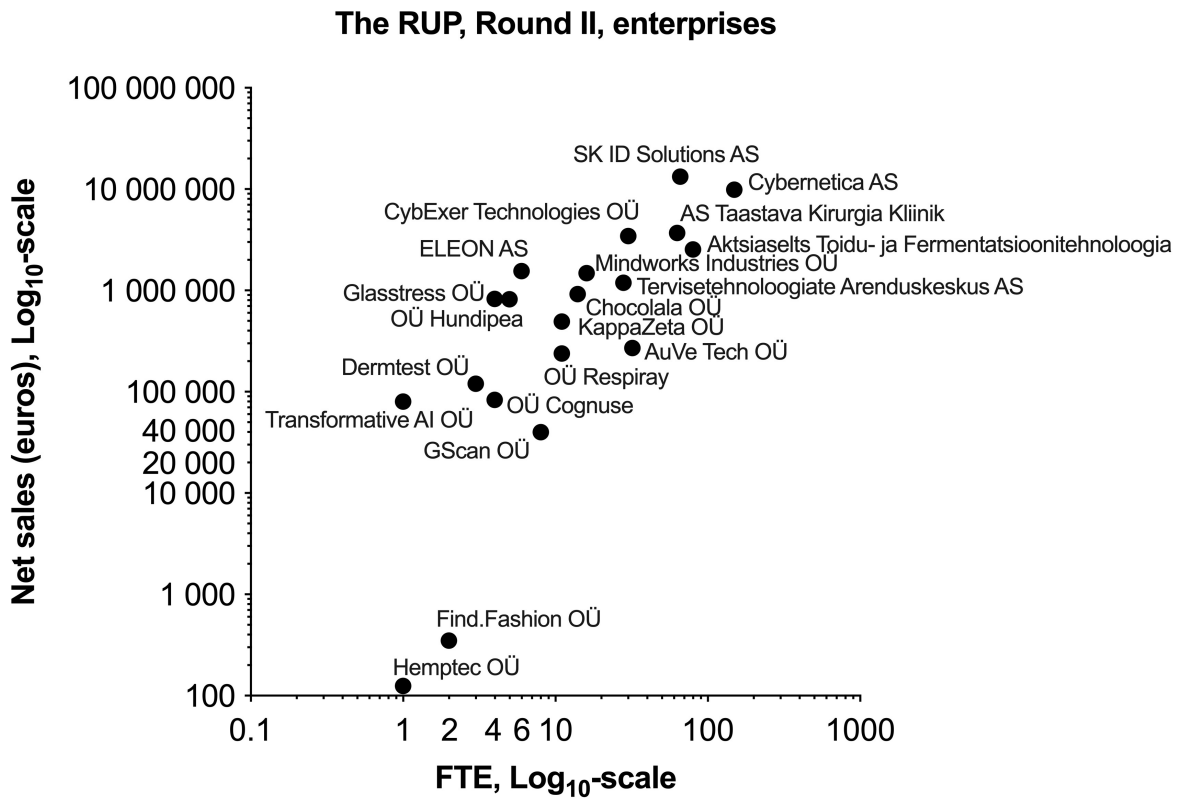
The graph in **Figure 9** shows the profile of enterprises that got their projects funded in The RUP, Round II.

Specifically, each point on the graph corresponds to a particular enterprise. The *x-axis* coordinates correspond to **full-time employees** (FTE) of an enterprise, whereas the *y-axis* coordinates indicate the **net sales** of an enterprise the year before funding decision was made. The scale of both axes is logarithmic (base-10, Log_{10}). Because the base-10 logarithm of 0 is not defined, the enterprises having either FTE = 0 or net sales = 0 are not plotted on the graph.

The majority of enterprises (17) that got their projects funded in the Round II made more than € 40 000 in net sales and had **at least 3 FTEs**. Funding was also provided to: (i) one enterprise with 2 FTEs and net sales below € 1 000; (ii) two enterprises with 1 FTE (net sales below € 100 000 and € 200); (iii) five enterprises with either no net sales or no employees; and (iv) one enterprise with no net sales and no employees.

University of Tartu spin-off: KappaZeta OÜ.

Figure 9



Not on graph due to logarithmic scale:
GeneCode AS: FTE = 0, Net sales = 0;
Activate Health OÜ: FTE = 0, Net sales = 20000;
Better Medicine OÜ: FTE = 5, Net sales = 0;
OÜ Fibenol: FTE = 20, Net sales = 0;
R-S OSA Service OÜ: FTE = 1, Net sales = 0;
VIRU KEEMIA GRUPP AS: FTE = 98, Net sales = 0.

The profile of enterprises funded in Round III

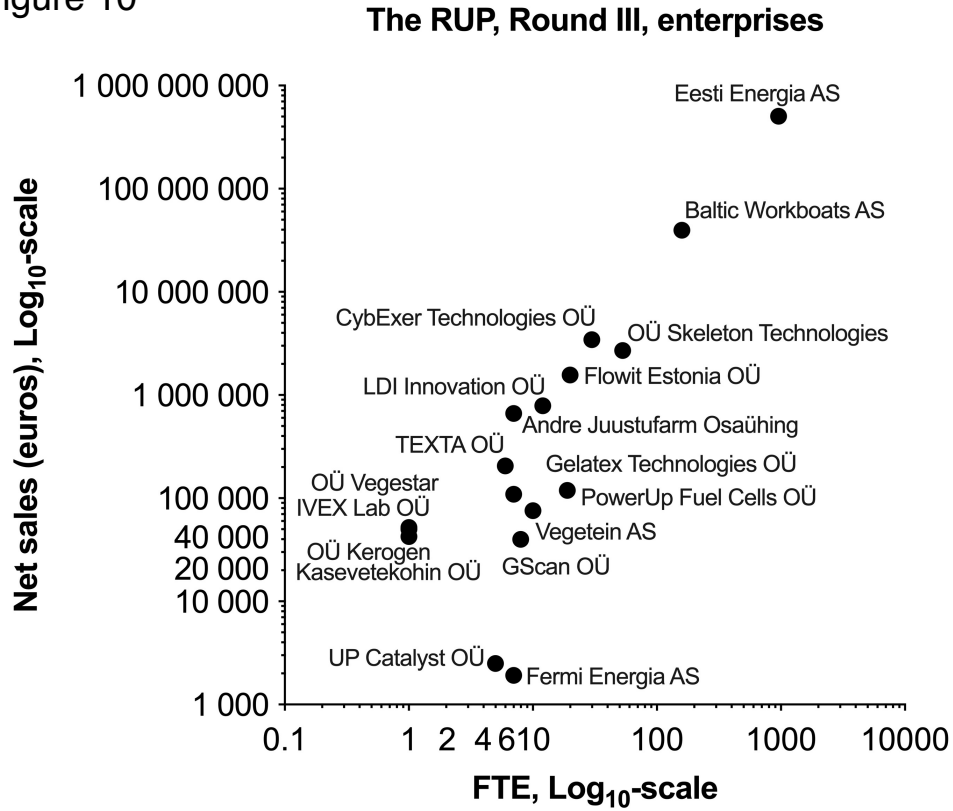
The graph in **Figure 10** shows the profile of enterprises that got their projects funded in The RUP, Round III.

Specifically, each point on the graph corresponds to a particular enterprise. The *x-axis* coordinates correspond to **full-time employees** (FTE) of an enterprise, whereas the *y-axis* coordinates indicate the **net sales** of an enterprise the year before funding decision was made. The scale of both axes is logarithmic (base-10, Log_{10}). Because the base-10 logarithm of 0 is not defined, the enterprises having either FTE = 0 or net sales = 0 are not plotted on the graph.

The majority of enterprises shown on the graph (12) that got their projects (13) funded in the Round III made more than € 40 000 in net sales and had **at least 6 FTEs**. Funding was also provided to: (i) two enterprises with 5 and 7 FTEs and net sales below € 3 000; (ii) four enterprises with net sales below € 60 000 and 1 FTE; (iii) six enterprises with either no net sales or no employees; and (iv) two enterprises with no net sales and no employees.

University of Tartu spin-offs: Up Catalyst OÜ & LightCode Photonics OÜ. Tallinn University of Technology spin-off: IVEX Lab OÜ.

Figure 10



Not on graph due to logarithmic scale:
LightCode Photonics OÜ: FTE = 17, Net sales = 0;
RAIKU Packaging OÜ: FTE = 7, Net sales = 0;
Bifrost Tug Estonia OÜ: FTE = 1, Net sales = 0;
BiotaTec OÜ: FTE = 7, Net sales = 0;
R-S OSA Service OÜ: FTE = 1, Net sales = 0;
Volaron OÜ: FTE = 0, Net sales = 0;
BugBox OÜ: FTE = 4, Net sales = 0;
IRISBIO OÜ: FTE = 0, Net sales = 0.

The profile of enterprises funded in Round IV

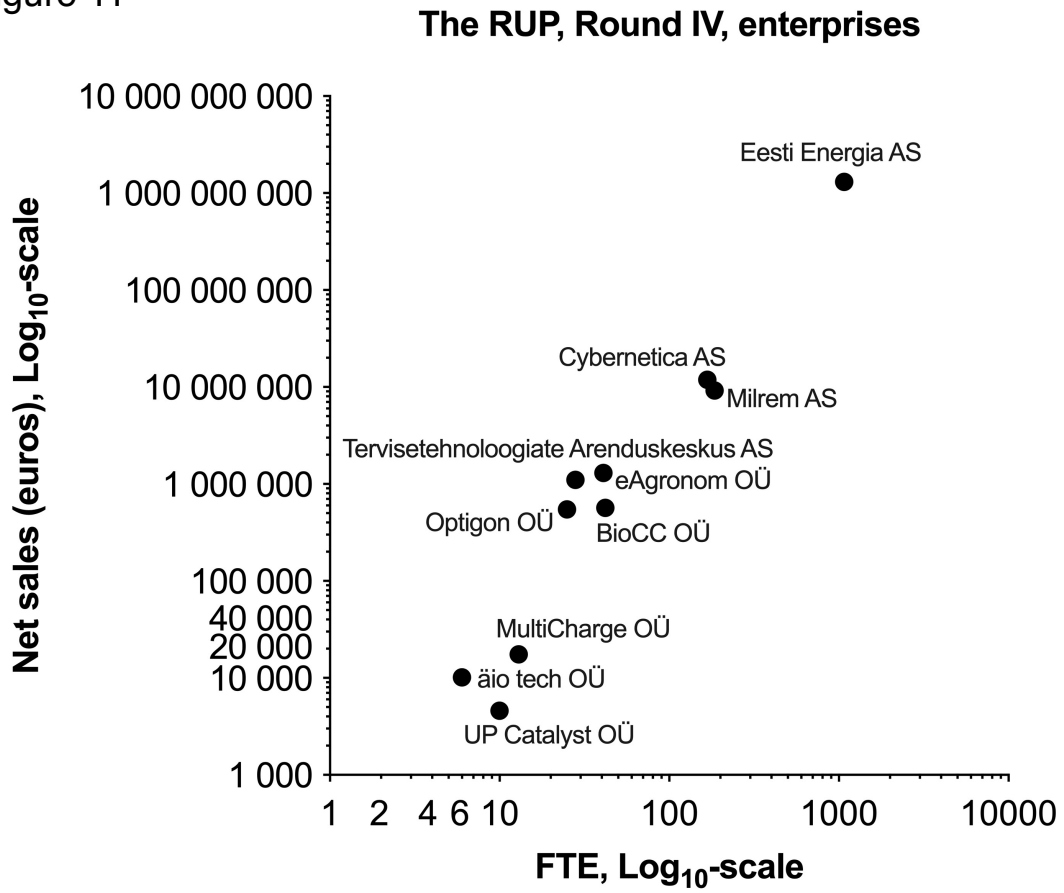
The graph in **Figure 11** shows the profile of enterprises that got their projects funded in The RUP, Round IV.

Specifically, each point on the graph corresponds to a particular enterprise. The *x-axis* coordinates correspond to **full-time employees** (FTE) of an enterprise, whereas the *y-axis* coordinates indicate the **net sales** of an enterprise the year before funding decision was made. The scale of both axes is logarithmic (base-10, Log_{10}). Because the base-10 logarithm of 0 is not defined, the enterprises having either FTE = 0 or net sales = 0 are not plotted on the graph.

All enterprises shown on the graph (10) that got their projects funded in the Round IV made at least € 4 000 in net sales and had **at least 6 FTEs**. Funding was also provided to:(i) three enterprises with either no net sales or no employees; and (ii) one enterprise with no net sales and no employees.

University of Tartu spin-off: Up Catalyst OÜ. Tallinn University of Technology spin-off: äio tech OÜ.

Figure 11



Not on graph due to logarithmic scale:
TrackDeep OÜ: FTE = 0, Net sales = 12900;
Funki Foods OÜ: FTE = 0, Net sales = 0;
H2Electro OÜ: FTE = 5, Net sales = 0;
Impactly OÜ: FTE = 0, Net sales = 15400.

The profile of enterprises funded in Round V

The graph in **Figure 12** shows the profile of enterprises that got their projects funded in The RUP, Round V.

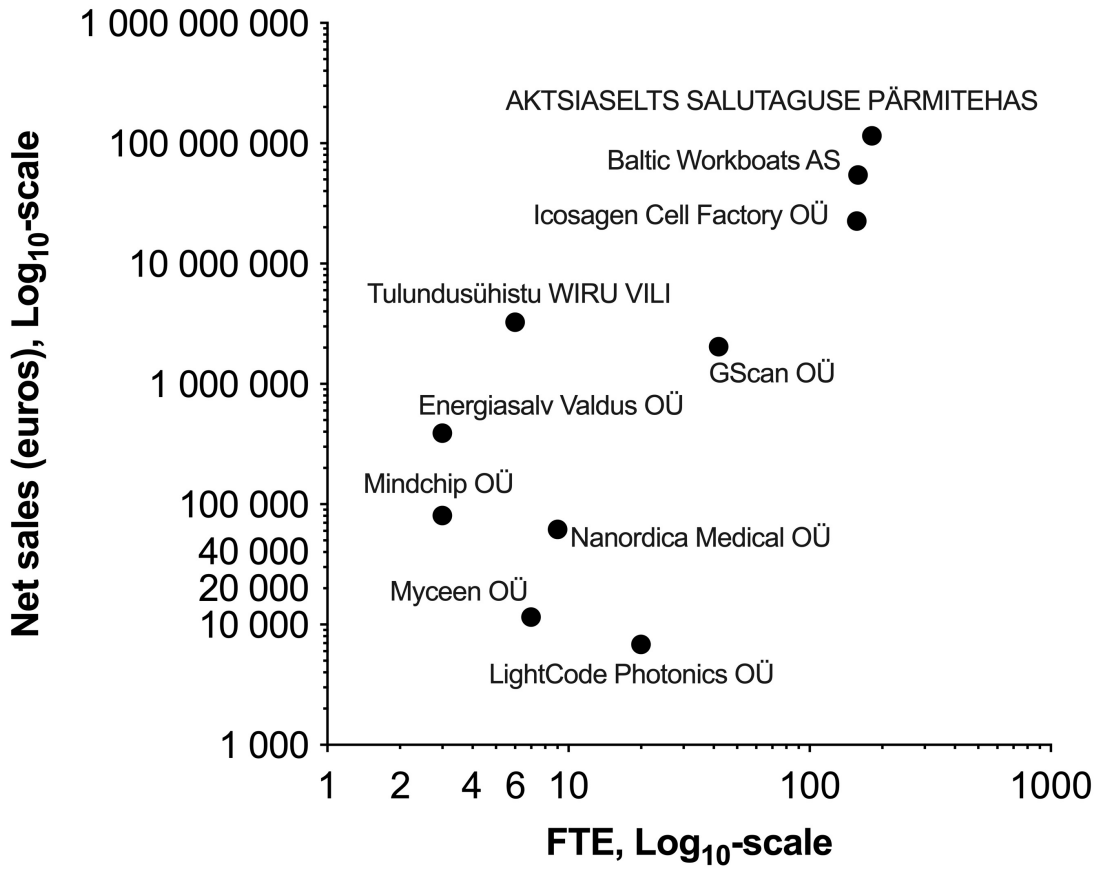
Specifically, each point on the graph corresponds to a particular enterprise. The *x-axis* coordinates correspond to **full-time employees** (**FTE**) of an enterprise, whereas the *y-axis* coordinates indicate the **net sales** of an enterprise the year before funding decision was made. The scale of both axes is logarithmic (base-10, Log_{10}). Because the base-10 logarithm of 0 is not defined, the enterprises having either FTE = 0 or net sales = 0 are not plotted on the graph.

The majority of enterprises shown on the graph (8) that got their projects (9) funded in the Round V made more than € 6 000 in net sales and had **at least 6 FTEs**. Funding was also provided to: (i) two enterprises with 3 FTEs and net sales in the range € 80 000–390 000; (ii) two enterprises with no employees; and (iv) two enterprises with no net sales and no employees.

University of Tartu spin-offs: Icosagen Cell Factory OÜ & LightCode Photonics OÜ. Tallinn University of Technology spin-off: Mindchip OÜ. National Institute of Chemical Physics and Biophysics spin-off: Nanordica Medical OÜ.

Figure 12

The RUP, Round V, enterprises



Not on graph due to logarithmic scale:
Eleon Capital OÜ: FTE = 0, Net sales = 0;
Elteks Group OÜ: FTE = 0, Net sales = 549482;
FlowstepDesign OÜ: FTE = 0, Net sales = 26492;
VKG Plastic OÜ: FTE = 0, Net sales = 0.

The profile of enterprises funded in Round VI

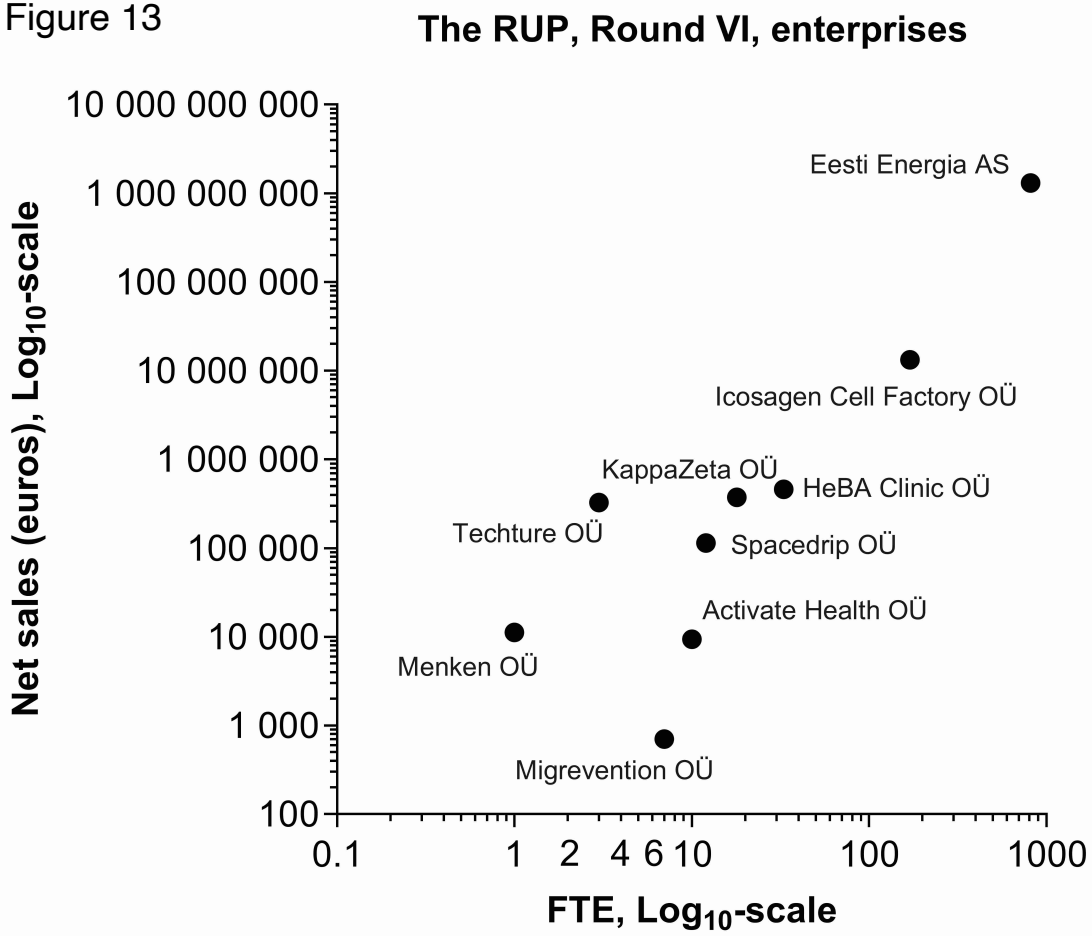
The graph in **Figure 13** shows the profile of enterprises that got their projects funded in The RUP, Round VI.

Specifically, each point on the graph corresponds to a particular enterprise. The *x-axis* coordinates correspond to **full-time employees** (FTE) of an enterprise, whereas the *y-axis* coordinates indicate the **net sales** of an enterprise the year before funding decision was made. The scale of both axes is logarithmic (base-10, Log_{10}). Because the base-10 logarithm of 0 is not defined, the enterprises having either FTE = 0 or net sales = 0 are not plotted on the graph.

The majority of enterprises shown on the graph (7) that got their projects funded in the Round VI made more than € 9 000 in net sales and had **at least 3 FTEs**. Funding was also provided to: (i) one enterprise with 7 FTEs and net sales below € 1 000; (ii) one enterprise having a single employee and net sales around € 10 000; and (iii) two enterprises with no net sales.

University of Tartu spin-offs: Icosagen Cell Factory OÜ & KappaZeta OÜ.

Figure 13



Not on graph due to logarithmic scale:
GeneCode AS: FTE = 2, Net sales = 0;
Grid Oracle OÜ: FTE = 3, Net sales = 0.

The dynamics of funded enterprises profiles through Rounds I to VI of The RUP

Figure 14 shows that in the majority of funded enterprises the minimum number of full-time employees (FTEs) achieved the value of “6” in Round III, remained at this level for the last three rounds, and dropped to 3 in Round VI. Interestingly, the number of funded enterprises with either no FTEs or no net sales was increasing from Round I to Round III. However, the number of such enterprises was reduced 2-fold in Round IV and stayed at this level in Round V, and dropping further in Round VI (**Figure 15**). **Thus, it is still possible to get funding for an “No FTE and/or No Net Sales” enterprise.** But these enterprises might be very different and not always associated with increased risk. For instance, R-S OSA Service OÜ is fully owned by RAGN-SELLS AS with ~300 FTEs and ~33 million net sales in Estonia.

Figure 14

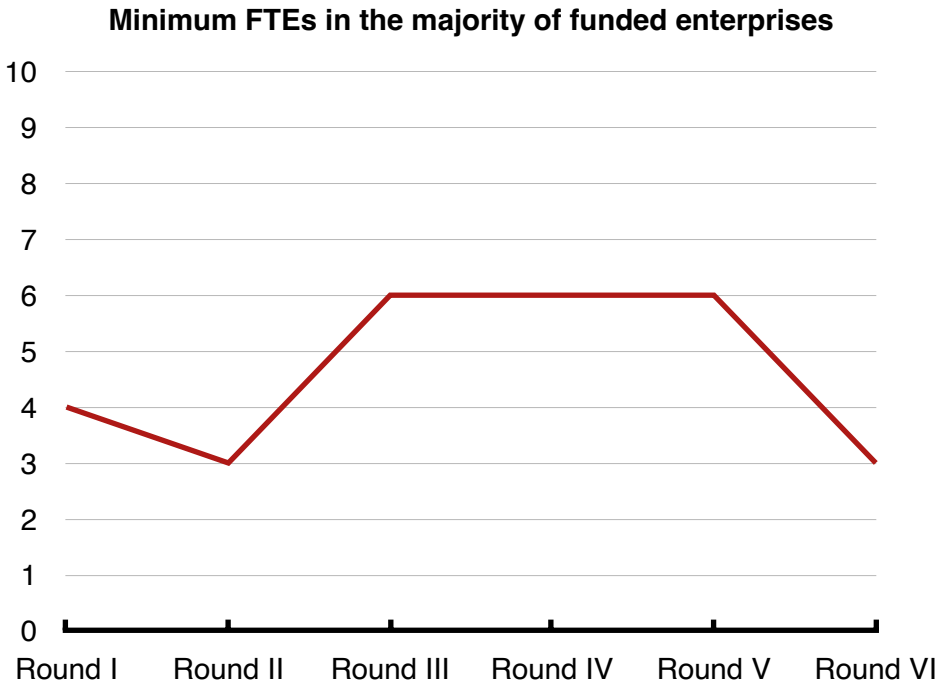
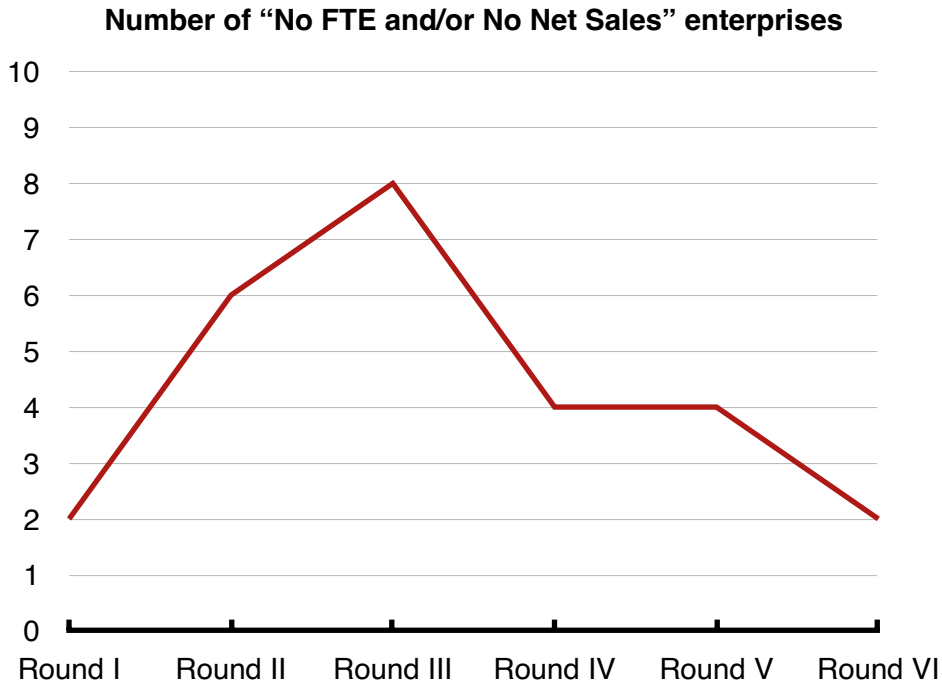


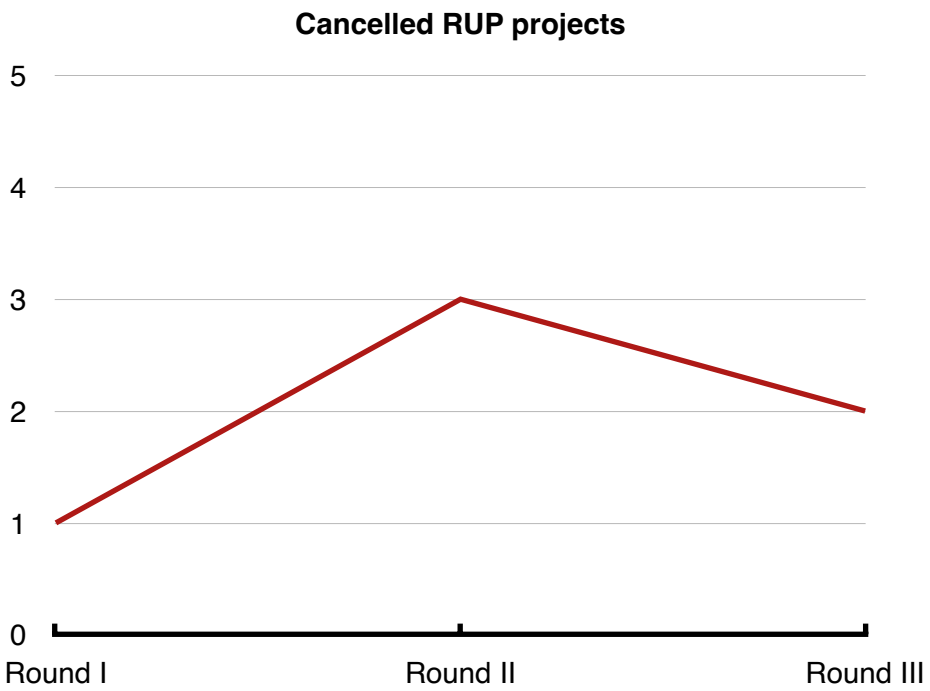
Figure 15



The dynamics of cancelled RUP projects through Rounds I to III

We have performed the comparison of the information on funded RUP projects in Rounds I to IV (published as files of type *x_voorus_toe{t}atud_projektid.pdf*, where x∈{i,ii,iii,iv}) and the information available through the public online database "*Toetatud projektid*" (the source of public information: *EASi ja KredExi ühendasutus*). We have discovered that in the online database several projects are lacking. Specifically, the projects by Kasevetekohin OÜ (Raound III), Aktsiaselts Kunda Nordic Tsement (Round I), ELEON AS (Round II), OÜ Respiray (Round II), Volaron OÜ (Round III), and Transformative AI OÜ (Round II). **Figure 16** demonstrates the dynamics of cancelled projects.

Figure 16



We have prompted above that "No FTE and/or No Net Sales" enterprises might be associated with increased risk of not being able to drive the RUP project to completion. And indeed, the number of "No FTE and/or No Net Sales" enterprises increased 3-fold from Round I to Round II. Curiously, the number of cancelled RUP projects increased 3-fold too.

However, **cancelled projects were not typically associated with the "No FTE and/or No Net Sales" enterprises** according to available data (at least yet). In fact, **out of 6 cancelled RUP projects there was only one associated with "No FTE and/or No Net Sales" enterprise** – Volaron OÜ – in Round III.

This shows that support of "No FTE and/or No Net Sales" enterprises is fully justified and their number in subsequent RUP funding Rounds might be increased.

Part II: Patent search results and a practical manual on how to exploit them (universal approach)

EISA: Intellectual Property takes the center stage in The RUP – the Entrepreneur's perspective

According to Estonian Business and Innovation Agency (EISA) *Insaider*'s post: the fact that the seventh round of The RUP is about to begin shows that the Estonian Government highly values the R&D of the private sector and is ready to share the R&D-related risks. EISA further drwas attention to the fact that the economic success of technological developments critically depends on whether the created **Intellectual Property (IP)** is protected in international markets. EISA admits that in the RUP Rounds I to VI, little attention to the IP aspect of R&D Projects was paid. Starting from the Round VII of The RUP EISA will pay more attention to the IP aspects.

The EISA further specifies that starting from the Round VII of The RUP applicants are required to provide the **IP Strategy** and the **IP Action Plan**. Furthermore, EISA details that *" … IP means so much more than just patents, we want to ensure that companies really consider how they will capture, control, and eventually valorize all the data, know-how, skills, and knowledge that comes out of your project … "*.

Indeed, in addition to **Patents**, there may be other IP rights (legal instruments) that can be used to protect innovative features of goods or services: trade secrets, industrial designs, utility models, trademarks, copyright and related rights, layout-designs (topographies) of integrated circuits, new varieties of plants, *etc*.

Patents and trade secrets may be seen as alternative ways to protect inventions. However, **it is best to use both patent and trade secret** (know-how on how to exploit a patented invention) in a complementary fashion for the most efficient invention protection. Another way to secure the invention is **to have both the patent (for a process/technology) and the material (required for the process/technology) that can be transferred only after signing the license agreement**. The options are numerous.

According to "*Inventing the Future: an introduction to patents for SMEs*" (WIPO publication No.917.1), if the invention is patentable, then there are at least three choices for an Enterprise to make: (i) patent it; (ii) keep the invention as a trade secret; or (iii) disclose it (*e.g.*, publish it). The "disclose it"-choice (iii) is also known as "defensive publication", which precludes others from patenting the invention by moving the invention into the "public domain". **The combination of the points (i) and (ii), however, is much more attractive from Entrepreneur's perspective.**

Below, it is demonstrated why Patents are so important by providing a practical manual on how to exploit them.

Intellectual Property: Problem-Solution approach – the territory of Patents

What is a patent?

An exclusive right granted for an invention, which provides a new technical solution to a problem or a new way of doing something. The invention can either be a process or a product. A patent application, containing technical information about the invention, must be disclosed to the public to get a patent.

What does patent protection mean?

After the patent has been granted, the patent owner can prevent others from: making, using, distributing, importing, or selling the invention disclosed in the patent (as defined in the granted claims).

How long does patent protection last?

Patent protection lasts up to 20 years from the filing date (priority date) of the patent application. In some cases, filing date and priority date are not the same.

What determines the validity of a patent in a country?

The exclusive rights to an invention are only applicable in the country or region where a patent has been granted, in accordance with the law of that country or region. In other words, patents are territorial.

How is patent enforced?

Patent rights are typically enforced in a court on the initiative of the right owner. Patent owner monitors, identifies, and takes action against infringers of a patent.

What is “patent licensing”?

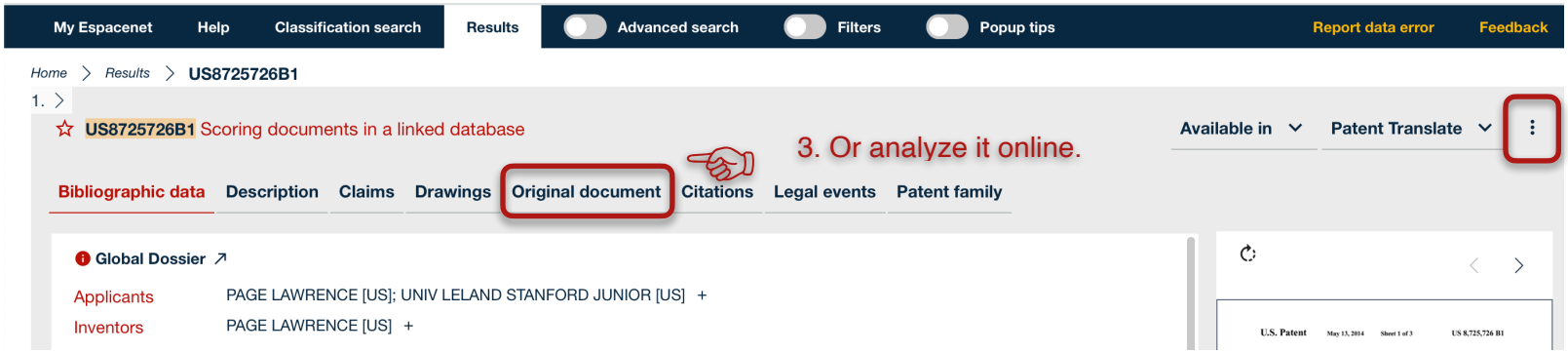
Licensing a patent means that the patent owner (the licensor) grants permission (non-exclusive right) to another enterprise (the licensee) to make, use, distribute, and sell the patented invention, according to agreed terms and conditions, in a defined territory and for an agreed period of time. The licensor continue to have intellectual property rights (IPR) over the patented invention, which is not the case if patent has been sold or transferred (assigned) to another enterprise (party).

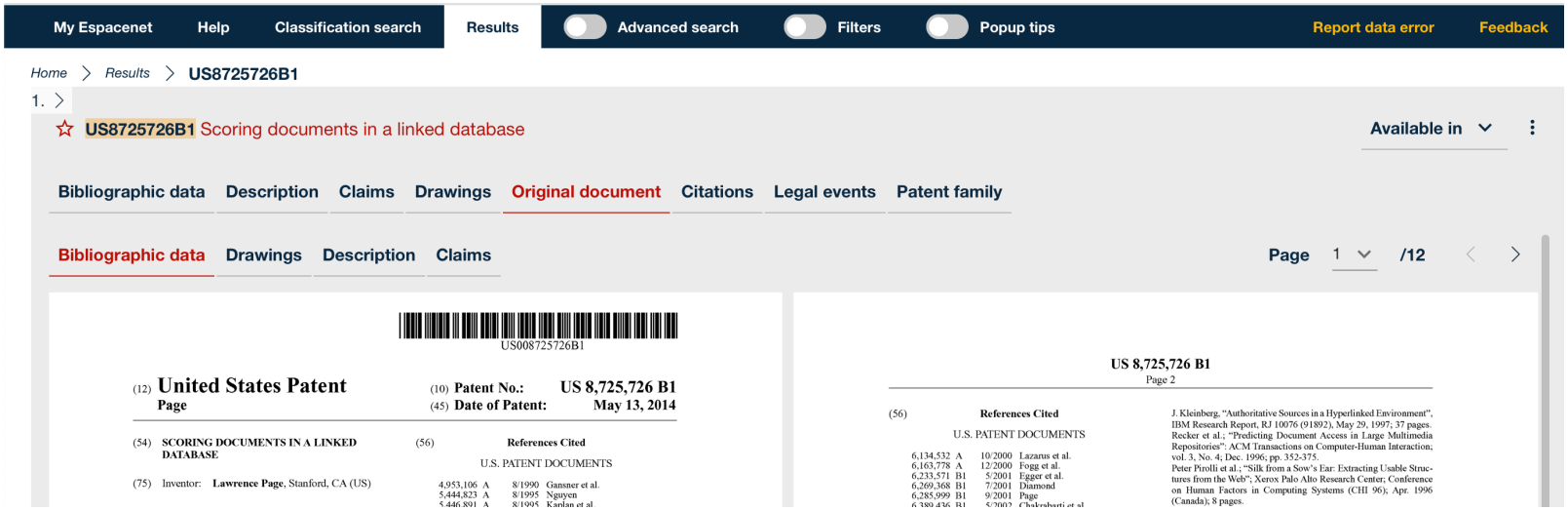
Using the RUP project-specific Patent Search Results: Original document

Patent search results:
UNIV LELAND STANFORD JUNIOR: US8725726B1

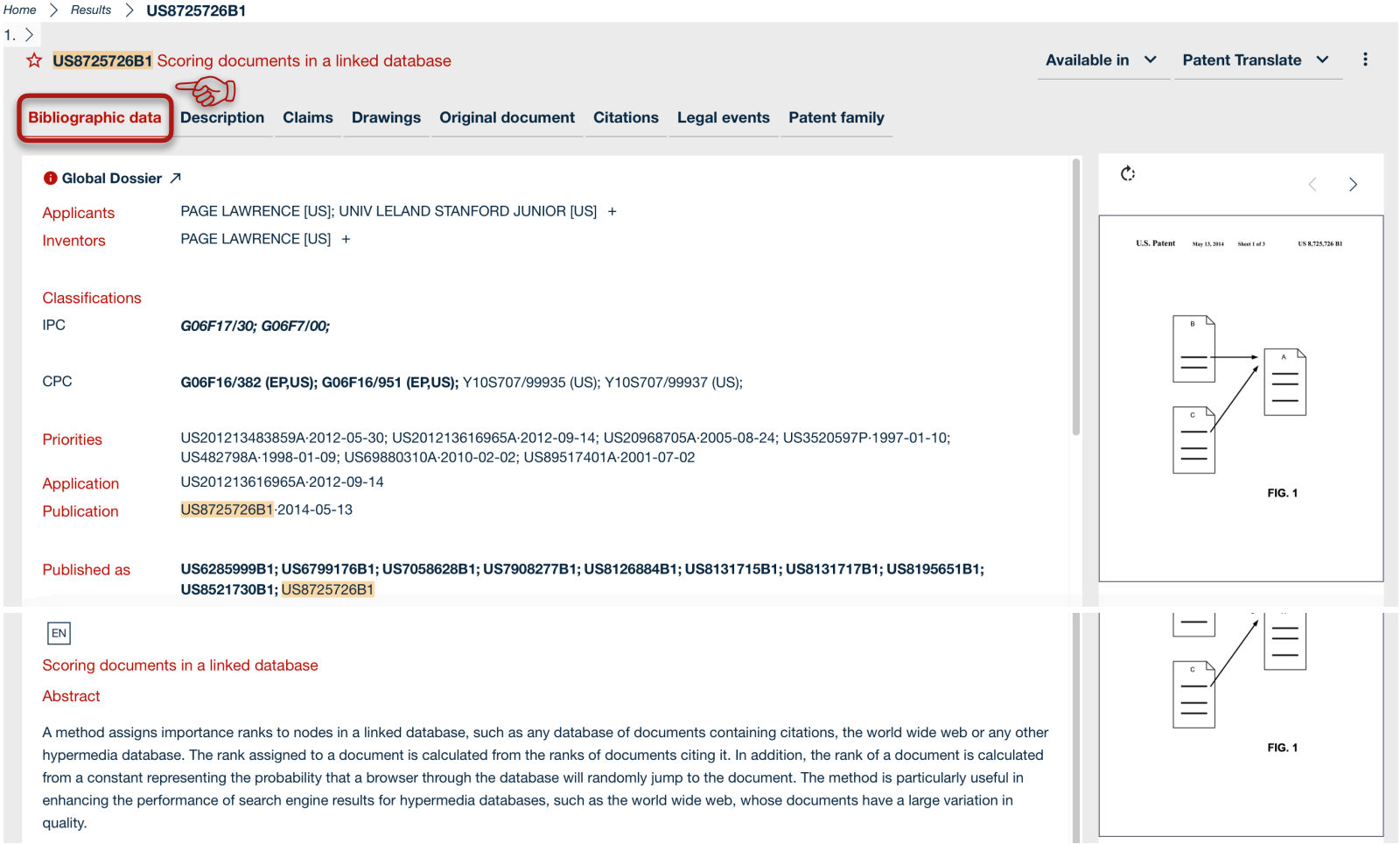
1. Click on the hyperlink.

2. Click on the menu to download original document.





Bibliographic data



“Bibliographic data” or the first page comprises basic patent information: (i) Patent number (US**8725726**B1); (ii) **Title of the invention**; (iii) **Applicants** (typically, Enterprises); (iv) **Inventors** (Professionals associated with Enterprises); (v) Classifications; (vi) **Priority date** for the related patent application and its number; (vii) the **Abstract** of the invention and some additional information.

Bibliographic data – Entrepreneur's perspective

Under **Priorities** several patent applications are listed. The patent applications have "**A**" appended to their names. In this case, there are following patent applications and corresponding priority dates: US201213483859**A**·2012-05-30; US201213616965**A**·2012-09-14; US20968705**A**·2005-08-24; US3520597**P**·1997-01-10; US482798**A**·1998-01-09; US69880310**A**·2010-02-02; US89517401**A**·2001-07-02.

Identify the earliest priority date in the list for the patent application (in this case, it is US482798A·1998-01-09) and add 20 years to it to get **the expiry date of the patent** (2018-01-09 in this case). In fact, all the **Patent family** (see below) members expired on this date.

There is also one application with "**P**" appended. This is US provisional patent application establishing the **priority date** (1997-01-10). In the US, you can submit provisional patent application (which is not examined by the Patent Office) and then within a year file the patent application, establishing the **filing date** (1998-01-09). We have mentioned above that priority date and filing date for a patent application might differ.

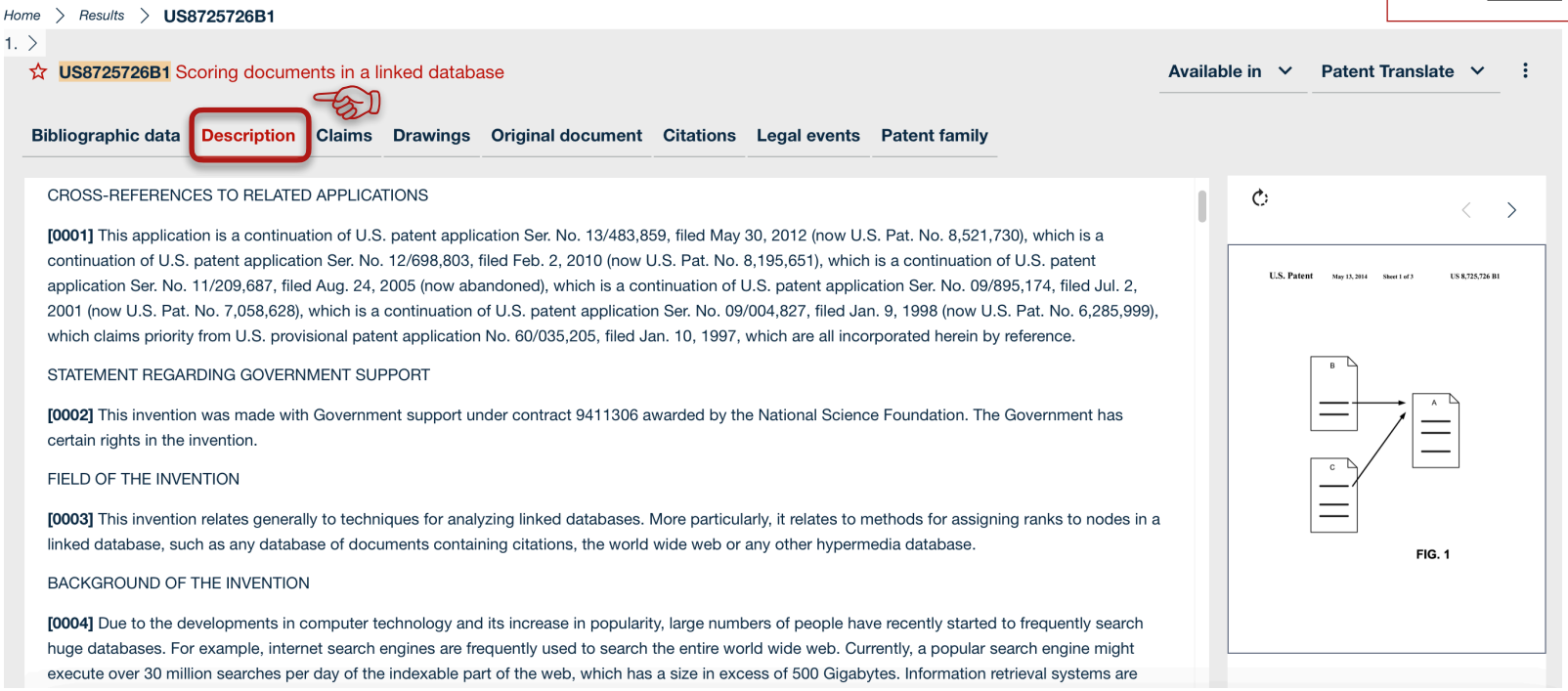
However, the patent protection during 20 years from the date of filing is guaranteed only if the renewal or maintenance fees are paid on schedule for every relevant territory and the patent was not invalidated or revoked during this period. These events will appear in the **Legal events** and/or **Global Dossier** views (see below).

From the business perspective, however, patent is an investment. Investment can be justified if the process or the product protected by the patent has the potential to be or already is commercially successful. If the patented invention cannot be successfully commercialized, then the patent owner can stop paying the renewal and/or maintenance fees, which will trigger the patent expiration earlier (**Global Dossier** will provide the information on these events).

Expiration of the patent triggers the entry of the process (technological innovation) or product into the public domain: (a) others will be free to use and sell the invention; (b) patent-related royalties might stop; (c) patent-related licensing agreements will no longer be enforceable. This is the cost of a 20-year monopoly right. However, there are strategies to extend the monopoly right (**consult with a patent attorney**).

Description

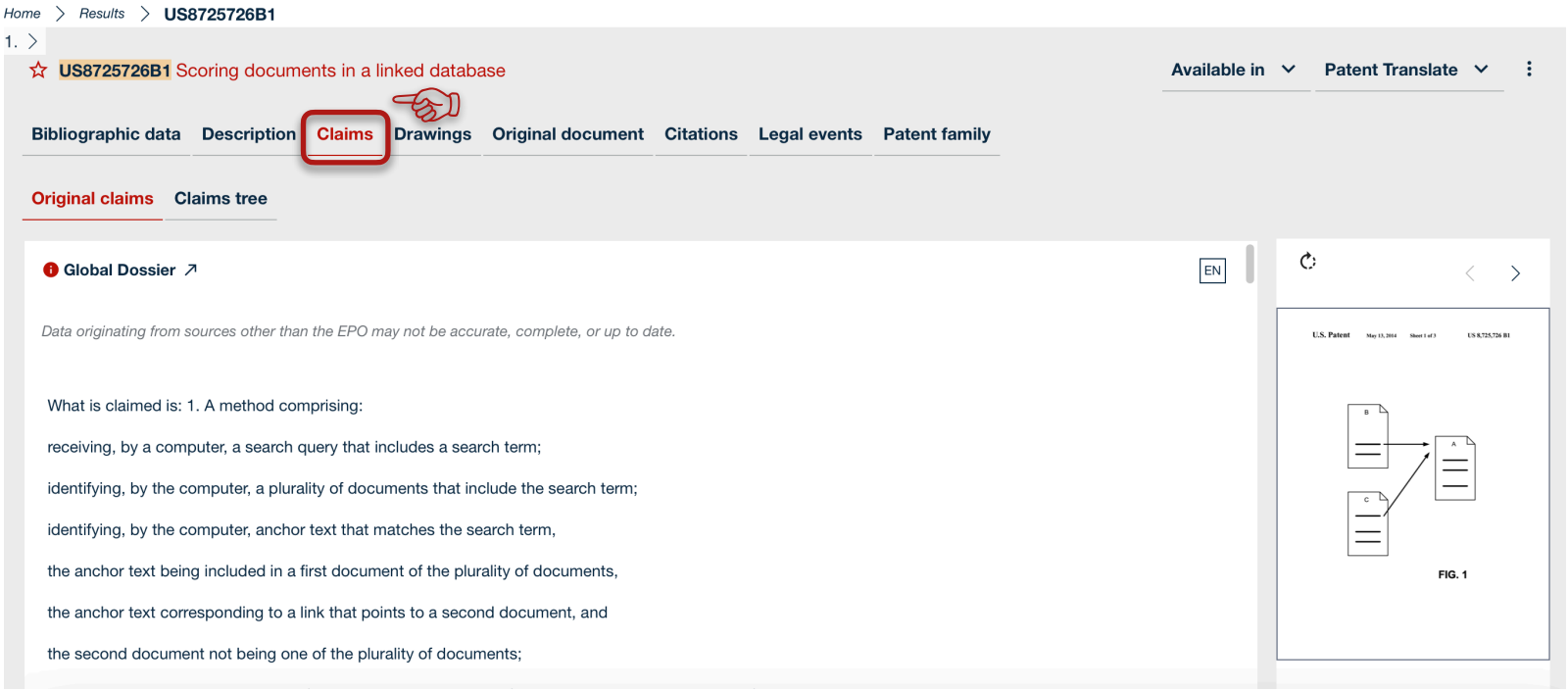
Other kinds of patent documents.



A detailed "Description" of the invention specifies how it is constructed, how it is used and what benefits it offers compared with prior art (*i.e.*, what already exists or known). The **prior art** can be defined as "everything which has been made available to the public, anywhere in the world, before the filing date or **the priority date** of the application claiming the invention" (*e.g.*, published patents, patent applications, scholarly literature, comic books, keynote speeches, science fiction films, newspaper images, *etc.*). Scholarly literature includes: articles, books, theses, conference and symposia abstracts, from academic publishers, professional societies, online repositories, universities, web sites, *etc*. To search for patents and patent applications one can use Espacenet or Google Patents, whereas Google Scholar is an excellent start for scholarly literature.

However, never "take for granted" any information specified (*e.g.*, prior art related to the invention being described) in patents and especially in patent applications not yet passed the scrutinity of the Patent Office. Granted patent has the kind code **B** (US8725726**B1**, EP4022039**B1**), whereas patent application has the kind code **A** (US201213616965**A**, WO2021038275**A1**) appended to their numbers.

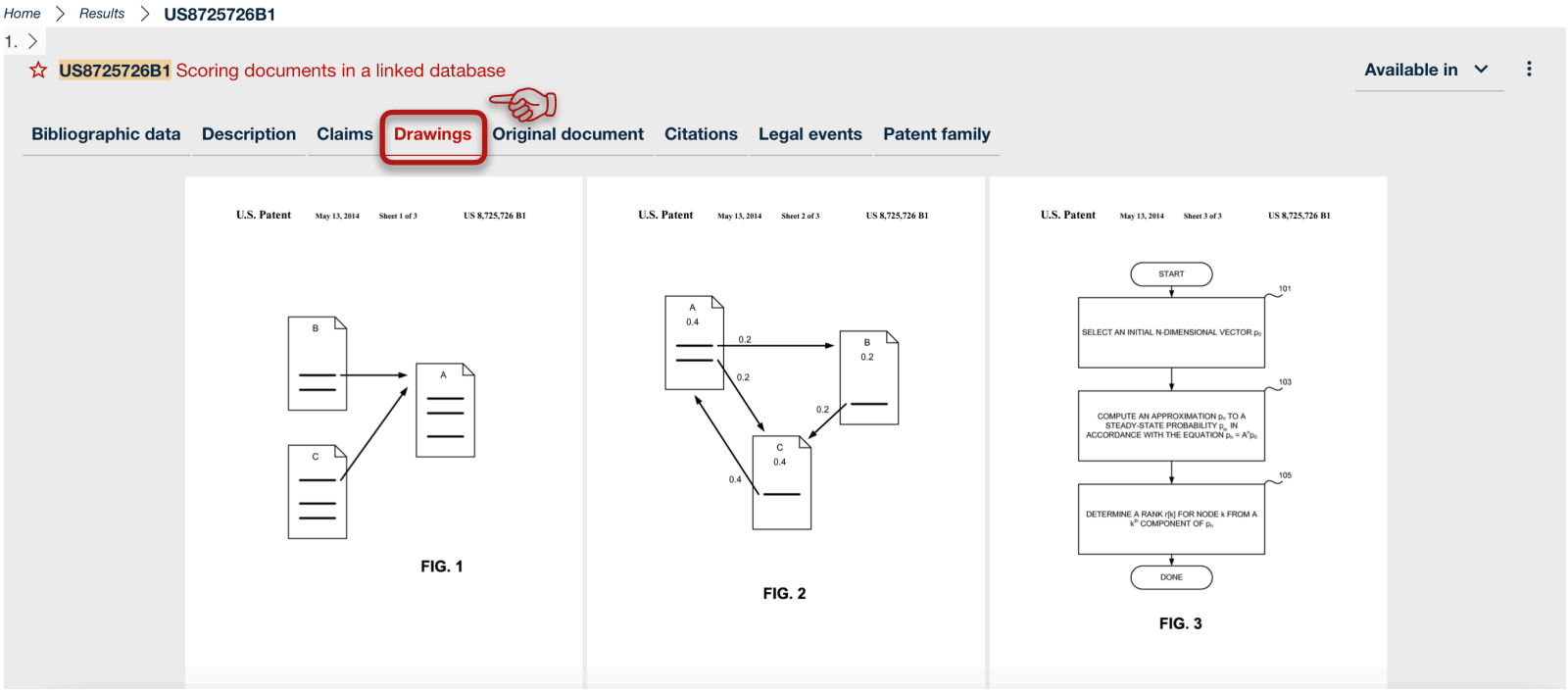
Claims



According to European Patent Guide: “**4.2.018** The **claims** must define the matter for which protection is sought in terms of the technical features of the invention. They must be clear and concise and supported by the description… **4.2.020** An **"independent" claim** must state all the essential features of the invention… **4.2.021** A European patent application may not contain more than one independent claim in the same category (*e.g.* product and/or process) unless one of the exceptions applies. **4.2.022** Each independent claim may be followed by one or more "dependent" claims concerning particular embodiments of the invention. Dependent claims should include all the features of the claim to which they relate. They must contain, if possible at the beginning, a reference to this other claim, which may also be dependent, and then state the additional features for which protection is sought.”

In other words, claims contain a clear and concise definition of what (*i.e.*, technical features of the invention) the patent legally protects. **Claims are the most important aspect of a patent.** Claim 1 will always be independent.

Drawings

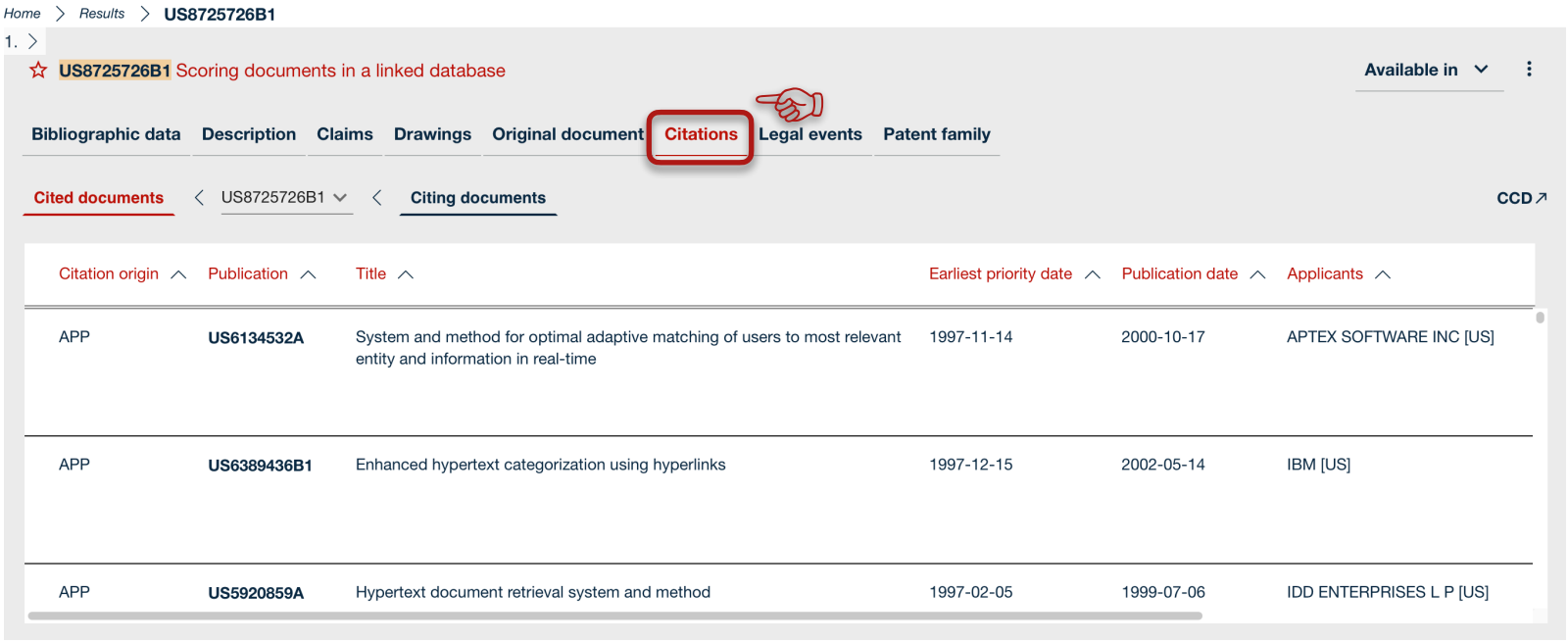


According to European Patent Guide: "**4.2.030** … Reference signs not mentioned in the description and claims must not be used in the **drawings**, and vice versa. The same features, when denoted by reference signs, must be denoted by the same signs throughout the application. **4.2.031** Drawings must not contain text matter except, when absolutely indispensable… **4.2.032** Flow sheets and diagrams are considered to be drawings. **4.2.033** …Although the EPC has no express provisions for photographs, they are nevertheless allowed. Colour photographs are scanned and made available in the electronic file in black and white…";

"Disclosing your invention: **4.2.001** The European patent application must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

The **description** and any accompanying **drawings** form the basis for the **claims**, which determine the extent of the protection conferred by the European patent. The description and the drawings are also used to interpret the claims."

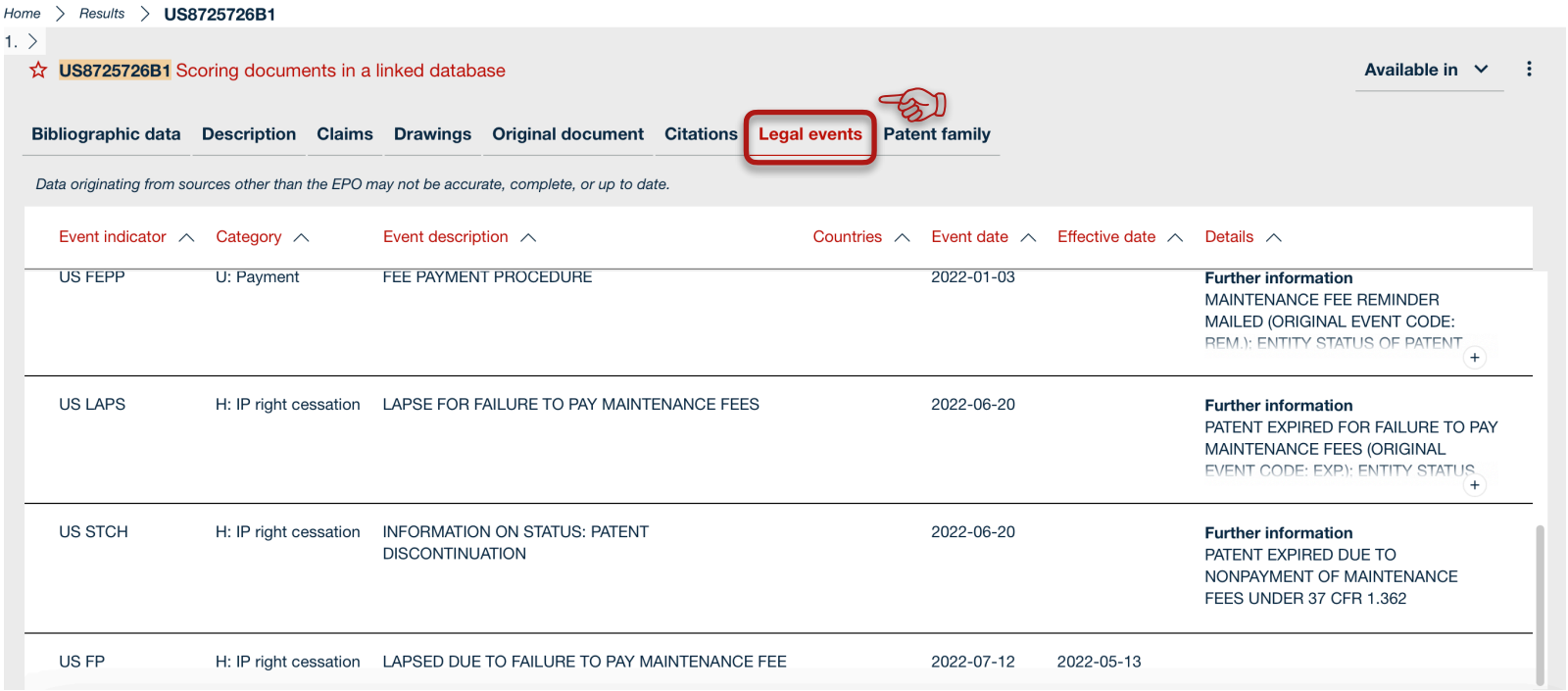
Citations



Citations are used in the Description of a patent application to indicate the background (prior) art to the extent necessary and sufficient for understanding the invention. Thus, citations are source documents (specifically, "**Cited documents**") that describe the prior art in relation to the invention. Source documents can be: published patents, patent applications, scholarly literature (articles, books, theses, conference and symposia abstracts, from academic publishers, professional societies, online repositories, universities, web sites, *etc.*), *etc.*

There are two categories of "Citations": "Cited documents" (described above) and "**Citing documents**". The latter refer to the source documents using this particular patent (US8725726B1 in this case) itself as a prior art – these are the documents that appeared chronologically later. Thus, during analysis, it is possible to "time travel" technologically in relation to a particular patent using these two categories: to the past ("Cited documents") and to the future ("Citing documents"). Citation analysis is a powerful approach, which enables **seeing the evolution of the technologies, spotting competing inventions, identifying technology trends and competitors**.

Legal events



Legal events view displays the legal events specific to the analyzed patent document in a table format. For example:

- EP: the EPO has been informed by WIPO that EP was designated in this application;
- Request for entry into the European phase;
- PCT publication - request for entry into the national phase [chapter 1.1 patent gazette];
- WIPO information: entry into national phase;
- Information on status: patent application and granting procedure in general;
- fee payment procedure (renewal fees);
- **assignment** (*e.g.*, **change of patent owner**, patent is an intellectual property that can change its owner); and other events;
- *etc.*

Legal events: The flow of intellectual property through multiple assignments – Entrepreneur's perspective

Home > Results > US11692000B2

1. >

US11692000B2 Methods of making specialized lignin and lignin products from biomass

Available in

Bibliographic data | Description | Claims | Drawings | Original document | Citations | Legal events | Patent family

Event indicator	Category	Event description	Countries	Event date	Effective date	Details
US AS	R: Party data change	ASSIGNMENT		2021-04-26	2021-04-21	**Party information** Owner name: SWEETWATER ENERGY, INC., NEW YORK
US AS	R: Party data change	ASSIGNMENT		2022-11-14	2020-12-30	**Party information** Owner name: OU BIOFUEL, ESTONIA Details: SECURITY INTEREST;ASSIGNORS:SWEETWATER ENERGY, INC.;HELIOS SCIENTIFIC LLC;REEL/FRAME:061763/0339
US AS	R: Party data change	ASSIGNMENT		2022-11-14	2020-12-30	**Party information** Owner name: GRAANUL TEHNOLOOGIA OUE, ESTONIA Details: SECURITY
US AS	R: Party data change	ASSIGNMENT		2022-11-23	2022-08-19	**Party information** Owner name: APALTA TEHNOLOOGIA OUE, ESTONIA Details: CHANGE OF
US AS	R: Party data change	ASSIGNMENT		2023-05-12	2023-04-10	**Party information** Owner name: APALTA PATENTS OU, ESTONIA Details: ASSIGNMENT OF

Here, the US patent US11692000B2 describing an invention (a process) related to producing lignin from biomass and owned by SWEETWATER ENERGY INC became assigned sequentially to: (1) OÜ BIOFUEL ESTONIA; (2) GRAANUL TEHNOLOOGIA OÜ, which changed its name to APALTA TEHNOLOOGIA OÜ (current name: FIBENOL OÜ); and finally (3) APALTA PATENTS OÜ.

If you are an **Entrepreneur** or an **Inventor** and would like to know the source of a particular technology (process) or a product, then the analysis of **Legal events** available in Espacenet database and **Global Dossier** (see below) could satisfy your curiosity.

Legal events: Assignment and Intangible Asset Finance with an example from The RUP – Entrepreneur's perspective

Inventions, when protected by **intellectual property** (**IP**) rights, represent one potential form of an **Intangible Asset** (*e.g.*, **patents**, trademarks, franchises, copyrights, licensing agreements, trade secrets, brand equities, *etc.*).

Enterprises are typically funded through **grant funding** for Research and Development (**The RUP**, EIC Accelerator, Eurostars, *etc.*), **equity financing** (Investors, Venture Capital, Accelerators, Incubators, *etc.*), and through **debt** (Banks). Intangible assets play an increasingly important role in all three types of funding. Especially for small- and medium-sized enterprises (SMEs) because their worth is primarily what they invent and create.

Thus, **the IP** can become a dynamic enterprise's intangible asset acting as: (i) **a driver of revenue**; (ii) **a signal to funders**; and (iii) **collateral for debt**.

Several routes to **IP-backed financing** are discussed in the "WIPO and Intangible Asset Finance Moving Intangible Asset Finance from the Margins to the Mainstream": (a) **Direct collateral** (IP serves as security for loan); (b) **Securitization** (concurrent issuance of securities in capital markets and entering into licensing agreement); and (c) **Sale-and-leaseback** (IP sold in exchange for upfront funding and entering into licensing agreement to retain ability to commercialize/use IP). Yet another route to IP-backed financing or **Intangible Asset Financing** can also be (d) **Sale** (IP sold in exchange for upfront funding).

Acquisition of SWEETWATER ENERGY INC patent portfolio (see previous page and **Project 36** below) enabled FIBENOL OÜ to build the SWEETWOODS biorefinery in Estonia (Imavere) by attracting public-private grant funding (Sweetwoods project; CBE JU Contribution: **€ 20 959 745**) and then attract a **€ 700 000 000** investment to build a commercial-scale biorefinery in Latvia.

Fibenol and Sweetwater complete final acceptance tests of the pre-treatment technology in Imavere.

Sweetwater receives final acceptance of commercial Sunburst unit at Sweetwoods Project in Estonia.

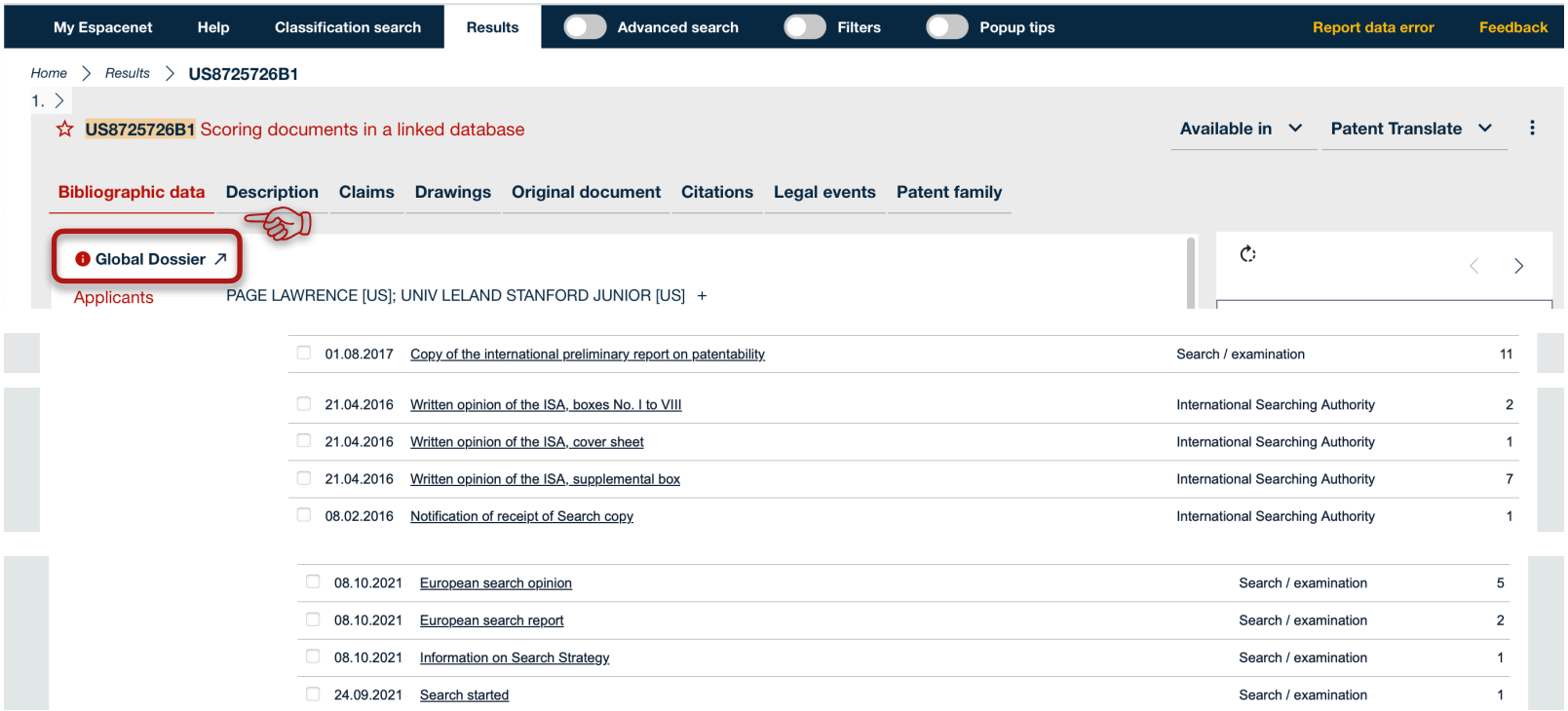
Estonian forest magic: Sweetwater, Graanul to build first commercial biorefinery for cellulosic sugars, lignin.

Graanul Invest, Sweetwater to set up wood fractionation plant in Estonia.

Sweetwater Energy: Enabling the Sustainable Carbon Economy.

sweetwater_de_foa_0001615_lignin.pdf

Global Dossier



The European Patent Register is the most complete and up-to-date source of publicly available procedural information on European patent applications as they pass through each stage of the EPO (European Patent Office) granting process and on European patents with unitary effect. The European Patent Register provides access to Global Dossier entries. If you perform a search directly through European and US registers use patent or patent application numbers without kind codes.

The most complete and up-to-date Global Dossier information on US patent applications can be retrieved directly from USPTO (United States Patent and Trademark Office), however, it can also be accessed via European Patent Register (although with no responsibility).

The hyperlink to **Global Dossier** is available in Bibliographic data, Description, and Claims view of the Espacenet database.

Global Dossier: Search report and Examiner's opinion on Patentability – Entrepreneur's perspective

Most of the patent applications do not convert into granted patents because they either lack the novelty and/or the inventive step (non-obviousness):

- Novelty: an invention is considered to be **new** if it does not form part of the state of the art (prior art).
- Inventive step (non-obviousness) according to European Patent Guide: "**3.4.001** An invention is held to involve an inventive step if it is not obvious to the skilled person in the light of the state of the art… In assessing **inventive step** as opposed to novelty …, multiple sources of prior art may be applied."

The overview of the European patent application process is provided by European Patent Office (EPO). Upon submission of the patent application, an EPO examiner will prepare a **search report** within a few months and send it with a copy of any cited documents and an **initial opinion** as to whether the application meets **patentability requirements** (novelty and inventive step). These documents are available in the Global Dossier 18 months from the priority date (typically for WO-, EP-, and US-patent applications).

The transition of a patent application into a granted patent can take years. If an Enterprise or an Investor interested in a particular invention would like to make a decision based on the most complete and up-to-date information available, then it is time to analyze the **search report** (International, European, *etc.*) and **written opinion on patentability** or **report on patentability** issued by the Patent Offices.

Let's imagine that you are an **Entrepreneur** that has just found an interesting European Patent (EP) application of an invention by your competitor in our report and would like to use elements of competing invention, described in this EP application, in some non-obvious way. In this case, the search report performed by EPO examiner and his opinion on patentability will give you: (i) claim novelty evaluation; (ii) inventive step evaluation for every claim of the invention (its elements); (iii) industrial applicability review; (iv) patentability opinion. Using this information you will have a very good estimate about the probability of a patent application turning into a granted patent (**it is a good idea to consult with a patent attorney at this stage**).

Let's imagine that you are an **Investor** that would like to invest in a fancy spin-off company with a patent application. The valuation of a spin-off with a patent application is higher than without it. Spin-off claims that they will surely get a granted patent. It is time to launch Espacenet, enter the patent application number, hit the Global Dossier hyperlink and analyze the **search report** and **written opinion on patentability** (these documents are published following the expiration of 18 months from the priority date). If the probability of spin-off's patent application conversion into a granted patent is low, then your potential investment is at higher risk than you expected (**it is a good idea to consult with a patent attorney at this stage**).

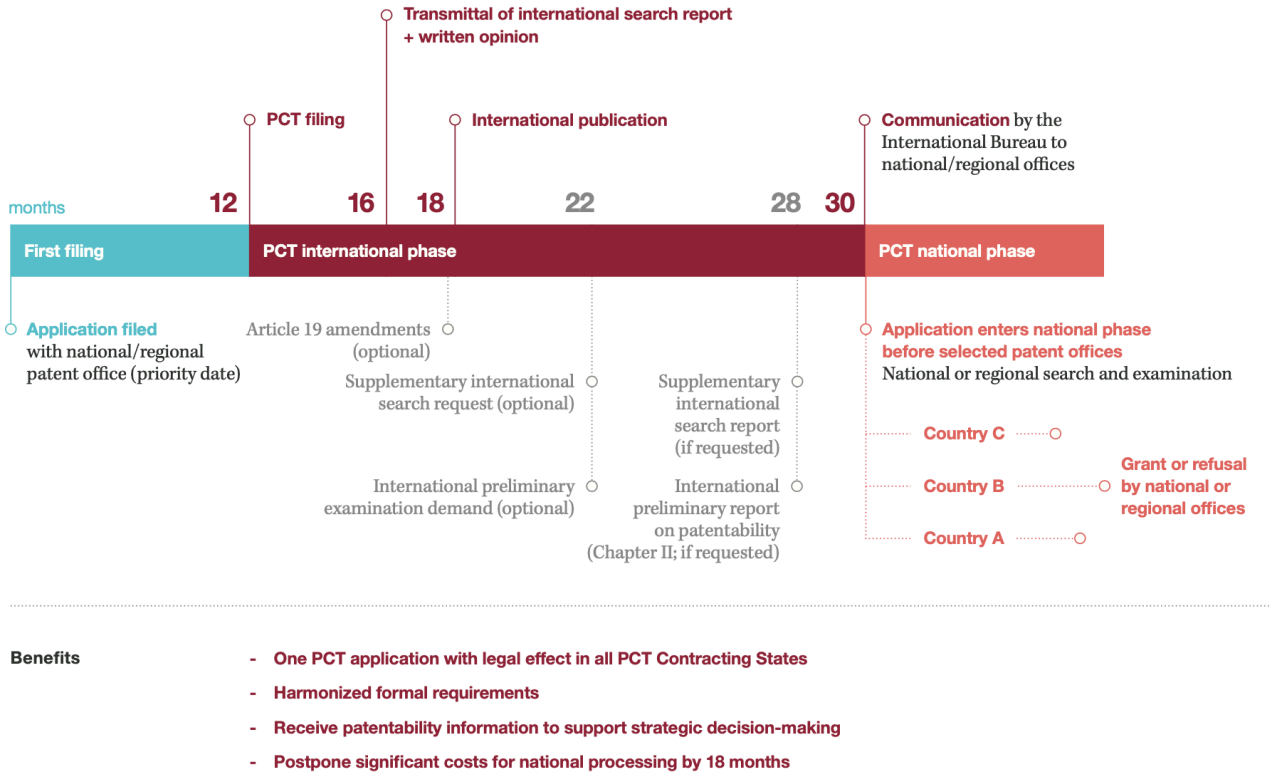
Search report and Patentability mapped to the timeline of Patent Cooperation Treaty application process and Invisibility

On the right, the "Outline of the PCT Application Process" prepared by the **World Intellectual Property Organization** (WIPO) and published in the "*Inventing the Future: an introduction to patents for SMEs*" (WIPO publication No.917.1) document is shown.

PCT process provides 18 months on top of the priority period yielding **30 months** between the date of filing patent application and the date of decision on where to protect the invention geographically. Thus, by filing one international patent application under the PCT, enterprises can simultaneously seek protection for an invention in at least 157 member countries.

As can be seen from the timeline, the **International Search Report** (ISR) and the **written opinion** become available 18 months after filing the patent application with national or regional patent office. In other words, the ISR and written opinion on patentability of an invention are available 18 months after the filing date.

Outline of the PCT Application Process

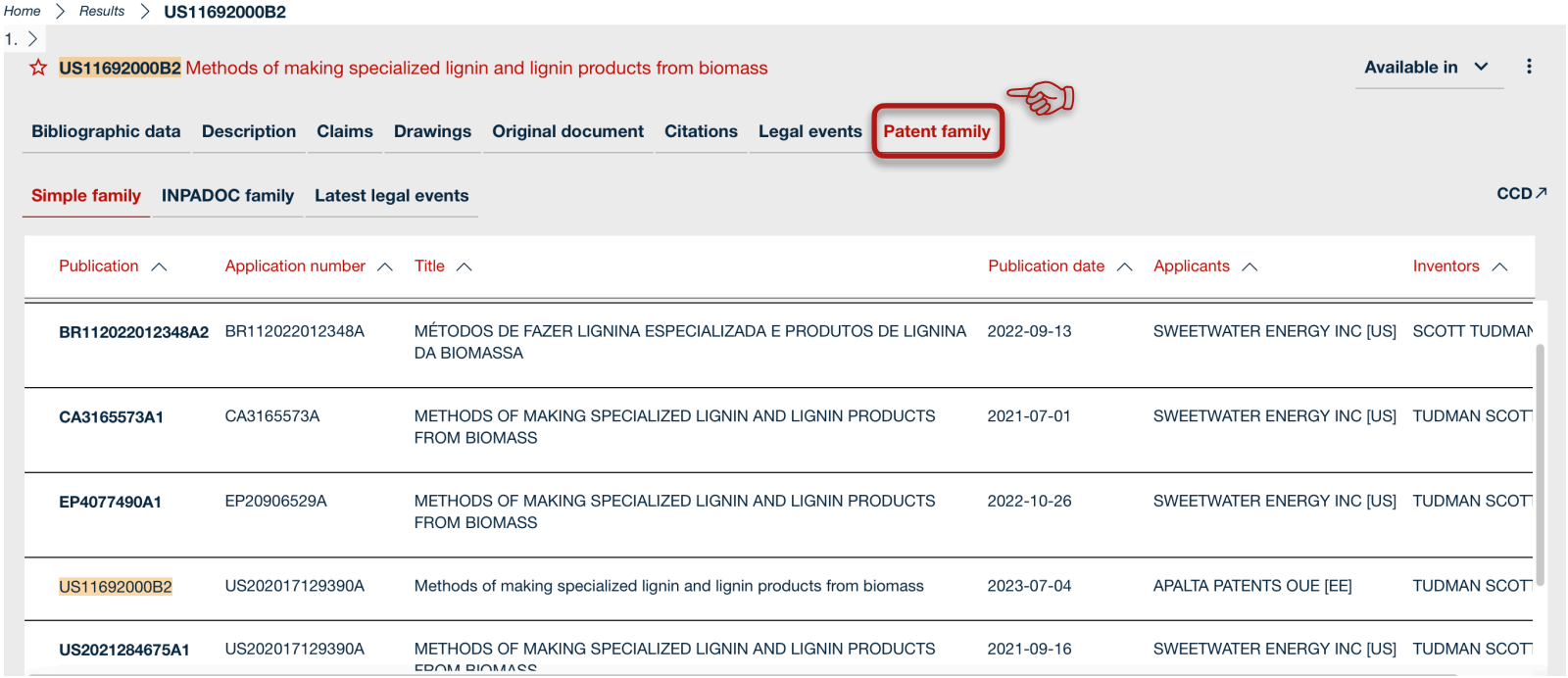


Benefits

- One PCT application with legal effect in all PCT Contracting States
- Harmonized formal requirements
- Receive patentability information to support strategic decision-making
- Postpone significant costs for national processing by 18 months

This timeline also shows that after the **patent application** has been **filed** there is an **18 months** period, during which this patent application is **invisible** to the public.

Patent family



The **Patent family** view displays its members with the original application number US202017129390A and corresponding granted patent US11692000B2 and patent applications: WO2021133733A1 (international, PCT application), CA3165573A1 (Canada), US2021284675A1 (USA), AU2020412611A1 (Australia), BR112022012348A2 (Brazil), and EP4077490A1 (European patent). Currently, the family has only one granted patent – US patent ending with B2.

FIBENOL OÜ has the "negative" **right to prohibit others from using the invention (the method) on certain territory.** Currently, only one member of this Patent Family can be enforced (in the US only). If all of the applications within this family will convert to granted patents, then they will cover the following territories: US, Canada, Australia, Brazil, and some Member States of the European Union.

The first European **patents with unitary effect** registered by the EPO on or after 1 June 2023 will take effect in the **17 EU Member States** (Austria, Belgium, Bulgaria, Denmark, Estonia, Finland, France, Germany, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovenia and Sweden). A single annual renewal fee will be required to cover 17 States, in total < € 5 000 until year 10.

Description, Drawings, and Claims – Entrepreneur's perspective

According to "*Inventing the Future: an introduction to patents for SMEs*" (WIPO publication No.917.1): "The written description of an invention must provide sufficient details so that **anyone** skilled in the same technical field **can reconstruct and practice the invention from the description** and **the drawings** without putting in any inventive effort. If the description falls short of this standard, the patent may be denied or may be revoked after it is challeged in court."

Claims, Description, and Drawings of a patent application contain a lot of useful (and sometimes vital) information that can be exploited by entrepreneurs, investors, business strategy and human resources managers, legal advisers, and technical developers.

Here is how you can use it:

Supercharge your R&D – find out what technical solutions already exist and build on them (new ideas and directions for technology development).

Exploit the available technology – use the technology from patents that are no longer in force, are not valid in certain territories, or from patent applications that have never been granted.

Gain business intelligence – keep track on the innovative activities and future direction of business competitors as technical details of research being carried out by them may first appear in a patent application, before the product or technology reaches the market.

Improve your business decisions – (cross-)licensing, technology partnerships, and mergers and acquisitions, product and service launches (infringement analysis to avoid infringing of someone else's patent(s)).

Spot trends in technology or the market at an early stage – identify key trends in specific technical fields and perform market analysis.

Estimate the value of the patent – use any of patent valuation methods, *e.g.*, "market method" (analysis of comparable transactions made in a market), "cost method" (calculates the cost of developing a similar asset either internally or externally), *etc.*

Tap the human resource potential – identify and access the inventors worldwide working on problems that are relevant to your business.

Determine the patentability of your inventions – perform searches in patent databases.

R&D projects: boosting return on investment and getting the freedom to operate – Entrepreneur's perspective

Research & Development (R&D) is a high-risk endeavor with a potential for high rewards that requires significant financial and human resources. This is one of the reasons R&D is funded by governments via programs like *The RUP*, *Eurostars*, and *EIC Accelerator*. Typically, the funding rates are not 100% and enterprises are expected to provide self-financing.

How to recover financial and human resources invested into R&D? The answer is simple – by patenting inventions that result from the R&D. Moreover, filing a patent application and later obtaining a patent has the potential to increase the return on investment (**ROI**).

Boost the ROI by:

Selling and getting access to both public, public/private, and private funding – a patent owner can assign (sell) a patent to another enterprise for a lump-sum payment. See the "SWEETWATER ENERGY INC – FIBENOL OÜ" example above.

Licensing – a patent (or even patent application) owner may license the rights in the invention to others **non-exclusively** (so that multiple licenses are possible) in exchange for payments and/or royalties.

Cross-licensing or getting the freedom to operate (FTO) – if a patent owner needs access to a technology covered by a patent owned by another party, then a cross-licensing agreement can be negotiated allowing the reciprocal access to the respective technologies by both parties. For instance, a multitude of patent-protected technologies interoperate in mobile devices. **FTO is not granted by the patent – only the right to exclude others, so the cross-licensing is the way to getting the FTO.**

Accessing new markets – a single patent application filed using the Patent Cooperation Treaty (PCT) gives an opportunity for seeking the protection of an invention in all member countries of the PCT (157 member countries as of May 1, 2024). For instance, if you cannot do business in Brazil (for whatever reason: financial, human, or time resources; regulatory hurdles; *etc.*), then you can license out the patent to other local enterprises.

Raising the market value of your enterprise – patent portfolios have magic influence of investors, partners, competitors, and customers. See the "SWEETWATER ENERGY INC – FIBENOL OÜ" example above. Even patent applications have this effect – those "Patent pending" commercials and advertisements. From the standpoint of investors, patent portfolios are typically associated with high-level technological expertise and capacity of the owner. However, owning a patent portfolio, which has not been developed in-house might be a mixed signal to investors, business partners, and customers.

Boosting 116 R&D projects funded by The RUP – exploiting the Patent Search Results – Entrepreneur's perspective

ASSOCIATED ORGANIZATION OR ENTERPRISE

Patent search results:
UNIV LELAND STANFORD JUNIOR: US8725726B1

Click on the hyperlink to access the document

It is not easy to perform a high-quality patent search. Patent firms and most national patent offices offer patent search services for a fee. The quality of the patent search and the fee fluctuate considerably (the fee could range from several hundred to thousands). The fee depends on the complexity of the search, the amount of information available, and the time invested – typically at least 2 hours is required and in some cases up to 8 hours.

We treated every RUP project as an invention and performed a Patent Search for it (see the slides below). Use the practical manual on how to exploit the **Patent Search Results**, detailed above: to supercharge your R&D, to make use of the available technology, to gain business intelligence, to improve your business decisions, to spot trends in technology or the market at an early stage, to estimate the value of the patent, to tap the human resource potential, to determine the patentability of your inventions, and to boost your R&D return on investment (ROI) or R&D of others in your favor. Or invent new ways of using the Patent Search Results.

It is important to highlight that the Patent Search Results presented in this Analysis Report do not equal "Prior Art".

For some of the RUP projects, the Patent Search Results yielded less patent applications/patents. This might be due to their unique nature or due to the limited amount of available information (the abstracts of some of the RUP projects are too "abstract" and for Rounds V and VI of the RUP no abstracts are available as of the date of writing).

In addition to Patent Search Results, we list the filed patent application(s) and/or granted patent(s) potentially associated with the RUP project performed by the Enterprise. For some of these RUP projects we state: "NOVEL" and "INVENTIVE STEP PRESENT" (typically, this is based on the Search Report and Opinion of Patent Office Expert obtained from Global Dossier). If we do so, then this might be a signal for an Entrepreneur or an Investor regarding the probability of obtaining the patent or patent family by an Enterprise executing the RUP project.

For some of the RUP projects, we also looked at scientific papers, conference abstracts, and other online resources.

Part III: Boosting 116 Projects funded by The RUP – the Patent Search Results

RUP funding round I: Enterprises, Projects Information and Patent Search Results (part 1)

Project start	Project end	Project number: Project name	Enterprise	Project funding
26.01.2021	31.12.2023	***1**: SARS-CoV-2 viirusevastane preparaat (Corona BioBlock). Arendus, tootmistehnoloogia juurutamine ja turule toomine*	Aktsiaselts CHEMI-PHARM	2 985 867,70
27.01.2021	31.01.2023	***2**: „NETFIX elektrivõrgu monitoorimise süsteem“*	Enefit Connect OÜ	392 212,50
01.02.2021	30.06.2023	***3**: Täpsel positsioneerimistehnoloogial põhinev tööstuse digitaalse juhtimissüsteemi arendus ELIKO TAK ja Atemix Automaatika*	OÜ ELIKO Tehnoloogia Arenduskeskus	1 766 390,00
01.02.2021	31.07.2023	***4**: Tehnoloogilise alusplatvormi arendamine SARS-COV-2 ja teisi respiratoorseid viiruseid neutraliseerivate preparaatide loomiseks hüperimmuniseeritud lehmade ternespiimast (BioMask)*	Icosagen Cell Factory OÜ	2 105 548,89
01.02.2021	31.12.2023	**5:** Development of therapeutic IgA molecules and expression platform for SARS-CoV (sIgA-Covid)	Icosagen Cell Factory OÜ	2 968 871,71
01.02.2021	31.12.2023	**6:** *POC-testi arendamine patogeenide (sh COVID-19) kiirdiagnostikaks*	Solis BioDyne OÜ	1 094 560,00
01.02.2021	31.12.2023	**7:** *Droonide avastus- ja tõrjesüsteemi arendus*	Osaühing Rantelon	1 617 768,80
08.02.2021	30.04.2022	**8:** Piloting OSA-PCC technology	R-S OSA Service OÜ	252 754,00
08.02.2021	31.12.2023	**9:** *Cleveron 601 ja Cleveron 502 arendus*	Cleveron AS	1 582 974,64
12.02.2021	31.12.2021	**10:** *AS Kunda Nordic Tsement rakendusuuringu projekt*[Cancelled]	Aktsiaselts Kunda Nordic Tsement	142 568,22
12.02.2021	31.12.2023	**11:** *Piiriülene laenamine tehisintellekti abil*	Mifundo OÜ	691 260,05
01.03.2021	31.05.2022	**12:** *Nahahaiguste ja muude nahaprobleemide diagnoosimiseks mõeldud mobiilseadmetel töötava lokaliseeritud masinõppe printsiibil töötava tarkvara arendus*	HautAI OÜ	172 200,00

Data source: https://eas.ee/wp-content/uploads/2022/11/i_voorus_toetatud_projektid.pdf

RUP funding round I: Enterprises, Projects Information and Patent Search Results (part 2)

Project start	Project end	Project name	Enterprise	Project funding
01.03.2021	30.10.2022	**13:** *Taimse hakkmassi tootmistehnoloogia arendus*	OÜ Vegestar	196 882,00
01.03.2021	28.02.2023	**14:** *Tervisekonto*	OÜ Elsavie	1 298 343,75
01.03.2021	28.02.2023	**15:** *Nutika teekatendi rakendusuuring ja arendus*	e-Pavement OÜ	145 200,00
01.03.2021	31.12.2023	**16:** *Tera- ja kaunviljade ekstraheerimistehnoloogiate väljatöötamine*	Tulundusühistu WIRU VILI	665 364,07
01.04.2021	31.03.2023	**17:** Ultracapacitor Opportunity Charging	OÜ Skeleton Technologies	1 464 223,58
01.04.2021	31.03.2023	**18:** *Uudsete juuretiste isolatsioon taimsete piimalaadsete toodete fermenteerimiseks (VegeFerm)*	Aktsiaselts Toidu- ja Fermentatsioonitehnoloogia	360 106,08
01.04.2021	31.03.2023	**19:** *Ajastusakna tehisintellekti arendamine eAgronomi digitaalse nõustamise teenuspakkumisse*	OÜ E-Agronom	645 330,00
01.04.2021	30.09.2023	**20:** *Inaktiivsete pärmitoodete rakendusvõimaluste laiendamine*	AKTSIASELTS SALUTAGUSE PÄRMITEHAS	1 015 640,47
01.06.2021	31.08.2022	**21:** *Synbase kliiniliste otsuste tugisüsteemide koostalitusplatvormi arendus*	OÜ Synbase	603 228,00
01.07.2021	31.12.2023	**22:** *Taaskasutatavad monopolümeersed plastikpakendid*	aktsiaselts ESTIKO - PLASTAR	152 808,00
01.08.2021	31.05.2022	**23:** *Iseõppiva SMS sõnumite automaatse marsruutimise prototüüp-tehnoloogia eksperimentaalne arendus*	Messente Communications OÜ	119 449,60

Project 1: "*SARS-CoV-2 antiviral preparation (Corona BioBlock). Development, introduction of production technology and introduction to the market.*". Enterprise: *Aktsiaselts* CHEMI-PHARM

Abstract, [ENG]: AS Chemi-Pharm wants to contribute to the fight against the COVID-19 pandemic by developing a product with an inhibitory effect on the SARS CoV-2 virus. It is a product of universal and global importance, as viruses regularly surround people and avoiding them will be in focus as long as humanity exists. This project is a pilot project that includes important follow-up activities for the development of products against other viruses as well as combinations such as influenza+SARS CoV-2.

Original project title, [EE]: *SARS-CoV-2 viirusevastane preparaat (Corona BioBlock). Arendus, tootmistehnoloogia juurutamine ja turule toomine.*

Original abstract, [EE]: *AS Chemi-Pharm soovib anda panus võitluses COVID-19 pandeemiaga töötades välja SARS CoV-2 viirust inhibeeriva toimega toote. Tegemist on universaalse ja globaalse tähtsusega tootega kuna viirused ümbritsevad inimesi regulaarselt ja neist hoidumine on fookuses nii kaua, kui selleks on ka eksisteeriv inimkond. Käesolev projekt on pilootprojektiks, mis sisaldab olulisi jätkutegevusi ka teiste viiruste vastaste toodete arendamiseks ja ka kombineerimiseks nagu gripp+SARS CoV-2.*

Patent search results:

WO2020143892A2; WYOMINGV IMMUNE INC: WO2022103871A1; 302 MILITARY HOSPITAL CHINA: CN107625727A; INST MED PLANT DEV CAMS: CN116236465A; BIOACTIVOS Y NUTRACEUTICOS DE MEXICO S A DE C V: WO2020175976A1; IMMUCELL CORP: WO9712901A1; FONTERRA COOP GROUP LT: CN1299771C; ANADIS LTD: AU2009225302A1; IMMURON LTD: CA2684103A1; REEF PHARMACEUTICALS PTY LTD: US2020140529A1; IMMURON LTD: CA2795853A1; ANADIS LTD: TW200918552A.

Project 1 and **Project 4** (below) represent collaboration between Aktsiaselts CHEMI-PHARM, Icosagen Cell Factory OÜ, and Teadus ja Tegu OÜ as well as academic partners – University of Tartu (Institute of Pharmacy, Institute of Technology, and Institute of Biomedicine and Translational Medicine) and Estonian University of Life Sciences (Institute of Veterinary Medicine and Animal Sciences).

The family of patent applications filed by **Icosagen Cell Factory OÜ**:

WO2022195455A1, AU2022236877A1, BR112023018584A2, CA3213411A1, CL2023002709A1, CN117480181A, CO2023013473A2, EP4308600A1, IL305900A, JP2024511682A, KR20230156737A, *etc*.

Project 2: "*NETFIX power grid monitoring system*". Enterprise: Enefit Connect OÜ (Enefit AS)

Abstract, [ENG]: The goal is to prove, using various data mining methods, that based on the data collected from the grid, it is possible to prevent customer interruptions due to certain types of failures replacing failure repairs with planned maintenance work. In addition, this tool allows monitoring of the low-voltage network and provides a good overview for network analysis. The application being created will help reduce operating expenses (OPEX) and increase customer satisfaction.

Original project title, [EE]: *"NETFIX elektrivõrgu monitoorimise süsteem"*

Original abstract, [EE]: *Eesmärgiks on erinevaid andmekaeve meetodeid kasutades tõestada, et võrgust kogutavate andmete põhjal on võimalik teatud tüüpi riketest tingitud kliendikatkestusi ennetada ning rikketööd asendada plaanilise hooldustööga. Lisaks võimaldab antud tööriist monitoorida madalpinge võrku ja annab hea ülevaate võrgu analüüsiks. Loodav rakendus aitab vähendada OPEX kulusid ja tõsta kliendirahulolu.*

Patent search results:

CHONGQING JIUQI TECH CO LTD: CN114089114A; STATE GRID CORP CHINA: WO2023115842A1; CONS EDISON CO NEW YORK INC: US2010292857A1; STATE GRID CORP CHINA: CN106815647A; STATE GRID CORP CHINA: CN114156865A; YANCHENG POWER SUPPLY BRANCH STATE GRID JIANGSU ELECTRIC POWER CO LTD: CN114910740A; YANCHENG POWER SUPPLY BRANCH STATE GRID JIANGSU ELECTRIC POWER CO LTD: CN115395643A; STATE GRID SHANGHAI MUNICIPAL ELECTRIC POWER CO: CN117252581A; STATE GRID CORP CHINA: CN107576889A; SHENZHEN POWER SUPPLY BUREAU: CN109472476A; NARI TECHNOLOGY DEV CO LTD: CN104655989A; GUANGZHOU POWER SUPPLY CO LTD: CN211263565U; ZHONGSHAN POWER SUPPLY BUREAU GUANGDONG POWER GRID CO: CN115276005A; STATE GRID CORP CHINA: CN106483406A; STATE GRID CORP CHINA: CN109995145A; ANHUI SHUSHENG DATA TECH CO LTD: CN111367970A; HITACHI LTD: JP7152461B2; XINJIANG UNIVERSITY: CN106054104B; STATE GRID CORP CHINA: CN101951027B; STATE GRID SHANGHAI MUNICIPAL ELECTRIC POWER CO: WO2023035499A1; RHEINISCH-WESTFÄLISCHE TECHNISCHE HOCHSCHULE AACHEN: DE102016112005A1; STATE GRID SHANGHAI MUNICIPAL ELECTRIC POWER CO: AU2021335236A1.

Project 3: *Development of industrial digital command and control system based on precise positioning technology ELIKO TAK and Atemix automaatika.* Enterprise: OÜ ELIKO Tehnoloogia Arenduskeskus

Abstract, [ENG]: Downtime can consume up to 38% of production time, and the financial loss can run into millions. Many manufacturing processes are not transparent enough. In the case of problems and downtimes, the cause is not known and bottlenecks are difficult to identify. The goal of the project is to create a unified ultra-wide band (UWB) and Global Navigation Satellite Systems (GNSS) network technology for indoor and outdoor positioning and a final product based on it together with application software to increase the efficiency and productivity of industrial processes.

Original project title, [EE]: *Täpsel positsioneerimistehnoloogial põhinev tööstuse digitaalse juhtimissüsteemi arendus ELIKO TAK ja Atemix (Tööstus)automaatika OÜ.*

Original abstract, [EE]: *Tööseisakud võivad tootmises kulutada kuni 38% tööajast, ning selle rahaline kahju võib ulatuda miljonitesse. Paljud tootmisprotsessid on läbipaistmatud. Probleemide ja seisakute puhul ei teata nende põhjust ja pudelikaelade väljaselgitamine on keeruline. Projekti eesmärk on luua ühtne sise- ja välisruumide positsioneerimise UWB ja GNSS võrgutehnoloogia ning sellel põhinev lõpptoode koos rakendustarkvaraga tööstusprotsesside efektiivsuse ja tootlikkuse tõstmiseks.*

Patent search results:

US2024077873A1; XIAN INST SPACE RADIO TECH: CN111948681A; GWACS DEFENSE INC WO2013049576A2; SONY CORP: US10239345B2; VOLKSWAGEN AG: EP3495836A1; TABER INNOVATIONS GROUP LLC: US11828862B2; US6707424B1; SAMSUNG ELECTRONICS CO LTD: WO2022186589A1; WUHAN EASYLINKIN TECH CO LTD: CN105911578A; 32 TECH LLC: US11545017B2; QUALCOMM INC: US2010094554A1; MAGELLAN SYSTEMS JAPAN CO LTD: JP2023517016A; GLOBAL GEOPHYSICAL SERVICES INC: US2014091967A1; BEIJING ZHONGDOU TECHNOLOGY CO LTD CN104090264A; JFE STEEL CORP: JP2019144244A; BEIJING ZHONGDOU TECHNOLOGY CO LTD: CN104076382A; KR102129102B1; NXP BV: EP3432473A1; SAMSUNG ELECTRONICS CO LTD: WO2022030934A1; DENSO CORP: JP2021075859A; SONY CORP: WO2020167627A1; QUALCOMM INC: WO2022241346A1; UBLOX AG: EP4175334A1; ABAUT GMBH: DE102019003695A1; MICROSOFT TECHNOLOGY LICENSING LLC: WO2023229711A1; HEXAGON GEOSYSTEMS SERVICES AG: CA3187968A1; HUAWEI TECH CO LTD: EP4358589A1; VIVO MOBILE COMMUNICATION CO LTD: US2023275644A1; KOMATSU MFG CO LTD: JP2019148147A.

Project 4: "*Development of a basic technological platform for the creation of preparations neutralizing SARS-COV-2 and other respiratory viruses from the colostrum of hyperimmunized cows (BioMask)*". Enterprise: Icosagen Cell Factory OÜ

Abstract, [ENG]: Icosagen Cell Factory OÜ and partner company Teadus ja Tegu OÜ are developing technologies to create antibody solutions against SARS-COV-2 and influenza A and B viruses. Colostrum of hyperimmunized cows is used to prepare antibody solutions, from which it is possible to purify antibodies of a neutralizing nature. Antibody solutions can be used to make nebulized prophylactic preparations against various respiratory viruses.

Original project title, [EE]: *Tehnoloogilise alusplatvormi arendamine SARS-COV-2 ja teisi respiratoorseid viiruseid neutraliseerivate preparaatide loomiseks hüperimmuniseeritud lehmade ternespiimast (BioMask)*

Original abstract, [EE]: *Icosagen Cell Factory OÜ ning partnerettevõte Teadus ja Tegu OÜ arendavad tehnoloogiad SARS-COV-2 ning A- ja B tüüpi gripiviiruste vastaste antikehalahuste loomiseks. Antikehalahuste valmistamiseks kasutatakse hüperimmuniseeritud lehmade ternespiima, millest on võimalik välja puhastada viirust neutraliseeriva iseloomuga antikehad. Antikehalahuseid saab kasutada pihustatavate profülaktiliste preparaatide valmistamiseks erinevate respiratoorsete viiruste vastu.*

Patent search results:

WO2020143892A2; WYOMINGV IMMUNE INC: WO2022103871A1; PANTHERYX INC: EP2643017A1, WO2020176637A1; IMMURON LTD: WO2022011436A1; INTERVET INC: US2011177116A1; ANUBIS BIO CORP: US10973918B2; CORE CONSUMER HEALTHCARE LLC: US2024058385A1; BEIJING HEALTH GUARD BIOTECHNOLOGY CO LTD: CN113842455A; MULTIMERICS APS: WO2009092383A2; LAY SCIENCES INC: US2023285547A1; IGNOVA GMBH: WO2021233927A1.

References within: *Jawhara, (2020).* Can drinking microfiltered raw immune milk from cows immunized against SARS-CoV-2 provide short-term protection against COVID-19?

The family of patent applications filed by Icosagen Cell Factory OÜ:

WO2022195455A1, AU2022236877A1, BR112023018584A2, CA3213411A1, CL2023002709A1, CN117480181A, CO2023013473A2, EP4308600A1, IL305900A, JP2024511682A, KR20230156737A, *etc*.

Project 5: "*Development of therapeutic IgA molecules and expression platform for SARS-CoV (sIgA-Covid)*". Enterprise: Icosagen Cell Factory OÜ

Abstract, [ENG]: The aim of the project is to develop a drug candidate development platform based on anti-viral antibodies. Technologies for the development and production of antibodies based on secretory immunoglobulin A will be developed during the project. In order to validate the new approach, animal experiments will be conducted with antibodies against SARS-CoV-2 developed by the applicant, which are based on the secretory immunoglobulin A antibody isotype.

Original project title, [ENG]: Development of therapeutic IgA molecules and expression platform for SARS-CoV (sIgA-Covid)

Original abstract, [EE]: *Projekti eesmärk on välja töötada viirusvastastel antikehadel põhinev ravimikandidaatide arendusplatvorm. Projekti käigus arendatakse välja tehnoloogiad sekretoorse immunoglobuliin A põhiste antikehade arendamiseks ja tootmiseks. Uudse lähenemise valideerimiseks viiakse läbi loomkatsetused taotleja arendatud SARS-CoV-2 vastaste antikehadega, mis põhinevad sekretoorse immunoglobuliin A antikeha isotüübil.*

Patent search results:

UNIV CATTOLICA DEL SACRO CUORE: WO2022034513A1; UNIV ILLINOIS: WO2023044419A2; UNIV MASSACHUSETTS: US2023192820A1; PASTEUR INSTITUT: WO2022228827A1; WO2022081436A1; CN116670165A; WO2017010911A1; JAPAN CHEM RES: CA2052809A1; CHINA TAOFEN FOUNDATION: CN1105270A; NEC SOLUTION INNOVATORS LTD: EP3514237A1; RU2249465C1; RU2277421C1; VACCINEX INC: CA2899344A1; VENTRIA BIOSCIENCE INC: US2023126423A1; EP4129309A1; NESTLE SA: WO2023118197A1; NESTEC SA: US10501530B2; WO2021219786A1; GENZYME CORP: JP2021168681A, US2020080063A1; UNIV MASSACHUSETTS: WO2021226179A2; US2021340226A1.

(1) *Ejemel et al., (2020).* A cross-reactive human IgA monoclonal antibody blocks SARS-CoV-2 spike-ACE2 interaction.
(2) *Wang et al., (2020).* Enhanced SARS-CoV-2 neutralization by secretory IgA in vitro.

Patent application filed by Icosagen Cell Factory OÜ, which might be connected to Project 5:

WO2022079606A1

Project 6: "*POC-testi arendamine patogeenide (sh COVID-19) kiirdiagnostikaks*". Enterprise: Solis BioDyne OÜ

Abstract, [ENG]: Solis BioDyne is developing a point-of-care (POC) solution that would allow to perform a Covid-19 test using nasopharyngeal swab or saliva samples and get the results in 30 minutes.

Original project title, [ENG]: Development of a POC test for rapid diagnostics of pathogens (including COVID-19).

Original abstract, [EE]: *Solis BioDyne arendab patsiendi lähiuuringu (POC) lahendust, mis võimaldab ninaneelukaapest või süljetestist anda COVID-19 analüüsi vastus 30 minutiga.*

Patent search results:

ABBOTT LAB: US2024069037A1; ABBOTT LAB: CA3174276A1; UNIV CALIFORNIA: WO2022047127A1; UNIV CONNECTICUT: US2024002956A1; INBIOS INT INC: WO2022060846A1; E25BIO INC: WO2021194980A2; INBIOS INT INC: US2024003876A1; HERO SCIENT LTD: WO2021181338A1; VISBY MEDICAL INC: WO2021195150A1.

Foundation for Innovative New Diagnostics (**FIND**) is a WHO Collaborating Centre for Laboratory Strengthening and Diagnostic Technology Evaluation:

(1) COVID-19 TEST DIRECTORY: Total tests: 2454 (as of May 12, 2024). Type of tests: (a) Antibody [serological, 529]; (b) Antigen [1124]; (c) RNA [781];
(2) True Point of Care (POC) tests: 1131. Type of tests: (a) Antibody [serological, 161]; (b) Antigen [945]; (c) RNA [22].

Manufacturers of true POC RNA tests (acquisition and/or regulatory status): 3EO Health, Inc. (US FDA EUA); Med FairSourcing GmbH; Sense Biodetection (acquired by Sherlock Bio, CE-IVDD); Lucira Health (acquired by Pfizer Inc., Health Canada; Singapore HSA; US FDA EUA); Anavasi Diagnostics (US FDA EUA); Canary Global Inc (CE-IVDD); Alveo Technologies (CE-IVDD); Lucira Health (acquired by Pfizer Inc., Australia TGA; CE-IVDD; Health Canada; US FDA EUA); Credo Diagnostics Biomedical Pte. ltd. (CE-IVDD); Jiangsu MicroDiag Biomedical Technology Co., Ltd.; Shen Zhen Shineway Technology Corporation (CE-IVDD); Cue Health (CE-IVDD; Singapore HSA; US FDA De Novo; US FDA EUA); Hangzhou Realy Tech Co., ltd. (Australia TGA; CE-IVDD); Aptitude Medical Systems, Inc. (US FDA EUA); FemtoDx; Lucira Health (acquired by Pfizer Inc., US FDA EUA); Cepheid (US FDA EUA); K.K. MIRAI GENOMICS (CE-IVDD).

Project 7: "*Droonide avastus- ja tõrjesüsteemi arendus*". Enterprise: Osaühing Rantelon

Abstract, [ENG]: The project develops artificial intelligence (AI)-based drone detection and countermeasure technology, which makes it possible to control the risks associated with the explosive growth in drone development. The project brings together *Rantelon* and *Marduk Technologies*, the leading anti-drone companies in Estonia, and *Sirius Microwave*, which specializes in radio communications. The partners' anti-drone capabilities based on radio communications and optics are brought to a new level and combined into a complete solution to provide a comprehensive solution and increase sales potential.

Original project title, [ENG]: Development of a drone detection and countermeasure system.

Original abstract, [EE]: *Projektis arendatakse tehisintelligentne droonituvastuse ja -tõrje tehnoloogia, mis võimaldab ohjata droonide plahvatusliku arenguga kaasnevaid riske. Projekt koondab Eestis juhtivad droonivastase võitluse ettevõtted Rantelon ja Marduk Technologies ning raadiosides spetsialiseerunud Sirius Microwave-i. Viiakse uuele tasemele partnerite raadiosidel ja optikal tuginev droonivastane võimekus ja kombineeritakse täislahenduseks, et pakkuda laiahaardelist lahendust ning suurendada müügipotentsiaali.*

Patent search results:

CHENGDU BENYUAN JUNENG TECH CO LTD: CN115308813A; UNIV JIANGXI SCI & TECHNOLOGY: CN115390582A; NANJING LAISI ELECTRONIC EQUIPMENT CO LTD: CN115761421A; UNIV ZHEJIANG: CN116184322A; DEKA PRODUCTS LP: WO2023279017A1; SUZHOU SHANCHI NUMERICAL CONTROL SYSTEM INTEGRATION CO LTD: CN109447048A; HANGZHOU HIKROBOT TECH CO LTD: CN112945015A; BEIJING RUIDAEN TECH CO LTD: CN115979068A; JIANGSU ZHONGRONG DIXIAOMAN SECURITY TECH CO LTD: CN111121541A; RU187275U1; BEIJING CSTIMES TECH CO LTD: CN113784055A; FOSHAN HAIKE YUNCHOU INFORMATION TECH CO LTD: CN107990787A; PUBLICHNOE AKTSIONERNOE OBSHCHESTVO «NAUCHNO PROIZVODSTVENNOE OBIEEDINENIE «ALMAZ» IMENI AKADEMIKA A RU2738508C1; TIANJIN ZHONGTIAN HIGH TECH DEFENCE TECH CO LTD: CN109639389A; UNIT 93209 OF PLA: CN116383717A; TIANJIN YUNXIANG UAV TECH CO LTD: CN116242206A; SHANGHAI EAGLE SENSE SCIENCE AND TECH LIMITED COMPANY: CN216086664U; STATE GRID POWER SPACE TECH CO LTD: CN116704684A; YOUNG KOOK ELECTRONICS KR102210902B1; UNIV GUILIN AEROSPACE TECHNOLOGY: CN212694533U; XIDRONE SYSTEMS INC: US10281570B2; INTECS SOLUTIONS SPA: IT201800007522A1; XIDRONE SYSTEMS INC: US2017192089A1; CRFS LTD: EP4212903A1; TIANJIN YUNXIANG UAV TECH CO LTD: CN116242206A; BEIJING INST ENVIRONMENTAL FEATURES: CN113885579A; CHINA TRANSP REMOTE SENSING AIRSPACE TECHNOLOGY JIANGSU CO LTD CN115314148A.

Project 8: "*Piloting OSA-PCC (precipitated calcium carbonate) technology*". Enterprise: R-S OSA Service OÜ

Abstract, [ENG]: R-S OSA Service OÜ is developing the technology for oil shale ash valorization as part of the applied research project. During the project, the technology will be piloted on a semi-industrial scale and the primary design and structure of the production unit will be developed for implementation on an industrial scale.

Original project title, [ENG]: Piloting OSA-PCC (Oil Shale Ash - Precipitated Calcium Carbonate) technology.

Original abstract, [EE]: *R-S OSA Service OÜ arendab rakendusuuringu raames edasi põlevkivituhkade väärindamise tehnoloogiat. Projekti käigus piloteeritakse tehnoloogiat pool-tööstuslikul skaalal ning töötatakse välja tööstuslikul skaalal rakendamiseks tootmisüksuse esmane disain ja ülesehitus.*

Patent search results:

CN113716596B: Method for graded extraction of various products by using oil shale semicoke or oil shale ash; Priority: **2021-09-15** (CN202111079020A); Anticipated expiration: 2041-09-15. Applicant: LIAONING PROVINCE INTERNATIONAL INVESTMENT & TRADE PROMOTION CENTRE (LIAONING PROVINCE E-PORT SERVICE CENTRE).

Patent applications/utility models filed by R-S OSA Service OÜ, which might be connected to Project 8:

Family I: Earliest priority: **2020-06-01**, WO2021244728A1 (EP4157795A1); Family II: Earliest priority: **2020-06-01**, WO2021244727A1 (CN115916700A, US2023212020A1, IL298590A, EP4157794A1, CN115916700A, CA3185651A1, BR112022023778A2, AU2020451269A1); Utility models: EE01613U1, EE01614U1.

More information on Project 8:

Rein Kuusik: A breakthrough in the use of oil shale ash? – TalTech – Tallinn University of Technology, News, 2022-10-18.

Project 9: "*Cleveron 601 ja Cleveron 502 arendus*". Enterprise: Cleveron AS

Abstract, [ENG]: The goal of the project is to develop two products CL601 and CL502, which will help to automate the delivery of (food) goods ordered from the e-store.

Original project title, [ENG]: Cleveron 601 and Cleveron 502 development.

Original abstract, [EE]: *Projekti eesmärgiks on arendada välja kaks toodet CL601 ja CL502, mis aitavad automatiseerida e-poest tellitud (toidu-)kaupade üleandmist.*

Patent search results:

AUTOSTORE TECH AS: WO2022248451A1; DEMATIC CORP: US2023243567A1; DEMATIC CORP: GB2616945A; AUTOSTORE TECH AS: WO2024047018A1; BELL & HOWELL LLC: US11200773B2; AUTOSTORE TECH AS: WO2023110702A1; AUTOSTORE TECH AS: WO2024089149A1; AUTOSTORE TECH AS: WO2021152170A1; ATTABOTICS INC: WO2021038437A1; AUTOSTORE TECH AS: WO2023131605A1; TRANSLOGIC CORP: US2010310344A1; ROMS INC: EP3998222A1; OCADO INNOVATION LTD: CA3214607A1; DEMATIC CORP: CA3204694A1; PHONONIC INC: US2023085105A1; GUANGDONG ZHIYUAN ROBOT TECH CO LTD: CN211319321U; US10293488B2; WALMART APOLLO LLC: US11551185B2; RESTAURANT TECHNOLOGY: NZ572767A; WALMART APOLLO LLC: US2020242877A1; DIXIE CONSUMER PRODUCTS LLC: WO2008058187A2; AUTOSTORE TECH AS: WO2024052075A1; DATALOGIC I P TECH S R L: US11049196B2; ZANBU AGRICULTURE AND ANIMAL HUSBANDRY TECH BEIJING CO LTD: CN111681359A; FULFIL SOLUTIONS INC: US10988269B2; ATCHAYAM BUSINESS SOLUTIONS PVT LTD: US2016027094A1; WALMART APOLLO LLC: US2019370874A1; FULFIL SOLUTIONS INC: WO2022256564A1.

The family of patent applications and design patent filed by Cleveron AS:

EP4371910A1, US2024150118A1, US2024010424A1, USD1025780S.

Project 10: "*AS Kunda Nordic Tsement rakendusuuringu projekt*". Enterprise: Aktsiaselts Kunda Nordic Tsement (current name: Heidelberg Materials Kunda AS)

Abstract, [ENG]: As part of the applied research, an industrial experiment will be carried out for the production of secondary cement raw materials from clay and oil shale cement, with which it would be possible to replace clinker and thereby reduce the carbon footprint in cement production and find an alternative use for oil shale.

Original project title, [ENG]: AS Kunda Nordic Cement applied research project.

Original abstract, [EE]: *Rakendusuuringu raames viiakse läbi tööstuslik katse savist ja põlevkivist tsemendi sekundaarse tsemendi tooraine tootmiseks, millega oleks võimalik asendada klinkrit ning vähendada seeläbi süsinikujalajälge tsemendi tootmises ning leida alternatiivne kasutusvõimalus põlevkivile.*

Patent search results:

CONSTR RES & TECH GMBH: EP2882695A1; IMI TAMI INSTITUTE FOR RES AND DEVELOPMENT LTD: WO2021079368A1; TEXACO DEVELOPMENT CORP: US2991187A; CN102093011A; DALIAN TIANRUN ENERGY TECHNOLOGY DEV CO LTD: CN102433144A; HALLIBURTON ENERGY SERV INC: US2007051280A1; METALLGESELLSCHAFT AG: CA723702A; DALIAN CEMENT GROUP CO LTD: CN117401918A; SIKA AG: EP0727398A2; TALLINSK POLT INST: SU887502A1; TALLINSK POLT INST: SU798065A1; TEXACO DEVELOPMENT CORP: US2904445A; UNIV BEIJING SCIENCE & TECH: CN101074149A; CN101143765A; UNIV TALLINN TECHNOLOGY: WO2012083972A1; CSCEC XINJIANG WEST CONSTRUCTION CEMENT MFG CO LTD: CN109206027A; FUSHUN MINING GROUP CO LTD: CN102491701A; STEINMUELLER GMBH L & C: GB2142620A; HUANAN UNIV OF SCI & ENGRG: CN1045762C; GB2401104A; ROMAN CEMENT LLC: US2014299023A1; ROMAN CEMENT LLC: CA3125963A1; CHIZHOU XINLEI GREEN BUILDING MATERIAL CO LTD: CN103253904A; OOO TTU: RU2339673C1; HEIDELBERGER BAUCHEMIE GMBH MA: ES2207573T3; HEIDELBERGCEMENT AG: EP3687953A1; HEIDELBERG MAT AG: EP4299543A1

Project 11: "*Piiriülene laenamine tehisintellekti abil*". Enterprise: Mifundo OÜ

Abstract, [ENG]: There should be free movement of services, goods and capital in the European Union. As a rule, it works that way, but it does not work in the financial sector (especially in the personal loan market). Only 3.1% of the bank loans taken by households (0.8% without the UK) were taken from another country's bank. To investigate whether and how using modern technology (artificial intelligence) it is possible to make cross-border lending work in the European Union.

Original project title, [ENG]: Cross-border lending with the help of artificial intelligence

Original abstract, [EE]: *Euroopa Liidus peaks olema teenuste, kaupade ja kapitali vaba liikumine. Reeglina see nii ka toimib, kuid finantssektoris (eeskätt eraisikute laenuturul) see ei toimi. Kodumajapidamiste poolt võetud pangalaenudest vaid 3,1% (ilma UK-ta 0,8%) on võetud teise riigi pangast. Uurida, kas ja kuidas tänapäevast tehnoloogiat (tehisintellekti) kasutades on võimalik muuta piiriülene laenamine Euroopa Liidus toimivaks.*

Patent search results:

SCIENTIFIC AND TECH BUN SHENZHEN LIMITED COMPANY: CN114493855A; BANK OF CHINA CO LTD: CN114881664A; GUANGZHOU XINSILU INFORMATION TECH CO LTD: CN111798298A; BANK OF TOKYO MITSUBISHI LTD: JP2000048095A; MINSHENG TECH CO LTD: CN115577823A; ZHEJIANG SUCCESSFUL SOFTWARE DEV CO LTD: CN112668614A; STRONG FORCE TX PORTFOLIO 2018 LLC: WO2023097026A2; NATIONALE BANK VAN BELGIE: WO2009052863A1; ZHONGKE HUIZHI GUANGDONG INFORMATION TECH CO LTD: CN117314619A; GUANGZHOU XINSILU INFORMATION TECH CO LTD: CN113077335A; BANK OF CHINA CO LTD: CN114926161A; DOUSHABAO TECH SHENZHEN CO LTD: CN115578189A; BANK OF AMERICA: US2014258082A1; AUSTRALIA AND NEW ZELAND BANKI: WO03034309A1; SPIC FINANCE CO LTD: CN115545903A; PAYPAL INC: US11574361B2.

Project 12: "*Nahahaiguste ja muude nahaprobleemide diagnoosimiseks mõeldud mobiilseadmetel töötava lokaliseeritud masinõppe printsiibil töötava tarkvara arendus*". Enterprise: HautAI OÜ

Abstract, [ENG]: In the course of applied research project, a skin image processing and image evaluation technology based on edge machine learning is created, which uses the resources of mobile devices as much as possible and exchanges data with the server as little as possible. As a service, better image evaluation allows the company to expand its SaaS service from the less demanding cosmetics industry into the field of skin pharmacy and medical dermatology.

Original project title, [ENG]: Development of localized machine learning software for diagnosis of skin diseases and other skin problems on mobile devices

Original abstract, [EE]: *Rakendusuuringu käigus luuakse edge machine learning 'ul põhinev naha pilditöötluse ja pildihindamise tehnoloogia mis kasutab nii palju kui võimalik mobiilseadmete ressursse ja nii vähe kui võimalik vahetab andmeid serveriga. Teenusena võimaldab parem pildihindamine ettevõttel laiendada oma SaaS teenust vähemnõudlikust kosmeetikatööstusest nahafarmaatsia ja meditsiinilise dermatoloogia valdkonda.*

Patent search results:

CHENGDU OUBANG INTELLIGENT TECH CO LTD: CN112150593A; BEIJING SHANGWEN JINTAI EDUCATION TECH CO LTD: CN110321785A; UNIV CHONGQING: CN116978555A; SEPHORA USA INC: WO2023039222A2; THE WELLNESS LIFE INST CO LTD: KR20210079090A; KR20240000829A; OREAL: US11657553B2; WIZCHEM CO LTD: KR20210059214A; OREAL: CN116744820A; SHISEIDO CO LTD: WO2021144740A1; LION CORP: WO2024034630A1; JP2023177589A; OREAL: WO2022144233A1; WO2023008707A1; INCCOCLUB: KR102634477B1; KR20220099491A; KR102530149B1; BEIJING LANHAI DAXIN TECH CO LTD: CN110960036A; KR102211884B1; LEHUO NATURE BEIJING TECH CO LTD: CN112465606A; UNIV WUYI: CN112069916A; KAO CORP: JP2023092254A; OREAL: US11615516B2; BARACODA DAILY HEALTHTECH: US2024065554A1.

The family of patent applications filed by HautAI OÜ and potentially related to Project 12:

EP4075385A1, US2022335252A1

Project 13: "*Taimse hakkmassi tootmistehnoloogia arendus*". Enterprise: OÜ Vegestar

Abstract, [ENG]: The aim of the project is to develop a competitive meat-like mince production technology. This will be the raw material for the company's product development, which will result in a product line based on vegetable proteins for both retail and the HoReCa (Hotel, Restaurant, and Café/Catering) sector.

Original project title, [ENG]: Development of plant mince production technology.

Original abstract, [EE]: *Projekti eesmärgiks on välja arendada konkurentsivõimeline lihasarnane taimse hakkmassi valmistamise tehnoloogia. See saab algtooraineks ettevõtte tootearendusele, millest tulevad taimsete valkude baasil tootesari nii jaemüügiks kui horeca sektorile.*

Patent search results:

NISSUI CO LTD: CN116997261A; UNILEVER IP HOLDINGS B V: RS64739B1; CEBECO GROEP B V: EP1254604A1; COOEPERATIE KONINK CEBECO GROE: EP1205114A1; NESTEC SA: US2014342036A1; LES NOUVEAUX FERMIERS: EP3973786A1; UNIV FUJIAN AGRICULTURE & FORESTRY: CN115119898A; DSM IP ASSETS BV: US2023172229A1; RU2011125534A; NOVOZYMES AS US2023276826A1; DSM IP ASSETS BV: WO2023156501A1; DUPONT NUTRITION BIOSCI APS: US2023389569A1; NESTLE SA: CN117202790A; FERMENTATIONEXPERTS AS: CA3158074A1; RAISIO NUTRITION LTD: WO2020038541A1; CARGILL INC: WO2023250414A1; NESTLE SA: US2021392929A1; NESTLE SA: WO2022253643A1; VERSO FOOD OY: WO2024069056A1; AAK AB: US2024016183A1; MOTIF FOODWORKS INC: WO2022187736A1.

Project 14: "*Tervisekonto*". Enterprise: OÜ Elsavie

Abstract, [ENG]: In the field of welfare services, there is a lack of both reliable information to use as a basis for improving one's health, as well as functional technical solutions that would help a person monitor their lifestyle habits on a daily basis and take corrective actions. As a result of the project, a prevention-focused health and well-being platform - "Health Account" will be completed, which gives the user control over his health data and enables him to make the right decisions with the support of reliable partners.

Original project title, [ENG]: Health account.

Original abstract, [EE]: *Heaoluteenuste vallas on puudu nii usaldusväärsest infost, mida oma tervise parandamisel aluseks võtta, kui ka toimivatest tehnilistest lahendustest, mis aitaksid inimesel igapäevaselt jälgida oma elustiiliharjumusi ning võtta ette korrigeerivaid tegevusi. Projekti tulemusena valmib ennetusele keskendunud tervise ja heaolu platvorm – "Tervisekonto", mis annab kasutajale kontrolli oma terviseandmete üle ning võimaldab tal usaldusväärsete partnerite toel õigeid otsuseid teha.*

Patent search results:

ZOE LTD: EP4089684A1; BROOKLYN INNOSEQ INC: WO2021231475A2; VIOME INC: WO2020051559A1; FOOD RX AND AI INC: US2023054253A1; ZOE GLOBAL LTD: US2022290226A1; VIOME INC: WO2020168015A1; NESTLE SA: WO2023031385A1; VIOME LIFE SCIENCES INC: WO2022266266A1; ITERATIVE SCOPES INC: US2022028550A1; DEEP LONGEVITY LTD: CN113574604A; EVOLVE BIOSYSTEMS INC: WO2022221477A1; SOLAREA BIO INC: WO2019118984A2; EVOLVE BIOSYSTEMS INC: CN111587376A; MAYO FOUND MEDICAL EDUCATION & RES: US2022367004A1; UNIV ARIZONA: US2015152484A1; TATA CONSULTANCY SERVICES LTD: EP3421616A1; MCPHARMA BIOTECH INC: US2024094202A1, CA3024201A1, WO2021207822A1; BROOKLYN INNOSEQ INC: US2024079144A1; HY LABORATORIES LTD: WO2020016893A1; US2014179726A1; BROAD INST INC: WO2018195448A1; VIOME INC: WO2020051559A1; VIB VZW: WO2017109059A1; NESTEC SA: US10338083B2; SUN GENOMICS INC: US2021388416A1; LIFE TECHNOLOGIES CORP: US10731146B2; YEDA RES & DEV: CN113038951A; ZHEJIANG MAIYATA BACTERIAL INSPECTION INTELLIGENT TECH CO LTD: CN116913382A; PENDULUM THERAPEUTICS INC: US10633714B2; TATA CONSULTANCY SERVICES LTD: WO2021028846A2.

Project 15: "*Nutika teekatendi rakendusuuring ja arendus*". Enterprise: e-Pavement OÜ

Abstract, [ENG]: In the course of this project, a smart road surface solution is created, with the help of which it is possible to install various electronic components in the road surface in a weather-proof manner and to produce the electricity (PV) necessary to power them with the help of solar radiation. In this way, the road surface becomes an active participant in traffic. E-stones can be the size of common street stones, to enable their easier interface with the existing road solution.

Original project title, [ENG]: Applied research and development of smart pavement.

Original abstract, [EE]: *Käesoleva projekti käigus luuakse nutika teekatendi lahendus, mille abil on võimalik ilmastikukindlalt paigaldada tee kattesse erinevaid elektroonilisi komponente ja toota päikesekiirguse abil nende toiteks vajalikku elektrienergiat (PV). Niimoodi muutub tee pind liikluse aktiivseks osalejaks. E-kivid võivad olla levinumate tänavakivide suurusega, võimaldamaks nende hõlpsamat liidestamist olemasoleva teelahendusega.*

Patent search results:

EMPERYLAND NEW ENERGY TECH SHANGHAI CO LTD: CN107675580A; CHENGDU POLYTECHNIC: CN213814997U; SHANGHAI ELECTRIC POWER DESIGN INST CO LTD: CN206091493U; UNIV WUHAN: CN106320144A; UNIV CHANGSHA SCIENCE & TECH: CN107142815A; SHENZHEN HUITONG PHOTOELECTRIC CO LTD: CN108302425A; CHANGAN UNIV: US11904865B2; MAANSHAN XINQIAO IND DESIGN CO LTD: CN108951339A; BEIJING HANERGY PHOTOVOLTAIC INVEST CO LTD: CN209260474U; WUHU CHUNYUAN PHOTOELECTRIC EQUIPMENT TECH CO LTD: CN107401100A; ZHONGYU SMARTWAY LIGHT ENERGY TECH CO LTD: CN111996862A; RO129304A0; JINKO SOLAR HOLDING CO LTD: CN108457149A; WUHU CHUNYUAN PHOTOELECTRIC EQUIPMENT TECH CO LTD: CN107227666A; GR1010286B; UNIV CHANGZHOU: CN106788149A; WUHU CHUNYUAN PHOTOELECTRIC EQUIPMENT TECH CO LTD: CN107419642A; SHANDONG PAVENERGY CO LTD: CN110552279A; MIRAI LABO CO LTD: JP2021101478A; AGC INC: WO2023238831A1; TAISEI ROTEC CORP: JP2012057341A; SOLARPAINT LTD: US2023344381A1; SEKISUI CHEMICAL CO LTD: JP2023143607A; CENTRO NAZ RICERCA PHYSICAL INTERNET PIPENET CRPP: IT202100003590U1.

Project 16: "*Tera- ja kaunviljade ekstraheerimistehnoloogiate väljatöötamine*". Enterprise: Tulundusühistu WIRU VILI

Abstract, [ENG]: The goal of the project is to develop technologies for dry and wet extraction of proteins and other functional components of grains and legumes for the production of high-quality protein and starch concentrates and isolates and other bioactive components. By applying the technologies developed in the project, Estonian grain and leguminous producers can develop products with high added value, which will significantly increase the competitiveness of local producers on the international market.

Original project title, [ENG]: Development of grain and legume extraction technologies.

Original abstract, [EE]: *Projekti eesmärgiks on töötada välja tera- ja kaunviljade valkude ja teiste funktsionaalsete komponentide kuivning märgekstraheerimise tehnoloogiad kõrgkvaliteetsete valgu- ja tärklisekontsentraatide ja -isolaatide ning teiste bioaktiivsete komponentide valmistamiseks. Projektis arendatavate tehnoloogiate rakendamisel saavad Eesti tera- ja kaunviljade tootjad välja töötada kõrge lisandväärtusega tooted, millega tõstetakse oluliselt siinsete tootjate konkurentsivõimet rahvusvahelisel turul.*

Patent search results:

UNIV ALBERTA: WO2022011475A1; RIPPLE FOODS PBC: CA3141076A1; JIAMUSI DONGMEI SOYBEAN FOOD CO LTD: CN112868707A; PROTEIN TECH INT: JP3502126B2; INNER MONGOLIA YILI IND GROUP: CN112674283A; PROVALOR BV: EP2112885A1; QINGHAI HEJIE BIOLOGICAL PRODUCTS CO LTD: CN106490626A; FLOTTWEG GMBH: EP0859794A1; ENERGETICS: EP0517831A1; BIOGEMMA FR: US2005246792A1; KEEN INGREDIENTS INC: US2010184963A1; RU2275050C1; LANGHAUSER ASSOCIATES INC: US2004187863A1; STAERKE & KARTOFFELVER VEB: EP0221427A2; LURGI PSI INC: WO0158467A1; INSTITUTE OF FUNCTIONAL FOOD OF SHANXI SHANXI AGRICULTURAL UNIV: WO2023115392A1; LEE TECH LLC: US2023285979A1; BIOREFINING INC: WO2006086757A2; WO2014200918A1; NESTLE SA: CN111372474A; SMARTFLOW TECH INC: US11839856B2; ENERGENETICS INC: US5410021A; BIOVELOP INTERNAT B V: EP1706001A1; BIOGEMMA FR: CA2496760A1; CARGILL INC: WO0155283A1; UNIV ANYANG NORMAL: CN111011517A.

Project 17: "*Ultracapacitor Opportunity Charging*". Enterprise: OÜ Skeleton Technologies

Abstract, [ENG]: As a result of the project, a charging system working on supercapacitors will be developed, which enables fast charging of city buses from stop to stop. Compared to solutions based on batteries, the advantage of the system is significantly higher efficiency and a long life (12+ years), which makes it possible to avoid greenhouse gases and other pollution related to the production of batteries.

Original project title, [ENG]: Ultracapacitor Opportunity Charging.

Original abstract, [EE]: *Projekti tulemusena töötatakse välja superkondensaatoritel töötav laadimissüsteem, mis võimaldab linnaliini busside kiiret laadimist peatusest-peatusesse. Süsteemi eeliseks on akudel põhinevate lahendustega võrreldes oluliselt kõrgem efektiivsus ning pikk eluiga (12+ aastat), mis võimaldab vältida akude tootmisega seotud kasvuhoonegaase ning muud reostust.*

Patent search results:

SHANGHAI AOWEI TECH DEVELOPMENT CO LTD: CN110356277A, CN113815468A, CN113232534A, CN105355457A, CN208559060U, CN218228704U, CN117656976A, CN110803049A; SHENZHOU AUTOMOBILE DESIGN & D: CN1751910A; CN101447630A; SHANGHAI RUNTONG ELECTRIC VEHI: CN101574932A.

SHANGHAI AOWEI TECH DEVELOPMENT CO LTD: UC (Ultracapacitor) Systems for City Bus: S585V36-K7, S720V40-K7. Technology used in UC Systems for City Bus is described in US5986876A (ELTON AOZT) and thesis.

Existing bus-integrated UC Systems and opportunity charging station infrastructure: Shanghai Aowei Technology Development Co., Ltd. & Higer Bus or Sunwin Bus & Chariot Mortors: news, charging process scheme.

Patent application filed by Skeleton Technologies OÜ and potentially related to Project 17:

GB2591464A

Project 18: "*Uudsete juuretiste isolatsioon taimsete piimalaadsete toodete fermenteerimiseks (VegeFerm)*". Enterprise: Aktsiaselts Toidu- ja Fermentatsioonitehnoloogia

Abstract, [ENG]: The aim of the project is to develop a platform of high-throughput methods for the isolation, characterization and adaptation of plant-derived bacterial strains and communities in plant-based raw materials in order to create a basis for the development and production of novel plant-based milk-like products.

Original project title, [ENG]: Isolation of novel starters for fermentation of plant(vegetable)-based milk-like products (VegeFerm).

Original abstract, [EE]: *Projekti eesmärk on töötada välja kõrge läbilaskevõimega meetoditest koosnev platvorm taimset päritolu bakteritüvede ja koosluste isolatsiooniks, iseloomustamiseks ja kohandamiseks taimepõhistes toorainetes selleks, et luua alus uudsete taimsete piimatoodete arendamiseks ja tootmiseks.*

Patent search results:

JP2006223244A; UNIV CENTRAL OKLAHOMA: US2016192682A1; AGRICULTURAL BIORESOURCES INST FUJIAN ACADEMY AGRICULTURAL SCIENCES: CN102823655A; ANHUI SHUNXIN SHENGYUAN BIOLOGICAL FOOD CO LTD: CN111700115A; PELICAN CO LTD: US10925292B2; SYMPLI GOOD FOOD BVBA: EP3366144A1; ELIXI OIL OY: CA2646217A1; HARBIN MEIHUA BIOTECHNOLOGY CO LTD: CN113462617A; LIAONING ACAD AGRICULTURAL SCIENCES: CN117736897A; UNIV YANGZHOU: CN106754472A; DAESANG FNF CORP: KR101495309B1; BRIGHT DAIRY & FOOD CO LTD: CN112616934A; CIRCULAR FOOD SOLUTIONS AG: EP4190165A1; PROBIODUCTS LTD: WO2023043340A1; JIANGSU YUNHAICHENLONG BIOTECH: CN101240255A; ZHEJIANG ACAD AGRICULTURAL SCI: CN101129195A; BARRY CALLEBAUT AG: ES2551862T3; QUAKER OATS CO: CA3060861A1; INT NUTRITION AND HEALTH DENMARK APS: CN117716018A.

Project 19: "*Ajastusakna tehisintellekti arendamine eAgronomi digitaalse nõustamise teenuspakkumisse*". Enterprise: OÜ E-Agronom (current name: eAgronom OÜ)

Abstract, [ENG]: E-Agronom OÜ, in cooperation with the research and development institution STACC, is carrying out an applied research and product development project of artificial intelligence used for agricultural management, within the framework of which a prototype of artificial intelligence offering timing recommendations for the service line of the company AIA (Independent Agribusiness Advisory) is being developed. The project has a positive effect on the growth of E-Agronom's competitiveness and export capacity and has a significant positive impact on the environment.

Original project title, [ENG]: Development of timing window artificial intelligence into eAgronom's digital consulting service offering.

Original abstract, [EE]: *E-Agronom OÜ viib koostöös teadus- ja arendusasutusega STACC ellu põllumajandushalduse tarbeks kasutatava tehisintellekti rakendusuuringu ja tootearenduse projekti, mille raames arendatakse välja ettevõtte AIA (Independent Agribusiness Advisory) teenusliinile põllupidajatest klientidele ajastussoovitusi pakkuva tehisintellekti prototüüp. Projekt mõjub positiivselt E-Agronomi konkurentsivõime ja ekspordivõimekuse kasvule ning omab märkimisväärset keskkonnaalast positiivset mõju.*

Patent search results:

ONEIMAGE LLC: WO2007067579A2; IBM: US11580609B2; CLIMATE CORP: US2021406745A1; MONSANTO TECHNOLOGY LLC: US2023108422A1; HITACHI LTD: WO2014203664A1; SHERPA SPACE INC: JP2023147152A; FUTURE SCIENCE RES INC: WO2024075765A1; KR102497129B1; SHANGHAI SANFUJIUYI INTELLIGENT TECH CO LTD: CN116308648A; YOUNGILEE CO LTD: KR20230040008A; BASF SE: AU2017225697A1; SHANDONG KEXIANG INTELLIGENT TECH CO LTD: CN116029860A; HUBEI AGRICULTURAL XINDAI FINANCING GUARANTEE CO LTD: CN117522550A; NILEWORKS INC: JP2021082173A; FARMERS EDGE INC: CA3129617A1; X DEV LLC: US11508092B2; ZHONGLIAN SMART AGRICULTURE CO LTD: CN114819298A; UNIV ZHENGZHOU: CN115222100A; BEIJING RES CT INTELLIGENT EQUIPMENT AGRICULTURE: CN110347127A; X DEV LLC: US11295331B2; CLIMATE LLC: US11564345B1; CLIMATE LLC: AU2019365214A1; INST GEOGRAPHIC SCIENCES & NATURAL RESOURCES RES CAS: CN116579446A; YUNNAN INST TOBACCO AGRI SCI: CN117669885A; INDIGO AG INC: WO2024059300A1; INDIGO AG INC: US11263707B2; INDIGO AG INC: WO2023034386A1.

Project 20: "*Inaktiivsete pärmitoodete rakendusvõimaluste laiendamine*". Enterprise: AKTSIASELTS SALUTAGUSE PÄRMITEHAS

Abstract, [ENG]: Current meat alternatives made from various plant proteins lack important key compounds to create meat-like flavor and aroma components in the final products. Inactivated yeast and its fractions are possible alternatives to synthetic flavors. The aim of the project is to develop a platform that allows taking into account the metabolism of each bacterial species, the relationships between the active metabolic pathways of bacteria, cell functioning and the composition of yeast extracts.

Original project title, [ENG]: Expanding the application possibilities of inactive yeast products.

Original abstract, [EE]: *Praegustel erinevatest taimsetest valkudest valmistatud lihaalternatiividel puuduvad tähtsad võtmeühendid, loomaks lõpptoodetesse lihasarnaseid maitse- ja lõhnakomponente. Inaktiveeritud pärm ja selle fraktsioonid on võimalikud alternatiivid sünteetilistele lõhna- ja maitseainetele. Projekti eesmärgiks välja arendada platvorm, mis võimaldab arvesse võtta iga bakterliigi ainevahetust, seoseid bakterite aktiivsete metaboolsete radade, rakkude funktsioneerimise ja pärmiekstraktide koostiste vahel.*

Patent search results:

AIRPROTEIN INC: CN115209744A; IMPOSSIBLE FOODS INC: US2021037851A1; UNIV BEIJING TECHNOLOGY & BUSINESS: CN106566783A; SICHUAN GUCHUAN WINE CO LTD: CN103305448A; DAIRY TECHNICS INC: US3404984A; INT FLAVORS & FRAGRANCES INC: CA2311995A1; KRAFT FOODS HOLDINGS INC: CN1939152A; SYMRISE GMBH & CO KG: CN116887699A; KR102070385B1; ANGEL YEAST CO LTD: CN115144476A; US1214730A; MEIJI CO LTD: JP2018019651A; UNIV SHANXI AGRICULTURAL: CN110846236A; AJINOMOTO KK EP1142493A1; HOECHST AG: JPS63254960A; IMPOSSIBLE FOODS INC: US2017112175A1; BINGGRAE CO LTD: KR20130078144A; YAIZU SUISANKAGAKU IND CO LTD: JP2005341976A; DSM IP ASSETS BV: RS57272B1; CJ CORP: KR100762848B1; MICROLIFE TECHNICS: US4191782A; INT FLAVORS & FRAGRANCES INC: US6187741B1; LESAFFRE & CIE: RU2709717C1; GUANGDONG BAIWEIJIA FLAVOUR TECH CO LTD: CN107822082A; TIANNING FLAVOR & FRAGRANCE JIANGSU CO LTD: CN104921053A; AIR PROTEIN INC: WO2021138482A1; PRAIRIE AQUATECH LLC: AU2021287209A1.

Project 21: "*Synbase kliiniliste otsuste tugisüsteemide koostalitusplatvormi arendus*". Enterprise: OÜ Synbase

Abstract, [ENG]: According to research, only 10-20% of the treatment corresponds to what is specified in the treatment manuals. To standardize the quality of care, there are clinical decision support systems (DSS) that provide healthcare professionals with automatic reminders in the electronic medical record. As a result of the project, OÜ Synbase develops DSS services interoperability platform aimed at the European Union market, the key component of which is the class IIa medical device Synbase application interface, the accompanying publishing environment and user interfaces.

Original project title, [ENG]: Synbase clinical decision support system interoperability platform development.

Original abstract, [EE]: *Uuringute järgi vastab vaid 10–20% ravist ravijuhendites määratule. Ravikvaliteedi ühtlustamiseks on kliiniliste otsuste tugisüsteemid (OT), mis annavad tervishoiutööajatele elektroonses haigusloos automaatseid meeldetuletusi. Projekti tulemusena arendab OÜ Synbase välja Euroopa Liidu turule suunatud OT teenuste koostalitlusplatvormi, mille võtmekomponendiks on klass IIa meditsiiniseade Synbase rakendusliides, kaasnev publitseerimiskeskkond ning kasutajaliidesed.*

Patent search results:

SNU R& DB FOUNDATION: KR101295613B1; KONINKLIJKE PHILIPS NV: WO2023036711A1; COMPUTER TECH ASSOCIATES INC: US11488713B2; GEN ELECTRIC: US2013035581A1; KONINKL PHILIPS NV: EP2748748A2; YOSKO INC: US2016371446A1; CERNER INNOVATION INC: US11734269B2; UNIV VERMONT: CA2633552A1; ZHEJIANG LAB: CN117012375A; EMERGENT HEALTH TECHNOLOGIES L: US2009204439A1; MERATIVE US L P: US11823798B2; KONINKLIJKE PHILIPS NV: US2020051698A1; ISU UBCARE CO LTD: KR100800977B1; IBM: US2018089383A1; OBSHCHESTVO S OGRANICHENNOJ OTVETSTVENNOSTYU K SKAJ: RU2752792C1; UPMC: US2015234987A1; UNIV PRINCETON: WO2018128927A1; US10032236B2; VISHUO BIOMEDICAL PTE LTD: CN107169259A; GEN HOSPITAL CORP: WO2015031296A1; VIMEDICUS INC: US2013191161A1; TENCENT AMERICA LLC: CN111916202A; DASCENA INC: WO2022060949A1; UNIV INDIANA RES & TECH CORP: US10755816B2; TEMPUS LABS INC: WO2024092275A1; SIEMENS MED SOLUTIONS HEALTH: CN1961321A; ONTOMICS INC: US2014350954A1; CERNER INNOVATION INC: US11355222B2; LEE&KIM CORP: KR102652935B1; C/HCA INC: US11289200B1; VITAL CONNECT INC: US2022384036A1; DBMOTION LTD: US11380426B1; RYKOV LLC: US11901073B2; ALBERT EINSTEIN COLLEGE OF MEDICINE: WO2022197829A1; PLEXINA INC: US2016378926A1; CLEVELAND CLINIC FOUNDATION: US2015154361A1; GOOGLE LLC: CN109698030A; WHENMED VC LLC: EP3796328A1; RESCON LTD: US2019355271A1.

Project 22: "*Taaskasutatavad monopolümeersed plastikpakendid*". Enterprise: aktsiaselts ESTIKO - PLASTAR

Abstract, [ENG]: This project is based on the EU goal of reaching a situation where at least 55% of the plastic packaging on the market is recyclable by 2025, which in turn means that non-recyclable packaging will not be competitive in the future. Estiko Plastar wants to avoid this situation and gradually transfer its production, which today is not recyclable, to new monofilms with nanoclay surface coating, which are reusable and recyclable.

Original project title, [ENG]: Recyclable monopolymer plastic packaging.

Original abstract, [EE]: *Käesolev projekt lähtub EL eesmärgist jõuda aastaks 2025 olukorrani, kus turul olevatest plastpakenditest vähemalt 55% on taaskasutatavad, mis omakorda tähendab, et mittetaaskasutatavad pakendid pole edaspidi konkuretsivõimelised. Estiko Plastar tahab antud olukorda vältida ning oma toodangu, mis täna pole taaskasutatav, järk-järgult viia üle uudsetele nanosavist pinnakattega monokiledele, mis on taaskasutatavad ja ümbertöödeldavad.*

Patent search results:

US2015038611A1; TONGCHENG PEACH BLOSSOM BRUSH CO LTD: CN108003445A; SHENZHEN PRINCE NEW MAT CO LTD: CN107141816A; YOULCHON CHEMICAL CO LTD: KR101927850B1; YOULCHON CHEMICAL CO LTD: KR101823914B1; ZHEJIANG HANGHUA NEW MATERIAL TECH CO LTD: CN108892793A; WO2014124967A1; ROHM & HAAS: CA2473626A1; NANOBIOMATTERS RES & DEV S L: ES2374900A1; KRAFT FOODS HOLDINGS INC: JP2008127106A; NANOBIOMATTERS SL: EP2527295A1; HENKEL KGAA: EP1664228A1; PHAXTEC INC: EP4314156A1; ANHUI MENGNIU COLOR PRINTING PACKAGING CO LTD: CN110128689A; DU PONT: CN1217979C; TERA BARRIER FILMS PTE LTD: EP2909027B1; RES INST IND SCIENCE & TECH: KR100529058B1; CORTEC CORP: US7588820B2; UNIV SOUTH CHINA TECH: CN108219207A; SKC CO LTD: KR100928628B1; KUNSHAN JINSHENGDA PACKAGE PRODUCTS CO LTD: CN111331984A; DONGWON SYS CORP: KR102560991B1; UNIV KOREA RES & BUS FOUND: KR101064815B1; YOULCHON CHEMICAL CO LTD: KR102224439B1; NANO & ADVANCED MATERIALS INST LTD: US2024059853A1; KIMBERLY CLARK CO: RU2016133865A; TAMA GROUP: WO2022059011A1; YOULCHON CHEMICAL CO LTD: KR20090062739A; MUCELL EXTRUSION LLC: US2021101372A1; UNIV NAT CHONNAM IND FOUND: KR20230050036A; UNIV SANTIAGO CHILE: EP3440941A1; COUNCIL FOR SCIENT AND INDUSTRIAL RESEARCH: WO2024092296A1; DOIL ECOTEC CO LTD: KR102187340B1; PROCTER & GAMBLE: EP2635626A1; PEPSICO INC: CN116133846A.

Project 23: "*Iseõppiva SMS sõnumite automaatse marsruutimise prototüüp-tehnoloogia eksperimentaalne arendus*". Enterprise: Messente Communications OÜ

Abstract, [ENG]: Further development towards the automation of the message routing R&D project allows the company to run a larger volume of message routing with the same number of employees; further development in the direction of machine learning enables the messaging platform to make routing decisions that better meet the company's business needs and to ensure the optimal balance between reliability and message price, which would meet the customer's expectations.

Original project title, [ENG]: Experimental development of prototype technology for automatic routing of self-learning SMS messages.

Original abstract, [EE]: *Sõnumite marsruutimise TA projekti automatiseerimise suunaline edasiarendus võimaldab ettevõttel sama arvu töötajate juures käitada suuremat sõnumite marsruutimise mahtu; masinõppe suunaline edasiarendus võimaldab sõnumiplatvormil teha ettevõtte ärivajadustele paremini vastavaid marsruutimisotsuseid ning tagada töökindluse ja sõnumi hinna optimaalne vahekord, mis vastaks kliendi ootustele.*

Patent search results:

TONGFANG YOUYUN BEIJING TECH CO LTD: CN115038054A; WO2012164589A1; ITRM20110273A1; UNIV NAT TAIWAN: TW200943831A; SHANGHAI ZHONGHENG INTELLIGENT SYSTEM TECH CO LTD: CN113849304A; BEIJING JUTONGDA TECH CO LTD: CN107911799A; ZHENGCHUANG SCIENCE AND TECHNO: CN1189052C; NIPENDO LTD: US2014316844A1; UNIV HONG KONG POLYTECHNIC: CN100474950C; WO2005025177A1; TEKELEC US: WO2005013538A2; MICROSOFT CORP: CN101689153A; UNIV NANJING POSTS & TELECOMM: CN103442455A; UNIVERSCEL CORP: KR20070085356A; TAPTEXT LLC: US11823221B2; UNIFY PATENTE GMBH & CO KG: US11800344B2; SK TELECOM CO LTD: KR20070079371A; VODAFONE PLC: EP1246481A2; RAPIDSOS INC: EP3195563A1; CHINA MOBILE GROUP FUJIAN CO L: CN101453716A; US2009081991A1; NOKIA TELECOMMUNICATIONS OY: RU2173502C2; RESEARCH IN MOTION LTD: CA2735510A1; UNITEDHEALTH GROUP INC: US10594866B2; YAHOO INC: US2007214222A1; MOBILE ARTS AB: SE0203124L; IBM: US2014143348A1; US10965817B1; US2012077467A1; VIXXI SOLUTIONS INC: US2010261448A1; CISCO TECH INC: US2007223444A1; HUAWEI TECH CO LTD: EP1850572A1; US2006058048A1; WHATSAPP LLC: US2023084642A1; BANK OF AMERICA: US11829991B2; USAA: US11223540B1; TECHAUM INNOVATIONS PTY LTD: WO2021092656A1; INSTITUTE OF SOFTWARE APPLICATION TECH GUANGZHOU: CN106970911A.

RUP funding round II: Enterprises, Projects Information and Patent Search Results (part 1)

Project start	Project end	Project name	Enterprise	Project funding
15.09.2021	31.12.2023	***24:*** *Rakendusuuringu läbiviimine ettevõttes GeneGode AS läbimaks Parkinsoni tõve ravimikandidaadi eelkliiniliste uuringute etappi – From hit to lead / GDNF Mimetics*	GeneCode AS	1 998 632,40
20.09.2021	31.12.2023	***25:*** *Digiravim "Activate"*	Activate Health OÜ	772 500,00
20.09.2021	31.12.2023	***26:*** *Aktiveeritud autoloogsete mesenhümaalsete tüvirakkude kasutamine perifeersete veresoontehaiguste ravis*	AS Taastava Kirurgia Kliinik	1 155 500,00
01.10.2021	31.03.2023	**27:** Development of second-generation autonomous shuttle	AuVe Tech OÜ	309 684,00
01.10.2021	30.09.2023	**28:** Rakendusuuring tööstuslikust kanepist saadava CBD isolaadi ekstraheerimisprotsessi optimeerimiseks	Hemptec OÜ	288 556,03
01.11.2021	30.04.2023	***29:*** *Jätkusuutliku tarbimise teabe ja toodete eluea toetuskeskkonna koostalitusvõime rakendusuuring*	Mindworks Industries OÜ	461 400,00
01.11.2021	23.10.2023	***30:*** *Eleoni 5+ SCG tuulikumudeli tootearendus* **Cancelled**	ELEON AS	978 559,16
01.11.2021	31.10.2023	**31:** Better Medicine AI	Better Medicine OÜ	841 901,80
15.11.2021	30.09.2023	***32:*** *Kliimaneutraalse piirkonna energiavarustuse ja ehituslahenduste kavandamise digitaalne tööriist*	OÜ Hundipea	323 125,00
01.12.2021	31.01.2023	***33:*** *Tervist toetavate šokolaaditoodete väljatöötamine*	Chocolala OÜ	103 600,00
01.12.2021	31.12.2023	**34:** Applied research for CodeRhythmTM predictive monitoring **Cancelled**	Transformative AI OÜ	421 476,13
01.01.2022	31.12.2023	**35:** CoNurse	OÜ Cognuse	561 165,75
01.01.2022	31.12.2023	***36:*** *Kasepuidust mikro- ja nanokristalse tselluloosi tootmistehnoloogiate arendus ning rakendusvaldkondade kaardistamine*	OÜ Fibenol	1 260 000,00
20.09.2021	31.12.2023	**37:** Applied research on PCC production from deposited ash	R-S OSA Service OÜ	1 795 168,00

Data source: https://eas.ee/wp-content/uploads/2022/11/ii_voorus_toeatud_projektid.pdf

RUP funding round II: Enterprises, Projects Information and Patent Search Results (part 2)

Project start	Project end	Project name	Enterprise	Project funding
20.09.2021	31.12.2023	***38:*** *Looduslikul atmosfäärikiirgusel põhinev posti- ja pagasiskänner*	GScan OÜ	1 468 500,00
01.10.2021	31.05.2023	**39:** Vessel Traffic and Maritime Surveillance System	Cybernetica AS	280 105,00
01.10.2021	30.09.2023	**40:** Probiootiliste mikroobsete koosluste tööstusliku tootmise optimeerimise platvormi loomine: CoFerm	Aktsiaselts Toidu- ja Fermentatsioonitehnoloogia Arenduskeskus	232 964,00
01.11.2021	31.05.2023	**41:** Pinnalähedaste pingete mõõtmise metoodika arendamine: algoritmid, optika-eksperimendid ja prototüüp (TRL5 tasemeni)	Glasstress OÜ	114 400,00
01.11.2021	31.12.2023	**42:** Applied research for the extracellular vesicle-enabled non- invasive personalized medicine testing and treatment for assisted reproduction and prenatal medicine (EVREM, Extracellular Vesicles in REproductive Medicine)	Tervisetehnoloogiate Arenduskeskus AS	1 290 786,00
01.12.2021	31.05.2023	**43:** Waste2Oil	VIRU KEEMIA GRUPP AS	280 608,30
01.12.2021	31.07.2023	**44:** Rakendusuuring Find.Fashion otsingumootori arendamiseks	Find.Fashion OÜ	722 420,00
01.01.2022	30.06.2023	**45:** Cybersecurity testing on cyber range based on digital functional clone of a satellite	CybExer Technologies OÜ	392 000,00
01.01.2022	30.06.2023	**46:** eKukkur (Smart Wallet)	SK ID Solutions AS	990 161,10
01.01.2022	30.11.2023	***47:*** *Uue põlvkonna isikukaitsevahend* **Cancelled**	OÜ Respiray	291 631,50
01.01.2022	31.12.2023	**48:** Digital medical device therapy platform-application for patients with a complex chronic skin condition	Dermtest OÜ	350 256,90
03.01.2022	31.10.2023	***49:*** *Satelliitseire põhised teenused kindlustussektorile - CropCop*	KappaZeta OÜ	434 760,00

Project 24: "*Rakendusuuringu läbiviimine ettevõttes GeneGode AS läbimaks Parkinsoni tõve ravimikandidaadi eelkliiniliste uuringute etappi – From hit to lead / GDNF Mimetics*". Enterprise: GeneCode AS

Abstract, [ENG]: Recent research on glial-derived neurotrophic factor (GDNF) shows that GDNF is the first agent to show slowing of disease progression in Parkinson's disease (PD), while existing PD treatments only alleviate symptoms without being able to halt, prevent or reverse neuronal degeneration. GeneCode has discovered a set of small molecules (GDNF mimetics) that could provide a breakthrough in providing new treatments to slow or stop the progression of PD.

Original project title, [ENG]: Conducting an applied research in the company GeneGode AS to pass the stage of pre-clinical studies of a drug candidate for Parkinson's disease - From hit to lead / GDNF Mimetics.

Original abstract, [EE]: *Hiljutised gliiarakkudest tuletatud neurotroofse faktori (GDNF) uuringud näitavad, et GDNF on esimene aine, mis näitab haiguse progresseerumise aeglustumist Parkinsoni tõve (PD) korral, samas kui olemasolevad PD-ravid ainult leevendavad sümptomeid, suutmata peatada, ennetada või taastada neuronite degeneratsiooni. GeneCode on avastanud väikeste molekulide komplekti (GDNF-i jäljendajad), mis võiksid anda läbimurde uute raviviiside pakkumisel PD progresseerumise aeglustamiseks või peatamiseks.*

Patent search results:

ZHEJIANG HISUN PHARM CO LTD: US2022177450A1; GLAXOSMITHKLINE IP DEV LTD: US2016271123A1; ARRAY BIOPHARMA INC: US11851434B2.

The publication by the authors related to the Project 24: Neuroprotective potential of a small molecule RET agonist in cultured dopamine neurons and hemiparkinsonian rats.

The family of patent applications filed by GeneCode AS and potentially related to Project 24:

WO2024023284A1, WO2024023287A1, WO2024079351A1.

Project 25: “*Digiravim “Activate"* ”. Enterprise: Activate Health OÜ

Abstract, [ENG]: Estonia's first digital medicine or software-based medical device (Software-as-a-Medical Device) aimed at early detection of chronic diseases, evidence-based personalized prevention and treatment support.

Original project title, [ENG]: Digital medicine “Activate".

Original abstract, [EE]: *Eesti esimene krooniliste haiguste varajasele avastamisele, tõenduspõhisele personaliseeritud ennetusele ning ravi toetamisele suunatud digiravim ehk tarkvarapõhine meditsiiniseade (Software-as- a-Medical Device).*

Patent search results:

IMVARIA INC: US2024020825A1; US2021375462A1; VOLUNTIS S A: US10795806B2; VIGNET INC: US11127506B1; MASIMO CORP: US10881951B2; WELLOVATE LLC: US10943407B1; LIFE PATCH INT: WO2021163341A2; BENOVATE INC: US9727885B1; GREEN LINE BUSINESS GROUP LLC: WO2022221358A1; IBM: US2013013340A1; TAM SQUARED INC: WO2023091790A1; MEDICAL MAN INTERNATIONAL INC: US6208974B1; APPLE INC: US10270898B2; ARCHETYPE WELLNESS LLC: US2024087701A1; FITBUG LTD: US2015262497A1; MASTERCARD INTERNATIONAL INC: US2011015960A1; CIRCULAR: US2021265054A1; ILLUMESENSE INC: US11850064B2; MEDWORKS INC: WO2023092233A1; MARS INC: US2023411020A1; WELLNESS & PREVENTION INC: US2014142397A1; LIVNAO TECH CORP: WO2021144652A1; IBM: US2017278034A1; SQUARE2 SYSTEMS INC: WO2018204805A1; RESMED PTY LTD: US2024008809A1; IBM: US11151517B2; MASIMO CORP: US10512436B2; DISCOVERY HOLDINGS LTD: US2009299774A1; RANKIN INNOVATIONS INC: US2007136093A1; DAICEL CORP: WO2022230733A1.

Project 26: "*Aktiveeritud autoloogsete mesenhümaalsete tüvirakkude kasutamine perifeersete veresoontehaiguste ravis*". Enterprise: AS Taastava Kirurgia Kliinik (TKK)

Abstract, [ENG]: The aim of this project is the development of a new cellular drug for the treatment of ischemic blood vessels. The drug being developed is a technology because it is produced in each specific case from the patient's stem cells. The technology in question is based on a patent application submitted by us (TKK and CT[Cellin Technologies OÜ]), which is in the international phase and for which we have received a positive assessment from experts. This treatment technology makes it possible to save up to 30% of legs that are amputated today due to ischemia.

Original project title, [ENG]: Use of activated autologous mesenchymal stem cells in the treatment of peripheral vascular disease.

Original abstract, [EE]: *Käesoleva projekti eesmärgiks on uudse rakulise ravimi väljatöötamine isheemiliste veresoonte raviks. Väljatöötatav ravim on tehnoloogia kuna see toodetakse igal konkreetsel haigusjuhul patsiendi tüvirakkudest. Kõnealune tehnoloogia põhineb meie (TKK ja CT) poolt sisseantud patenditaotlusel mis on rahvusvahelises faasis ja millele oleme saanud ekspertide poolt positiivse hinnangu. Antud ravitehnoloogia võimaldab päästa kuni 30% jalgadest, mis täna amputeeritakse isheemia tõttu.*

Patent search results:

Nicpon *et al.*, (2015), The effect of metamizole and tolfenamic acid on canine and equine adipose-derived mesenchymal stem cells (ASCs) an in vitro research. Polish Journal of Veterinary Sciences, 18(1); STEMEDICA CELL TECH INC: US2016287638A1; KASIAK RES PVT LTD: WO2014203267A2; JUNTENDO UNIV: WO2019146131A1.

27th European Association of Plastic Surgeons (EURAPS) Annual Meeting, May 26-28, 2016 (BRUSSELS, Belgium): Abstracts: Thursday Afternoon Session: 17.16, Pidgeon *et al.*, The effects of heparin and metamizole sodium on the fat graft viability, page 83.

The family of patent(s) (applications) filed by Cellin Technologies OÜ & AS Taastava Kirurgia Kliinik and related to Project 26:

WO2021038275A1 (AU2019463156A1, CA3152963A1, CN114269901A, EP4022039B1, JP7442624B2, KR20220047874A, US2022347223A1).

THE CLAIMS OF THE INVENTION (METHOD) DESCRIBED IN WO2021038275A1 FAMILY BY TKK AND CT ARE NOVEL AND HAVE INVENTIVE STEPS (ARE NON-OBVIOUS).

Project 27: "*Development of second-generation autonomous shuttle*". Enterprise: AuVe Tech OÜ

Abstract, [ENG]: Auve Tech is developing a second-generation autonomous vehicle that meets Level 4 autonomy. This means that the self-driving vehicle can operate without an on-board operator, who instead remotely monitors around 10 vehicles at a time to intervene if necessary. As a result of this project, Auve Tech's self-driving vehicle is ready for small-scale serial production and commercialization.

Original project title, [ENG]: Development of second-generation autonomous shuttle.

Original abstract, [EE]: *Auve Tech töötab välja teise generatsiooni autonoomse sõiduki, mis vastab 4. taseme autonoomsusele. See tähendab, et isesõitev sõiduk suudab opereerida ilma pardal oleva operaatorita, kes selle asemel jälgib kaugjuhtimise teel korraga umbes 10 sõidukit, et vajadusel sekkuda. Käesoleva projekti tulemusena on Auve Techi isesõitev sõiduk valmis väikesemahuliseks seeriatootmiseks ja kommertsialiseerimiseks.*

Patent search results:

UIPCO LLC: US11809184B1; NIO USA INC: US10970746B2; RIVIAN IP HOLDINGS LLC: US11814086B1; SE1830044A1; RICHMOND DESIGN AND MARKETING LTD: GB2613746A; FORD GLOBAL TECH LLC: CN107121979A; ZOOX INC: US10591910B2; JAGUAR LAND ROVER LTD: GB2589987A; JAGUAR LAND ROVER LTD: GB2579338A; NVIDIA CORP: US11474519B2; GENESYS INFORMATION TECH CO LTD: CN113715839A; INTEL CORP: US11320810B2; ARGO AI LLC: US11562572B2; NVIDIA CORP: US11214273B2; TUSIMPLE INC: US2023415777A1; TUSIMPLE INC: EP3702866A1; TOYOTA MOTOR CO LTD: US11662724B2; TUSIMPLE INC: US2024034253A1; NEXT GENERATION ROBOTICS INC: US2023075128A1; NIO USA INC: US2021192941A1; TUSIMPLE INC: US11884284B2; TUSIMPLE INC: US2024017702A1; UNIV FUZHOU: CN116740915A; PURPLE MOUNTAIN LABORATORIES FOR NETWORK COMMUNICATION & SECURITY: CN116331237A; QINGDAO VIPIONEERS INTELLIGENT MACHINE CO LTD: CN116430775A; UNIV FUZHOU: CN116767276A; MORGAN STATE UNIV: US2023064211A1; NVIDIA CORP: WO2019165451A1; SB DRIVE CORP: JP2020170322A, JP2019109794A, JP2019101709A; SUZUKI MOTOR CORP: JP2020175715A; BOLDLY INC: JP2023158952A; ZOOX INC: US10591910B2, US2024034308A1, US10884428B2; EASYMILE: EP3736597A1, EP3671262A1, EP4105681A1, FR3082811A1.

Project 28: "*Rakendusuuring tööstuslikust kanepist saadava CBD isolaadi ekstraheerimisprotsessi optimeerimiseks*". Enterprise: Hemptec OÜ

Abstract, [ENG]: In the case of pure cannabidiol (CBD) isolate and distillate, it is an input component with high added value and application in many industries, on the basis of which, for example, medicinal preparations, pharmaceutical products, cosmetic products and innovative food and beverage products are made. The aim of the study is to optimize the CBD extraction process for local raw materials and to scale the obtained results to the industrial level in an efficient and environmentally friendly way, in order to reach the competitive production of a pure isolate.

Original project title, [ENG]: An application study to optimize the extraction process of CBD isolate from industrial hemp.

Original abstract, [EE]: *Puhta kannabidiooli (CBD) isolaadi ning destillaadi puhul on tegemist kõrge lisandväärtusega ja paljudes tööstusharudes rakendust leidva sisendkomponendiga, mille baasil valmistatakse näiteks ravimpreparaate, framaatsiatooteid, kosmeetikatooteid ning uudseid toidu- ja joogitooteid. Uuringu eesmärk on optimeerida CBD ekstraktsiooniprotsess kohalikule toorainele ning skaleerida saadud tulemused tööstustasandile tõhusal ja keskkonnahoidlikul viisil, jõudmaks puhta isolaadi konkurentsivõimelise tootmiseni.*

Patent search results:

UNIV NORTHEAST FORESTRY: CN117567250A; SUZHOU CATCH BIO SCIENCE AND TECH CO LTD: CN112898131A; HARBIN INST TECHNOLOGY: CN111960930A; CLS LABS INC: WO2023096912A1; HEILONGJIANG HAGONG WISDOM HEMP TECH CO LTD: CN116143591A; YUNNAN HAN UNION PHARMACEUTICAL CO LTD: CN114685416A; GUIZHOU AEROSPACE WUJIANG MACHINERY & ELECTRICITY EQUIP CO LTD: CN110668923A; ECHO PHARMACEUTICALS BV: EP3274321A1; CHENGUANG BIOTECH GROUP CO LTD: US2023219872A1; CANOPY GROWTH CORP: USRE49434E; TENGCHONG MORNING LIGHT TENEBRIO MOLITOR BIOTECHNOLOGY LTD COMPANY: CN114380666A; WEBSAR INNOVATIONS INC: CA2391454A1; NATURAL EXTRACTION SYS LLC: WO2020123365A1; HERBOLEA BIOTECH S P A: US2022401405A1; NEPTUNE WELLNESS SOLUTIONS INC: US11110372B2; HERBOLEA BIOTECH S R L: CA3049489A1; US10611713B2.

Project 29: "*Jätkusuutliku tarbimise teabe ja toodete eluea toetuskeskkonna koostalitusvõime rakendusuuring*". Enterprise: Mindworks Industries OÜ

Abstract, [ENG]: The support environment for the after-sale life cycle of (durable) goods creates a digital platform with microservices aimed at product brands, which enables consumers to manage the life cycle of things conveniently in accordance with the visions and regulations of the European Green Deal. At the proof-of-concept level, support and extension of the life cycle of durable goods can be demonstrated thanks to better information and a semi-automatic user interface. The system interoperability solution requires minimal changes by the merchandise brands to their data systems.

Original project title, [ENG]: Implementation study of interoperability of sustainable consumption information and product life support environment.

Original abstract, [EE]: *(Kestvus)kaupade müügijärgse elutsükli toetuskeskkond loob kaubabrändidele suunatud mikroteenustega digitaalse platvormi mis võimaldab tarbijatele mugavat asjade elutsükli haldust kooskõlas Euroopa roheleppe visioonide ja regulatsioonidega. Proof-of-concept tasemel saab demonstreerida kestvuskauba elutsükli tuge ja pikendamist tänu paremale infole ja poolautomaatsele kasutajaliidesele. Süsteemi koostalitusvõime lahendus nõuab minimaalseid kaubabrändide poolseid muudatusi nende andmesüsteemides.*

Patent search results:

ROCKWELL AUTOMATION TECH INC: CN101872189A; BEIJING YIDIANWUDU TECH CO LTD: CN117272678A; SHWAP TECH LTD: GB2607342A; SIEMENS PRODUCT LIFECYCLE MAN SOFTWARE INC: US2010249975A1; SIEMENS CORP: WO2020146230A1; ROCKWELL AUTOMATION TECH INC: EP2244223A1; US10013666B2; ACCENTURE GLOBAL SERVICES LTD: AU2011242498A1; UNIV SHANGHAI: CN104504448A; BLUEY AUSTRALIA PTY LTD: AU2013101082A4; SIEMENS AG: CN117242468A; OUYE IND PRODUCTS CO LTD: CN115438912A; GUANGZHOU INST ENERGY CONV CAS: CN104850951A; DIGITAL DOUBLE CARBON TECH HEFEI CO LTD: CN117591679A; GDS SOFTWARE SHENZHEN CO LTD: CN103577908A; HON HAI PREC IND CO LTD: TW201405447A; CHONGQING SAIBAO INDUSTRIAL TECH RESEARCH INSTITUTE CO LTD: CN114881479A; UNIV ZHEJIANG TECHNOLOGY: CN104820773A; XINHUAXIN SUZHOU INFORMATION TECH CO LTD: CN117274012A; BEIJING CQC HUANYU INFORMATION SECURITY TECH CO LTD: CN117474567A; INMAR CLEARING INC: US11416885B1; MASSETTRACK: WO2019005784A1; CFPH LLC: EP1320058A1; SUBARU OF AMERICA INC: US2009063303A1.

Project 30: "*Eleoni 5+ SCG (ülijuhtgeneraator) tuulikumudeli tootearendus*". Enterprise: ELEON AS

Abstract, [ENG]: The goal of this project is to develop and build the Eleon 5+ SCG (superconducting generator) test wind turbine and to carry out all the necessary tests and the certification of the wind turbine model, which is a prerequisite for the final validation of the wind turbine model and its introduction into series production. Patent applications will be filed for more important technical solutions.

Original project title, [ENG]: Product development of the Eleon 5+ SCG wind turbine model.

Original abstract, [EE]: *Käesoleva projekti eesmärgiks on arendada välja ja püstitada Eleon 5+ SCG (ülijuhtgeneraator) testtuulik ning viia läbi kõik vajalikud testimised ning tuulikumudeli sertifitseerimine, mis on eelduseks tuulikumudeli lõplikuks valideerimiseks ja seeriatootmisesse suunamiseks. Samuti viiakse läbi patentide taotlemine olulisematele tehnilistele lahendustele.*

Patent search results:

GEN ELECTRIC: WO2022197287A1, CN114041259A, US11261847B2, CN112585845A, US11128231B2, CN112600389A, US2010058806A1, EP3719302A1, EP3719948A1, CN112189299A, WO2023287397A1, US10910920B2, US2009224550A1, WO2023107095A1, KR102622718B1; INDUSTRY ACADEMIC COOPERATION FOUNDATION JEJU NATIONAL UNIV: WO2023033407A1; UNIV ZHEJIANG: CN106253322A; AMERICAN SUPERCONDUCTOR CORP: JP2013506400A; GENERAL ELECTRIC RENOVABLES ESPANA S L U: KR20220097261A, US11387699B2; UNIV HUNAN: US2023341180A1; GUODIAN UNITED POWER TECH CO: CN102593870A; MINGYANG SMART ENERGY GROUP CO LTD: CN220826485U; CHINA SOUTHERN POWER GRID ELECTRIC POWER TECH CO LTD: CN113054797A, CN113048010A, CN113067401A; UNIV NANJING POSTS & TELECOMMUNICATIONS: CN114784858A; ENVISION ENERGY DENMARK APS: US2020169158A1, US10601298B2; UNIV NORTH CHINA ELECTRIC POWER: CN114498756A.

Final Report Summary – SUPRAPOWER (SUPerconducting, Reliable, lightweight, And more POWERful offshore wind turbine).
Beyond 15 MW: A cost of energy perspective on the next generation of drivetrain technologies for offshore wind turbines.
Superconducting Generators for Offshore Wind Turbines.
High Efficiency Ultra-Light Superconducting Generator (SCG) for Offshore Wind.
Wind Manufacturing and Supply Chain.

Project 31: "*Better Medicine AI*". Enterprise: Better Medicine OÜ

Abstract, [ENG]: Better Medicine AI (BMAI) is an artificial intelligence whose value lies in saving the radiologist's time analyzing computed tomography (CT) images, an estimated 40-60% per cancer case. In addition to saving time and direct financial savings, the use of artificial intelligence has significant potential for improving the quality of medical care. For example, AI is estimated to save between 36,000 and 41,000 lives a year when using X-rays, CTs and MRIs.

Original project title, [ENG]: Better Medicine AI.

Original abstract, [EE]: *Better Medicine AI (BMAI) on tehisintellekt, mille väärtus seisneb radioloogi aja kokkuhoius kompuutertomograafia (CT) piltide analüüsimisel, hinnanguliselt 40–60% vähijuhtumi kohta. Lisaks ajakokkuhoiule ning otsesele rahalisele säästule on tehisintellekti kasutamisel oluline potentsiaal arstiabi kvaliteedi tõstmisel. Näiteks prognoositakse, et AI abil on röntgeni, CT ja MRI kasutamisel võimalik säästa 36 000–41 000 elu aastas.*

Patent search results:

KONINKLIJKE PHILIPS NV: US2022028064A1, WO2018220089A1, CN116868280A, WO2022152733A1; SIRONA MEDICAL INC: US11894114B2; VETOLOGY INNOVATIONS LLC: US2021202092A1, WO2021133786A1; SIEMENS HEALTHCARE GMBH: US10973472B2, US2021004997A1; MEDIMAPS GROUP SA: WO2023078545A1; UNIT 92493 OF PLA: CN115579125A; UNIV SOUTHERN CALIFORNIA: WO2022251633A1; MEDICALIP CO LTD: EP4358096A1; MASSACHUSETTS GEN HOSPITAL: WO2019051358A1; SEE MODE TECH PTE LTD: US2023103319A1; UT BATTELLE LLC: US2022035961A1; VARIAN MED SYS INC: US11282221B1; UNIVERSITY OF SCIENCE AND TECHNOLOGY BEIJING: CN114663369A; GE PREC HEALTHCARE LLC: EP3982327A1; SPRINGBOK INC: US2023386042A1; UNIV KEIMYUNG IACF: US2022301714A1; US2024115224A1; GOOGLE LLC: WO2021021329A1; SONAVISTA INC: WO2019236398A1; KR102208358B1; HEARTLUNG CORP: US2024120095A1; PROCEPT BIOROBOTICS CORP: CN112739281A; THE METHODIST HOSPITAL SYSTEM: WO2020060997A1; US2023248998A1; WO2023239150A1.

Project 32: "*Kliimaneutraalse piirkonna energiavarustuse ja ehituslahenduste kavandamise digitaalne tööriist*". Enterprise: OÜ Hundipea

Abstract, [ENG]: As part of the project, a model-based digital tool will be developed, which will enable the planning of energy supply and construction solutions for a climate-neutral energy-efficient region at an early planning stage. The input of the model is the conditions resulting from the characteristics of the area to be developed and the variables defined by the team. The output of the model is the parameters on the basis of which the initial tasks for local energy supply and building design can be prepared.

Original project title, [ENG]: A digital tool for planning energy supply and building solutions in a climate-neutral region.

Original abstract, [EE]: *Projekti raames arendatakse välja mudelil põhinev digitaalne tööriist, mis võimaldab kavandada varajases planeerimisstaadiumis kliimaneutraalse energiatõhususega piirkonna energiavarustuse ja ehituslikud lahendused. Mudeli sisendiks on arendatava piirkonna omadustest tulenevad tingimused ja meeskonna poolt defineeritavad muutujad. Mudeli väljundiks on parameetrid, mille põhjal saab koostada lokaalse energiavarustuse ja hoonete projekteerimise lähteülesanded.*

Patent search results:

JOHNSON CONTROLS TYCO IP HOLDINGS LLP: US2024012378A1; ERSATZ CO LTD: KR102399248B1; WILLOW IP PTY LTD: US2023359778A1; ROCKWONIT GLOBAL CO LTD: WO2023145996A1; SHANGHAI SCIENCE UNIV: CN114386150A; SHENZHEN INST OF ADV TECH CAS: CN110929378A; HEBEI YOULAN TECH CO LTD: CN117314128A; FENGHE WISDOM TECH SHANGHAI CO LTD: CN115545390A; POPSMART TECH CO LTD: CN115906261A; GUANGZHOU ZHISUAN INFORMATION TECH CO LTD: CN116362445A; HEBEI YOULAN TECH CO LTD: CN117314128A; SHENYANG SURVEY AND MAPPING RES INSTITUTE CO LTD: CN116911055A; ZHEJIANG UNIV DEQING ADVANCED TECHNOLOGY AND INDUSTRY INSTITUTE: CN116244774A; DAEGUN SOFT CO LTD: KR102448724B1; CHINA STATE LIGHTING CO LTD: CN117787659A; SHENZHEN XINGXUN TECH CO LTD: CN114863023A; GUANGDONG FLYING CLOUD COMPUTING CO LTD: CN117057656A; NEC LABORATORIES EUROPE GMBH: US2023092447A1; UNIV CHUNG ANG IND ACAD COOP FOUND: KR20200063618A; CN114861539A; SUZHOU MEIFANG TECH CO LTD: CN116883616A; CHINA TIESIJU CIVIL ENG GROUP CO LTD: CN117407939A; UNIV TIANJIN: CN114742682A; CN114186834A; SANTI WISDOM NETWORK TECH SUZHOU CO LTD: CN116739535A; SHANGHAI SHIKE INFORMATION TECH CO LTD: CN115641423A.

Project 33: "*Tervist toetavate šokolaaditoodete väljatöötamine*". Enterprise: Chocolala OÜ

Abstract, [ENG]: Chocolala wants to develop a new line of health-promoting chocolate products. The series would include chocolates with various healthy additions. The additives we want to use have been discovered by Estonian scientists or recommended by them.

Original project title, [ENG]: Development of health-promoting chocolate products.

Original abstract, [EE]: *Chocolala soovib arendada uut tervist toetavate šokolaaditoodete sarja. Sarja kuuluks erinevate tervislike lisanditega šokolaadid. Lisandid, mida soovime kasutada, on avastatud Eesti teadlaste poolt või nende poolt soovitatud.*

Patent search results:

BARRY CALLEBAUT AG: EP2459699A2, EP2670252A1; NESTEC SA: EP2183984A1, EP2054078A2; UNILEVER NV: EP1289380A1; JAYEONMAM: KR101819895B1; LOTTE CO LTD: JP2022096542A; JIANGSU WECARE BIOTECHNOLOGY CO LTD: CN107455538A; TRIPHASE PHARMACEUTICALS PVT LTD: EP3237600A1; POLITECHNIKA ŁODZKA: PL216331B1; GENMONT BIOTECH INC: JP2008037859A; LOTTE CONFECTIONERY CO LTD: KR101848230B1; SITIA YOMO SPA: EP0856259A1; UNIV CALIFORNIA: EP3536328A1, US10413577B2; GERVAIS DANONE SA: RO121000B1; HERO NUTRITIONAL PRODUCTS LLC: US2013004604A1; SUEDZUCKER AG: CN101404896A.

Patent family by University of Tartu potentially related to Project 33:

WO2014102692A1 (US9974817B2, SG11201504787VA, RU2015130679A, PL2943210T3, PH12015501425A1, MX2015008298A, LT2943210T, JP6484561B2, HK1216141A1, ES2649969T3, EP2943210B8, DK2943210T3, CA2896278C, BR112015014334A2, AU2013368969B2).

Project 34: "*Applied research for CodeRhythmTM predictive monitoring*". Enterprise: Transformative AI OÜ

Abstract, [ENG]: Transformative AI is developing a CodeRhythm solution that can predict sudden cardiac arrest (SCA) with >98% accuracy up to an hour before an attack occurs. The finished solution will be integrated into patient monitoring systems that are already used in hospitals today. Using the CodeRhythm solution makes it possible to significantly better prevent the occurrence of SCA, thereby reducing mortality and decreasing healthcare costs.

Original project title, [ENG]: Applied research for CodeRhythmTM predictive monitoring.

Original abstract, [EE]: *Transformative AI töötab välja CodeRhythm lahenduse, mis suudab äkilise südameseiskumise (SCA) esinemist prognoosida >98% täpsusega kuni tund aega enne haigushoo tekkimist. Valmislahendus integreeritakse patsientide monitoorimissüsteemidesse, mida täna juba haiglates kasutatakse. CodeRhythm lahenduse kasutamine võimaldab oluliselt paremini SCA esinemist ennetada, tuues sellega kaasa suremuse vähenemise ning tervishoiukulude kahanemise.*

Patent search results:

TOPIA LIFE SCIENCES LTD: WO2024052677A1; MEDTRONIC INC: US11633112B2; MEDTRONIC INC: US2022346725A1; GANSU SAME PERSON INFORMATION TECH LIMITED COMPANY: CN215993956U; MEDTRONIC INC: WO2022231679A1; MEDTRONIC INC: US2022369937A1; KONINKL PHILIPS ELECTRONICS NV: WO03082102A1; WARANGAL NATIONAL INSTITUTE OF TECHNOLOGY: AU2021105599A4; ZHONGSHAN PEOPLES HOSPITAL: CN113951857A; US10702179B2; AUM CARDIOVASCULAR INC: US2014243616A1; WEST AFFUM HOLDINGS CORP: US2022087537A1; IHELP WORLD LTD: WO2014096920A1; EMERGENCY UNIVERSITY INC: US2014365390A1; MEDTRONIC INC: WO2022192827A1; MEDTRONIC INC: WO2024035530A1.

The family of patent(s) (applications) filed by Transform AI Ltd [GB] and potentially related to Project 34:

TRANSF AI LTD [GB]: WO2020049267A1 (GB2582124A, EP3846685A1, US2021353166A1) and WO2020049267A1 (GB2582124A, EP3846685A1, US2021353166A1).

Project 35: "*CoNurse*". Enterprise: OÜ Cognuse

Abstract, [ENG]: CoNurse is a protocol adherence mobile application which supports its users by providing step-by-step, institution-specific guidelines for clinical protocols. The aim of the project is to expand the functionalities of CoNurse through developing a stochastic model for implementing smart and dynamic protocol delivery. Instead of manually choosing the guidelines, the model will allow CoNurse to initiate guidance based on continuously monitored input parameters as well as previously set rules.

Original project title, [ENG]: CoNurse.

Original abstract, [EE]: *CoNurse on protokolli järgimise mobiilirakendus, mis toetab oma kasutajaid, pakkudes kliiniliste protokollide jaoks samm-sammult asutusepõhiseid juhiseid. Projekti eesmärk on laiendada CoNurse'i funktsioone, töötades välja stohhastilise mudeli nutika ja dünaamilise protokolli edastamiseks. Juhiste käsitsi valimise asemel võimaldab mudel CoNurse'il algatada juhiseid, mis põhinevad pidevalt jälgitavatel sisendparameetritel ja eelnevalt seatud reeglitel.*

Patent search results:

US10346938B2; DRFIRST COM INC: CA3115437A1; MEDISAFE PROJECT LTD: US2021125695A1; BECTON DICKINSON S A: EP3269345A1; ARRIX INC: US11335448B2; WELLSCAPE LLC: US2023039151A1; IBM: US2020111550A1; INVOY HOLDINGS INC: US2024153613A1; INTENT SOLUTIONS INC: WO2021127335A1; AFTECHMOBILE INC (D/B/A MOBRISE INC): US2017364655A1; KONINKL PHILIPS ELECTRONICS NV: US2013297340A1, US2013282405A1, WO2013144796A1, ; CALYX SERVICES INC: US2022310214A1; GEN ELECTRIC: CA2810867A1; KONINKLIJKE PHILIPS NV: WO2019233882A1; KIMBERLY CLARK CO: CA2898688A1; MENTICE INC: US2019340956A1; GINGER IO INC: CN109785972A; BECTON DICKINSON CO: CN106999351A; DYNOFIT INC: US2017100034A1; UNIV MICHIGAN REGENTS: WO2022094243A1; MEDAWARE SYSTEMS INC: CA2939463A1; AI CURE TECHNOLOGIES LLC: US2014129253A1; RESMED PTY LTD: KR20230030629A; SENSAL HEALTH LLC: US10888502B2; AI CURE TECHNOLOGIES INC: US2016117484A1; PARI PHARMA GMBH: EP3414687A1; US10109377B2; US2019156928A1; AI CURE TECH LLC: US11244283B2; EMOCHA MOBILE HEALTH INC: US2020365244A1; ROCHE DIABETES CARE INC: US11350822B2; RIA TECH MANAGEMENT INC: US11590058B2; ELEMENTS OF GENIUS INC: US2019043501A1; GLOBAL PHARMACEUTICAL SERVICES LLC: US2016162656A1; ARES TRADING SA: CN107430641A.

Project 36: "*Kasepuidust mikro- ja nanokristalse tselluloosi tootmistehnoloogiate arendus ning rakendusvaldkondade kaardistamine*". Enterprise: OÜ Fibenol (Fibenol Imavere OÜ)

Abstract, [ENG]: The project develops special cellulose production technologies based on new pre-treatment of wood and maps the areas of use of these materials.

Original project title, [ENG]: Development of micro- and nanocrystalline cellulose production technologies from birch wood and mapping of application areas.

Original abstract, [EE]: *Projektis arendatakse uudsel puidu eeltöötlusel põhinevaid eritsellulooside tootmistehnoloogiaid ning kaardistatakse nende materjalide kasutusvaldkonnad.*

Patent search results:

FMC CORP: US5769934A; KEMESTRIE INC: WO9960027A1; UNIV JIANGXI AGRICULTURAL: CN110128554A; CHENGDU LIANJIE MEMBRANE TECHNOLOGY CO LTD: CN104498640A; ANDRITZ INC: US2013045509A1; EXXONMOBIL RES & ENG CO: US2020181664A1; FPINNOVATIONS: US2016257982A1; XYLECO INC: JP2019048828A; SWEETWATER ENERGY INC: CN108136453A; SWEETWATER ENERGY INC: AU2013216823A1; ADVANCED SUBSTRATE TECH AS: EP3247201A1; BIOCHEMTEX SPA: US2016068456A1; SUNDROP FUELS INC: AU2013277608A1; DOMTAR INC: CA2034567A1; VERSALIS SPA: US10233570B2; CLARIANT INT LTD: EP3347480A1; BIOCHEMTEX SPA: US2013225854A1; DU PONT: CA2901183A1; UPM KYMMENE CORP: US2021062231A1; LIGNOSOL IP LTD: WO2022214961A1; NESTE OYJ: US10604777B2; LIGNOSOL IP LTD: GB2605602A; UPM KYMMENE CORP: US11230691B2; VALMET OY: CA3189197A1; CHEMTEX ITALIA SPA: US2013224816A1; ETH ZUERICH: US2014312270A1; SEKAB E TECH AB: US2024052376A1; RENMATIX INC: US10240006B2; FPINNOVATIONS: WO2019153085A1; UPM KYMMENE CORP: US2023272121A1; RENMATIX INC: EP2975076A1; UPM KYMMENE CORP: US2024084409A1; UNIV QUEENSLAND: CN105899455A; VERTICHEM CORP: CA2855192A1.

The family of patent(s) (applications) acquired/filed by Apalta Patents OÜ (Apalta Tehnoloogia OÜ is the sole owner of OÜ Fibenol and Apalta Patents OÜ) potentially related to Project 36:

WO2021133733A1 (AU2020412611A1, US11692000B2, EP4077490A1, CA3165573A1, BR112022012348A2); WO2016094594A1 (US10844413B2, SI3230463T1, RS63528B1, PT3230463T, PL3230463T3, MX2017007631A, LT3230463T, HUE059764T2, HRP20221024T1, ES2926062T3, EP3230463B1, DK3230463T3, CN107208120B, CA2969840A1, BR112017012364B1, AU2015360513B2); WO2018151833A1 (US11821047B2, EP3583223A4, CN110402288A, CL2019002336A1, CA3053773A1, BR112019017106A2, AU2018222746C1, AR111827A1), WO2022072870A1; WO2022072872A1; WO2022072873A1; WO2013155496A1; *etc.*

Project 37: "*Applied research on PCC production from deposited ash*". Enterprise: R-S OSA Service OÜ

Abstract, [ENG]: RS-OSA Service OÜ is developing the technology of beneficiation of oil shale ash as part of the applied research project. During the project, the technology will be piloted on a semi-industrial scale and the primary design and structure of the production unit will be developed for implementation on an industrial scale.

Original project title, [ENG]: Applied research on PCC production from deposited ash.

Original abstract, [EE]: *RS-OSA Service OÜ arendab rakendusuuringu raames edasi põlevkivituhkade väärindamise tehnoloogiat. Projekti käigus piloteeritakse tehnoloogiat pooltööstuslikul skaalal ning töötatakse välja tööstuslikul skaalal rakendamiseks tootmisüksuse esmane disain ja ülesehitus.*

Patent search results:

CN113716596B: Method for graded extraction of various products by using oil shale semicoke or oil shale ash; Priority: **2021-09-15** (CN202111079020A); Anticipated expiration: 2041-09-15. Applicant: LIAONING PROVINCE INTERNATIONAL INVESTMENT & TRADE PROMOTION CENTRE (LIAONING PROVINCE E-PORT SERVICE CENTRE).

Patent applications/utility models filed by R-S OSA Service OÜ, which might be connected to Project 37:

Family I: Earliest priority: **2020-06-01**, WO2021244728A1 (EP4157795A1); Family II: Earliest priority: **2020-06-01**, WO2021244727A1 (CN115916700A, US2023212020A1, IL298590A, EP4157794A1, CN115916700A, CA3185651A1, BR112022023778A2, AU2020451269A1); Utility models: EE01613U1, EE01614U1.

More information on Project 37:

Rein Kuusik: A breakthrough in the use of oil shale ash? – TalTech – Tallinn University of Technology, News, 2022-10-18.

Project 38: "*Looduslikul atmosfäärikiirgusel põhinev posti- ja pagasiskänner*". Enterprise: GScan OÜ

Abstract, [ENG]: GScan OÜ develops a fully automatic tomograph based on natural atmospheric radiation. The device is intended for use in customs and security systems: for screening luggage, people, cars, containers, etc. The technology detects the chemical composition of objects and automatically signals explosives, drugs and other prohibited, dangerous or undeclared goods. During the project, the technology of tomographic equipment will be further developed with the aim of reducing the cost of the equipment.

Original project title, [ENG]: Post office and baggage scanner based on natural atmospheric radiation.

Original abstract, [EE]: *GScan OÜ töötab välja looduslikul atmosfäärikiirgusel põhinevat täisautomaatset tomograafi. Seade on mõeldud kasutamiseks tolli- ja turvasüsteemides: pagasi, inimeste, autode, konteinerite jms läbivalgustamisel. Tehnoloogia tuvastab objektide keemilist koostist ja annab automaatselt märku lõhkeainete, narkootikumide jm keelatud, ohtlike või deklareerimata kauba kohta. Projekti jooksul arendatakse edasi tomograafiliste seadmete tehnoloogiat eesmärgiga vähendada seadmete maksumust.*

Patent search results:

ST NAZ DI ASTROFISICA: WO2017089932A2; ADVANCED APPLIED PHYSICS SOLUT: US2006180753A1; FEDERAL NOE G BJUDZHETNOE OBRAZOVATEL NOE UCHREZHDENIE VYSSHEGO PROFESSIONAL NOGO OBRAZOVANIJA NATSI: RU2008140853A; NEC CORP: JP7070791B2, JP2024039945A, JP7103508B2, JP7099619B2; BEIJING INST SPACECRAFT ENVIRONMENT ENGINEERING: CN115932989A; ADVANCED APPLIED PHYSICS SOLUT: US2006180753A1; UNIV LANZHOU: CN112697815A; MUON VISION INC: US11971373B2; TOSHIBA CORP: JP2023070871A; UNIV CHINA GEOSCIENCES WUHAN: CN116953770A; MICROELECTRONIC RES INSTITUTE OF CHINESE ACADEMY OF SCIENCES: CN114690255A; SHANDONG NUCLEAR POWER LTD COMPANY: CN114496322A; XIAN RESEARCH INSTITUTE OF CHINA COAL TECH & ENGINEERING GROUP CORP: CN115935120A; YUNNAN AEROSPACE ENG GEOPHYSICAL SURVEY INSPECTION CO LTD: CN117388937A; UNIV LANZHOU: CN115542410A; UNIV TSINGHUA: CN219039370U; DECISION SCIENCES INT CORP: US10872746B2.

Family of patent applications filed by GoSwift OÜ and its spin-off GScan OÜ, which might be connected to Project 38:

WO2019166669A1 (CN111801601A, US11774626B2, JP7258365B2, EP3759526A1).

GScan OÜ: Developing a Muon Flux Technology (MFT) based parcel and luggage scanner system.

Project 39: "*Vessel Traffic and Maritime Surveillance System*". Enterprise: Cybernetica AS

Abstract, [ENG]: The aim of the project is to introduce a new TDoA (Time Difference of Arrival) technology to the market and to develop a marine traffic monitoring product for the international market. Marine surveillance solutions require the integration of previously separate systems into a common situational awareness information system and the provision of a new level of user experience. The result of the project is a unified software platform that can be used to manage all modern marine traffic communication and monitoring channels - radar image, camera image, VHF radio communication, AIS, map application, etc.

Original project title, [ENG]: Vessel Traffic and Maritime Surveillance System.

Original abstract, [EE]: *Projekti eesmärgiks on tuua turule uus tehnoloogia TDoA ja välja arendada rahvusvahelisele turule mereliikluse jälgimise toode. Mereseire lahendustes on nõutav seni eraldiseisnud süsteemide integreerimine ühiseks olukorrateadlikkuse infosüsteemiks ning uuel tasemel kasutajakogemuse pakkumine. Projekti tulemuseks on ühtne tarkvaraplatvorm, millega saab hallata kõiki tänapäevaseid mereliikluse side- ja seirekanaleid – radaripilt, kaamerapilt, VHF raadioside, AIS, kaardirakendus jne.*

Patent search results:

MARITIME RADAR SYSTEMS LTD: EP3026458A1; HARRIS CORP: US2017102466A1; EAGLE TECH LLC: CA3045604A1; UNIV XIDIAN: CN112904325A; HUAWEI TECH CO LTD: EP3515094A1; QUALCOMM INC: EP3619984A1; OFFICE NATIONAL DETUDES ET DE RECH AEROSPAT: US11821979B2; US8193981B1; ZHUHAI FUDAN INNOVATION RES INST: CN113075461A; AMESYS: US10345429B2; UNIV HUAZHONG SCIENCE TECH: CN102288838A; INVISITRACK INC: CN102203634A; CA MINISTER NAT DEFENCE: GB1605053A; ERA SYSTEMS CORP: EP1906204A2; US2013093625A1; SERCEL RECH CONST ELECT: EP2937716A1; LOCIX INC: US10660060B1; TIANJIN 707 INFORMATION TECH C: CN101102479A; SHANGHAI DIDI NAVIGATION TECHNOLOGY CO LTD: CN117932514A; SHENZHEN WETECCTV SCIENCE & TECH CO LTD: CN106952503A; XI'AN AERONAUTICAL UNIV: CN107038900A; SHANGHAI WATERWAY ENG DESIGN AND CONSULTING CO LTD: CN115497340A; CHIEF OF SOUTH REGIONAL HEADQUARTERS KOREA COAST GUARD: WO2016104836A1; UNIV TIANJIN: CN106888266A; QINGDAO VOMAN SOFT CONTROL CO LTD: CN109460021A; JAPAN RADIO CO LTD: JP2023055330A; GUANGZHOU HAISHI TECH CO LTD: CN212342021U; JINJIAO HENGTONG CO LTD: CN113763752A; GMT CYBERNETICS CO LTD: CN102103802A; US ARMY: US2009018774A1; BOEING CO: US10830864B2; HYDROSURV UNMANNED SURVEY UK LTD: GB2616676A; LUDLUM MEASUREMENTS INC: US2023340744A1; RF TECHWIN: KR100900765B1; KOREA INST OCEAN SCI & TECH: KR102201818B1.

Project 40: "*Probiootiliste mikroobsete koosluste tööstusliku tootmise optimeerimise platvormi loomine: CoFerm*". Enterprise: Aktsiaselts Toidu- ja Fermentatsioonitehnoloogia Arenduskeskus

Abstract, [ENG]: The project develops a solution that would allow the production of many probiotic bacteria in one production cycle. Increasing the development capacity of cultivation processes of microbial communities (consortia) makes it possible to offer services to companies offering microbial therapeutics in addition to existing probiotic producers. The project creates a platform that enables the efficient development of growth environments and conditions that ensure the production of stable microbial communities at an industrial level.

Original project title, [ENG]: Building a platform for industrial production optimization of probiotic microbial communities: CoFerm.

Original abstract, [EE]: *Projekt arendab lahendust, mis võimaldaks toota paljusid probiootilisi baktereid ühes tootmistsüklis. Mikroobsete koosluste kultiveerimisprotsesside arendusvõimekuse suurendamine võimaldab pakkuda teenust lisaks olemasolevatele probiootikumide tootjatele ka mikroobiravi (microbial therapeutics) pakkuvatele ettevõtetele. Projektiga luuakse platvorm, mis võimaldab efektiivselt välja arendada kasvukeskkonnad ja -tingimused, mis tagavad stabiilsete mikroobikoosluste tootmise tööstuslikul tasemel.*

Patent search results:

BIOTECAM ASSESSORIA E DESENVOLVIMENTO DE TECNOLOGIA AMBIENTAL LTDA: US2017107129A1; UNIV CALIFORNIA: WO2023056341A1; SOLAREA BIO INC: US2022354907A1; 4D PHARMA RES LTD: EP3917550A1, JP2018126147A, JP2021155458A, JP2019011333A; THE BRIGHAM AND WOMENS HOSPITAL: CN108430483A; MELBOURNE INST TECH: WO2022204759A1; NANTONG SNAKEBITE THERAPY INST: CN106190902A; HIGH MOUNTAIN SHARE LTD COMPANY: CN114174524A; FUZHOU YINUOWEI BIOTECHNOLOGY CO LTD: CN116024152A; HEBEI YILAN BIOTECHNOLOGY CO LTD: CN114507619A; CN101560523A; FUJIAN QUEQI BIOTECHNOLOGY CO LTD: CN114085734A; INNER MONGOLIA SCI PLUS BIOTECH CO LTD: CN103911325A; UNIV PENNSYLVANIA: CA2926466A1, US10058576B2; GUSTO GLOBAL LLC: US11810650B2; UNIV NEWCASTLE RES ASS: US2005180963A1; OMYA INT AG: US2023256096A1; GLAC BIOTECH CO LTD: US2023100778A1; KOREA FOOD DEVELOPING RES INST: JP2007089589A; B G NEGEV TECHNOLOGIES AND APPLICATIONS LTD AT BEN GURION UNIV: CN112839650A; GENMONT BIOTECH INC: TW201200142A; BIO BALANCE CORP: CN1294253C, CA2535951A1.

Project 41: "*Pinnalähedaste pingete mõõtmise metoodika arendamine: algoritmid, optika-eksperimendid ja prototüüp (TRL5 tasemeni)*". Enterprise: Glasstress OÜ

Abstract, [ENG]: Development of near-surface tension measurement methodology: algorithms and optics experiments.

Original project title, [ENG]: Development of near-surface tension measurement methodology: algorithms, optics-experiments and prototype (up to TRL5 level).

Original abstract, [EE]: *Pinnalähedaste pingete mõõtmise metoodika arendamine: algoritmid ja optika-eksperimendid.*

Patent search results:

KAWASAKI HEAVY IND LTD: WO2014027375A1; CHANGSHU JIANGWEI VACUUM GLASS CO LTD: CN205620080U; CN101467029A; UNIV XIAN SCI & TECHNOLOGY: CN110657928A, CN110657909A; XIAN UNIV OF FINANCE AND ECONOMICS: CN110631911A; SUZHOU PTC OPTICAL INSTR CO LTD: CN103697830A; ASAHI GLASS CO LTD: CN111829983A, TW201245690A; DONGGUAN ZHENJING INTELLIGENT TECH CO LTD: CN108548621A; SUZHOU PTC OPTICAL INSTR CO LTD: CN212482750U, CN111896155A; BEIJING JEFFOPTICS CO LTD: CN206019885U; TOSHIBA GLASS KK: JPS6190025A; UNIV SHANDONG: CN109211449A; SUZHOU PTC OPTICAL INSTR CO LTD: CN105547543A; NANTONG JEFFOPTICS INSTR CO LTD: WO2017114122A1; AGC AUTOMATIC GAIN CONTROL JOINT STOCK AGENCY: CN114230195A; UNIV HENAN POLYTECHNIC: CN107796545A; SUZHOU PTC OPTICAL INSTR CO LTD: CN204128721U; CORNING INC: CN107407637A, US10859451B2, US2014092377A1; ORIHARA IND CO LTD: CN109906365A; NIPPON ELECTRIC GLASS CO: JP2022093268A; JAPAN ELECTRICAL MIRABILITE JOINT TYPE STOCK AGENCY: CN114627973A; AGC INC: CN111801557A; CHINA BUILDING MAT TEST & CERTIFICATION GROUP CO LTD: CN115876691A; APPLE INC: CN109293253A; BEIJING JEFFOPTICS CO LTD: WO2018050114A1, CN218781932U; TOKYO SHIBAURA ELECTRIC CO: JPS5533675A; TIANJIN INSPECTION AND TESTING CENTER FOR HOUSING QUALITY AND SAFETY CO LTD: CN215893848U; SUZHOU PTC OPTICAL INSTR CO LTD: CN103644990A; SHENZHEN DONGLIHUA TECH CO LTD: WO2018041102A1.

Project 42: "*Applied research for the extracellular vesicle-enabled non-invasive personalized medicine testing and treatment for assisted reproduction and prenatal medicine (EVREM, Extracellular Vesicles in REproductive Medicine)*". Enterprise: Tervisetehnoloogiate Arenduskeskus AS

Abstract, [ENG]: Tervisetehnologiate Arenduskeskus AS in cooperation with HansaBioMed Life Sciences OÜ and University of Tartu aim to create and validate new prototypes of non-invasive diagnostic and treatment technologies based on extracellular vesicles (TRL5). Emerging technologies in personalized medicine are helping families who cannot have a healthy child due to medical problems.

Original project title, [ENG]: Applied research for the extracellular vesicle-enabled non-invasive personalized medicine testing and treatment for assisted reproduction and prenatal medicine (EVREM, Extracellular Vesicles in REproductive Medicine).

Original abstract, [EE]: *Tervisetehnoloogiate Arenduskeskus AS koostöös HansaBioMed Life Sciences OÜ ja Tartu Ülikooli teadlastega viivad läbi rakendusuuringu eesmärgiga luua ja valideerida ekstratsellulaarsetel vesiikulitel põhinevad uudsed mitteinvasiivsed diagnostika ja ravi tehnoloogiate prototüübid, mis vastavad tehnoloogia valmidusastmele 5 (TRL5). Loodavad personaalmeditsiini tehnoloogiad aitavad perekondadel, kellel laste saamine on meditsiiniliste probleemide tõttu takistatud, saada terve lapse vanemateks.*

Patent search results:

ASOCIACION CENTRO DE INVESTIG COOPERATIVA EN BIOCIENCIAS CIC BIOGUNE: EP4183888A1; QUARK BIOSCIENCES INC: CN112469836A; UNIV CONCEPCION: WO2019090443A1.

Academic publications:

(1) *Ng et al., (2013)*. Endometrial exosomes/microvesicles in the uterine microenvironment: a new paradigm for embryo-endometrial cross talk at implantation.

(2) *Tan et al., (2020).* MicroRNAs in small extracellular vesicles indicate successful embryo implantation during early pregnancy.

Patent family by Tervisetehnoloogiate Arenduskeskus AS potentially related to Project 42:

WO2020234026A1 (US2022196670A1, EP3969912A1) & EP2924126A1.

Project 43: "*Waste2Oil*". Enterprise: VIRU KEEMIA GRUPP AS

Abstract, [ENG]: The aim of the project is to develop oil production technology from mixed plastic waste and waste containing organics based on the solid heat carrier process, thereby contributing to the circular economy of hard-to-recycle plastic waste.

Original project title, [ENG]: Waste2Oil.

Original abstract, [EE]: *Projekti eesmärgiks on arendada tahke soojuskandja protsessi baasil välja segaplastijäätmetest ja orgaanikat sisaldavatest jäätmetest õli tootmise tehnoloogia, aidates seeläbi kaasa raskesti taaskasutatavate plastijäätmete ringmajandusele.*

Patent search results:

TALLINNA TEHNIKAUELIKOOL: EE01468U1: SABIC GLOBAL TECHNOLOGIES BV: WO2023279022A1; NIPPON SHOENE KANKYO SEIHIN KK: JP2001059089A; CHEVRON PHILLIPS CHEMICAL CO LP: US11746297B2; DOW GLOBAL TECHNOLOGIES LLC: WO2023245044A1; PULSE ENERGY CO LTD: BRPI0621931A2; BASF SE: EP3907267A1; EASTMAN CHEM CO: CN114746531A; CHEVRON USA INC: CN114867822A; BASF SE: WO2024056515A1; ESCHERMANN CHEMICAL COMPANY: CN114630883A; BASF SE: WO2023072644A1; UOP LLC: AU2021306370A1; NYNAS AB PUBL: WO2024104980A1; JGC CORP: WO2023188380A1; TOTALENERGIES RAFFINAGE CHIMIE: WO2022162298A1; TOTALENERGIES ONETECH: WO2024068800A1; SHELL OIL CO: US11920094B2; RIGORTECH SDN BHD: US2023079076A1; RADICAL PLASTICS INC: US11926798B2; VALTION TEKNILLINEN: WO2009047387A1; BASELL POLIOLEFINE ITALIA SRL: WO2023187098A1; BRASKEM SA: WO2024057098A1; EXXONMOBIL CHEMICAL PATENTS INC: US2024084095A1; SAUDI BASIC IND CORP: EA033376B1; MONTANUNIV LEOBEN: WO2023169691A1; CHINESE PETROCHEMICAL INDUSTRY LTD COMPANY: CN114507542A; CHINA PETROLEUM & CHEM CORP: WO2024037592A1; INEOS STYROLUTION GROUP GMBH: CN110869428A; OMV REFINING & MARKETING GMBH: RS54535B1; PLASTIC ENERGY LTD: WO2023161414A1; BLUEALP INNOVATIONS B V: EP4349938A1; FUTURE ENERGY INVEST PTY LTD: US2019275486A1.

Patent/utility model family by Viru Keemia Grupp (VKG) AS potentially related to Project 43:

EE01210U1, EE200900037A, EE05565B1.

Project 43: "*Waste2Oil*". Enterprise: KIVIÕLI KEEMIATÖÖSTUSE OÜ

Abstract, [ENG]: The aim of the project is to develop oil production technology from mixed plastic waste and waste containing organics based on the solid heat carrier process, thereby contributing to the circular economy of hard-to-recycle plastic waste.

Original project title, [ENG]: Waste2Oil.

Original abstract, [EE]: *Projekti eesmärgiks on arendada tahke soojuskandja protsessi baasil välja segaplastijäätmetest ja orgaanikat sisaldavatest jäätmetest õli tootmise tehnoloogia, aidates seeläbi kaasa raskesti taaskasutatavate plastijäätmete ringmajandusele.*

Patent search results:

LINDE GMBH: EP2837673B1; SEPCOIII ELECTRIC POWER CONSTRUCTION CORP: CN206846766U, CN109046017A; LINDE INC: CN101505856A, CN101262926A; LINDE AG: US5628977A; HENAN LINDE HONGYE ENVIRONMENTAL PROT ENGINEERING CO LTD: CN220214495U, CN220531213U, CN220269422U, CN220310138U; OCCIDENTAL OIL SHALE INC: US4082146A, US4121663A, US4086962A, US4086963A, US4140181A; MOBIL OIL CORP: US4627964A; PHILLIPS PETROLEUM CO: US4599161A; TOSCO CORP: US4401553A; FEDERALNOE GOSUDARSTVENNOE BYUDZHETNOE UCHREZHDENIE NAUKI INSTITUT PROBLEM KHIM FIZIKI ROSSIJSKOJ AK: RU2733605C1; UNION OIL CO: US4519874A, US4069132A; CHINA ALUMINUM ENVIRONMENTAL PROT AND ENERGY SAVING GROUP CO LTD: CN218689552U; US2011011719A1; PYRO DYNAMICS L L C: WO2019046469A1, US11111440B1; BATTELLE ENERGY ALLIANCE LLC: AU2007276985A1; JIANGSU CTIEC ENVIRONMENTAL PROTECTION RES INSTITUTE CO LTD: CN208071593U; LANZHOU ENGINEERING & RES INSTITUTE OF NONFERROUS METALLURGY CO LTD: CN215138254U, CN111957164A; FUSHUN MINING GROUP CO LTD: CN112159017A; RIZHAO HONGYE ENVIRONMENTAL PROT ENGINEERING CO LTD: CN102641652A; SHENYANG CHANGDA HONGSHENG ENERGY RES INST CO LTD: CN101942313A; SHANDONG HEXUAN ENVIRONMENTAL PROTECTION TECH CO LTD: CN113562946A; UNIV LIAONING SHIHUA: CN107308946A; LONGKOU MINING GROUP CO LTD: CN102207029A; ECOLAB USA INC: CA2896660A1.

Patent/utility model family by Kiviõli Keemiatööstuse OÜ (KKT) potentially related to Project 43:

EE00670U1, EE00574U1.

Project 44: "*Rakendusuuring Find.Fashion otsingumootori arendamiseks*". Enterprise: Find.Fashion OÜ (current name: Miros OÜ)

Abstract, [ENG]: As part of this project, FIND.Fashion OÜ is developing a new visual fashion search engine with artificial intelligence, which allows online store customers to use an innovative search solution when discovering visual goods. During the project, an application study will be carried out to develop an artificial intelligence algorithm and optimize the user interface.

Original project title, [ENG]: Rakendusuuring Find.Fashion otsingumootori arendamiseks.

Original abstract, [EE]: *FIND.Fashion OÜ arendab käesoleva projekti raames uudset tehisintellektiga visuaalset moe otsingumootorit, mis võimaldab kasutada veebipoe klientidel innovatiivset otsingulahendust visuaalsete kaupade avastamisel. Projekti käigus viiakse läbi rakendusuuring, et arendada tehisintellekti algoritm ja optimeerida kasutajaliides.*

Patent search results:

OOTD: KR20240012909A; MICROSOFT TECHNOLOGY LICENSING LLC: US2022155912A1; GOOGLE INC: US2015007101A1; ALLBIGDAT INC: KR102213191B1; YANDEX EUROPE AG: US11055375B2; BEIJING JINGDONG SHANGKE INFORMATION TECHNOLOGY CO LTD: CN111147431A; URBANUNION: KR102190897B1; BOARD OF TRUSTEES OF THE UNIV OF ILLINOIS: US2020311798A1; DEJAVUTO CORP: US2016283564A1; US2017186066A1; US2020286160A1; IBM: US2003004966A1; US2002078021A1; INNOVATION STUDIOS PTY LTD: WO2009094724A1; PINTEREST INC: US11354349B1; OMNIOUS CO LTD: US2024037140A1; ARTMECCA COM: WO02079942A2; MICROSOFT TECHNOLOGY LICENSING LLC: US2020019628A1; US11538094B2; INTELLISYS CO LTD: KR102284148B1; KR102654661B1; FASHIONADE INC: KR102565310B1; IBM: US7080315B1, US10956928B2, US11538083B2; SWISSCOM AGA: US2015074571A1; SUNDO LLC D B A ZELIG: WO2024006570A1, US2024161423A1; US2012197755A1; US2011029925A1; US10606452B2; INTELLITACT LLC: US10235039B2; LOVEFILM INTERNAT LTD: WO2011110823A1; WO2019171128A1; SWATCHBOOK INC: US10613710B2; MICROSOFT CORP: US2009313286A1.

Project 45: "*Cybersecurity testing on cyber range based on digital functional clone of a satellite*". Enterprise: CybExer Technologies OÜ

Abstract, [ENG]: The aim of the project is to simplify the cybersecurity testing of technologies by creating knowledge about the creation of digital functional clones for cyber testing on the cyber training ground. This study uses the ESTCube-2 satellite and its control and communication systems as an example. The field of space technology and the number of services dependent on space technology are growing rapidly, as is the need for cyber testing of these technologies. The methodology being developed is also applicable to other sectors.

Original project title, [ENG]: Cybersecurity testing on cyber range based on digital functional clone of a satellite.

Original abstract, [EE]: *Projekti eesmärk on lihtsustada tehnoloogiate küberturvalisuse testimist luues teadmine küberharjutusväljakule kübertestimiseks digitaalsete funktsionaalsete kloonide loomisest.Antud uuringus tehakse seda satelliidi ESTCube-2 ja selle juhtimis-ning kommunikatsioonisüsteemide näitel.Kosmosetehnoloogia valdkond ning kosmosetehnoloogiast sõltuvate teenuste hulk kasvab kiiresti nagu ka vajadus antud tehnoloogiate kübertestimise järele.Väljatöötatav metoodika on rakendatav ka teistes sektorites.*

Patent search results:

DARKTRACE HOLDINGS LTD: US2023011004A1, US2024098100A1; US2023132703A1; SG10202108336PA; LISTAT LTD: SG10201913635QA; SG10201606110UA; BOEING CO: US2017054752A1; EMC IP HOLDING CO LLC: US10601856B1; WO2020060505A1; HUAWEI TECH CO LTD: US10757135B2; IBM: US10498763B2; COMILION MOBILE LTD: US2015172311A1; PALANTIR TECHNOLOGIES INC: EP3798880A1; MSTECHENG CO LTD: KR102643881B1; GROUP IB TDS LTD: SG11202112145PA; DBAPPSECURITY CO LTD: CN112019519A; QOMPLX INC: US11637866B2, WO2022047415A1, US2023171292A1; IBM: WO2024023605A1; SAUDI ARABIAN OIL CO: US2024070261A1; THREATCONNECT INC: US11985144B2; TREND MICRO INC: US11151250B1; BOEING CO: US11979425B2; EMPOW CYBER SECURITY LTD: US2017111396A1; OBSHCHESTVO S OGRANICHENNOJ OTVETSTVENNOSTYU «GRUPPA AJBI TDS»: RU2722693C1; HUAWEI TECH CO LTD: CN114697057A; PANIK BUTTON HOLDING B V: EP4365742A1; THREATQUOTIENT INC: US2021173924A1; WIZ INC: US11995193B1, US2023418931A1, US2024086524A1; CIRCADENCE CORP: US11411920B2; HAIKU INC: US11265343B2; BANK OF AMERICA: US10924481B2; ARCHITECTURE TECH CORP: US11985159B1; ACCENTURE GLOBAL SOLUTIONS LTD: US11138312B2; AMAZON TECH INC: US11750634B1; UNIV COMMUNICATION CHINA: CN113329026A; ALPINELAB INC: KR102578421B1; ARMY ENG UNIV CHINA PLA: CN115865817A; ARCHITECTURE TECH CORP: US10600335B1.

Project 46: "*eKukkur (Smart Wallet)*". Enterprise: SK ID Solutions AS

Abstract, [ENG]: The goal of the project is to make the necessary preparations and create the necessary business and technological basis for the provision of next-generation eID services, which enables identity verification both in the digital and physical world through the same technical solution, and in addition to their identity, the user can also share personal data.

Original project title, [ENG]: eKukkur (Smart Wallet).

Original abstract, [EE]: *Projekti eesmärgiks on teha vajalikud ettevalmistused ning luua vajalik äriline ja tehnoloogiline alusbaas järgmise põlvkonna eID teenuste pakkumiseks, mis võimaldab ühe ja sama tehnilise lahenduse kaudu isikusamasuse kontrolli nii digitaalses kui ka füüsilises maailmas ning lisaks oma identiteedile saab kasutaja jagada ka endaga seotud andmeid.*

Patent search results:

NXT-ID INC: US2017039568A1; PRIMESIGN GMBH: EP4224786A1; AALTO UNIV FOUNDATION SR: US2022263668A1; BAAS LAB CORP: KR102044748B1; THALES DIS FRANCE SAS: US2022374533A1; KT CORP: KR20140029067A; ALIBABA GROUP HOLDING LTD: CN107086909A; SHENZHEN SECRET STOP SMART SCIENCE AND TECH LIMITED COMPANY: CN114596642A; GARMIN INT INC: US10679209B2; NXT-ID INC: US2016379220A1; MASHANGYOU TECH CO LTD: CN111159681A; CELLIGENCE INT LLC: US2024005325A1; INDUSTRIAL & COMMERCIAL BANK OF CHINA CO LTD: CN109034758A; HEETIAN CORP: CN107294988A; EIDLINK INFORMATION TECH CO LTD: CN108881106A; STATE GRID ELECTRONIC COMMERCE COMPANY LTD: CN113641975A; BANK OF CHONGQING CO LTD: CN112734556A; VIVO MOBILE COMMUNICATION CO LTD: CN113163392A; HEFEI JINGQI WISDOM MEDICAL TECH CO LTD: CN109714169A; UNIV BEIJING POSTS & TELECOMM: CN103259667A; EIDLINK INFORMATION TECH CO LTD: CN108234126A; MORPHOTRUST USA LLC: US10032042B1, US10257495B1, US10929712B2; HUIZHIAN INFORMATION TECH CO LTD: CN115174234A; IRIS CORP BERHAD: WO2023022584A1; APPLE INC: US11663309B2; ASIAINFO TECH CHENGDU INC: CN112788042A; CRYPTIC LABS LLC: WO2023154940A2; IDEMIA IDENTITY & SECURITY USA LLC: CA3046924A1; SAMSUNG ELECTRONICS CO LTD: US2022201492A1; WO2020142635A1.

Patent application by Cybernetica AS potentially related to Project 46:

WO2023247296A1

Project 47: "*Uue põlvkonna isikukaitsevahend*". Enterprise: OÜ Respiray

Abstract, [ENG]: The goal of the project is to prove the safe and effective use of UV-C light in personal protective equipment, which enables the creation of protective equipment that is more sustainable and less burdensome on the environment than the currently used solutions. During the project, Respiray OÜ develops the first such product based on its own UV-C module, which is a unique reusable respirator filter in the world that lasts 10-20x longer than existing solutions.

Original project title, [ENG]: New generation personal protective equipment.

Original abstract, [EE]: *Projekti eesmärk on tõestada UV-C valguse ohutu ja efektiivne kasutamine isikukaitsevahendites, mis võimaldab luua praegu kasutatavatest lahendustest jätkusuutlikumad ja keskkonda vähem koormavad kaitsevahendid. Projekti jooksul arendab Respiray OÜ enda UV-C mooduli baasil välja esimese sellise toote, milleks on maailmas ainulaadne korduvkasutatava respiraatori filter, mis kestab 10-20x kauem kui olemasolevad lahendused.*

Patent search results:

CN111359115A; DIVIS GMBH: US2023172290A1; LIT LED INNOVATION TECH SAGL: EP3895566A1; CCD AS: NO20200326A1; GENERAL DEVICES: WO2021195737A1; CEDARZ GROUP LLC: US2023201408A1; RU2740273C1; IMASK S R L: IT202100011813A1; VS BANSKA TECHNICKA UNIVERZITA OSTRAVA: CZ35157U1; SHENZHEN YINUOWEI TECH CO LTD CN218833420U, CN115814297A; SHENZHEN RUNWO AUTOMATION ENG CO LTD: CN111228618A; UNIV YANGZHOU: CN111789324A; QONE HOLDING AB: CN115427088A; ZHONGSHI MEDICAL TECH JIANGSU CO LTD: CN215537903U, CN113599735A; HANGZHOU SIWEI MEDICAL INSTR CO LTD: CN219333001U; CN214665064U; DAEHYUN ENTEC CO LTD: WO2022255533A1; KUANTEC (CAMBODIA) INTERNATIONAL CO LTD KR20230001523U; E2E MFG LLC: AU2021202170A1; CN217636054U; JEONG HEON HOLDINGS: WO2022182161A1; CN212439759U; GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO LTD: CN214791731U; XICORE INC: US2021322798A1; HANIYA HOLDING LTD: EP3957337A1; NINGBO ZUCHUANG ELECTRONIC TECH CO LTD: CN105381556A; YL INNOTECH CO LTD: KR102548569B1; ALFRED KARCHER SE & CO KG: CN208160844U; KR101654413B1.

Patent application by Respiray OÜ potentially related to Project 47:

EP4062948A1

Project 48: "*Digital medical device therapy platform-application for patients with a complex chronic skin condition*". Enterprise: Dermtest OÜ

Abstract, [ENG]: The goal of the project is to create a therapy application for a chronic, long-term skin disease. The application is created as a certified medical device that doctors can prescribe to patients. The artificial intelligence-like application gives people support in living with the disease, improves the quality of life, gives recommendations to control the disease and reduce the risk of co-morbidities.

Original project title, [ENG]: Digital medical device therapy platform-application for patients with a complex chronic skin condition.

Original abstract, [EE]: *Projekti eesmärk on luua kroonilise pikajalise nahahaiguse teraapia-rakendus. Rakendus luuakse sertifitseeritud meditsiiniseadmena, mida saavad arstid pasientidele välja kirjutada. Inimestele annab tehisintellekti-lähedane rakendus tuge haigusega elamisel, parandab elukvaliteeti, annab soovitusi haiguse kontrolli all hoidmiseks ning kaasuvate haiguste riski vähendamiseks.*

Patent search results:

DERMTECH INC: US2021330245A1, JP2023525031A; MAXELL HOLDINGS LTD: US10216697B2; UNIV SOUTH CHINA TECH: CN110809037A; LI TEK TECH CO LTD: CN109864702A, TW201925756A; HARU SOFT INC: KR20150105574A; GALDERMA RES AND DEVELOPMENT: US11375946B2; CAL COMP BIG DATA INC: CN108354587A, KR20180080140A; PROCTER & GAMBLE: US2022224876A1; UNIV GUANGDONG TECHNOLOGY: CN116308977A; US2013236074A1; KOSE CORP: JP2003242506A, JP2004187879A; SHENZHEN HONMAX TECH CO LTD: CN106955088A; SHISEIDO CO LTD: JP2006142005A, EP1813189A1; TECHHEIM CO LTD: KR20220168691A; MELA SCIENCES INC: US2008214907A1; INFORWARD INC: JP2004321793A; UNIV SOUTHERN TAIWAN: TW201100058A; EYRIS PTE LTD: WO2023195924A2; OREAL: CN117241722A; MYSKIN INC: CA2750266A1; IDI IRCCS: CN100483460C; HEALTH DISCOVERY CORP: WO2011087807A2; US2012008838A1; SKINOPATHY INC: US2024087115A1; NANTOMICS LLC: US2023260628A1; US2012172685A1, US10769788B2; OHIO STATE INNOVATION FOUNDATION: US11244456B2; NA SOLUTION CO LTD: KR20230161131A; TISSUE ANALYTICS INC: US2020234444A1; KR20240046992A; HEALO INC: US10512401B2; LION CORP: WO2024034630A1; GOOGLE LLC: WO2021086594A1; IBM: US11234644B2; BIZMODELINE CO LTD: KR20200030138A.

Project 49: "*Satelliitseire põhised teenused kindlustussektorile - CropCop*". Enterprise: KappaZeta OÜ

Abstract, [ENG]: Kappazeta is a developer of services and products based on satellite monitoring. As a result of the applied research project CropCop, we are developing working tools based on satellite monitoring for financial companies offering crop insurance to improve the procedural process, assess the risk profile of policyholders and forecast the volume of loss compensations. Applying and combining these products allows insurance companies to streamline their core processes and bring new insurance products to market.

Original project title, [ENG]: Satellite surveillance based services for the insurance sector - CropCop.

Original abstract, [EE]: *Kappazeta on satelliitseire põhiste teenuste ja toodete arendaja.Rakendusuuringuprojekti CropCop tulemusena arendame saagikindlustust pakkuvatele finantsettevõtetele satelliitseirel põhinevad töövahendid kahjujuhtumite menetlemise käigus menetlusprotsessi tõhustamiseks, kindlustusvõtjate riskiprofiili hindamiseks ja kahjuhüvitiste mahu prognoosimiseks. Nende produktide rakendamine ja kombineerimine võimaldab kindlustusfirmadel tõhustada oma põhiprotsesse ja tuua turule uusi kindlustustooteid.*

Patent search results:

UNIV CHINESE AGRICULTURAL: CN114545410A; UNIV YUNNAN: CN115507737A; US2012319893A1; REZATEC LTD: EP3951343A1; UNIV CATALUNYA POLITECNICA: WO2011154804A1; CHINESE NATURAL RESOURCE AIRBORNE GEOPHYSICAL PROSPECTING REMOTE SENSING CENTER: CN114594475A; INSTITUTE OF AEROSPACE INFORMATION INNOVATION CAS: CN117908023A; CHINESE ACAD SURVEYING & MAPPING: CN112859077A; UNIV SOOCHOW: CN114910909A; NAT DISASTER REDUCTION CENTER OF CHINA MCA (SATELLITE DISASTER REDUCTION APPLICATION CENTER MCA): CN106338775A; NAT SPACE SCIENCE CT CAS: CN106483524A; CHINA RAILWAY SHANGHAI DESIGN: CN113008202A; TELESPAZIO SPA: WO2010000870A1; ICEYE OY: GB2622058A; SHENZHEN INST OF ADV TECH CAS: CN103714247A; UNIV CHINA GEOSCIENCES BEIJING: CN111650570A; DEUTSCH ZENTR LUFT & RAUMFAHRT: EP3896482A1; UNIV ELECTRONIC SCI & TECH CHINA: US10705205B2; UNIV ELECTRONIC SCI & TECH CHINA: CN110161501A; UNIV CENTRAL SOUTH FORESTRY & TECHNOLOGY: CN116338690A; UNIV TSINGHUA: CN101369019A; UNIV ELECTRONIC SCI & TECH CHINA: CN108627832A; RES INST FOREST RESOURCE INFORMATION TECH CHINESE ACADEMY FORESTRY: CN104361592A; NEC CORP: JP2018169334A; UNIV JILIN: CN113205475A; UNIV CAPITAL NORMAL: CN112034462A; NASA: US10649081B2; CHINESE ACAD INST ELECTRONICS: CN101770026A; CALIFORNIA INST OF TECHN: US10145972B2, US5659318A; UNIV PISA: WO2008125929A2.

Patent applications by KappaZeta OÜ potentially related to Project 49:

EP4187281A1, US2023168365A1

RUP funding round III: Enterprises, Projects Information and Patent Search Results (part 1)

Project start	Project end	Project name	Enterprise	Project funding
01.06.2022	30.11.2023	**50:** Technologies for the next-generation 3D-imaging system (3D-WORLD)	LightCode Photonics OÜ	1 180 511,60
08.06.2022	08.02.2024	***51:*** *RAIKU Packaging - innovaatilise keskkonnasõbralike pakendimaterjalide ja uuenduslike tööstusmasinate arendus*	RAIKU Packaging OÜ	428 478,13
17.06.2022	30.04.2024	***52:*** *Väikelaeva modulaarse hübriidsüsteemi tarkvaraarendus ja prototüübi ehitamine*	Baltic Workboats AS	426 188,50
17.06.2022	30.05.2025	**53:** Low cost clean cut icebreaking	Bifrost Tug Estonia OÜ	793 992,00
01.07.2022	01.07.2024	**54:** Nanofiibrilised mikrokandjad laboriliha tootmiseks	Gelatex Technologies OÜ	762 770,44
01.07.2022	31.01.2025	***55:*** *Tarneahela tark planeerimine*	Flowit Estonia OÜ	469 750,86
01.08.2022	31.12.2023	***56:*** *Uuringud Estonia pumphüdroelektrijaama rajamiseks*	Eesti Energia AS	584 950,00
01.08.2022	31.07.2024	**57:** Tekstureeritud taimsete lihaasendustoodete väljatöötamine	Vegetein AS	740 311,20
01.09.2022	30.06.2023	***58:*** *Ehitusgeoloogilised uuringud ja väikereaktori vundamendi eskiis Letipea tingimustes*	Fermi Energia AS	181 635,88
01.09.2022	31.08.2024	**59:** KEROX III - An Advanced Technological Platform for Obtaining Dissolved Carboxylic Fraction and Dicarboxylic Acids by Oxidation of Oil Shale	OÜ Kerogen	785 269,50
01.09.2022	31.08.2024	**60:** Developing an air cooled open cathode fuel cell stack	PowerUp Fuel Cells OÜ	1 332 396,04
01.09.2022	31.08.2024	**61:** TIM - Texta Intelligent Moderator	TEXTA OÜ	341 366,51
01.09.2022	31.10.2024	***62:*** *EESTI ENERGIA PROJEKT ELEKTRIAUTODE LAADIMISE OPTIMEERIMISEKS ELEKTRIVÕRGU SAGEDUSE TAGAMISEL (EV-FLEX)*	Eesti Energia AS	444 094,18
01.09.2022	31.08.2025	**63:** Next-generation bioleaching technology for isolation of precious metals from e-waste and converting them into nanometallic particles.	BiotaTec OÜ	1 941 159,00

Data source: https://eas.ee/wp-content/uploads/2022/11/iii_voorus_toetatud_projektid.pdf

RUP funding round III: Enterprises, Projects Information and Patent Search Results (part 2)

Project start	Project end	Project name	Enterprise	Project funding
15.09.2022	15.03.2025	***64:*** *LABORATOORSE DEMINERALISEERIMISE- JA FILTREERIMISSEADME ARENDUS JA NANOPOORSETE SÜSINIKMATERJALIDE KARAKTERISEERIMINE*	UP Catalyst OÜ	908 353,00
01.10.2022	31.03.2024	**65:** Technological platform for monitoring the spread of the pathogenic virus in case of an epidemic	LDI Innovation OÜ	374 345,00
01.10.2022	30.09.2024	***66:*** *Loodulikul atmosfäärikiirgusel baseeruv raudbetoon- ja teraskontruktsioonide tehnilise seisukorra hindamise seade*	GScan OÜ	337 012,50
01.10.2022	30.11.2024	***67:*** *Täistaimse juustualternatiivi rakendusuuring*	Andre Juustufarm Osaühing	212 885,00
01.10.2022	30.09.2025	**68:** One-of-a-kind cloud energy management system for ultracapacitor – CloudCap	OÜ Skeleton Technologies	1 868 400,00
03.10.2022	30.09.2024	***69:*** *Taimsete fileetoodete tootmistehnoloogia arendus*	OÜ Vegestar	290 220,00
01.11.2022	31.10.2023	**70:** Applied research on Magnesium reduction from PCC production residuals	R-S OSA Service OÜ	225 375,50
01.11.2022	31.03.2024	**71:** Developing the Platform for Coherent Characterization of Human Gene Therapy Vehicles in Human Cell Culture and Developing Cell-Binding Peptide Modified AAV Library.	IVEX Lab OÜ	241 800,00
01.11.2022	31.10.2024	***72:*** *Rakendusuuringu läbiviimine ettevõttes Volaron OÜ õhusõidukite turboreaktiivmajami arenduseks*[Cancelled]	Volaron OÜ	1 308 908,00
01.11.2022	31.10.2024	**73:** Applied research on cyber security of smart city mobility solutions based on cyber range technology	CybExer Technologies OÜ	901 600,00
01.11.2022	31.10.2024	***74:*** *Putukajahu sisaldava kõrge toiteväärtusega liha analoogtoote välja arendamine*	BugBox OÜ	310 016,36
01.01.2023	31.12.2024	**75:** Kiudainetega rikastatud fermenteeritud kasemahlajookide ja teiste kasemahlatoodete stabiilsus ajas ning nende toodete tarbimise mõju inimese mikrobioomile[Cancelled]	Kasevetekohin OÜ	222 630,15
01.01.2023	31.12.2025	***76:*** *Immunepowering Biomarker/Drug Development*	IRISBIO OÜ	1 215 000,00

Project 50: "*Technologies for the next-generation 3D-imaging system (3D-WORLD)*". Enterprise: LightCode Photonics OÜ

Abstract, [ENG]: LightCode Photonics OÜ, a spin-off company of the University of Tartu, conducts applied research for the further development of LightCode Software-DefinedTM Camera (SD3DTM Camera) technology. As a result of the 3D-WORLD project, a laboratory engineering model will be created to demonstrate the working principle of several original and patented technologies of LightCode Photonics (<1 ns pulse laser, novel architecture of Time-to-Digital converter). As a result of the project, it is planned to submit two patent applications for the protection of the company's intellectual property.

Original project title, [ENG]: Technologies for the next-generation 3D-imaging system (3D-WORLD).

Original abstract, [EE]: *Tartu Ülikooli hargettevõte LightCode Photonics OÜ viib läbi rakendusuuringud LightCode Software-DefinedTM Camera (SD3DTM Camera) tehnoloogia edasiarendamiseks. 3D-WORLD projekti tulemusena luuakse laboratoorne insenermudel mitme LightCode Photonicsi originaalse ja patentse tehnoloogia (<1 ns impulsiga laser, Time-to-Digital muunduri uudne arhitektuur) tööpõhimõtte demonstreerimiseks. Projekti tulemusena on kavas esitada kaks patenditaotlust ettevõtte intellektuaalomandi kaitseks.*

Patent search results:

AEYE INC: WO2023114253A1; ECOLE POLYTECHNIQUE FED LAUSANNE EPFL: EP3987305A1; SHANGHAI WANSHONG MICROELECTRONICS TECH CO LTD: CN114167388A; SHENZHEN ANGSTRONG TECH CO LTD: CN114076957A; SHANGHAI DAOSENSING MICROELECTRONICS TECH CO LTD: CN113777583A; SAMSUNG ELECTRONICS CO LTD: US11443447B2; CONTINENTAL ADVANCED LIDAR SOLUTIONS US LLC: US2022035006A1; HUAWEI TECH CO LTD: CN114518581A; TEXAS INSTRUMENTS INC: US11428790B2; GM GLOBAL TECH OPERATIONS LLC: WO2020077064A1; NEC CORP: US2024094387A1; HUAWEI TECH CO LTD: WO2022017366A1; UNIV SCIENCE & TECHNOLOGY CHINA: CN112698307A; UNIV SCIENCE & TECHNOLOGY CHINA: CN111880194A; UNIV SCIENCE & TECHNOLOGY CHINA: CN110187357A; KOREA ADVANCED INST SCI & TECH: KR101318951B1; BEIJING INST CONTROL ENG: CN110553599A; UNIV WAYNE STATE: US2022252731A1; SEMIKING LLC: US2021341619A1; SENSL TECHNOLOGIES LTD: CN110073244A; LUMINAR TECH INC: CN110651200A; VOXTEL INC: US10523884B2; APPLE INC: CN111465870A; SZ DJI TECHNOLOGY CO LTD: WO2020062080A1; AMS SENSORS SINGAPORE PTE LTD: WO2021256990A1; US2014226166A1; SHENZHEN ADAPS PHOTONICS TECH CO LTD: CN112558096A; ECOLE POLYTECHIQUE FED DE LAUSANNE EPFL TTO: US2021072360A1; UNIV BARCELONA: WO2017134023A1; FASTREE3D SA: WO2022253422A1; SHENZHEN FORTSENSE CO LTD: CN112804512A.

Patent applications by LightCode Photonics OÜ potentially related to Project 50:

WO2022224037A1, GB2601476A, WO2024013142A1, WO2023012517A1.

Project 51: "*RAIKU Packaging - innovaatilise keskkonnasõbralike pakendimaterjalide ja uuenduslike tööstusmasinate arendus*". Enterprise: RAIKU Packaging OÜ

Abstract, [ENG]: RAIKU Packaging OÜ is an innovative green technology startup that produces world-unique packaging materials and their manufacturing technologies based on its own international patents and intellectual property protections. This project brings the development of RAIKU's products and equipment to the TRL7 level, and its goal is to reach the prototype pilot line and production.

Original project title, [ENG]: RAIKU Packaging - development of innovative environmentally friendly packaging materials and innovative industrial machines.

Original abstract, [EE]: *RAIKU Packaging OÜ on innovaatiline rohetehnoloogia startup, mis toodab maailmas unikaalseid pakendimaterjale ja nende valmistamise tehnoloogiad, mis põhinevad endi rahvusvahelistel patentidel ja intellektuualomandi kaitsetel. Käesolev projekt viib RAIKU toodete ja seadmete arenduse TRL7 tasemeni ning selle eesmärk on jõuda prototüüp pilottliinini ja tootmiseni.*

Patent search results:

JP2016055618A; ANXIANGHAN INNOVATIVE MATERIALS TECH CO LTD: CN110962209A; GB1153801A; JP2009240449A; JP2009126057A; HEXCELPACK LLC: US12005671B2, US10981712B2.

The family of patent applications by RAIKU Packaging OÜ potentially related to Project 51:

WO2022101457A3 (EP4243654A2, US2024019010A1, JP2023554230A, CN116438135A).

THE CLAIMS OF THE INVENTION (METHOD) DESCRIBED IN WO2022101457A3 FAMILY BY RAIKU PACKAGING OÜ ARE NOVEL AND HAVE INVENTIVE STEPS (ARE NON-OBVIOUS).

Project 52: "*Väikelaeva modulaarse hübriidsüsteemi tarkvaraarendus ja prototüübi ehitamine*". Enterprise: Baltic Workboats AS

Abstract, [ENG]: Baltic Workboats AS is a shipbuilding company specializing in the production and distribution of aluminum workboats. Almost 70% of shipbuilding procurements require a hybrid drive today. The aim of BWB is to use the project to develop modular hybrid system software suitable for small boats, build a prototype and integrate it on a 12-meter vessel. With the help of the research and development work of the project, a new technical solution will be created for the small ship sector, which can also be scaled to larger ships after the construction of the prototype.

Original project title, [ENG]: Software development and prototype construction of a modular hybrid system for a small ship.

Original abstract, [EE]: *Baltic Workboats AS (BWB) on alumiiniumist töölaevade tootmisele ja turustamisele spetsialiseerunud laevaehitusettevõte. Ligi 70% laevaehitushangetel on täna nõudeks hübriidajam. BWB eesmärk on projekti abil arendada väikelaevadele sobiv modulaarse hübriidsüsteemi tarkvara, ehitada prototüüp ning integreerida see 12-meetrisele laevale. Projekti teadus- ja arendustöö abil luuakse väikelaevasektori jaoks uus tehniline lahendus, mis on prototüübi ehituse järgselt skaleeritav ka suurematele laevadele.*

Patent search results:

YANMAR HOLDINGS CO LTD: EP4137400A1; STATE POWER INVESTMENT GROUP HYDROGEN ENERGY TECH DEVELOPMENT CO LTD: CN116101470A; SIEMENS AG: KR101287717B1; UNIV SOUTH CHINA TECH: CN108438138A; CHINA SHIP DEV & DESIGN CT: CN113312709A; NAT OCEAN TECHNOLOGY CT: CN110395376A; XIAMEN FANNENG TECH CO LTD: CN107933867A; KAWASAKI HEAVY IND LTD: JP2016078565A; THRUSTLEADER MARINE POWER SYSTEM SHANGHAI CO LTD: CN111907680A; DAEWOO SHIPBUILDING & MARINE: KR20220125765A; FUJI ELECTRIC SYSTEMS CO LTD: JP2009262671A; NO 711 RES INSTITUTE OF CHINA STATE SHIPBUILDING CORPORATION LIMITED: CN117842310A; RU2017124951A; DALIAN SCIENCE AND ENGINEERING UNIV: CN114577488A; MARINE CRAFT CO LTD: KR101999998B1; SIEMENS ENERGY LLC: CN117940338A; UNIV DALIAN MARITIME: CN113212723A; ROLLS-ROYCE MARINE AS: KR101806254B1; SOLAR SAILOR PTY LTD: WO2021113903A1; LGM CO LTD: KR20180131696A; SHENZHEN YUNZHOU INNOVATION TECHNOLOGY CO LTD: WO2015154545A1; UNIV WUHAN TECH: CN114655412A; YUNNAN YUNNAN ENVIRONMENTAL MAN CO LTD: CN114394203A; VOLVO PENTA CORP: US2022111829A1; NO 708 INST CHINA STATE SHIPBUILDING CORP: CN117742315A; SAMSUNG HEAVY IND: KR20200049351A; THRUSTLEADER MARINE POWER SYSTEM SHANGHAI CO LTD: CN212500977U; CN112389593A.

The family of patent applications by Baltic Workboats AS potentially related to Project 52:
EP2826702B1, ES2719688T3, HRP20190148T1, LT2826702T, PL2826702T3.

Project 53: "*Low cost clean cut icebreaking*". Enterprise: Bifrost Tug Estonia OÜ

Abstract, [ENG]: Due to the increase in demand for icebreaking services, one of the drivers of which is the establishment of offshore wind farms in polar regions, the project aims to develop a new design removable icebreaking bow for tugboats. The aim of the project is to test the bow in various simulations, build a bow prototype, develop a digital ice detection and measurement system, and test and validate the overall concept.

Original project title, [ENG]: Low cost clean cut icebreaking.

Original abstract, [EE]: *Tulenevalt jäämurdeteenuse nõudluse kasvust, mille üheks nõudluse tekitajaks on meretuuleparkide rajamine polaaraladele, on projekti eesmärk välja töötada uudse disainiga eemaldatav jäälõhkumise vöör puksiirlaevadele. Projekti eesmärk on testida vööri erinevates simulatsioonides, koostada vööri prototüüp, arendada välja digitaalne jää tuvastamise ja mõõtmise süsteem ning testida ja valideerida tervikkontseptsioon.*

Patent search results:

WUHAN HAIYI HIGH END EQUIPMENT STRUCTURAL DESIGN LTD COMPANY: CN114633843A; JIANGSU DAJIN HEAVY IND CO LTD: CN110053724A; WAERTSILAE FINLAND OY: EP2051903B1; WO2014185811A1; ILS OY: WO2017072394A1; NANTONG COSCO KHI SHIP ENGINEERING CO LTD: CN106327610A, CN106080988A; CN205168822U; NO 708 INST CHINA STATE SHIPBUILDING CORP: CN115416818A, CN112793722A; CHINA SHIP SCIENT RES CT: CN112373635A; SHANGHAI MERCHANT SHIP DESIGN & RES INST: CN104527919A; NANTONG COSCO KHI SHIP ENG CO LTD NACKS: CN109501952A; UNIV HARBIN ENG: CN113401278A; UNIV JIANGSU SCIENCE & TECH: CN113650740A, CN117818826A, CN110027680A; SAMSUNG HEAVY IND: KR101313210B1, KR20230041533A; DAEWOO SHIPBUILDING & MARINE: KR102351017B1; UNIV JIANGSU SCIENCE & TECH: CN112478070A; HUDONG ZHONGHUA SHIPBUILDING GROUP CO LTD: CN112550554A; HANWHA OCEAN CO LTD: KR20230087193A, KR20230084951A, KR20230084952A; UNIV WUHAN TECH: CN114771750A; CHINA SHIP SCIENT RES CT: CN113139318A; SU1008079A1; SUMITOMO HEAVY IND MARINE & ENG CO LTD: JP2005231426A; ZAKRYTOE AKTSIONERNOE OBSHSHESTVO TS NI I PKI MORSKOGO FLOTA: RU2586100C1; GUANGZHOU SHIPYARD INT CO LTD: CN115320795A; MAERSK SUPPLY SERVICE AS: CA2794933A1; STENA REDERI AB: WO2015171042A1; AKER ARCTIC TECHNOLOGY INC: CN102361790A; BEIJING YIHAI TIMES ELECTRIC CO LTD: CN116576828A.

The family of patents and patent applications by Bifrost Tug AS potentially related to Project 53:
WO2019098851A1 (US11167825B2, RU2763326C2, NO20200659A1, EP3710350B1, CA3082083C).

Project 54: "*Nanofiibrilised mikrokandjad laboriliha tootmiseks*". Enterprise: Gelatex Technologies OÜ

Abstract, [ENG]: Development of microcarriers and their production technologies that are edible for cell farming companies and suitable for industrial bioreactors for the production of laboratory meat.

Original project title, [ENG]: Nanofibrous microcarriers for laboratory meat production.

Original abstract, [EE]: *Rakupõllumajanduse ettevõtetele laboriliha tootmiseks söödavate ja tööstuslikesse bioreaktoritesse sobivate rakkude kasvamist soodustavate mikrokandjate ja nende tootmistehnoloogiate välja töötamine.*

Patent search results:

UNIV GEORGIA: US2023174928A1; DAICEL CORP: JP2022072917A; CHENXI XINCHUANG BIOLOGICAL TECH ZHENJIANG CO LTD: CN116590223A; UNIV NANJING AGRICULTURAL: WO2024007982A1; SHANGHAI FOOD NON BIOTECHNOLOGY LTD COMPANY: CN114622296A, CN114438013A; NANJING JOES FUTURE FOOD TECH CO LTD: WO2024007984A1; CHINA MEAT RES CENTRE: CN115747197A; SEA2CELL LTD: WO2024134658A1; AIR PROTEIN INC: WO2023278301A1; NITTO DENKO CORP: WO2023112804A1; SHANGHAI SHIWEI BIOTECHNOLOGY CO LTD: CN115444071A; NANOFIBER SOLUTIONS LLC: WO2024015846A1, WO2020160533A1; VISCOFAN SA: WO2022223518A1; TUFTS COLLEGE: US2023284662A1; DOSHISHA: JP2022062823A; SHANGHAI FOOD NON BIOTECHNOLOGY LTD COMPANY: CN114438615A; MIRAI FOODS AG: EP4252549A1, WO2023104768A1; ARCHER DANIELS MIDLAND CO: CN116916758A; YISSUM RES DEV CO OF HEBREW UNIV JERUSALEM LTD: WO2018011805A2; UNIV CALIFORNIA: WO2022164858A1; ALIF FARMS: CN116234817A; MERCK PATENT GMBH: WO2022038240A2; UIF UNIV INDUSTRY FOUNDATION YONSEI UNIV: KR20240077451A; UNIV KONKUK IND COOP CORP: KR20230166316A; BIOTECH FOODS S L: WO2021250291A1; MICRO MEAT S DE RL DE CV: WO2023223083A1; SPIDERWORT INC: WO2023004515A1; LIPTON THOMAS J INC: US4208436A; UNILEVER LTD: GB1572395A; NIPPON SUISAN KAISHA LTD: JPH0365145B2; UNIV NORTHEAST AGRICULTURAL: CN111869787A; ASAHI CHEMICAL IND: GB1374497A; NESTLE SA SOC ASS TECH PROD: US4197323A.

The family of patents and patent applications by Gelatex Technologies OÜ potentially related to Project 54:

US2021155764A1 (EP3839120A3), US11697892B2 (KR20220021437A, JP2022032977A, IL285488A, EP3954811A1, CN114075701B, BR102021015780A2).

Project 55: "*Tarneahela tark planeerimine*". Enterprise: Flowit Estonia OÜ

Abstract, [ENG]: The aim of the project is to improve the performance of companies' supply chains and help managers make better decisions in this regard. Several different companies trying to do this have been previously described in the world. The novelty of this project is to develop a decision-making and decision-assistance engine based on the information of the already existing order collection system, especially for small and medium-sized companies, for which there is no similar solution due to the lack of data collection and low data quality.

Original project title, [ENG]: Smart supply chain planning.

Original abstract, [EE]: *Projekti eesmärk on parandada ettevõtete tarneahelate toimimist ja aidata teha juhtidel sellealaseid otsuseid paremini. Maailmas on eelkirjeldatud mitmeid eri ettevõtteid, kes seda teha püüavad. Antud projekti uudsus seisneb juba olemasoleva tellimuste kogumise süsteemi info pealt arendada otsustus- ja otsustusabimootor just väikestele ja keskmise suurusega ettevõtetele, kelle jaoks sarnane lahendus puudub tänu nende senisele andmete mitte kogumisele ja madalale andmekvaliteedile.*

Patent search results:

UNIV ZHEJIANG: CN114493170A, CN114444896A; INST INFORMATION INDUSTRY: CN1991884A; ORACLE INT CORP: US2011246250A1, US2011246249A1, US2014278712A1; I2 TECHNOLOGIES INC: EP1638043A1; HITACHI LTD: US2009157458A1; SAP AG: US2006155593A1, US6477660B1, EP1677237A1, US2007288111A1, WO2007112951A2; BLUE YONDER GROUP INC: US11687875B2, US11586995B2, US11893531B2, US11875289B1, US11875292B2, US11615498B2, US11853946B1, US2023237425A1; TOSHIBA CORP: JP2007102272A; US10255581B2; CAMELOT ITLAB GMBH: US2016307136A1; TEIJIN SEIKI CO LTD: JP2003323566A; IBM: US6546303B1, US2008294496A1; US2010114640A1; JDA SOFTWARE GROUP INC: US2013238385A1, US2016217406A1, US2017185933A1; KINAXIS INC: US10832196B2, US11423347B2; US10242316B2, US11887044B2; SHENZHEN ZHONGYONG SOFTWARE TECH CO LTD: CN116862387A; IND TECH RES INST: US2006250248A1; TARGET BRANDS INC: US11995604B2; ORACLE INTERNAT CORP A CALIFOR: US2005004826A1; BOE TECHNOLOGY GROUP CO LTD: WO2022047696A1; ACCENTURE LLP: US2006178918A1; US2003036946A1; US2004162768A1; US9971877B1; US2002143598A1; SEDAPTA S R L: EP4099238A1; WANDABAO SOFTWARE SHENZHEN CO LTD: CN115545614A; CATERPILLAR INC: US2016300174A1; GANSU TENGYUYUN SUPPLY CHAIN TECH CO LTD: CN117273600A; CISDI ENG CO LTD: CN109636135A.

Project 56: "*Uuringud Estonia pumphüdroelektrijaama rajamiseks*". Enterprise: Eesti Energia AS

Abstract, [ENG]: In the project, preparations are being made for the construction of a 50 MW pumped-storage hydroelectric power plant in the Estonia mine area in Ida-Virumaa, which after completion will make a significant contribution to ensuring the flexibility and stability of the Estonian electricity system. During the construction of the station, the old tunnels of the Estonia mine and the limestone produced during the mining of oil shale are used.

Original project title, [ENG]: Studies for the construction of a pumped-storage hydroelectric power station in Estonia.

Original abstract, [EE]: *Projektis tehakse ettevalmistusi Ida-Virumaale Estonia kaevanduse alale 50 MW pumphüdroelektrijaama ehitamiseks, mis pärast valmimist annab olulise panuse Eesti elektrisüsteemi paindlikkuse ja stabiilsuse tagamiseks. Jaama rajamisel kasutatakse ära Estonia kaevanduse vanad käigud ja põlevkivi väärindamisel tekkiv lubjakivi, viimasest rajatakse alustarind, mis aitab tekitada maksimaalse kõrguste vahe ülemisele ja alumisele reservuaarile.*

Patent search results:

INNER MONGOLIA DIAN TOU ENERGY CORP LTD: CN115977042A; UNIV CHINA MINING & TECHNOLOGY BEIJING: CN214304150U, CN116608078A; UNIV CHINA MINING & TECH: CN116641834A; POWERCHINA HENAN ELECTRIC POWER SURVEY & DESIGN INST CO LTD: CN116085172A; ZHENGZHOU MINERAL COMPREHENSIVE UTILIZATION RES INSTITUTE OF CHINESE GEOLOGICAL ACADEMY OF SCIENCES: CN114508867A; UNIV ANHUI SCI & TECHNOLOGY: CN111852562A; UNIV CHINA THREE GORGES CTGU: CN109546647A; YIDUN GRAVITY SHANGHAI ENERGY STORAGE TECH CO LTD: CN116357501A, CN116255293A; UNIV XI AN JIAOTONG: CN114087827A; GB2511285A; US11846263B2; ELLOMAY CAPITAL LTD: US2019331084A1; WUHAN IRON & STEEL CO LTD: CN116240461A; XIAN THERMAL POWER RES INST CO: CN116088296A; CZ26969U1; CZ26968U1; UNIV HENAN TECHNOLOGY: CN113268835A; UT BATTELLE LLC: US10696363B2; SEASON FARM BIOLOGY DYNAMO ELECTRIC CO LTD: CN115143015A; JP2020122475A; AU2017101203A4; TOSHIBA CORP: JP2014084732A; CN114294165A; JP2000144698A; STX FRANCE SA: US2016341173A1; CZ16132U1; HARBIN ELECTRIC MACHINERY CO LTD: CN217708534U; 3R VALVE LLC: US11536240B1.

U.S. Hydropower Market Report, 2023 Edition.

Preliminary feasibility analysis of a hybrid pumped-hydro energy storage system using abandoned coal mine goafs.

Underground pumped-storage hydro power plants with mine water in abandoned coal mines.

Project 57: "*Tekstureeritud taimsete lihaasendustoodete väljatöötamine*". Enterprise: Vegetein AS

Abstract, [ENG]: As a result of the project, Vegetein AS develops textured plant-based meat substitute products that end-food manufacturers can use as raw materials in their follow-up products. In terms of taste and appearance, a well-made plant-based meat replacement product cannot be distinguished from a traditional meat product by an average consumer. The developed products are based on the protein flours produced by the company, which is why they are completely unique and cannot be replaced or copied by other products.

Original project title, [ENG]: Development of texturized plant-based meat substitutes.

Original abstract, [EE]: *Projekti tulemusena töötab Vegetein AS välja tekstureeritud taimsed lihaasendustooted, mida toiduainete lõpp-tootjatel on võimalik kasutada toorainena oma jätkutoodetes. Hästi valmistatud taimset lihaasendustoodet ei ole tavatarbijal maitse ja välimuse järgi traditsioonilisest lihatootest võimalik eristada. Väljatöötatavad tooteid baseeruvad ettevõtte poolt toodetavatel proteiinijahudel, mistõttu nad on täiesti unikaalsed ning neid ei ole võimalik muude toodetega asendada ega kopeerida.*

Patent search results:

WO2022078570A1; WO2023278306A1; WO2022103312A1; US2024180197A1; US2024032564A1; US2019364925A1; KR20230101402A; WO2023220955A1; US2008044532A1; KR20240002250A; EP3508067A1; EP3292769A1; JP2023043185A; KR20220158006A; WO2024008866A1; EP0825817A1; CN116896989A; US2021137135A1; US2023263187A1; EP4205552A1; US2024016184A1; WO2024023258A1; US2024130407A1; CN114390892A; WO2023096495A1; EP3975743A1; CN117958350A; WO2023121464A1; WO2022164377A1; CN117769360A; WO2023027624A1; WO2022186691A1; CA3187509A1.

The family of patents and patent applications by Toivo Träss & Olev Träss (co-owner of Vegetein AS and S-Mill OÜ), GEN COMMUNITION INC, and UNIV TORONTO potentially related to Project 57:

WO2009149551A1 (CA2725751A1, CA2725751C, EP2285824B1, US9179692B2), WO2011127570A1 (CA2795413A1, CA2795413C, EP2558559B1, US9068144B2), FI803463L (EP0029734B1, AU541172B2, BR8007650A, CA1134336A, FI65388C, JPS647827B2, MX153007A, ZA807288B), WO2014190420A1 (US9809774B2, CA2916007A1), AU4372385A (CA1249986A, EP0170379B1, IN165139B, JPH0745673B2, US4730787A, ZA854544B).

High Efficiency Material Comminution Solutions for Industry & Research: The Szego Mill (S-Mill) features unique, proprietary roller mill technology developed by General Comminution Inc., S-Mill Ltd. and the University of Toronto over the past 30 years.

Project 58: "*Ehitusgeoloogilised uuringud ja väikereaktori vundamendi eskiis Letipea tingimustes*". Enterprise: Fermi Energia AS

Abstract, [ENG]: Energy prices have reached a level where consumers have problems coping and there is a risk that the situation will get worse. There is a growing need for a clean, controllable and affordable energy source, for which the Small Modular Reactor (SMR) nuclear power plant is well suited. One important aspect of the construction of the plant is the suitability of the reactor technology to the conditions of the specific location. The purpose of this study is to carry out structural geological studies in the Kunda region and to develop a sketch of the reactor foundation.

Original project title, [ENG]: Construction geological studies and a sketch of the foundation of a small reactor in Letipea conditions.

Original abstract, [EE]: *Energia hinnad on jõudnud tasemele, kus tarbijatel on tekkinud probleeme toimetulekuga ja on risk, olukord süveneb veelgi. Kasvab vajadus puhta, juhitava ning taskukohase hinnaga energiaallika järele, milleks sobib hästi väikese moodulreaktoriga (VMR) tuumajaam. Jaama ehitamise üks oluline aspekt on reaktoritehnoloogia sobivus konkreetse asukoha tingimustesse. Käesoleva uuringu eesmärk on teostada ehitusgeoloogilised uuringud Kunda piirkonnas ning arendada välja reaktori vundamendi eskiis.*

Patent search results:

ADVANCED REACTOR CONCEPTS LLC: KR20190092508A; KOREA HYDRO & NUCLEAR POWER CO: KR20230166450A, KR102649447B1, WO2023149674A1, WO2023167404A1, KR102593766B1, KR102601029B1, KR102675284B1; UNIV SEJONG IND ACAD COOP FOUD: KR101633493B1, KR101704658B1, KR101717942B1; KEPCO ENG & CONSTR CO INC: US10249393B2; PRODIGY CLEAN ENERGY LTD: WO2023225295A1; UNIV HARBIN ENG: CN117669356A, CN117095847A; ADVANCED REACTOR CONCEPTS LLC: US2014064432A1; NAT UNIV PUSAN IND UNIV COOP FOUND: KR20190124537A; SOC TECHNIQUE POUR LENERGIE ATOMIQUE: US11798696B2, US10910118B2, US11901089B2; CERADYNE INC: WO2014197076A2; ULSAN NAT INST SCIENCE & TECH UNIST: KR20240025246A, KR102583804B1; GE HITACHI NUCLEAR ENERGY AMERICAS LLC: JP2022543716A; ROLLS ROYCE PLC: JP2020076732A, GB2582804A; KOREA ADVANCED INST SCI & TECH: KR20200025686A; UNIV XIAN JIAOTONG: CN114687940A; ELIXITY ENERGY LTD: GB2609628A; GENERAL ELECTRIC TECHNOLOGY GMBH: WO2023156049A1; SHANGHAI NUCLEAR ENG RES & DES: CN105719710A, CN204496937U; CHINA NUCLEAR POWER ENG CO LTD: CN116665930A.

Advances in Small Modular Reactor Technology Developments, A Supplement to: IAEA Advanced Reactors Information System (ARIS) 2022 Edition

Fermi Energia AS feasibility study.

Project 59: "*KEROX III - An Advanced Technological Platform for Obtaining Dissolved Carboxylic Fraction and Dicarboxylic Acids by Oxidation of Oil Shale*". Enterprise: OÜ Kerogen

Abstract, [ENG]: Kerox III offers a new alternative for the use of oil shale: the use of the organic matter (*i.e.*, kerogen) contained in oil shale to produce chemicals. The main objective of the project is to create the scientific and technological basis for the establishment of a high-technological oil shale processing process in the North-East Estonian region. The technology to be developed is in line with the goals of Green Estonia, it will allow the conversion of oil shale into valuable chemicals.

Patent search results:

SU140055A1; SU144168A1; INST KHIM AN ESSR: SU686290A1; SU115343A1; SU127653A1; YU302572A; INSTITUT CHIMII AKADEMII NAUK ESTONSKOJ SSR: DE2259502C2.

Academic publications:

(1) *Fomina & Pobul, (1955)*. "*Oxidative degradation of kerogen from kukersite*" [*translation*].
(2) *Kawamura et al., (1987)*. Dicarboxylic acids generated by thermal alteration of kerogen and humic acids.
(3) *Blokker et al., (2001)*. The chemical structure of Gloeocapsomorpha prisca microfossils: implications for their origin.
(4) *Bajc et al., (2001)*. Precursor biostructures in kerogen matrix revealed by oxidative degradation: oxidation of kerogen from Estonian kukersite.
(5) *Manasrah et al., (2018).* Conversion of petroleum coke into valuable products using oxy-cracking technique.
(6) *Kaldas, Lopp et al., (2020)*. Wet air oxidation of oil shales: Kerogen dissolution and dicarboxylic acid formation.
(7) *Niidu, Kaldas, Lopp et al., (2022)*. Behavior of Estonian oil shale in acidic oxidative conditions.

Margus Lopp: Kerogeeni otsese oksüdatiivse desktruktsiooni võimalused. – *XI Põlevkivikonverents* – Jõhvi, 2019-11-13.

Kerogeen OÜ – uus põlevkivi kerogeeni väärindamise tehnoloogiline platvorm (2017–2019): KEROX I project report.

Kerogeen OÜ – põlevkivi kerogeeni dikarboksüülhapeteks töötlemise tehnoloogiline platvorm (2020–2022): KEROX II project report.

Patent application by OÜ Kerogen potentially related to Project 59:

WO2009149551A1.

Project 60: "*Developing an air cooled open cathode fuel cell stack*". Enterprise: PowerUp Fuel Cells OÜ

Abstract, [ENG]: PowerUP uses solid proton exchange membrane fuel cells (PEMFC) for generator power supply. The cost and effectiveness of the PEMFC determines the performance and price of generators. Inside the PEMFC, bipolar plate (BPP) and Membrane Electrode Assembly (MEA) are the two most important components that influence PEMFC performance and cost. The RUP goal is to further develop two PEMFC key components (BPP and MEA) to increase the performance parameters of the generators.

Patent search results:

NORTH SPECIAL ENERGY GROUP CO LTD XIAN QINGHUA CO LTD: CN112599813A; SHENZHEN POLYTECHNIC: CN215184077U, CN113451602A, CN215184081U; TIANNENG BATTERY GROUP CO LTD: CN111276711A; IND TECH RES INST: JP2022099252A, CN114725426A; HYUNDAI HYSCO: WO2011013868A1; SHENZHEN POLYTECHNIC: CN113451600A; CN113451601A; RE FOUNDER TECH CO LTD: CN212517258U; UNIV KUNMING SCIENCE & TECHNOLOGY: CN117691155A, CN116646556A; SHENZHEN SOUTHERNTECH FUEL CELL CO LTD: CN111261900A; UNIV HUAZHONG SCIENCE TECH: CN113206270A; DALIAN HUAQING POWER CO LTD: CN117393792A, CN117393791A; UNIV WUHAN POLYTECHNIC: CN210535763U; UNIV WUHAN POLYTECHNIC: CN110890567A; RELION INC: US2008280178A1; UNIV HUAZHONG SCIENCE TECH: CN115064722A, CN112952153A, CN116706126A; DALIAN RIGOR NEW ENERGY TECH CO: CN116487633A; CHONGQING INNOVATION FUEL BATTERY TECH INDUSTRY RESEARCH INSTITUTE CO LTD: CN117199425A; WUXI GUOYING TECHNOLOGY CO LTD: CN102013493A; WUHAN TROOWIN POWER SYS TECH CO LTD: CN105470527A; NEKSON POWER TECH CO LTD: CN109921059A; WUHAN INST OF MARINE ELECTRIC PROPULSION CHINA SHIPBUILDING GROUP CORPORATION NO 712 INST: CN116742074A; GREE ELECTRIC APPLIANCES INC ZHUHAI: CN116914211A; UNIV GUANGDONG TECHNOLOGY: CN116779903A; CHONGQING RESEARCH INSTITUTE OF HARBIN INSTITUTE OF TECH: CN117239177A; NANTONG BING ENERGY CO LTD: CN112133948A; CN118099468A.

Patent application and patent by PowerUP Fuel Cells OÜ (POWERUP ENERGY TECH INC) potentially related to Project 60: WO2018098357A1 (US11283125B2).

Project 61: "*TIM - Texta Intelligent Moderator*". Enterprise: TEXTA OÜ

Abstract, [ENG]: The goal of Texta OÜ is to develop a prototype of a technological solution for the automatic evaluation and moderation of messages on various social media platforms using language technology (more precisely, classification algorithms based on machine learning, including deep learning).

Original project title, [ENG]: TIM - Texta Intelligent Moderator.

Original abstract, [EE]: *Texta OÜ eesmärk on välja töötada tehnoloogilise lahenduse prototüüp sõnumite automaatseks hindamiseks ja modereerimiseks erinevatel sotsiaalmeedia platvormidel keeletehnoloogiat (täpsemalt masinõppel, sh süvaõppel põhinevaid klassifitseerimisalgoritme) kasutades.*

Patent search results:

VIVOOM INC: US2020236445A1; OPTIKS SOLUTIONS INC: WO2023228065A1; SALESFORCE COM INC: US10997260B2; US11586661B2; YANDEX EUROPE AG: WO2015185967A1; ACCRETE INC: JP2022186308A; BARRACUDA NETWORKS INC: US2024202329A1; TWITTER INC: US2021049441A1, WO2023278885A1; SALESFORCE COM INC: US11481464B2; HITACHI LTD: JP2016001413A; CN116886632A; ISENTIUM LLC: US2018182038A1; KALAKAI SPA: WO2015114462A1; MICROSOFT TECHNOLOGY LICENSING LLC: US2023385348A1, US2018341877A1, CN107710192A, US11810206B2; KING ABDULAZIZ CITY SCI & TECH: US2017147682A1; SAS INST INC: US2015120283A1; YIWANG HUTONG BEIJING TECH CO LTD: CN117216418A; CATHOLIC UNIV KOREA IND ACADEMIC COOPERATION FOUNDATION: KR102350534B1; FIRST WAVE TECHNOLOGY PTY LTD: EP2593873A1; INFORMATION RES INSTITUTE OF SHANDONG ACADEMY OF SCIENCES: CN109739849A; KEEPCON CORP: US2022374708A1; AGENCY SCIENCE TECH & RES: SG11201704150WA; GOOGLE INC: US9824145B1, AU2010264439A1, US9875286B1; MICROSOFT CORP: US2011196931A1; GOBUBBLE LTD: WO2023241820A1; XINGTU SHANGHAI TECH DEVELOPMENT CO LTD: CN116700478A; CISCO TECH INC: US2011078242A1; UTOPIA ANALYTICS OY: US11531834B2; WILDR INC: US2024064122A1; TANGOME INC: US2023254518A1; YAHOO INC: US2010082640A1; PALM READING SCIENCE AND TECH SHARE LIMITED COMPANY: CN114676788A; STANFORD RES INST INT: US2024054294A1; ROBLOX CORP: US11786824B2; META PLATFORMS INC: US2023026885A1; SHANGHAI SHENGTONG INFORMATION TECH CO LTD: CN115470312A.

Project 62: "*Eesti Energia projekt elektriautode laadimise optimeerimiseks elektrivõrgu sageduse tagamisel (EV-FLEX)*". Enterprise: Eesti Energia AS

Abstract, [ENG]: Eesti Energia is conducting a study on how to stabilize the electricity grid with electric vehicles.

Original project title, [ENG]: Eesti Energia's project for optimizing the charging of electric cars while ensuring the frequency of the electric grid (EV-FLEX).

Original abstract, [EE]: *Eesti Energia teostab uuringut, kuidas elektrisõidukitega elektrivõrku stabiliseerida.*

Patent search results:

VESTAS WIND SYS AS: US2022340034A1; STATE GRID CORP CHINA: CN104253444A; NUVVE CORP: US2020307402A1; UNIV CHINA THREE GORGES CTGU: CN117955137A; GUIZHOU POWER GRID CO LTD: CN117498378A; UNIV CHANGSHA SCIENCE & TECH: CN110119848A; ECONOMIC TECHNOLOGY RES INST STATE GRID JIBEI ELECTRIC POWER CO: CN114069651A; RWE AG: WO2011018267A2; UNIV GUANGXI: CN107706910A, CN108521132A; UNIV WUHAN: CN118074191A; UNIV ZHENGZHOU: CN116961086A; BEIJING YONGSHANG TECH CO LTD: CN117748545A; GUANGDONG POWER GRID CO: CN113872228A; CHONGQING MEGALIGHT TECH CO LTD: CN116131282A; CN115085234A; STATE GRID ZHEJIANG ELECTRIC VEHICLE SERVICE COMPANY: CN115051384A; STATE GRID HUNAN ELECTRIC POWER CO LTD: CN110797866A; HEPU TECH DEVELOPMENT BEIJING CO LTD: CN109460997A; UNIV NORTHEASTERN: CN110048406A; UNIV SHANDONG: CN105186504A; UNIV TIANJIN TECHNOLOGY: CN107696893A; UNIV TSINGHUA: CN117713138A; WOBBEN PROPERTIES GMBH: WO2018193091A1; UNIV TIANJIN: CN109274106A; ELECTRIC POWER RES INST CO LTD CSG: CN116780651A; NARI TECHNOLOGY CO LTD: CN108407636A; ECONOMIC AND TECH RESEARCH INSTITUTE OF STATE GRID LIAONING ELECTRIC POWER SUPPLY CO LTD: CN116191474A; UNIV BEIJING JIAOTONG: CN117117861A; STATE GRID HUBEI ELECTRIC POWER CO LTD ELECTRIC POWER RES INST: CN116316634A; CSG DIGITAL POWER GRID RES INST CO LTD: CN112418742A; UNIV XIAN JIAOTONG: CN106130077A; VS BANSKA – TECHNICKA UNIVERZITA OSTRAVA: CZ2017857A3; UNIV CALIFORNIA: US2013154561A1; KOREA ELECTRIC POWER CORP: KR20210148759A; FLEXCHARGING INC: WO2022103889A1, US2022144122A1; SIEMENS INDUSTRY INC: EP3020597A1; IOTECHA CORP: US11993171B2; DEZHOU POWER SUPPLY CO STATE GRID SHANDONG ELECTRIC POWER CO: CN109299833A; VELOCE ENERGY INC: WO2022241267A1; MOIXA ENERGY HOLDINGS LTD: CA3104595A1; CHARGING ROBOTICS LTD: WO2022144901A1.

Project 63: "*Next-generation bioleaching technology for isolation of precious metals from e-waste and converting them into nanoparticles.*". Enterprise: BiotaTec OÜ

Abstract, [ENG]: BiotaTec OÜ has developed a breakthrough technology for bioleaching and beneficiation of metals from electronic waste, with which companies processing electronic waste can extend their value chain by extracting precious metals from used printed circuit boards and synthesizing nanoparticles from them. The goal of the project is to scale this technology to the volume needed by the industry, as a result of which these companies will be able to market either precious metals *per se* or nanoparticles made of them on the wholesale and retail markets.

Original project title, [ENG]: Next-generation bioleaching technology for isolation of precious metals from e-waste and converting them into nanometallic particles.

Original abstract, [EE]: *BiotaTec OÜ on välja arendanud läbimurdelise elektroonikajääkidest metallide bioleostamise ja väärindamise tehnoloogia, mille abil saavad elektroonikajäätmeid töötlevad ettevõtted pikendada oma väärtusahelat, eraldades kasutatud trükiplaatidest väärismetalle ja sünteesides nendest nanoosakesi. Projekti eesmärgiks on skaleerida see tehnoloogia tööstusele vajaminevasse mahtu, mille tulemusena saavad need ettevõtted turustada kas väärsimetalle tavalisel või nanoosakeste kujul hulgi- ja jaeturul.*

Patent search results:

BEIJING INST TECHNOLOGY: CN104607443A; N2S GLOBAL LTD: WO2022018437A1; LOCUS SOLUTIONS IPCO LLC: WO2023141456A1; BRAIN AG: CN110637100A; UNIV SINGAPORE: SG10201403763VA; NAT UNIV SINGAPORE: WO2020209797A2; UNIV NORTHEASTERN: CN109722537A, CN109680153A; INDUSTRIAL COOPERATION FOUNDATION JEONBUK NATIONAL UNIV: KR102619635B1; UNIV NANJING SCI & TECH: CN106947866A; UNIV SHANGHAI 2ND POLYTECHNIC: CN104630488A; ANHUI ZHONGDA PRINTED CIRCUIT CO LTD: CN105039704A; UNIV SHANGHAI 2ND POLYTECHNIC: CN105483375A, CN105506281A; INDUSTRIAL COOPERATION FOUNDATION JEONBUK NATIONAL UNIV: KR102243077B1; GEN RES INST NONFERROUS METALS: CN109943721A; UNIV BRITISH COLUMBIA: CA3130430A1; SELOT ENV (SHANGHAI) CO LTD: CN205152299U; UNIV CENTRAL SOUTH: CN104328283A; MINT INNOVATION LTD: CN111315903A.

Patent application by BiotaTec OÜ potentially related to Project 63:

EE201600003A.

Project 64: "*Laboratoorse demineraliseerimise- ja filtreerimisseadme arendus ja nanopoorsete süsinikmaterjalide karakteriseerimine* ". Enterprise: UP Catalyst OÜ

Abstract, [ENG]: UP Catalyst has developed technologies based on both CO2 and lignin synthesis in laboratory conditions, which are used to manufacture high-tech nanoporous carbon materials. As a result of the project, the automated demineralization and filtration solution necessary for the production of nanoporous carbon materials on a kilogram scale will be developed and tested, and the synthesis process will be improved to ensure uniform quality of carbon materials.

Original project title, [ENG]: Development of a laboratory demineralization and filtration device and characterization of nanoporous carbon materials.

Original abstract, [EE]: *UP Catalyst on laboritingimustes välja töötanud nii CO2 kui ka ligniini sünteesil põhinevad tehnoloogiad, mille abil valmistatakse kõrgtehnoloogilisi nanopoorseid süsinikmaterjale.Projekti tulemusena arendatakse ja testitakse nanopoorse süsinikmaterjali kilogramm-skaalal valmistamiseks vajalik demineraliseerimise ja filtreerimise automatiseeritud lahendus ja parendatakse sünteesi protsessi tagamaks süsinikmaterjalide ühtlane kvaliteet.*

Patent search results:

UNIV EAST CHINA JIAOTONG: CN115869979A; UNIV NINGBO TECHNOLOGY: CN106564874A; TCL GROUP CO LTD: CN106800929A; UNIV SICHUAN AGRICULTURAL: CN117563644A; BEIJING INSTITUTE TECH: CN110813351A; UNIV FUZHOU: CN105552371A; UNIV ARKANSAS: US10974230B2; UNIV SHANGHAI JIAOTONG: CN103949237A; WUHAN SCIENCE AND TECHNOLOGY UNIV: CN114602524A; INST OF ENERGY HEBEI ACADEMY OF SCIENCE: CN110316717A; OCEAN UNIV CHINA: CN110277247A; SHENZHEN INST OF ADV TECH CAS: CN111362249A; HARBIN INST TECHNOLOGY: CN115458759A; FARAD POWER INC: US10201802B2; NANJING UNIVERSITY OF TECHNOLOGY: CN114804069A; UNIV JIANGSU TECHNOLOGY: CN108285143A; UNIV SICHUAN: CN117003238A; UNIV SOUTH CHINA TECH: CN106276848A; UNIV SOUTH CHINA SCIENCE & TECH: CN114408917A; SHANGHAI SAIPURUITE BIOTECHNOLOGY CO LTD: CN113620287A.

The next generation LignoBoost – tailor-maid lignin production for different lignin bioproduct markets [demineralization aspects].

Families of patents and patent applications by University of Tartu and UP Catalyst OÜ potentially related to Project 64:

WO2020104663A1 (US2022017367A1, ZA202104193B, PL3867966T3, KR20210093999A, JP7397510B2, HRP20230817T1, ES2949022T3, EP3867966B1, CN113169343B, CA3120741A1, BR112021009713A2), CA3228840A1 (JP7504515B1).

Project 65: "*Technological platform for monitoring the spread of the pathogenic virus in case of an epidemic*". Enterprise: LDI Innovation OÜ

Abstract, [ENG]: The project targets the development of a rapid, reliable, affordable, and easy-of-use technological platform for the detection of pathogenic viruses directly onsite in built and open environments on the example of SARS-CoV-2. Once developed and implemented, the technological platform can be extended and adapted for the detection of other severe pathogenic viruses in regular surveillance to pre-empt outbreaks.

Patent search results:

UNIV WESTLAKE: CN112014337A; LIGHTSENSE TECH INC: US2022381681A1, US2023143882A1; LEIBNIZ INSTITUT PHOTONISCHE TECHNOLOGIEN EV: US10969332B2; SPARTA INC: US2009225322A1; ADIUVO DIAGNOSTICS PVT LTD: EP3602007A1, WO2022162702A1; SPEKCITON BIOSCIENCES LLC: US2023221254A1; WEIHAI CHENGYUE OPTOELECTRONICS TECH CO LTD: CN212199262U; ZHEJIANG LAB: CN114778510A; UNIV WAYNE STATE: WO2021203041A1; CN113286563A, EP3030870A1; OXFORD NANOIMAGING LTD: US2023333020A1; UNIV WENZHOU MEDICAL: CN111766383A; US HEALTH: EP3529205A1; ATTONICS SYSTEMS PTE LTD: WO2022220754A1; CO DIAGNOSTICS INC: US2022347672A1; T2 BIOSYSTEMS INC: WO2012054588A2; PHOTON SYSTEMS INC: US11448598B1; EGLINT INC: WO2023173001A1; MICROMASS LTD: CN107667288A; HYPERSPECTRAL CORP: US11925456B2, US12000773B2, US2023268082A1, WO2024092175A1, US2024027266A1; UNIV WINDSOR: WO2014040168A1; SMARTE TEKNOLOJI VE ENERJI SANAYI TICARET ANONIM SIRKETI: WO2021236039A2; TOBACCO RES INST CAAS: CN111487229A.

First, surface samples are taken from various public places (airports, train stations, etc.). Second, surface analysis is performed to detect the virus.A combination of photonics techniques and novel molecular detection (quantum-labeled molecular interaction technology, qLMI) are applied using the Fluo Reader. Specific fluorescence sensors (i.e., receptor peptides with dyes attached) that allow detection of the SARS-CoV-2 virus and several other pathogens were designed. A novel sample cell unit for spectral analysis as well as the testing method (and internal quality control) were developed. We examined various spectral-optical designs and the cell's use for qLMI receptor development.Source: Novaator and University of Tartu News – "An Estonian deep technology platform detects a large portion of respiratory infections", "*Eesti süvatehnoloogia-platvorm tuvastab suurt osa hingamisteede nakkustest*".

LDI Innovation OÜ: "Portable spectral analyzer" – The SFS-Probe is based on the measurement and analysis of Spectral Fluorescent Signatures (SFS) – three dimensional spectral matrix of fluorescence intensity in coordinates of excitation and emission wavelength.

Project 66: "*Loodulikul atmosfäärikiirgusel baseeruv raudbetoon- ja teraskontruktsioonide tehnilise seisukorra hindamise seade*". Enterprise: GScan OÜ

Abstract, [ENG]: The goal of GScan OÜ is to create a 3D imaging system based on natural atmospheric radiation and analyzing the chemical composition to assess the technical condition of reinforced concrete and steel structures non-invasively and safely for people.

Original project title, [ENG]: Device for assessing the technical condition of reinforced concrete and steel structures based on natural atmospheric radiation.

Original abstract, [EE]: *GScan OÜ eesmärgiks on luua looduslikul atmosfäärikiirgusel baseeruv ning keemilist koostist analüüsiv 3D-pildistussüsteem, et hinnata mitteinvasiivselt ning inimestele ohutult raudbetoonist ja terasest konstruktsioonide tehnilist seisukorda.*

Patent search results:

ST NAZ DI ASTROFISICA: WO2017089932A2; ADVANCED APPLIED PHYSICS SOLUT: US2006180753A1; FEDERAL NOE G BJUDZHETNOE OBRAZOVATEL NOE UCHREZHDENIE VYSSHEGO PROFESSIONAL NOGO OBRAZOVANIJA NATSI: RU2008140853A; NEC CORP: JP7070791B2, JP2024039945A, JP7103508B2, JP7099619B2; BEIJING INST SPACECRAFT ENVIRONMENT ENGINEERING: CN115932989A; ADVANCED APPLIED PHYSICS SOLUT: US2006180753A1; UNIV LANZHOU: CN112697815A; MUON VISION INC: US11971373B2; TOSHIBA CORP: JP2023070871A; UNIV CHINA GEOSCIENCES WUHAN: CN116953770A; MICROELECTRONIC RES INSTITUTE OF CHINESE ACADEMY OF SCIENCES: CN114690255A; SHANDONG NUCLEAR POWER LTD COMPANY: CN114496322A; XIAN RESEARCH INSTITUTE OF CHINA COAL TECH & ENGINEERING GROUP CORP: CN115935120A; YUNNAN AEROSPACE ENG GEOPHYSICAL SURVEY INSPECTION CO LTD: CN117388937A; UNIV LANZHOU: CN115542410A; UNIV TSINGHUA: CN219039370U; DECISION SCIENCES INT CORP: US10872746B2.

Family of patent applications filed by GoSwift OÜ and its spin-off GScan OÜ, which might be connected to Project 66:

WO2019166669A1 (CN111801601A, US11774626B2, JP7258365B2, EP3759526A1).

GScan OÜ: Muon Flux Technology (MFT) based 3D scanner system for evaluating the technical condition of reinforced concrete and steel structures.

Project 67: "*Täistaimse juustualternatiivi rakendusuuring*". Enterprise: Andre Juustufarm Osaühing

Abstract, [ENG]: Consumers are increasingly aware and want to eat in an environmentally and health-friendly way. The aim of the project is to arrive at a prototype of a unique fermented and vegetable protein-based cheese alternative. As part of the applied research, potential raw materials, suitable starter cultures for a plant-based cheese alternative are found, and the suitability of different technologies is tested. As a result of the research, a plant-based cheese alternative prototype will be created, the properties of which are closest to animal cheese.

Original project title, [ENG]: Application research study of a whole plant cheese alternative.

Original abstract, [EE]: *Tarbijad on üha teadlikumad ning soovivad toituda keskkonna- ja tervisesõbralikult. Projekti eesmärk on jõuda ainulaadse fermenteeritud ja taimsel valgul põhineva juustualternatiivi prototüübini. Rakendusuuringu raames leitakse taimse juustualternatiivi jaoks potentsiaalsed toorained, sobivad starterkultuurid ning testitakse erinevate tehnoloogiate sobivust. Uuringu tulemusena luuakse taimne juustualternatiivi prototüüp, mille omadused on kõige lähedamal loomsele juustule.*

Patent search results:

DUPONT NUTRITION BIOSCI APS: WO2023006885A1; KRAFT FOODS GROUP BRANDS LLC: US2023126786A1, WO2024129854A1, CA3234461A1, US2023129124A1, WO2022261450A1; FUJI OIL HOLDINGS INC: EP4129076A1; UNIV GUELPH: US2022400696A1; SPX FLOW TECH DANMARK A/S: EP4032408A1; NIKRIS APS: WO2024115632A1; CROSS CULTURED FOODS PBC: US2022338497A1; UPFIELD EUROPE BV: WO2024074589A1; CORN PRODUCTS DEV INC: US2024008503A1; CLIMAX FOODS INC: US2023000100A1, US2023404099A1; PULMUONE CO LTD KR20230105012A, KR20230172720A; APPARO LLC: WO2022115784A1; VEGANDELICIOUS SRL: EP3981259A1, EP3874958A1, EP3884770A1; UNIV YUNNAN AGRICULTURAL: CN109832339A; BUNGE SA: WO2023194592A1; ARCHER DANIELS MIDLAND CO: WO2022094110A1; IMPOSSIBLE FOODS INC: US2021251251A1, WO2015127388A1; VERTAGE LLC: US2023309574A1; VALIO LTD: US11071312B2, US11523624B2, CN111491522A; ARBIOM SAS: WO2024100280A1; OSTARA INNOVATIONS B V: US2024196928A1; OATLY AB: CN117295403A; CARGILL INC: WO2023220277A1; WHATIF F&I PTE LTD: WO2022260602A2; SYMPLI GOOD FOOD BVBA: CN110536605A.

Patent family by University of Tartu potentially related to Project 67:

WO2014102692A1 (US9974817B2, SG11201504787VA, RU2015130679A, PL2943210T3, PH12015501425A1, MX2015008298A, LT2943210T, JP6484561B2, HK1216141A1, ES2649969T3, EP2943210B8, DK2943210T3, CA2896278C, BR112015014334A2, AU2013368969B2).

Project 68: "*One-of-a-kind cloud energy management system for ultracapacitor – CloudCap*". Enterprise: OÜ Skeleton Technologies

Abstract, [ENG]: The CloudCap project develops a new solution that supports the transmission system operators (TSOs) responsible for the safe operation of the European electricity grid. Specifically, Skeleton's solution allows TSOs to know a year in advance which ultracapacitor modules' aging level is critical in the energy storage system. This helps TSOs to prevent damage to the network and, in the worst case, power outages.

Original project title, [ENG]: One-of-a-kind cloud energy management system for ultracapacitor – CloudCap.

Original abstract, [EE]: *CloudCap projektis töötatakse välja uudse lahenduse, mis toetab Euroopa elektrivõrgu turvalise toimimise eest vastutavaid ülekandesüsteemi operaatoreid (ÜSO). Täpsemalt, võimaldab Skeletoni lahendus ÜSO-tele aasta varem teada saada, milliste ultrakondensaatori moodulite vananemistase on energiasalvestussüsteemis kriitiline. See aitab ÜSO-dele võrgu kahjustamist ja halvimal juhul elektrikatkestusi ära hoida.*

Patent search results:

UNIV SHANDONG: WO2022156014A1; UNIV XIAN TECHNOLOGY: CN116722564A; UNIV XINJIANG: CN115833229A; NANNING POWER SUPPLY BUREAU OF GUANGXI POWER GRID CO LTD: CN117791666A; UNIV TSINGHUA: WO2020253245A1; NINGBO CSR NEW ENERGY TECH CO LTD: CN204989886U, CN109038710A; GUANGZHOU MINGDE POWER TECH CO LTD: CN115955002A; DONGFENG ORV CO LTD: CN115776156A; WUHU CHURUI INTELLIGENT TECH CO LTD: CN219811999U; FUJIAN FUGONG EV TECH CO LTD: CN205092154U, CN108695075A; TIG TECH CO LTD: CN115001122A; UNIV ULSAN FOUND IND COOP: KR102632527B1; SHENZHEN BROAD NEW ENERGY TECH CO LTD: CN206742868U; KNOETIK SOLUTIONS INC: US11444338B1; NEC LAB AMERICA INC: US2015149799A1, US2014236883A1; CN106314183A; CN115150787A; CN117944656A; EP4340154A1; CN114977272A; CN114977498A; CN116404670A; CN114498697A.

Families of patents and patent applications by OÜ Skeleton Technologies and Skeleton Tech GmbH potentially related to Project 68:

DE102022126030A1 (EP4357016A1), EP4383301A2, WO2023117488A1, WO2016066860A1 (US2017250033A1, KR20170078760A, JP2017535080A, EP3213334A1, EA039592B1), WO2022200140A1 (DE102021107429A1, US12006217B2, KR20230148364A, JP2024511790A, EP4304982B1, CN117120368A), US2024186077A1 (CN118156054A), WO2023117490A1, DE102022100730A1 (EP4213172A1), DE102022132404A1 (CN118156051A, EP4383300A2, US2024186076A1), DE102022132406A1 (CN118156053A, EP4383299A2, US2024186074A1), WO2023117492A2, DE102022132405A1 (EP4202962A1, WO2023117487A1), WO2019130287A2, CN112955405A (EA202190884A1, JP7497343B2, KR20210094521A, US2022040660A1, WO2020064976A1).

Project 69: "*Taimsete fileetoodete tootmistehnoloogia arendus*". Enterprise: OÜ Vegestar

Abstract, [ENG]: OÜ Vegestar plans to develop technologies for bringing various plant-based meat analogue fillet-type products to the market. In the development of fillet products, the plan is to develop technologies for both chicken and red meat imitating products, using both dry and wet extrusion. The addition of fillet products to the product portfolio gives the company a competitive advantage, as the selection of these products is still small on the market today and the quality is rather low.

Original project title, [ENG]: Development of plant-based fillet products production technology.

Original abstract, [EE]: *OÜ Vegestar plaanib välja töötada tehnoloogiad erinevate taimsete lihaanaloogide filee-tüüpi toodete turule toomiseks. Fileetoodete arendamisel on plaan välja arendada tehnoloogiad nii kana kui ka punast liha imiteerivatele toodetele, kasutades selleks nii kuiv- kui ka märgekstrudeerimist. Fileetoodete lisandumine tooteportfelli annab ettevõttele konkurentsieelise, kuna antud toodete valik on turul veel täna väike ja kvaliteet küllaltki madal.*

Patent search results:

UNIV HUAZHONG AGRICULTURAL: CN114931210A; YOUMALUO FOOD CO LTD: CN116075236A; NOMAD FOODS EUROPE LTD: GB2603215A; MOTIF FOODWORKS INC: WO2024059578A2; NESTLE SA: WO2023275304A1, WO2022253643A1; UNIV SICHUAN: CN117730945A; HOOKED SEAFOOD AB: WO2023208315A1, EP4082354A1; TROPHIC LLC: WO2021248047A1; INST FOOD SCIENCE & TECH CAAS: CN113712109A; YULUO SCIENCE AND TECH SHENZHEN LIMITED COMPANY: CN114223775A; UNIV NORTHEAST AGRICULTURAL: CN114304373A; FUMACH FOODSTUFF ENGINEERING & TECH CO LTD: CN114766585A; RAISIO NUTRITION LTD: WO2020038541A1; NOWADAYS INC PBC: US11484044B1; NE INNOVATIONS OY: US2023157332A1, WO2023233083A1; LES NOUVEAUX FERMIERS: EP3973787A1; THE LIVEKINDLY COMPANY SWITZERLAND GMBH: US2022202038A1; NOVOZYMES AS: WO2024121191A1; DSM IP ASSETS BV: US2023172229A1; HERSHEY CO: US11737476B2; LUSOASIS INC: US2023284653A1; UNIV SHAOGUAN: CN117378697A; UNIV WAGENINGEN: EP4193844A1; VALIO OY: US2024032564A1; HAOFU SHANGHAI FOOD TECH CO LTD: CN112806470A; SHAANXI ZHIXIANGPAI HEALTH TECH CO LTD: CN117898365A; IMPOSSIBLE FOODS INC: US2021289824A1; AGRICULTURAL PRODUCT PROCESSING RES INSTITUTE OF CHINESE ACADEMY OF AGRICULTURAL SCIENCES: CN114209029A; UNIV HARBIN COMMERCE: CN117378699A; ZHUTI FOOD FACTORY CO LTD: CN116847737A; KR20230072871A; SOLAE LLC: CN101808534A; WO2022084895A1; PULUTING HEBEI PROTEIN BIOTECHNOLOGY RES CO LTD: CN116210804A; SCIENION GMBH: US2022183341A1; UNIV GUIZHOU: CN117752010A; US2001014360A1; UNIV ZHEJIANG TECHNOLOGY: CN116035112A; GAOTANG LUYUAN SHANGTONG BIOTECHNOLOGY CO LTD: CN113068764A; SHANGHAI SUNLIGHT INNOV TRADING CO LTD: US2021092978A1; TENDER FOOD INC: WO2024129234A1; COOEPERATIE KONINKLIJKE AVEBE U A: WO2023096495A1; ETH ZUERICH: US2023058975A1; CARGILL INC: WO2023049754A1.

Project 70: "*Applied research on Magnesium reduction from PCC production residuals*". Enterprise: R-S OSA Service OÜ

Abstract, [ENG]: The aim of the project is to carry out an application study to test and validate a process for the extraction of magnesium particles from the waste produced during PCC production.

Original project title, [ENG]: Piloting OSA-PCC (Oil Shale Ash - Precipitated Calcium Carbonate) technology.

Original abstract, [EE]: *Projekti eesmärk on teostada rakendusuuring, et testida ja valideerida protsess PCC tootmisel tekkivast jääkainest magneesiumiosakeste eraldamiseks.*

Patent search results:

TALLINNA TEHNIKAUELIKOOL: EE05446B1, EE05349B1; SHELL INT RESEARCH: WO2006008242A1; MINERAL CARBONATION INT PTY LTD: US11833469B2; UNIV SICHUAN: CN104477950A, CN104261449A; UNIV SHANDONG TECHNOLOGY: CN115353139A; XIAMEN HUICHUANGYUAN TECH CO LTD: CN111807403A; WOODVILLE LIME & CHEM CO: JPS5278700A, GB1539223A; UNIV HEFEI TECHNOLOGY: CN104016393A.

CN113716596B: Method for graded extraction of various products by using oil shale semicoke or oil shale ash; Priority: **2021-09-15** (CN202111079020A); Anticipated expiration: 2041-09-15. Applicant: LIAONING PROVINCE INTERNATIONAL INVESTMENT & TRADE PROMOTION CENTRE (LIAONING PROVINCE E-PORT SERVICE CENTRE).

De Crom *et al.*, (2015). Purification of slag-derived leachate and selective carbonation for high-quality precipitated calcium carbonate synthesis – Under optimized conditions: calcium content 98.1wt%; magnesium 1.5 wt%; aluminum 0.1 wt%; silicon below detection level.

Patent applications/utility models filed by R-S OSA Service OÜ, which might be connected to Project 70:

Family I: Earliest priority: **2020-06-01**, WO2021244728A1 (EP4157795A1); Family II: Earliest priority: **2020-06-01**, WO2021244727A1 (CN115916700A, US2023212020A1, IL298590A, EP4157794A1, CN115916700A, CA3185651A1, BR112022023778A2, AU2020451269A1); Utility models: EE01613U1, EE01614U1.

More information on Project 70:

Rein Kuusik: A breakthrough in the use of oil shale ash? – TalTech – Tallinn University of Technology, News, 2022-10-18.

Project 71: "*Developing the Platform for Coherent Characterization of Human Gene Therapy Vehicles in Human Cell Culture and Developing Cell-Binding Peptide Modified AAV Library.*". Enterprise: IVEX Lab OÜ

Abstract, [ENG]: IVEX Lab OÜ is an Estonian company that offers the development of drug candidates for gene therapy on the world market. In the course of the EAS-supported project, tools will be created that allow evaluating the effect of drug candidates much more precisely than before. With the help of the precision analysis platform that is being created, it is possible to significantly reduce the need for animal experiments and determine the optimal drug dose and formulation even before starting clinical trials. In addition, the project will create a series of alternative novel gene therapy vectors.

Original abstract, [EE]: *IVEX Lab OÜ on Eesti ettevõte, mis pakub maailmaturul geeniteraapia ravimikandidaatide arendust. EAS toetatava projekti käigus luuakse tööriistad, mis võimaldavad hinnata ravimikandidaatide toimet senisest palju täpsemini. Loodava täppisanalüüside platvormi abiga on võimalik oluliselt vähendada loomkatsete vajadust ning määrata juba enne kliiniliste katsete alustamist optimaalne ravimi doos ning formulatsioon. Lisaks luuakse projekti käigus rida alternatiivseid uudseid geeniteraapia vektoreid.*

Patent search results:

CHILDRENS HOSPITAL PHILADELPHIA: WO2024064673A2; CALIFORNIA INST OF TECHN: US2015079038A1; CLEVELAND CLINIC FOUNDATION: WO2006105392A2; BROAD INST INC: US2021403946A1; IMMUSOL INC: CA2251738A1; BROAD INST INC: AU2020214831A1, WO2023148617A1, US2020080076A1; US2002068272A1; UNIV TEXAS: WO2006010070A2, US2009221505A1, CA2421191A1; OBSIDIAN THERAPEUTICS INC: AU2018227583A1; NAT UNIV CORP IWATE UNIV: WO2016129656A1; UNIV FLORIDA: CA3146702A1; UNIV HEIDELBERG RUPRECHT KARLS: EP3609542A1; UNIV CALIFORNIA: US2015232953A1, US6322969B1, US2022364073A1; MEDIGENE AG: AU2008258090A1, AU2008202032A1; AVITIDE LLC: WO2022081779A1; DGI BIO TECHNOLOGIES INC: WO03033675A2; UNIV LELAND STANFORD JUNIOR: WO2017083423A1; AVTIME LLC: CN116490516A; DEUTSCHES KREBSFORSCH: WO2013174760A1; TRUSTEES BOSTON COLLEGE: CA3143506A1; UNIV MINNESOTA: US11236360B2; UNIV ROSTOCK: EP1985708A1; CARIBOU BIOSCIENCES INC: WO2018031950A1; VIGENERON GMBH: AU2018350700A1; REGENXBIO INC: WO2024044725A2; INOXELL AS: EP1270746A1; REGENERON PHARMA: WO2023240124A1; LUNDBECK & CO AS H: WO2009155932A2; TENAYA THERAPEUTICS INC: WO2020205889A1; 4D MOLECULAR THERAPEUTICS INC: SG11201809684YA.

More information potentially linked to Project 71:

Source: Brussels South Charleroi Biopark, Genflow Biosciences Plc: Press Release, 22-01-10.

Project 72: "*Rakendusuuringu läbiviimine ettevõttes Volaron OÜ õhusõidukite turboreaktiivmajami arenduseks*". Enterprise: Volaron OÜ

Abstract, [ENG]: Volaron is developing an electric "turbo"jet drive for aircraft that will partially replace land transport in the near future (e.g. VTOL aircraft). The goal of the project is to reach the TRL-5 level of the product, which means physical tests of the device in a controlled environment. To this end, we cooperate with the University of Tartu, with whom validation of analytical calculations and simulation models takes place, and with Magnetic MRO, with the help of whose knowledge and experience the device is developed to meet the requirements of the aviation sector.

Original project title, [ENG]: Carrying out an applied research study in the company Volaron OÜ for the development of a turbojet engine for aircraft.

Original abstract, [EE]: *Volaron arendab elektrilist turboreaktiivajamit lennumasinatele, mis hakkavad lähitulevikus asendama osaliselt maismaatransporti (nt. VTOL lennumasinad). Projekti eesmärgiks on saavutada toote TRL-5 tase, mis tähendab seadme füüsilisi katsetusi kontrollitud keskkonnas. Selleks teeme koostööd Tartu Ülikooliga, kellega koos toimub analüütiliste arvutuste ja simulatsioonimudelite valideerimine ning Magnetic MROga, kelle teadmiste ja kogemuste abil arendatakse seade lennundussektori nõuetele.*

Patent search results:

US12006032B2 (EP3781479B1, JP7478667B2, RS65366B1, CN112334386A, CA3138750A1, IL278085A, *etc.*); RU2272751C1; LINGZHONGLI AIRCRAFT IND HEFEI CO LTD: CN220164164U, CN116573143A; RU2490173C1; CN112078788A; CN113879525A; SIA FIXAR AERO: WO2023049497A1; CN105818980A; UNIV BEIHANG: CN115946844A; DALIAN CHONGTIAN TECH CO LTD: CN117566089A; CHINA NORTH IND CORPORATION: CN111516859A; JIANGSU FEIZHIYI AVIATION TECH CO LTD: CN112193423A, CN214729708U; CN105620739A; CN116534248A.

State of the art (axial-flux electric motor technology for aerospace market):

2021: Evolito was spun out by YASA (Yokeless And Segmented Armature), a spinoff company from the University of Oxford.
2021: Mercedes-Benz acquires YASA.
2022: Evolito acquires Electroflight.
ACCEL Spirit of Innovation.

Project 73: "*Applied research on cyber security of smart city mobility solutions based on cyber range technology*". Enterprise: CybExer Technologies OÜ

Abstract, [ENG]: We are investigating the security of data exchange related to smart city mobility solutions, the cyber security of data exchange between vehicles and smart infrastructure, their mutual interdependencies, and if the previous one proves to be successful, using cyber training ground technology, we will create an environment providing cyber security and geospatial information, which will provide an overview of the cyber security status of smart city solutions in use and cyber security cross dependencies, thereby enabling better understand and manage risks.

Original abstract, [EE]: *Uurime targa linna mobiilsuslahendustega seotud andmevahetuse turvalisust, sõidukite ja nutitaristu vahelise andmevahetuse küberturvalisust, nende omavahelist ristsõltuvust ning kui eelnev osutub edukaks, küberharjutusväljaku tehnoloogiat kasutades küberturvalisuse ja georuumilist infot pakkuva keskkonna, mis annab ülevaate kasutusel olevate targa linna lahenduste küberturvalisuse staatusest ning küberturvalisuse ristsõltuvustest, võimaldades seeläbi riske paremini hoomata ja juhtida.*

Patent search results:

AT & T IP I LP: US11636239B2; SHENZHEN BITNET INFORMATION TECH CO LTD: CN117057757A; GUANGYUAN LIANGZHIHUI TECH CO LTD: CN112541096A, CN111901564A; ZHANGZHOU NIANSHENG INFORMATION TECH CO LTD: CN117010597A; SHENZHEN ZHUOJIA CONSTRUCTION ENG CO LTD: CN115830853A; DONGFENG PLEASURE SCIENCE AND TECH LIMITED COMPANY: CN114141050A; CN ELECT TECH NO 38 RES INST: CN111081156A, CN111079129A; SHENZHEN BAINA JIUZHOU TECH CO LTD: CN111461516A; CHENGDU QINCHUAN IOT TECH CO LTD: US11869110B2, CN114998074A; JIANGSU POSTS & TELECOMM PLANNING & DESIGNING INST CO LTD: CN103116825A; JIANYUAN FUTURE CITY INVEST DEVELOPMENT CO LTD: CN116896611A; MOTOROLA SOLUTIONS INC: US2023117025A1; NANJING XIANZHI DIGITAL TECH CO LTD: CN117196921A; KR102628707B1; SHENZHEN QIANHAI INTELLIDATA TECH CO LTD: CN117496693A; UNIV BEIJING JIAOTONG: CN113177377A; UNIV NINGBO: CN111915841A; GUANGDONG TIANLICAI TECH CO LTD: CN106124015A; NINGBO JIANGDONG JINGCHENG AUTOMATION EQUIPMENT CO LTD: CN105634967A; CHENGDU QINCHUAN IOT TECH CO LTD: CN114943439A; AT&T GLOBAL NETWORK SERVICES BELGIUM LUXEMBOURG SPRL: US2023308453A1; SHENZHEN HUICHUANG JOINT AUTOMATION CONTROL CO LTD: CN106803148A; WO2018217178A1; HONEYWELL INT INC: US2023239833A1; US2017206532A1; Z ADVANCED COMPUTING INC: US11914674B2; CHONGQING HOUDUN SAFETY TECH CO LTD: CN107967578A; FUJIAN RST TECH CO LTD: CN113670317A; UNIV AJOU IND ACADEMIC COOP FOUND: KR20200144250A.

Project 74: "*Putukajahu sisaldava kõrge toiteväärtusega liha analoogtoote välja arendamine*". Enterprise: BugBox OÜ

Abstract, [ENG]: The aim of this project is to develop and bring to the market a new sustainable meat analogue product - mince - which contains insect protein produced by BugBox. The new product is equivalent to meat in terms of nutritional value and already naturally contains sufficient amounts of essential amino acids necessary for humans, numerous minerals and unsaturated fatty acids. Thereby, BugBox offers a sustainable replacement for meat industry products as well as plant-based alternatives.

Original project title, [ENG]: Development of a meat analog product with high nutritional value containing insect powder.

Original abstract, [EE]: *Käesoleva projekti eesmärk on arendada välja ja tuua turule uus jätkusuutlik liha analoogtoode – hakkmass – mis sisaldab BugBox'i toodetud putukavalku. Uus toode on toitaineväärtuselt samaväärne lihaga ja sisaldab juba looduslikult piisavas koguses inimestele vajalikke asendamatuid aminohappeid, hulgaliselt mineraale ning küllastumata rasvhappeid. Seeläbi pakub BugBox jätkusuutlikku asendust nii lihatööstuse toodetele kui ka taimsetele alternatiividele.*

Patent search results:

HEY PLANET APS: EP3858148A1; UNIV KUNMING SCIENCE & TECHNOLOGY: CN115413729A; UNIV MASSEY: WO2023119204A1; PROTIX BV: US2024041068A1, US2023165280A1, WO2023224465A1, WO2023224464A1; MEATBANK: KR102663285B1; DSM IP ASSETS BV: WO2022194786A1; BUEHLER AG: EP4186371A1, EP4186372A1, WO2023118412A1, WO2023118414A1, WO2021032866A1; CARGILL INC: WO2022197586A1; NOVOZYMES AS: CN116113329A, CN116113329A; AIR PROTEIN INC: WO2023278306A1; NOVAMEAT TECH S L: CN112839522A; HARBIN JINYU SCIENCE & TECHNOLOGY CO LTD: CN104222700A; CN102578390A; QINGDAO YALUTE FOOD CO LTD: CN111616276A; INSECTERGY LLC: US11497199B2; ANBIO: KR102554209B1; JACKFRUIT BASED MEAT REPLACEMENTS: US2024000105A1; HUMANBIO: KR20240043830A; CN111887221A; UNIV ZHEJIANG CHINESE MEDICAL: CN103053835A; KR102029027B1; RU2019125862A; KR20200111458A; ANSHAN BAILIN PET PRODUCT CO LTD: CN108308381A; KR20220089283A; KYUNGPOOK NAT UNIV IND ACADEMIC COOP FOUND: KR20220099746A; KR101728777B1; ANYOU BIOTECHNOLOGY GROUP CO LTD: CN106509506A; KOREA FOOD RES INST: KR102284004B1; EP3078277A1; RAMIFARM INC: KR20200077124A; DAN MEE FOOD: KR101777649B1; C-FU FOODS INC: WO2017066880A1; PROGRAND DEVELOPMENT ENTPR CORP: TWM620272U.

Project 75: "*Kiudainetega rikastatud fermenteeritud kasemahlajookide ja teiste kasemahlatoodete stabiilsus ajas ning nende toodete tarbimise mõju inimese mikrobioomile*". Enterprise: Kasevetekohin OÜ

Abstract, [ENG]: The main goal of the project is to valorize Estonian birch sap by developing technological processes that would make it possible to produce various products with added value from birch sap, which would also have health effects proven by research. As a result of the project, a technological process has been developed, which, when applied in production, makes it possible to prepare fermented birch juice with high sensory quality and stable product properties and functional fiber-enriched birch juice drinks without pasteurization.

Original project title, [ENG]: Stability of fiber-enriched fermented birch juice drinks and other birch juice products over time and the effect of consumption of these products on the human microbiome.

Original abstract, [EE]: *Projekti peamine eesmärk on väärindada Eesti kasemahla, töötades välja tehnoloogilised protsessid, mis võimaldaks kasemahlast toota erinevaid lisandväärtusega tooteid, millel oleks ka uuringutega tõestatud tervisemõju. Projekti tulemusena on välja töötatud tehnoloogiline protsess, mis tootmises rakendades võimaldab valmistada ilma pastöriseerimata kõrge sensoorse kvaliteediga ning stabiilsete tooteomadustega fermenteeritud kasemahla ning funktsionaalsete kiudainetega rikastatud kasemahlajooke.*

Patent search results:

LUMENE OY: WO2023148428A1; NATURAL MEDICINE INST ZHEJIANG YANGSHENGTANG CO LTD: CN112842976A, CN112842952A, AU2020320370A1, CN110772459A, CN112842953A, CN112842950A, CN112957307A, CN112842951A; YANGSHENGTANG ANJI COSMETIC CO LTD: CN117482023A; GUANGZHOU YANGSEN PHARMACEUTICAL CO LTD: CN115804746A; AMOREPACIFIC CORP: KR101463841B1; ZHEJIANG PROVINCE RES INSTITUTE OF NATURAL MEDICINE CO LTD: CN114632136A; ON BEAUTY CO LTD: KR102047442B1; AMI COSMETIC CO LTD: KR101895412B1; LCX CO LTD: JP2023122505A; JIANGSU MEILI XUANYAN BIOTECHNOLOGY CO LTD: CN109044929A; CN1285398A; COREANA COSMETICS CO LTD: KR102615522B1; YICHUN HUATAI BIOLOGICAL PHARMACEUTICAL CO LTD: CN116622467A; YICHUN JINXI WINE CO LTD: CN115678711A; NFOOD CO LTD: KR101752204B1; CN112266837A; CN117050834A; SHENHUA INTERNATIONAL BIOMEDICAL TECH BEIJING CO LTD: CN113893202A; HULUNBUIR LINHAI FOREST OPERATION AND MAN CO LTD: CN113322152A; REPUBLIC KR FORESTRY RES INST: KR101034285B1; DAXING ANLING LIXUEJING STARCH: CN1295121A; CN109055067A; YICHUN HUATAI BIOLOGICAL PHARMACEUTICAL CO LTD: CN115812954A.

Project 76: "*Immunepowering Biomarker/Drug Development*". Enterprise: IRISBIO OÜ

Abstract, [ENG]: Personalized medicine is a key to advance healthcare. The major gaps herein relate to the early detection of chronic disease and/or treatment associated companion diagnostics IMMUNEPOWER pioneers the field with its developed immune response activity measuring biomarkers towards successes of personalized medicine.

Patent search results:

SERIMMUNE INC: EP3373950A1; AVAIL BIO INC: WO2021046466A1; BRIGHAM & WOMENS HOSPITAL INC: EP3083700A2, WO2017132550A1, CA3066645A1, US2023035859A1, WO2022011160A2, WO2023283495A1; EMBL EUROP MOLECULAR BIOLOGY LAB: CA2766656A1; US2003096431A1; US2003100011A1; US2003100010A1; US2003100013A1; SYN X PHARMA INC: WO03046571A2, WO03046004A2, CA2482317A1, WO03046569A1; UNIV SINGAPORE: WO2014116184A1; US HEALTH: US2023003730A1; NOVOZYMES AS: US2003119066A1; MERCK PATENT GMBH: SG10202108135VA; BIO TECHNOLOGY GENERAL CORP: CA2433225A1; AMGEN FREMONT INC: NZ546369A; PROTHENA BIOSCIENCES LTD: SG11202106717PA, SG11202002490UA; GENENTECH INC: SG183335A1, SG185027A1, SG10201408599QA; UNIV VERMONT: WO0109611A2; IVIGENE CORP: US2002197625A1; NANTOMICS LLC: CA3172682A1; JUNO THERAPEUTICS INC: CA3028002A1; DANA FARBER CANCER INST INC: EP4071169A2; BOEHRINGER INGELHEIM PHARMACEUTICALS INC: JP2023134503A; ABEXXA BIOLOGICS INC: US2021147572A1; US GOV HEALTH & HUMAN SERV: WO2004065409A2; DIATECH PTY LTD: WO2007022557A1; UNIV RAMOT: WO9820169A1; BIOTEST AG: CA2781836A1.

Project with participation of IRISBIO OÜ and Osaühing ProtoBioS potentially related to Project 76:

Decision support for prediction and management of Long Covid Syndrome (LCS). Programme: HORIZON.2.1 - Health. Topic: HORIZON-HLTH-2021-DISEASE-04-07 - Personalised medicine and infectious diseases: understanding the individual host response to viruses (e.g. SARS-CoV-2).

Patent by Osaühing ProtoBioS potentially related to Project 76:

US9672324B1 (Peptide profiling and monitoring humoral immunity).

RUP funding round IV: Enterprises, Projects Information and Patent Search Results

Project start	Project end	Project name	Enterprise	Project funding
21.02.2023	30.06.2024	***77:*** *Rakendusuuring ja protsessitehnoloogiline arendustöö Enefiti pürolüüsiprotsessi kergfraktsiooni väärindamiseks keemiatööstuse tooraineks*	Eesti Energia AS	880 484,05
01.03.2023	31.08.2024	***78:*** *Eksperimentaalse droonituvastusüsteemi rakendusuuring*	TrackDeep OÜ	923 336,80
01.04.2023	30.09.2024	***79:*** *VOK Bikesi järgmise generatsiooni jõuajami arendus*	Optigon OÜ	335 346,75
01.04.2023	31.03.2025	***80:*** *Mükoproteiini tootmistehnoloogia arendamine*	Funki Foods OÜ	459 846,56
01.05.2023	30.04.2025	**81:** Development of VOOL Switch Multiphaser Technology	MultiCharge OÜ	1 625 978,43
01.05.2023	30.04.2026	***82:*** *DigiFoundry - automatiseeritud platvorm täppisfermentatsiooni protsesside arendamiseks*	äio tech OÜ	1 445 296,54
01.06.2023	31.05.2026	***83:*** *Mikroobsete taimekultuuripõhiste spetsiifilise funktsiooniga biostimulaatorite väljatöötamine väetistetoodete (sh mineraal- väetiste, orgaaniliste ja/või orgaanilis-mineraalsete) tootmiseks*	BioCC OÜ	1 287 309,10
01.06.2023	31.05.2026	**84:** Development of scalable high-temperature electrolyser single cell production methodology with AC:DC operation	H2Electro OÜ	1 768 519,52
01.07.2023	31.01.2024	**85:** SplitKey CSP+	Cybernetica AS	281 429,03
01.07.2023	31.12.2024	**86:** Satellite-enabled fully automated carbon credit measurement and verification platform prototype (Acronym: SIMPLE)	eAgronom OÜ	912 397,05
01.09.2023	31.12.2024	**87:** EU taxonomy reporting automation	Impactly OÜ	733 588,41
01.09.2023	31.08.2026	***88:*** *Rakendusuuring mehitamata maismaasõidukite passiiv- adaptiivse autonoomse navigatsioonisüsteemi arendamiseks*	Milrem AS	2 000 000,00
01.10.2023	30.09.2025	***89:*** *Kontrollitud morfoloogia ja kõrge puhtusastmega süsinikmaterjalide valmistamine innovatiivses prototüüpreaktoris*	UP Catalyst OÜ	1 058 842,00
01.10.2023	30.09.2026	**90:** LIQUID BIOPSY TEST FOR SEPSIS USING MICROBIAL CELL-FREE DNA SEQUENCING	Tervisetehnoloogiate Arenduskeskus AS	1 287 625,76

Data source: https://eas.ee/wp-content/uploads/2023/06/iv_voorus_toetatud_projektid.pdf

Project 77: "*Rakendusuuring ja protsessitehnoloogiline arendustöö Enefiti pürolüüsiprotsessi kergfraktsiooni väärindamiseks keemiatööstuse tooraineks*". Enterprise: Eesti Energia AS

Abstract, [ENG]: In the course of the project, a solution for valorization of the light fraction of oil shale pyrolysis will be identified, which takes into account the specific parameters of the light fraction of Estonian oil shale pyrolysis and enables the production of raw materials for the chemical industry that meet international quality requirements.

Original project title, [ENG]: Applied research and technological process development for upgrading the light fraction of the Enefit pyrolysis process into raw material for the chemical industry.

Original abstract, [EE]: *Projekti käigus selgitatakse välja põlevkivi pürolüüsi kergfraktsiooni väärindamise lahendus, mis arvestab Eesti põlevkivi pürolüüsi kergfraktsiooni spetsiifiliste parameetritega ja võimaldab sellest toota rahvusvahelistele kvaliteedinõuetele vastavaid keemiatööstuse tooraineid.*

Patent search results:

SK INNOVATION CO LTD: EP2644584A1, KR101173345B1; CN105349179A; CERAMATEC INC: EP2496669A2, US2014311949A1; CHINA PETROLEUM & CHEM CORP: CN109988634A, CN111321008A, CN116004277A, CN114736710A, CN109988599A, CN114763495A, CN103725321A; CHINA PETROCHEMICAL CORP: CN1159416C; US2009054716A1; DOW GLOBAL TECH LLC: WO2024141766A1; BASF CATALYSTS LLC: US2008314798A1; CHINESE PETROCHEMICAL INDUSTRY LTD COMPANY: CN114196439A, CN114437806A, CN114437790A; INDIAN OIL CORP LTD: JP2021050325A; ENVIROLLEA INC: US10655070B2; GREATPOINT ENERGY INC: AU2011258204A1; XIAN MODERN CHEMISTRY RES INST: CN113088330A; US2009288985A1; SYNFUELS CHINA TECHNOLOGY CO LTD: CN108504378A; SAUDI ARABIAN OIL CO: US2011079541A1, US11136512B2; IFP ENERGIES NOUVELLES: KR102459259B1; UNIV NORTHEAST DIANLI: CN104263401A; CHINA PETROCHEMICAL TECHNOLOGY CO LTD: TW201930573A; GRACE W R & CO: WO2024006381A1; SAUDI BASIC IND CORP: EP3110918A1; ENERGY AND ENVIRONMENT RES INST OF HEILONGJIANG PROVINCE: CN105154134A.

Patent applications/utility models filed by Enefit Outotec Technology OÜ potentially linked to Project 77:

WO2013057010A1 (US9034076B2, EP2583754B1, CN104010730B, AU2012325115B2, BR112014008979B1, CA2849940C, EA027223B1, IL231697A, MA35713B1, RS54064B1), WO2013057009A1 (US9221062B2, EP2583753B1, CN103889581B, *etc.*), WO2012069501A1 (US9089803B2, EP2643081B1, CN103269785B, *etc.*).

Project 78: "*Eksperimentaalse droonituvastusüsteemi rakendusuuring*". Enterprise: TrackDeep OÜ

Abstract, [ENG]: Our intention is to carry out an applied research study TRL3-TRL5, the purpose of which is to evaluate the capability and suitability of the unmanned aerial vehicle (drones) detection system being developed under the management of TrackDeep OÜ to provide services in the U-space airspace. The goal is to create a prototype of a flight surveillance and control system, with which the user can monitor large-scale drone traffic over a large area of land and, if necessary, perform activities necessary for traffic coordination.

Original project title, [ENG]: Applied research study of an experimental drone detection system.

Original abstract, [EE]: *Meie kavatsus on teostada rakendusuuring TRL3-TRL5, mille eesmärgiks on hinnata TrackDeep OÜ juhtimisel arendatava mehitamata õhusõidukite (droonide) tuvastamise süsteemi võimekust ja sobivust U-space õhuruumis teenuste osutamiseks. Eesmärgiks on luua lennujärelvalve- ja kontrollsüsteemi prototüüp, millega on kasutajal võimalik jälgida suurel maa-alal suuremahulist drooniliiklust ja teostada vajadusel liikluse koordineerimiseks vajalikke tegevusi.*

Patent search results:

AEROBITS SP Z O O: EP3393214A1; PERKONS S A: EP3086294A1; QUALCOMM INC: US11710410B2, EP3177529A1; SUZHOU KONGZHONGTIAODONG INFORMATION TECH CO LTD: CN116884275A; RSQ SYSTEMS SPRL: US10773800B2; AVIC XIAN FLIGHT AUTOMATIC CONTROL RES INST: CN114019999A; AV8OR IP LTD: GB2569789A; WO2017039179A1; INSITU INC: AU2014200051A1; TOYOTA ENG & MFG NORTH AMERICA: JP2020191083A; KOREA AEROSPACE RES INST: KR102249931B1; UNIV CHINA GEOSCIENCES WUHAN: CN113639750A; BAE SYSTEMS PLC: EP4198945A1; GENGHISCOMM HOLDINGS LLC: US11586227B2; US11783715B2; NO 54 INST OF CHINA ELECTRONICS SCIENCE AND TECH GROUP: CN105867272A; BOEING CO: EP4075409A1, US9310477B1; T MOBILE USA INC: EP3664479A2; CHANG JUNG CHRISTIAN UNIV: TW202246802A; RU2278801C1; VERIZON PATENT & LICENSING INC: US10618654B2, US10755586B2; FUJITSU LTD: US11572166B2; LENOVO SINGAPORE PTE LTD: EP3949339A1; CHINA NORTH VEHICLE RES INST: CN110888456A; WING AVIATION LLC: US11854412B2; NIGHTINGALE INTELLIGENT SYSTEMS: CN110027709A; RU2018143511A; LEIHUA ELECTRONIC TECH RESEARCH INSTITUTE AVIATION INDUSTRY CORPORATION OF CHINA: CN112083420A; ARINC INC: US2014257692A1; DEUTSCHE TELEKOM AG: EP3557909A1; UNIV BEIJING JIAOTONG: CN116863761A; PEOPLE'S LIBERATION ARMY NATIONAL UNIVERSITY OF DEFENSE TECHNOLOGY: CN117289717A; ONESKY SARL: WO2018203112A1; ALARM COM INC: EP3729391A1; UNIV OHIO: US11531099B2; NEXTEON TECH INC: US11361667B2; AMERICAN ROBOTICS INC: WO2022197370A2.

Project 79: "*VOK Bikesi järgmise generatsiooni jõuajami arendus*". Enterprise: Optigon OÜ

Abstract, [ENG]: The project will develop the next generation VOK cargo bike technology. Through the development of battery and motor technologies and power electronics, as a result of the project we can offer lower maintenance costs and a load capacity of 200 kg instead of 120 kg, i.e. enter the small van market.

Original project title, [ENG]: VOK Bikes next generation powertrain development.

Original abstract, [EE]: *Projekti käigus töötatakse välja järgmise generatsiooni VOK kaubaratta tehnoloogia. Läbi aku- ja mootoritehnologiate ning jõuelektroonika arendamise saame projekti tulemusena pakkuda madalamaid hoolduskulusid ning 120 kg asemel 200 kg kandevõimet, ehk siseneda väikekaubikute turule.*

Patent search results:

WO2024010561A1; TIANJIN JINLUN GROUP XINDE VEHICLE IND CO LTD: CN117208125A; ZHEJIANG LINBO CHUXING TECH CO LTD: CN217835867U; NINGBO ZIXIN BICYCLE IND CO LTD: CN212401462U; JINHUA ZHUOYUAN IND CO LTD: CN212556631U; CN101428659A; ROLLO MOTION INC: US2022017121A1; ITUB201644509U1; AUTOMOTIVE RES TECHNOLOGY & ST: WO2009077548A1; ALFAZERO S P A: IT201800002898A1, WO2019162845A1, WO2019162865A1; HONDA MOTOR CO LTD: BRPI0600397A; DREAMSCIENCE PROPULSION LTD: EP2794037A1; CECOMP SPA: IT202200002126U1; DIVERGENT TECH INC: US2019105991A1; NOVA PROGETTI S R L: US2024116598A1; RU2022101501A; WO2006136658A1; CN209757410U; RAD POWER BIKES INC: US11912370B2, US2023159124A1 ; VOELKL PATENTE GMBH & CO KG: EP3907126A1; MOBI INC: KR102577537B1; OUCA BIKES OY: WO2023166241A1; ESAMSA KOREA INC: KR20230164348A; EP3552933A1; MPR GMBH & CO KG: EP4001080A1; CIP HOLDING AG: US11260689B2; BMZ BATTERIEN MONTAGE ZENTRUM GMBH: EP3660942A1; XUZHOU MEISHITONG ELECTRIC VEHICLE CO LTD: CN116142365A; US2010314179A1; YUXIN INTELLIGENT TECH JIANGSU CO LTD: CN217198420U; NANJING CITY DINGTIAN MACHINERY CO LTD: CN104691396A.

Project 80: "*Mükoproteiini tootmistehnoloogia arendamine*". Enterprise: Funki Foods OÜ

Abstract, [ENG]: The aim of the project is to develop a technology for growing filamentous fungi on a laboratory scale. Mycoprotein, which is obtained from the biomass of filamentous fungi, is a good alternative to both animal products and plant-based alternatives, requiring significantly less water and land for production and having a lower carbon footprint. The mycoprotein production reactor can be set up in any location and the production is not affected by the weather, ensuring local food security.

Original project title, [ENG]: Development of mycoprotein production technology.

Original abstract, [EE]: *Projekti eesmärk on välja töötada filamentsete seente kasvatamise tehnoloogia laboratoorsel skaalal. Mükoproteiin, mida saadakse filamentsete seente biomassist, on hea alternatiiv nii loomsetele toodetele kui ka taimedest valmistatud alternatiividele vajades tootmiseks oluliselt vähem vett, maad ja olles madalama süsinikujäljega. Mükoproteiini tootmisreaktori võib üles panna mis iganes asukohta ja tootmine ei ole mõjutatud ilmastikust, tagades kohaliku toidujulgeoleku.*

Patent search results:

MARLOW FOODS LTD: GB2620448A, GB2518725A, GB2409796A, GB2579351A, EP1052909A1, GB2375945A, US6270816B1, GB2518724A, WO2018002579A1, WO2021105704A1, WO2018002581A1, WO2024009087A1, *etc.*; LANTMAENNEN ENERGI: WO2019121697A1; PLANETARY SA: EP4298912A1; MEATLESS B V: WO2024115686A1, EP4381957A1; UNILEVER NV: EP1357807A1; SMINE PTY LTD: AU2009260123A1; AQUACULTURE FOOD CO LTD: CN117500387A; CJ CHEILJEDANG CORP: WO2023090821A1; MYCOTECHNOLOGY INC: WO2023239868A1; THE FYNDER GROUP INC: US11723392B2, WO2021119255A1; SUSTAINABLE BIOPRODUCTS INC: WO2019046480A1; ZENECA LTD: US5904943A; ZENICA LTD: US2003134021A1; FUJIWARA TECHNO ART CO LTD: WO2023017710A1; UNIV STRATHCLYDE: US11293044B2; SANFU BIOLOGICAL CO LTD: CN114846150A; DANISCO US INC: EP2160471A1; UNIV NORTH CAROLINA STATE: WO2019212975A1; SUSTAINABLE BIOPRODUCTS INC: EP3423561A1; EVOLOGIC TECH GMBH: EP4276170A1.

State of the art (mycoprotein market):

Marlow Foods is a UK company that produces Quorn. The first mycoprotein product was brought to the market in 1985.
Sadler, (1988). Quorn.
Wiebe, (2002). Myco-protein from Fusarium venenatum: a well-established product for human consumption.

Project 81: "*Development of VOOL Switch Multiphaser Technology*". Enterprise: MultiCharge OÜ

Abstract, [ENG]: The project will research and develop the VOOL Switch and VOOL Controller as the MCB replacement for "smart" systems. VOOL Switch and VOOL controller will be combined in the VOOL Panel. Additionally, the project will develop an add-on "smart" software layer, which manages the timing and power use of EV charging and use of other consumers to make the best use of market price fluctuations.

Patent search results:

SHENZHEN CAR ENERGY NET CO LTD: CN209088601U, CN108879902A; NANJING NENGRUI ELECTRIC POWER TECH CO LTD: CN112124132A, CN108767952A, CN208306388U; SOLAREDGE TECHNOLOGIES LTD: US11632058B2; TELLHOW SCI-TECH CO LTD: CN106356878A, CN206135427U, CN106451500A, CN206135426U, CN106300398A; SHENZHEN WINLINE TECH CO LTD: CN117318504A, CN117375445A; UNIV SHANDONG: CN106314184A; HITACHI AUTOMOTIVE SYSTEMS LTD: JP2012055026A; TIANJIN RAILWAY SIGNAL CO LTD: CN117526536A; FUJI ELECTRIC CO LTD: JPH08308255A; SUZHOU VEICHI ELECTRIC CO LTD: CN208571693U, CN108899989A; XIAN CHENGYUAN ELECTRONIC TECH CO LTD: CN209299143U; SHANDONG KANGRUN ELECTRICAL CO LTD: CN110829468A; BAIC BJEV CO LTD: CN106533218A; CANON KK: JP2020086399A; GO OTDEL VG PROEKTNO IZYSKATEL: SU943902A2; WUXI PROFESSIONAL COLLEGE SCIENCE & TECHNOLOGY: CN218386928U; UNIV TSINGHUA: CN110112721A; LUOYANG INST SCIENCE & TECHNOLOGY: CN102201783A; DEEPSTREAM TECHNOLOGIES LTD: GB2455491A; EASY DETECTOR APS: EP3874534A1; HANGZHOU XUPENG ELECTRICAL TECH CO LTD: CN107659170A; AIAI ELECTRIC PINGHU CO LTD: CN107472058A; SHENZHEN HONGJIALI NEW ENERGY CO LTD: CN115179844A; UNIV SOUTH CHINA TECH: CN102664447A; KOREA ELECTRIC POWER CORP: KR102027983B1; XIAN HAITIAN ANTENNA TECH CO LTD: CN115241700A; NEC CORP: JP2017004562A.

Family of patent applications filed by MultiCharge OÜ potentially linked to Project 81:

WO2022162415A1 (EP4285454A1).

Project 82: "*DigiFoundry - automatiseeritud platvorm täppis-fermentatsiooni protsesside arendamiseks*". Enterprise: äio tech OÜ

Abstract, [ENG]: One of the important changes to move towards more sustainable food systems is the replacement of animal products with alternatives that, in addition to being sustainable, would also be healthier and accessible to everyone. In order for innovative solutions to reach the consumers' table, the two most important parameters are the taste of the food and the price. As part of the DigiFoundry project, a semi-automated platform for the design of novel microbes will be created to exploit various local by-products into high-value food components.

Original project title, [ENG]: DigiFoundry - an automated platform for the development of precision fermentation processes.

Original abstract, [EE]: *Üheks oluliseks muutuseks liikumaks kestlikumate toidusüsteemide suunas on loomse toorme asendamine alternatiividega, mis lisaks kestlikkusele oleksid ka tervislikumad ning kõigile kättesaadavad. Et uudsed lahendused jõuaksid tarbijate toidulauale, on olulisemad kaks parameetrit toidu maitse ning hind. DigiFoundry projekti raames luuakse pool-automatiseeritud platvorm uudsete mikroobide disainiks, et väärindada erinevaid kohalikke kõrvalsaadusi kõrge-väärtuslikeks toidu komponentideks.*

Patent search results:

CORBION BIOTECH INC (SOLAZYME INC): WO2008151149A2 (AU2008259834B2, BRPI0811967B1, CA2689724C, CN101765661B, EP2152849B1, KR101504618B1, US8512999B2); ENI SPA: EP2358890A2, EP2350300A2; LANZATECH NEW ZEALAND LTD: AU2012305021A1; MASCOMA CORP: WO2010060056A2; MULTIPLY LABS INC: WO2021168368A1; KOCEL PATTERN CO LTD: CN107807618A; UNIV WASHINGTON STATE: WO2021207374A2 (US2023183722A1, EP4133091A2, CN115996757A); ZHEJIANG HUARUI BIOTECHNOLOGY CO LTD: CN111534535A; TECHNISCHE UNIV HAMBURG KOERPERSCHAFT DES OEFFENTLICHEN RECHTS: DE202022101144U1; DALIAN INST CHEM & PHYSICS CAS: CN116536174A, CN103224884A; WO2024069654A1; DEBUT BIOTECHNOLOGY INC: US2022333122A1; UNIV ESTADUAL PAULISTA JULIO D: BR8604172A; LS9 INC: CN102459569A; NANJING UNIVERSITY OF TECHNOLOGY: CN113308387A; COSMAX INC: CN113122459A; NUCELIS INC: KR20170010072A; NEOL BIOSOLUTIONS S A: ES2590220A2; NANJING UNIVERSITY OF TECHNOLOGY: CN114921504A.

Academic publications associated with äio tech OÜ:

(1) *Pinheiro, Bonturi, Lahtvee et al., (2020)*. Xylose metabolism and the effect of oxidative stress on lipid and carotenoid production in Rhodotorula toruloides: insights for future biorefinery.
(2) *Bonturi, Lahtvee et al., (2022)*. Development of a dedicated golden gate assembly platform (RtGGA) for Rhodotorula toruloides.

The yeast *Rhodotorula toruloides* is also known as *Rhodosporidium toruloides*.

Project 83: "*Mikroobsete taimekultuuripõhiste spetsiifilise funktsiooniga biostimulaatorite väljatöötamine väetistetoodete (sh mineraal- väetiste, orgaaniliste ja/või orgaanilis-mineraalsete) tootmiseks*". Enterprise: BioCC OÜ

Abstract, [ENG]: The goal of the project is to develop microbial plant culture-based biostimulators with a specific function and technologies for their use for the production of fertilizer products (including mineral fertilizers, organic and/or organic-mineral fertilizers) to reduce carbon-intensive agrochemicals and promote the soil microbiome.

Original project title, [ENG]: Development of microbial plant culture-based biostimulators with a specific function for the production of fertilizer products (including mineral fertilizers, organic and/or organic-mineral).

Original abstract, [EE]: *Projekti eesmärgiks on välja töötada/arendada mikroobsed taimekultuuripõhised spetsiifilise funktsiooniga biostimulaatorid ning nende kasutamise tehnoloogiad väetisetoodete (sh mineraalväetiste, orgaaniliste ja/või orgaanilis-mineraalsete väetiste) tootmiseks süsinikintensiivsete agrokemikaalide vähendamiseks ja muldade mikrobioomi edendamiseks.*

Patent search results:

ALGAENERGY S A: AU2022395524A1; VALAGRO BIOSCIENCES PRIVATE LTD: WO2022024050A1, WO2019155252A1; SHANDONG XINFURUI AGRICULTURAL TECH CO LTD: CN115894122A; UNIV SAN SEBASTIAN: WO2020191508A1; LANDLAB SRL SOC BENEFIT: EP4388878A1; DONAGHYS IND LTD: CN102404992A; AMVAC CHEMICAL CORP: US11066341B2, US11591274B2, US10954173B2, AU2016224902A1; EP2773599A1; KR100433785B1; CYTOZYME LABORATORIES INC: WO2018223087A1; WO2013109153A1; AGRINOS AS: CN107787360A; DIKANG SHIAN BEIJING AGRICULTURAL TECH CO LTD: CN116283418A; EVL INC: EP1881948A2; CN111808786A; TERRAGEN HOLDINGS LTD: US11858869B2; QINGDAO ZHI ZHI BIOTECHNOLOGY CO LTD: CN114436698A; LEENJEONG C&C CO LTD: KR101836426B1; BEIJING SCITOP BIO-TECH DEV CO LTD: CN105948838A; XINJIANG KOK DALA AGRICULTURAL SCIENCE AND TECHNOLOGY CO LTD: AU2020102978A4; REPUBLIC KOREA MAN RURAL DEV: KR101212047B1; KR100725730B1; CN103739319A; JIANGSU ACAD AGRICULTURAL SCI: CN101891539A; UNIV SW SCI & TECH SWUST: CN105198504A; KUNMING CO YUNNAN TOBACCO CO: CN107278575A; SHANGHAI TIANWEI BIOTECHNOLOGY CO LTD: CN110125149A.

Family of patent applications filed by BioCC OÜ potentially linked to Project 83:

EE05825B1, EE05809B1, EE05799B1, EA033289B1, KR20220017778A, WO2019063056A1 (JP7250783B2, EP3688139A1, CN111601879A).

Project 84: "*Development of scalable high-temperature electrolyser single cell production methodology with AC:DC operation*". Enterprise: H2Electro OÜ

Abstract, [ENG]: H2Electro (Estonia) and DynElectro (Denmark) are hydrogen deep-tech start-ups that are both developing complementary technologies that largely help to eliminate the degradation that currently limits the lifetime of the Solid Oxide Electrolysis cells. The aim of the RUP project is that H2Electro's and DynElectro's technologies would be able to achieve a stability that will allow a cell voltage increase of up to 0.5% over 1000h at a current density of 0.5A/cm2.

Patent search results:

OHMIUM INT INC: US11767603B2; OSAKA GAS CO LTD: US2023282844A1, WO2023190016A1, US2023352698A1, CN111902989A, US2023110742A1; UNIV XIAN JIAOTONG CN105576273A; RONDO ENERGY INC: WO2022115721A2; UNIV SHENZHEN: CN110904464A; UNIV HEBEI SCIENCE & TECH: CN109755965A; HUANENG CLEAN ENERGY RES INST: CN105154907A; HALDOR TOPSOE AS: EP2832421A1, WO2016000957A1; GUANGZHOU POWER SUPPLY BUREAU GUANGDONG POWER GRID CO LTD: CN117577910A; SUNGROW POWER SUPPLY CO LTD: CN112290582A; UNIV CHINESE HONG KONG SHENZHEN: CN117498389A; HUANENG CLEAN ENERGY RES INST: CN105154907A; CHN ENERGY INVEST GROUP CO LTD: CN117477935A; SHANGHAI INST APPLIED PHYSICS: WO2022151902A1; BLOOM ENERGY CORP: KR20220103650A; AGC INC: WO2023105948A1; UNIV NINGBO: CN110762852A; COMMISSARIAT ENERGIE ATOMIQUE: JP2022033016A, EP3516721A1, EP3625846A1, EP4249640A1; H2B2 ELECTROLYSIS TECH S L: EP4379871A1; FUNDACIO INST DE RECERCA EN ENERGIA DE CATALUNYA: EP3754768A1, EP4138165A1; SUNFIRE GMBH: US2023052850A1, EP4092000A1; FLEXITALLIC INVEST INC: EP2946427A1; UNIV DENMARK TECH DTU: KR20140096309A, WO2012062341A1; UNIV OSLO: US2019252706A1; UNIV CHINA MINING & TECHNOLOGY BEIJING: CN110981527A; SCHOTT AG: US2013272774A1; UNIV NOVA DE LISBOA: PT103670A.

Family of patents and patent applications filed by DynElectro APS potentially linked to Project 84:

WO2020201485A1 (ZA202107222B, US2022205121A1, MA55496A, JP2022527649A, ES2948708T3, EP3947779B1, CN113677828A, CL2021002563A1, CA3133432C, BR112021020039A2, AU2020251188B2), WO2021223938A1 (US2023193486A1, EP3907310A1), WO2022229273A1 (ZA202310003B, US2024222671A1, JP2024519291A, EP4329999A1, EP4082735A1, CN117751029A, CA3216899A1, AU2022267788A1), WO2022152651A1 (US2024079623A1, JP2024502382A, EP4278031A1, EP4027419B1, CN116997679A, CL2023002010A1, CA3207640A1, AU2022207614A1).

Project 85: "*SplitKey CSP+*". Enterprise: Cybernetica AS

Abstract, [ENG]: The aim of this project is to test the research hypothesis that it is possible to achieve the level of security required by next generation digital identity means, such as EUDIW wallets with alternative solutions to hardware-based solutions. If this hypothesis is correct, then we have improved our commercial and technological base for the provision of security modules for EU wallet ecosystem and provide additional services for non-EU countries.

Patent search results:

NXT-ID INC: US2017039568A1; PRIMESIGN GMBH: EP4224786A1; AALTO UNIV FOUNDATION SR: US2022263668A1; BAAS LAB CORP: KR102044748B1; THALES DIS FRANCE SAS: US2022374533A1; KT CORP: KR20140029067A; ALIBABA GROUP HOLDING LTD: CN107086909A; SHENZHEN SECRET STOP SMART SCIENCE AND TECH LIMITED COMPANY: CN114596642A; GARMIN INT INC: US10679209B2; NXT-ID INC: US2016379220A1; MASHANGYOU TECH CO LTD: CN111159681A; CELLIGENCE INT LLC: US2024005325A1; INDUSTRIAL & COMMERCIAL BANK OF CHINA CO LTD: CN109034758A; HEETIAN CORP: CN107294988A; EIDLINK INFORMATION TECH CO LTD: CN108881106A; STATE GRID ELECTRONIC COMMERCE COMPANY LTD: CN113641975A; BANK OF CHONGQING CO LTD: CN112734556A; VIVO MOBILE COMMUNICATION CO LTD: CN113163392A; HEFEI JINGQI WISDOM MEDICAL TECH CO LTD: CN109714169A; UNIV BEIJING POSTS & TELECOMM: CN103259667A; EIDLINK INFORMATION TECH CO LTD: CN108234126A; MORPHOTRUST USA LLC: US10032042B1, US10257495B1, US10929712B2; HUIZHIAN INFORMATION TECH CO LTD: CN115174234A; IRIS CORP BERHAD: WO2023022584A1; APPLE INC: US11663309B2; ASIAINFO TECH CHENGDU INC: CN112788042A; CRYPTIC LABS LLC: WO2023154940A2; IDEMIA IDENTITY & SECURITY USA LLC: CA3046924A1; SAMSUNG ELECTRONICS CO LTD: US2022201492A1; WO2020142635A1.

Patent application filed by Cybernetica AS potentially linked to Project 85:

WO2023247296A1.

Information from Cybernetica AS website:

Digital identity.

Project 86: "*Satellite-enabled fully automated carbon credit measurement and verification platform prototype (Acronym: SIMPLE)*". Enterprise: eAgronom OÜ

Abstract, [ENG]: The aim of this project is to develop and launch a fully automated satellite-based platform for carbon credit measurement and verification in Europe. The solution being developed complements our existing carbon program and enables the creation of high-quality carbon credits with minimal administrative burden for both farmers and our company. As a result of eAgronom's solution, both small and large farms can contribute to the fight against climate change.

Original abstract, [EE]: *Käesoleva projekti eesmärk on arendada ja käivitada satelliitidel põhinev täielikult automatiseeritud platvorm süsinikukrediidi mõõtmiseks ja kontrollimiseks Euroopas. Arendatav lahendus täiendab meie olemasolevat süsinikuprogrammi ning võimaldab kõrge kvaliteediga süsinikukrediitide loomist minimaalse halduskoormusega nii põllumajandustootjatele kui ka meie ettevõttele. eAgronomi lahenduse tulemusena saavad nii väiksed kui ka suured farmid kliimamuutuste vastu võitluses kaasa aidata.*

Patent search results:

IDEMITSU KOSAN CO: WO2023190155A1; GUANGDONG LABORATORY OF ARTIFICIAL INTELLIGENCE AND DIGITAL ECONOMIC SHENZHEN: CN117217628A; UNIV NAT CHUNG HSING: EP4075372A1; NATURAL CAPITAL EXCHANGE INC: US11615428B1; CARBONCO LTD: US2024169722A1; CARBON METRICS GLOBAL: US2024020708A1; US2012089304A1; EARTHBANC AB: SE2150439A1, WO2024014479A1; KR102497129B1; CFPH LLC: CA2678497A1, AU2012202467A1; UNIVERSAL CARBON HOLDINGS INC: WO2024026248A1; PIONEER HI BRED INT: US2011047088A1; ENVIRONMENTALLY CORRECT CONCEPTS: US6115672A; KUDARU NOBORU CO LTD: JP2023170056A; UNIV ILLINOIS: WO2024020542A1; COOL PLANET ENERGY SYSTEMS INC: CN106029846A; ALCATEL LUCENT: US2014315528A1; ACCENTURE GLOBAL SERVICES GMBH: US2007073604A1; HONEYWELL INT INC: US2009326896A1; UNIV MICHIGAN STATE: WO2022125834A1; AMVAC CHEMICAL CORP: US2022240434A1; US2022374912A1; CARBONCURE TECH INC: WO2023064403A1; HEPU TECH DEV BEIJING CO LTD: JP2019175416A; US2023394599A1; SILVER SPRING NETWORKS: RO126975A2; FUTURE SCIENCE RES INC: WO2024075765A1; KR20240062670A; GEVO INC: US2022343229A1; RUNNING TIDE TECH INC: WO2023183911A1; SOOSAN INT CO LTD: KR102476181B1; SC CO LTD: KR102317077B1; VEKIN THAILAND CO LTD: WO2023229540A1; CARBON2O2 LLC: US2023139137A1.

Project 87: "*EU taxonomy reporting automation*". Enterprise: Impactly OÜ

Abstract, [ENG]: In the course of the project, we are investigating the automation of the implementation of the taxonomy of sustainable finance in the context of mandatory reporting by companies and financial market participants. During the successful implementation of the project, we have created an implementation model with the help of technology, which enables market participants to save both money and time during production.

Original abstract, [EE]: *Projekti käigus uurime kestliku rahastuse taksonoomia rakendamise automatiseerimist ettevõtete ja finantsturu osaliste kohustusliku raporteerimise kontekstis. Projekti edukal elluviimisel oleme tehnoloogia abil loonud rakendamise mudeli, mis tootestamisel võimaldab turuosalistel nii rahalist kui ajalist kokkuhoidu.*

Patent search results:

S&P GLOBAL INC: US11790385B2, US11488075B1; ROCKEFELLER & CO LLC: US2022027814A1; KOREA CREDIT GUARANTEE FUND: KR102641853B1; GUIHE NENGQUAN CO LTD: CN117408807A; ESG ENERGY TRADING METHOD AND SYSTEM TO SUPPORT ESG MANAGEMENT: KR20240067204A; ROYAL BANK OF CANADA: CA3170792A1; ELECTRONICS & TELECOMMUNICATIONS RES INST: US2024161190A1; JPMORGAN CHASE BANK NA: US12001491B2; INTERACTIVE BROKERS LLC: US2023410207A1; WO2020198409A1; ONETRUST LLC: US11461722B2, US11410106B2 ; BANK OF NEW YORK MELLON: US2024070563A1; BLACKROCK INC: US11983152B1; TRUVALUE LABS INC: WO2021016623A1; EXURGO INC: US2023317239A1; ISD INC: KR102026304B1; ACCENTURE GLOBAL SOLUTIONS LTD: US2024202664A1, US2024192993A1; PANAGORA ASSET MAN INC: US11657454B2; RICHMOND GLOBAL SCIENCES INC: US11941567B1; JOHNSON CONTROLS TYCO IP HOLDINGS LLP: US2024135302A1; PHYSIS INVEST INC: US2024185349A1; FGA DIAGNOSTICS LLC: CA3015975A1; INST FOR SUSTAINABLE DEV: US2017004128A1; IMPACT CUBED LTD: US2022414560A1; ENSOGO ANALYTICS LLC: US2016117774A1; PREDICDO LTD: WO2024142071A1; REPTRAK HOLDINGS INC: EP4044097A1, US2022261819A1; ASIA GREEN FUND MAN LIMITED: WO2022225446A1.

Project 88: "*Rakendusuuring mehitamata maismaasõidukite passiiv-adaptiivse autonoomse navigatsioonisüsteemi arendamiseks*". Enterprise: Milrem AS

Abstract, [ENG]: As part of the project, the civil applications of Milrem Robotics will be brought into line with the requirements of the defense sector and their durability will be increased. Autonomous vehicles reduce the risks to human life and increase the efficiency of defense activities in many functions - transporting the wounded, clearing minefields, mobility of weapon systems, communication, etc. This applied research accelerates product development for the needs of the defense sector.

Original project title, [ENG]: Application study for the development of a passive-adaptive autonomous navigation system for unmanned land vehicles.

Original abstract, [EE]: *Projekti raames viiakse Milrem Robotics tsiviilrakendused vastavusse kaitsevaldkonna nõuetega ning suurendatakse nende vastupidavust. Autonoomsed sõidukid vähendavad riske inimelule ning tõstavad kaitsetegevuse efektiivsust paljudes funktsioonides – haavatute transport, miiniväljade puhastamine, relvasüsteemide mobiilsus, sidepidamine jne. Antud rakendusuuring kiirendab tootearendust kaitsevaldkonna vajadustele.*

Patent search results:

ARILOU INFORMATION SECURITY TECH LTD: US2020389469A1; NORTHROP GRUMMAN SYSTEMS CORP: WO2018165315A1; UNIV SHANDONG: CN116817894A; VYSOKÁ ŠKOLA BÁŇSKÁ-TECHNICKÁ UNIVERZITA OSTRAVA: CZ2015814A3; NNG SOFTWARE DEV AND COMMERCIAL LLC: US2020294401A1; SOUTH WEST INST TECHNICAL PHYSICS: CN107576327A; SHENYANG INST AUTOMATION CAS: CN117896672A; UNIV TONGJI: CN108763287A; ARMY ARMORED MILITARY ACAD PLA: CN116772880A; UNIV BEIJING TECHNOLOGY: CN104848867A; GANSU PROVINCIAL PUBLIC SECURITY DEPT: CN116147636A; SHENZHEN LIGHT WAVE INTERCONNECTION TECH CO LTD: CN107864013A; HEBEI HAN GUANG HEAVY INDUSTRY LTD RESPONSIBILITY COMPANY: CN114234987A; LOVELAND INNOVATIONS LLC: US10055831B2; CAVH LLC: US10692365B2, US12020563B2; CHINA NORTH VEHICLE RES INST: CN116047900A; APPLIED COMP TECHNOLOGY INST OF CHINA ORDNANCE INDUSTRY: CN103466091B; HEBEI INDUSTRIAL UNIV: CN114182604A; AMAZON TECH INC: US11175664B1; WALMART APOLLO LLC: US2019271988A1; OBSHCHESTVO S OGRANICHENNOI OTVETSTVENNOSTIU EVOKARGO: RU2769440C1; ESTUN ROBOTICS CO LTD: CN117500639A; AUGEAN ROBOTICS INC: AU2019404207A1; WIPRO LTD: US2022019223A1.

Family of US design patents filed by Milrem AS potentially linked to Project 88:

USD820752S, USD824458S, USD820770S, USD807784S, USD816575S, USD820736S, USD946467S (USD1010504S).

Project 89: "*Kontrollitud morfoloogia ja kõrge puhtusastmega süsinikmaterjalide valmistamine innovatiivses prototüüpreaktoris*". Enterprise: UP Catalyst OÜ

Abstract, [ENG]: UP Catalyst has developed a technology based on CO2 synthesis in laboratory conditions, which is used to produce high-tech carbon nanomaterials. Nanomaterials are used as a valuable additive in batteries, coating materials and composites. As a result of the project, an innovative prototype reactor necessary for the production of carbon nanomaterials on a kilogram scale will be developed, which enables the production of high-quality nanomaterials with a controlled morphology and a high degree of purity.

Original project title, [ENG]: Production of carbon materials with controlled morphology and high purity in an innovative prototype reactor.

Original abstract, [EE]: *UP Catalyst on laboritingimustes välja töötanud CO2 sünteesil põhineva tehnoloogia, mille abil valmistatakse kõrgtehnoloogilisi süsiniknanomaterjale. Nanomaterjale kasutatakse nii akudes, kattematerjalides kui ka komposiitides väärtusliku lisandina. Projekti tulemusena arendatakse süsiniknanomaterjali kilogramm-skaalal valmistamiseks vajalik innovatiivne prototüüpreaktor, mis võimaldab toota kontrollitud morfoloogia ja kõrge puhtuseastmega kvaliteetseid nanomaterjale.*

Patent search results:

HE CARBON SUPERCAP LTD: WO2022254212A2; ERACHEM EUROP SA: EP1188801A1; BATTELLE ENERGY ALLIANCE LLC: US2023103603A1; RU99776U1; ELEMENT SIX GMBH: WO2023020723A1; CARBOTECH AC GMBH: CN101549298A; COVESTRO DEUTSCHLAND AG: KR20160034292A; PETROCHINA CO LTD: CN117003201A; SUZHOU NAKANG NANO MATERIALS CO LTD: CN105017815A; RES INST SHAANXI YANCHANG PETROLEUM GROUP CO LTD: CN111072008A; PLA 63971 ARMY: CN101585527A; UNIV NORTHEAST PETROLEUM: CN105506665A, CN116988075A; SEKISUI CHEMICAL CO LTD: WO2023214563A1; UNIV ZHEJIANG: CN113104848A; TOKYO GAS CO LTD: JP2018158851A; KOREA ADVANCED INST SCI & TECH: WO2016032221A1.

Families of patents and patent applications by University of Tartu and UP Catalyst OÜ potentially related to Project 89:

CA3228840A1 (JP7504515B1), WO2020104663A1 (US2022017367A1, ZA202104193B, PL3867966T3, KR20210093999A, JP7397510B2, HRP20230817T1, ES2949022T3, EP3867966B1, CN113169343B, CA3120741A1, BR112021009713A2).

Project 90: "*Liquid biopsy test for sepsis using microbial cell-free DNA sequencing* ". Enterprise: Tervisetehnoloogiate Arenduskeskus AS

Abstract, [ENG]: The SCANS project carries the aim to develop an innovative liquid biopsy assay for sepsis, using the microbial metagenomic next-generation sequencing of blood samples and test it in clinical environment. Project demonstrates the diagnostic value of bacterial and fungal DNA detection from sepsis patients where the presence of microbial species (and antimicrobial resistance, if possible) has been validated by "gold standard" methods (i.e., microbial culture).

Patent search results:

NATERA INC: US11519035B2, US11525159B2, US2024060124A1, US2024132957A1; CATHOLIC UNIV KOREA IND ACADEMIC COOPERATION FOUNDATION: KR102279821B1, KR102598556B1; SANTERSUS SA: WO2021064463A1, CN111433605A; YISSUM RESEARCH AND DEVELOPMENT COMPANY OF THE HEBREW UNIV OF JERUSALEM LTD: WO2019012543A1, US2021087630A1; MEDICAL COLLEGE WISCONSIN INC: EP3741871A2, WO2021236964A1, WO2020131955A1; FLUENT BIOSCIENCES INC: US2022136071A1, WO2022245830A1; OSE IMMUNOTHERAPEUTICS: WO2024028508A2; BELGIAN VOLITION SRL: WO2023170298A1; RIGHTANGLED LTD: GB2602597A; GUSTO GLOBAL LLC: WO2023141347A2; BIOLOGICAL DYNAMICS INC: AU2018392601A1; KARIUS INC: US2024132978A1, EP3978627A1, US2022195496A1; UNIV CALIFORNIA: US2023357834A1, US2023348955A1; UNIV GEORGETOWN: WO2023004204A2; BROAD INST INC: WO2023196973A1; UNIV LELAND STANFORD JUNIOR: US11365453B2; AMA BIOTECH: WO2023049396A1; BIOFIRE DIAGNOSTICS LLC: WO2024050362A2; UNIV HONG KONG CHINESE: WO2024007971A1; UNIV GRAZ MEDIZINISCHE: WO2024056720A1; UNIV CORNELL: WO2021216985A2.

Families of patents and patent applications by Tervisetehnoloogiate Arenduskeskus AS potentially related to Project 90:

WO2018127408A1 (EP3565906B1, US2019323074A1), WO2019076768A1.

University of Tartu News – Ettevõtetega koostöös otsitakse võimalusi veremürgituse kiiremaks diagnoosimiseks.

RUP funding round V: Enterprises, Projects Information and Patent Search Results

Project start	Project end	Project name	Enterprise	Project funding
01.02.2024	31.01.2027	***91:*** *Ratsionaalne pärmiekstraktide disain*	AS Salutaguse Pärmitehas	871 200,00
01.02.2024	31.12.2025	***92:*** *VESINIKU LISAMINE TOITEALLIKANA HÜBRIIDJÕUALLIKAGA TANKERILE*	Baltic Workboats AS	321 390,00
02.01.2024	29.08.2025	***93:*** *Kõrgtemperatuurilise ülijuht tehnoloogial põhineva tuulegeneraatori arendus*	Eleon Capital OÜ	1 781 500,00
01.01.2024	30.09.2025	***94:*** *Raskes kütteõlis ja alternatiivses väävlirikkas kütuses väävli sisalduse vähendamise tehnoloogia*	Elteks Group OÜ	257 343,00
08.12.2023	31.03.2025	**95:** Development of novel underground pump-hydro energy storage solution	Energiasalv Valdus OÜ	1 998 806,27
01.01.2024	31.12.2025	**96:** Development of an AI-driven generative design algorithm of Flowstep UX Copilot prototype	FlowstepDesign OÜ	1 013 587,62
01.01.2024	31.12.2026	***97:*** *Müüontomograafilise tehnoloogia tootearendus ja tomograafiliste meetodite arendus*	GScan OÜ	1 969 538,40
01.01.2024	31.12.2026	**98:** Preclinical studies of a best-in-class drug targeting a tumor-specific antigen Claudin 6 (CLDN)	Icosagen Cell Factory OÜ	1 997 783,84
01.01.2024	31.08.2026	**99:** Development of phage display technology for artificial modular antibody fusions targeting the DISORDERered proteOME for novel In Vitro Diagnostics assays (DISORDEROME)	Icosagen Cell Factory OÜ	1 994 078,52
01.06.2024	31.05.2026	**100:** 3D imaging for increasing safety and efficiency of service robots and vehicles in variable conditions (SAFE-SIGHT)	LightCode Photonics OÜ	1 121 948,43
01.03.2024	28.02.2026	***101:*** *Isekohanev juhtsüsteem autonoomsete robotlaevade dünaamiliseks juhtimiseks*	Mindchip OÜ	619 340,00
01.09.2024	30.09.2026	***102:*** *Myceen – süsiniknegatiivsete seenematerjalide arendus ja uuendusliku tööstustehnoloogia loomine*	Myceen OÜ	838 777,15
01.10.2024	30.09.2027	**103:** Development of first-in-class products for enhanced wound healing	Nanordica Medical OÜ	1 573 590,95
01.01.2024	31.12.2026	***104:*** *Mahekaera väärindamise tehnoloogia edasiarendus*	Tulundusühistu WIRU VILI	603 046,19
08.12.2023	07.12.2026	***105:*** *VKG Plastic OÜ plastijäätmete eeltöötluse ja keemilise ringlussevõtu tehnoloogia arendus*	VKG Plastic OÜ	1 380 000,00

Data source: https://eas.ee/wp-content/uploads/2024/07/rup-projektide-ulevaade-kuni-10.07.24.xlsx

Project 91: "*Ratsionaalne pärmiekstraktide disain*". Enterprise: AKTSIASELTS SALUTAGUSE PÄRMITEHAS

Abstract, [ENG]: Yeast extract manufacturers do not have exact information about the species and production processes in which their yeast extracts are used. Therefore, extracts are developed in the so-called blindly. This project creates a platform for the rational design of yeast extracts, which systematically identifies industrially important bacterium's metabolic bottlenecks, i.e. substances whose sufficient concentration in yeast extracts is of decisive importance. In addition, an efficient prototype development and evaluation methodology is created.

Original project title, [ENG]: Rational design of yeast extracts.

Original abstract, [EE]: *Pärmiekstraktide tootjad ei oma täpset infot nende liikide ja tootmisprotsesside kohta, kus nende pärmiekstrakte kasutatakse. Seetõttu arendatakse ekstrakte n.ö. pimesi. Antud projekt loob ratsionaalne pärmiekstraktide disaini platvormi, mis süstemaatiliselt tuvastab tööstuslikult oluliste bakterile ainevahetuse kitsaskohti ehk aineid, mille piisav kontsentratsioon pärmiekstraktides on määrava tähtsusega. Lisaks luuakse efektiivse prototüüpide arendamise ja hindamise metoodika.*

Patent search results:

MARINE BIOPROCESS CO LTD: KR101158448B1; UNIV NINGXIA: CN102212480A; AMANO ENZYME INC: WO2024024764A1; MERCK & CO INC: US6232111B1; ORIENTAL YEAST CO LTD: TW201402019A, TW201410159A, CN103929978A; KOHJIN LIFE SCIENCES CO LTD: TW201713774A; KR102602347B1; UNIV YUNNAN AGRICULTURAL: CN117814311A; KIKKOMAN CORP: JP2016116538A; NIPPON SEISHI KK: JPH07184595A; ANGEL YEAST CO LTD: CN113475702A; KIRIN KYOWA FOODS COMPANY LTD: WO2011074359A1; ASAHI CHEMICAL IND: JPH10327802A; ACTOGENIX NV: EP2275527A1; ARLA EKONOMISK FOERENING: CA2313245A1; JIANGSU OGO BIOTECH CO LTD: CN112080448A; SYMRISE AG: KR20220152156A; UNIV TIANJIN SCIENCE & TECH: CN101250576A; AU2021106911A4; UNIV SOUTH CHINA TECH: CN105348165A; GUANGXI SUNGAIN YEAST TEHNOLOGY CO LTD: CN104195180A; NOVARTIS VACCINES & DIAGNOSTIC: EP1849860A2; NOVARTIS AG: EP2592137A1, WO2013068568A1; SEMPIO FOODS CO: KR101189888B1; SG179123A1; WO2005054442A2.

Families of patents and patent applications by LALLEMAND INC (owns 100% of AS Salutaguse Pärmitehas) potentially related to Project 91:

WO2019175809A1 (US2023091532A1, MX2020009504A, CA3093764A1, BR112020018535A2), WO2020058915A1 (US11891641B2, IL281627A, EP3853245A4), WO2017165978A1 (US11034990B2, RU2018138132A, MX2018011824A, KR20180133441A, JP2019509758A, EP3436565A4, CO2018010409A2, CN109312295A, CA3019253C, BR112018069999A2, AU2017244046A1).

Project 92: "*Vesiniku lisamine toiteallikana hübriidjõuallikaga tankerile*". Enterprise: Baltic Workboats (BWB) AS

Abstract, [ENG]: During the project, at the request of BWB's client, a drive using hydrogen as an energy source will be developed as an additional development for the tanker, while it is known that no one in the whole world has yet made a tanker run on hydrogen power. The project is made ambitious by the addition of an even more complex hydrogen system to the many complex technical requirements of the tanker, which, on the other hand, results in a significant reduction in the ecological footprint in the form of fossil fuel use and CO2 emissions.

Original project title, [ENG]: Adding hydrogen as a power source to a hybrid powered tanker.

Original abstract, [EE]: *Projekti käigus arendatakse BWB kliendi soovil tankerlaevale lisaarendusena vesinikku energiaallikana kasutav ajam, kusjuures teadaolevalt ei ole terves Maailmas keegi veel tankerit vesiniku jõul sõitma pannud. Projekti teeb ambitsioonikaks tankeril paljudele keerukatele tehnilistele nõuetele veelgi keerukama vesinikusüsteemi lisamine, mis teisalt toob endaga kaasa märkimisväärse ökoloogilise jalajälje vähenemise fossiilkütuste kasutamise ja CO2 emissioonide vähendamise näol.*

Patent search results:

RINA HELLAS LTD: EP4230574A1; SHANGHAI CRRC HANGE SHIP AND OCEAN ENG CO LTD: CN115503924A; UNIV JIMEI: CN115566661A; UNIV QINGDAO SCIENCE & TECHNOLOGY: CN111854327A, CN113914940A; UNIV DALIAN MARITIME: CN110304228A, CN210212742U; UNIV SHANDONG SCIENCE & TECH: CN117682035A; NO 704 RES INST CHINA SHIPBUILDING INDUSTRY CORP: CN115313352A; WUHAN CHANGHAI SHIP TECH DEVELOPMENT CO LTD: CN117262182A; KOREA MARINE EQUIPMENT RES INSTITUTE: KR102352046B1; UNIV JIANGSU SCIENCE & TECH: CN115195986A; GUANGDONG ZHONGJIANG BOAT TECH CO LTD: CN218085992U; JIANGSU MODERN SHIPBUILDING TECH LTD: CN219506213U; UNIV HARBIN ENG: CN116729609A; UNIV SHANGHAI JIAOTONG: CN116050796A; JEIL JINGONG PUMP CO LTD: KR20230174441A; NAT UNIV PUSAN IND UNIV COOP FOUND: KR102226245B1, KR102122023B1; UNIV ULSAN FOUND IND COOP: KR102308428B1; UNIV TIANJIN: CN116344871A; DAEWOO SHIPBUILDING & MARINE: KR20220126829A, KR102510675B1, KR102506797B1; YANMAR POWER TECHNOLOGY CO LTD: JP2020149904A, JP2020149903A, JP2020149902A; MITSUI E&S SHIPBUILDING CO LTD: WO2018163717A1, KR102456736B1.

The family of patent applications by Baltic Workboats AS potentially related to Project 92:

EP2826702A1 (EP2826702B1, ES2719688T3, HRP20190148T1, LT2826702T, PL2826702T3).

Japanese Project Reaches Milestone in Design of Hydrogen-Fueled Tanker.

Project 93: "*Kõrgtemperatuurilise ülijuht tehnoloogial põhineva tuulegeneraatori arendus*". Enterprise: Eleon Capital OÜ

Abstract, [ENG]: The goal of the project is to develop and test in laboratory conditions a novel model of a direct-drive wind turbine generator based on high-temperature superconducting technology suitable for serial production in wind energy, which would be smaller in size, lighter in weight compared to a permanent magnet generator, and would not require permanent magnets.

Original project title, [ENG]: Development of a wind generator based on high-temperature superconducting technology.

Original abstract, [EE]: *Projekti eesmärgiks on arendada välja ja laboritingimustes testida uudne, tuuleenergeetikas seeriatootmisse sobiv kõrgtemperatuulilisel ülijuht tehnoloogial põhinev otseveoga tuuliku generaatori mudel, mis oleks püsimagnet generaatoriga võrreldes mõõtmetelt väiksem, kaalult kergem ja ei vajaks püsimagneteid.*

Patent search results:

UNIV CHINA PETROLEUM: CN102710200A; BEIJING MILESTONE SCIENCE & TE: CN101539110A; GAMESA INNOVATION AND TECH S L: CN107800257A; MASSACHUSETTS INST TECHNOLOGY: WO2023034257A1, WO2022173717A1; FUNDACION TECNALIA RES & INNOVATION: EP2521252A1; US2014009014A1; CN110289636A; GEN ELECTRIC: WO2022197287A1, CN114041259A, US11261847B2, CN112585845A, US11128231B2, CN112600389A, US2010058806A1, EP3719302A1, EP3719948A1, CN112189299A, WO2023287397A1, US10910920B2, US2009224550A1, WO2023107095A1, KR102622718B1; INDUSTRY ACADEMIC COOPERATION FOUNDATION JEJU NATIONAL UNIV: WO2023033407A1; UNIV ZHEJIANG: CN106253322A; AMERICAN SUPERCONDUCTOR CORP: JP2013506400A; GENERAL ELECTRIC RENOVABLES ESPANA S L U: KR20220097261A, US11387699B2; UNIV HUNAN: US2023341180A1; GUODIAN UNITED POWER TECH CO: CN102593870A; MINGYANG SMART ENERGY GROUP CO LTD: CN220826485U; CHINA SOUTHERN POWER GRID ELECTRIC POWER TECH CO LTD: CN113054797A, CN113048010A, CN113067401A; UNIV NANJING POSTS & TELECOMMUNICATIONS: CN114784858A; ENVISION ENERGY DENMARK APS: US2020169158A1, US10601298B2; UNIV NORTH CHINA ELECTRIC POWER: CN114498756A.

Final Report Summary – SUPRAPOWER (SUPerconducting, Reliable, lightweight, And more POWERful offshore wind turbine).
Beyond 15 MW: A cost of energy perspective on the next generation of drivetrain technologies for offshore wind turbines.
Superconducting Generators for Offshore Wind Turbines.
High Efficiency Ultra-Light Superconducting Generator (SCG) for Offshore Wind.
Wind Manufacturing and Supply Chain.

Project 94: "*Raskes kütteõlis ja alternatiivses väävlirikkas kütuses väävli sisalduse vähendamise tehnoloogia*". Enterprise: Elteks Group OÜ

Abstract, [ENG]: Carbon emissions from refineries associated with reducing the sulfur content of heavy fuel oil have increased by 323 million tons per year. This prompts the search for alternative methods of cleaning fuels from excess sulfur. Stricter environmental standards and today's fuel purification technologies create the prerequisites for the commercialization of new technological solutions. The aim of this project is to develop technological foundations and a model for reducing the sulfur content of heavy fuel oil.

Original project title, [ENG]: Technology for reducing sulfur content in heavy fuel oil and alternative high-sulfur fuel.

Original abstract, [EE]: *Raskest kütteõlist väävlisisalduse vähendamisega seotud rafineerimistehaste süsinikuheide on suurenenud 323 miljonit tonni aastas. See paneb otsima alternatiivseid meetodeid kütuste puhastamiseks liigsest väävlist. Rangemad keskkonnanormid ja tänased kütuste puhastamise tehnoloogiad loovad eeldused uute tehnoloogiliste lahenduste kommertsialiseerimiseks. Käesoleva projekti eesmärgiks on töötada välja tehnoloogilised alused ning makett väävlisisalduse vähendamiseks raskest kütteõlist.*

Patent search results:

TOTAL RAFFINAGE CHIMIE: CA2957249A1; CHENGXI SHIPYARD CO LTD: CN111644060A; SHOWA SHELL SEKIYU: EP3549999A1; PETROCHINA FUEL OIL COMPANY LT: WO02074885A1; IDEMITSU KOSAN CO: JP3614876B2; CHEVRON RES: GB1205481A; SUMITOMO OSAKA CEMENT CO LTD: JPH109510A; INTERNATIONAL ULTRASONIC TECH INC: US11203724B2; NIPPON MITSUBISHI OIL CORP: JP2000239677A; CN101812314A; SK INNOVATION CO LTD: KR102549406B1; MOBIL OIL CORP: CN1244406C; HYDROCARBON RESEARCH INC: US3705849A; US2012091040A1; MITSUI MIIKE MACHINERY CO LTD: JPS5768121A; MITSUBISHI HEAVY IND LTD: JP2014126298A; EXXONMOBIL RES & ENG CO: ES2316351T3; GULF RESEARCH DEVELOPMENT CO: US3324028A; ATLANTIC RICHFIELD CO: GB1209967A; IDEMITSU KOSAN CO: JP2015193770A; S C DESAN PRODSERV COMINPEX SRL: RO117537B1; DUKE TECH LLC: US2019338205A1; US2021214634A1; PT110250A; TOTAL RAFFINAGE MARKETING: TW200932893A; INFINEUM INTERNATIONAL LTD: US12031099B2; DAEWOO SHIPBUILDING & MARINE: KR20220014727A; LUBRIZOL CORP: CA2782212A1; CHEVRON USA INC: KR101917198B1; MAGEMA TECH LLC: JP2022000526A; TW201012536A; GRUPO TRADEBE MEDIOAMBIENTE S L: ES2696986A1; SAUDI ARABIAN MINING COMPANY MAADEN: EP4252889A1; RENTECH INC: CA2842102A1; DESIGNER FUELS LLC: CA3145984A1.

Project 95: "*Development of novel underground pump-hydro energy storage solution*". Enterprise: Energiasalv Valdus OÜ (Zero Terrain OÜ)

Abstract, [ENG]: During the project, the Energiasalv will carry out applied research activities that will enable the technology of the unique pumped hydroelectric power plant to be raised to the prototype level.

Original abstract, [EE]: *Energiasalv valdus teostab projekti käigus rakendusuuringu tegevused, mis võimaldavad unikaalse pumphüdroelektrijaama tehnoloogia tõsta prototüüptasemele.*

Patent search results:

STX FRANCE SA: WO2015107097A1 (US2016341173A1, FR3016663B1, ES2791875T3, EP3094858B1, CN105917113A); JP2020033991A; CZ16132U1, CZ26969U1, CZ26968U1; MAGELLAN & BARENTS S L: WO2019202456A1 (US11365713B2, SG11202010032VA, MX2020010958A, KR20210008842A, KR102663650B1, JP7421814B2, EP3768967B1, CN112119213B, AU2019254045B2); 3R VALVE LLC: US11536240B1; US11846263B2; GB2511285A; ELLOMAY CAPITAL LTD: US2019331084A1; HARBIN MOTOR PLANT LTD RESPONSIBILITY COMPANY: CN216523606U; WUHAN IRON & STEEL CO LTD: CN116240461A; XIAN THERMAL POWER RES INST CO: CN116088296A; WO2021010510A1; TAISEI KENSETSU KK: JPH03147915A; UT BATTELLE LLC: US10696363B2; SEASON FARM BIOLOGY DYNAMO ELECTRIC CO LTD: CN115143015A; AU2017101203A4; CN114294165A; JP2019078149A; STATE GRID CORP CHINA: CN103362726A; KOREA ELECTRIC POWER CORP: KR102664459B1; PINGGAO GROUP CO LTD: CN109970119A; POWERCHINA CHENGDU ENGINEERING CORP LTD: CN114991095A.

U.S. Hydropower Market Report, 2023 Edition.

PRESS RELEASE: Energiasalv received support from the state for water storage technology development activities. "Energiasalv underground 500MW water storage to be built in Paldiski is a solution that will enable Estonia to switch to 100% independent renewable energy and in the future will ensure lower electricity prices for consumers than today. In order to build Estonia's first large-scale water storage, Energiasalv has developed Zero Terrain technology, which allows the world's most widely used large-scale water storage to be built in areas where it was previously not possible due to flat ground."

Patent application by Energiasalv Valdus OÜ potentially related to Project 95:

GB2600166A.

Project 96: "*Development of an AI-driven generative design algorithm of Flowstep UX Copilot prototype*". Enterprise: FlowstepDesign OÜ

Abstract, [ENG]: Our business idea is to create a generative UX design tool – Flowstep UX Copilot - to revolutionize the UX design field and facilitate the creation of better products, ten times faster. It analyses user interactions, feedback, and historical data to provide design suggestions aligned with user preferences. By automating repetitive tasks, we significantly enhance designer productivity, expediting the design process and making it more cost-effective.

Patent search results:

MICROSOFT TECHNOLOGY LICENSING LLC: US11962546B1; CAPITAL ONE SERVICES LLC: US2023334827A1; IBM: US11599339B2, CN112083923A; DELL PRODUCTS LP: US11861329B2, US11816420B2, US11775292B1; KYNDRYL INC: US2024053964A1; WEVO INC: US12032918B1, US2024144356A1, US11836591B1; BEIJING KUJILE TECH CO LTD: CN117234394A; BEIJING YINTAI CONSTRUCTION STRUCTURE TECH CO LTD: CN117974932A; GUANGDONG MORNING STAR TECH DEVELOPMENT CO LTD: CN117573904A; SHANXI WISDOM TECH CO LTD: CN117391122A; TAIKANG INSURANCE GROUP CO LTD: CN110457650A; TINTOLAB CO LTD: US2023351655A1; UNIV AJOU IND ACADEMIC COOP FOUND: WO2024111791A1; ORACLE INT CORP: US11157270B2; ADOBE INC: US10984069B2, US11704559B2; ENT SERVICES DEV CORP LP: US2021072960A1; VMWARE INC: US11847432B2; WIPRO LTD: EP3352091A1; BEIJING KINGSOFT INTERNET SECURITY SOFTWARE CO LTD: CN109710258A; SAP SE: US2018129480A1; CAPITAL ONE SERVICES LLC: US10853442B1; BANK OF AMERICA: US10698803B1; WO2019028247A1, US11561806B2; JIANGSU XCMG ENGINEERING MACHINERY RES INSTITUTE CO LTD: CN112732378A; TCL RES AMERICA INC: CN108268251A; UNIV GUIZHOU: CN109166180A; EYEEM MOBILE GMBH: US2016098844A1; SHANGHAI YISHENG INFORMATION TECH CO LTD: CN110807057A; CTBC BANK CO LTD: TWM646527U; TYPEFACE INC: US11809688B1; AMESITE INC: US2023215282A1.

Project 97: "*Müüontomograafilise tehnoloogia tootearendus ja tomograafiliste meetodite arendus*". Enterprise: GScan OÜ

Abstract, [ENG]: The goal of the project is to develop myontomographic technology from the level of an industrial prototype to a more mature product with better functionality, technically resistant to the environments of use required by customers. Two areas are seen as applications of micro-tomographic technology: a non-destructive method for illuminating infrastructure objects (e.g. buildings, concrete bridges, etc.) or in security services (e.g. through-lighting devices for trucks).

Original project title, [ENG]: Product development of micro-tomographic technology and development of tomographic methods.

Original abstract, [EE]: *Projekti eesmärgiks on arendada müüontomograafilist tehnoloogiat tööstusliku prototüübi tasemelt edasi küpsema toote poole, millel on paremad funktsionaalsusnäitajad, tehniliselt vastupidav klientide poolt nõutud kasutuskeskondadele. Müüontomograafilise tehnoloogia rakendustena nähakse kahte valdkonda: mitte-destruktiivne meetod infrastruktuuriobjektide (nt. ehitised, betoonsillad, jms) läbivalgustamiseks või julgestusteenistuses (nt. veoautode läbivalgustusseadmed).*

Patent search results:

ST NAZ DI ASTROFISICA: WO2017089932A2; ADVANCED APPLIED PHYSICS SOLUT: US2006180753A1; FEDERAL NOE G BJUDZHETNOE OBRAZOVATEL NOE UCHREZHDENIE VYSSHEGO PROFESSIONAL NOGO OBRAZOVANIJA NATSI: RU2008140853A; NEC CORP: JP7070791B2, JP2024039945A, JP7103508B2, JP7099619B2; BEIJING INST SPACECRAFT ENVIRONMENT ENGINEERING: CN115932989A; ADVANCED APPLIED PHYSICS SOLUT: US2006180753A1; UNIV LANZHOU: CN112697815A; MUON VISION INC: US11971373B2; TOSHIBA CORP: JP2023070871A; UNIV CHINA GEOSCIENCES WUHAN: CN116953770A; MICROELECTRONIC RES INSTITUTE OF CHINESE ACADEMY OF SCIENCES: CN114690255A; SHANDONG NUCLEAR POWER LTD COMPANY: CN114496322A; XIAN RESEARCH INSTITUTE OF CHINA COAL TECH & ENGINEERING GROUP CORP: CN115935120A; YUNNAN AEROSPACE ENG GEOPHYSICAL SURVEY INSPECTION CO LTD: CN117388937A; UNIV LANZHOU: CN115542410A; UNIV TSINGHUA: CN219039370U; DECISION SCIENCES INT CORP: US10872746B2.

Family of patent applications filed by GoSwift OÜ and its spin-off GScan OÜ, which might be connected to Project 97:

WO2019166669A1 (CN111801601A, US11774626B2, JP7258365B2, EP3759526A1).

GScan OÜ: Methodological development of NDT measurement capabilities using Muon Flux Technology – most likely pilot "small RUP" (up to 150 k support) preceding Project 97.

Project 98: "*Preclinical studies of a best-in-class drug targeting a tumor-specific antigen Claudin 6 (CLDN)*". Enterprise: Icosagen Cell Factory OÜ

Abstract, [ENG]: The aim of the project is to develop a biological drug candidate for the treatment of malignant tumors, the targets of which are CLDN6 and CD3 proteins. The project is based on antibodies created by the applicant, which have a unique selectivity profile for the CLDN6 protein. By the end of the project, technology completion level TRL5 will be reached. As a result of the project, safety and toxicity studies of the drug candidate in animal models are carried out and documentation is prepared for entering the first phase of clinical trials.

Original abstract, [EE]: *Projekti eesmärk on välja töötada bioloogiline ravimikandidaat pahaloomuliste kasvajate raviks, mille sihtmärkideks on CLDN6 ja CD3 valgud. Projekt põhineb taotleja poolt loodud antikehadel, millel on unikaalne selektiivsusprofiil CLDN6 valgu suhtes. Projekti lõpuks jõutakse tehnoloogia valmidusastmele TRL5. Projekti tulemusena viiakse läbi ravimikandidaadi ohutus- ja toksilisusuuringud loomamudelites ning valmistatakse ette dokumentatsioon kliiniliste uuringute esimesse faasi sisenemiseks.*

Patent search results:

GANYMED PHARMACEUTICALS AG: EP2591003A1, EP2398902A1, EP3026064A1; BIONTECH AG: CN110023336A, US10093736B2, WO2014075697A1; BIONTECH CELL & GENE THERAPIES GMBH: US11345731B2; NANJING LEGEND BIOTECH CO LTD: WO2024022512A1; NOVARTIS AG: EP3119423A2; CHUGAI PHARMACEUTICAL CO LTD: CN115397855A; UNIV STUTTGART: US2022396635A1; UNIV GUANGZHOU MEDICAL: US2022356243A1; UNIV CALIFORNIA: EP3826667A2, WO2024035787A2; ASTELLAS PHARMA INC: JP2023103315A; UNIV TOKYO: JP5848863B2; CALIFORNIA UNIV BOARD: CN114206934A; INTEGRAL MOLECULAR INC: KR20210128443A; NOVAROCK BIOTHERAPEUTICS LTD: KR20240073008A; HEALTH RESEARCH INC: WO2023064899A1; INTEGRAL MOLECULAR INC: WO2024118771A1.

Academic posters and publications:

CTIM-76, a Highly Specific Claudin 6 Antibody by Integral Molecular & Context Therapeutics

A phase I/II dose escalation trial with expansion cohorts to evaluate safety and preliminary efficacy of BNT142 in patients with prospectively confirmed claudin 6-positive solid tumors by BioNTech.

Stadler, Şahin et al., (2024). Preclinical efficacy and pharmacokinetics of an RNA-encoded T cell–engaging bispecific antibody targeting human claudin 6 (by BioNTech, HI-TRON, and TRON gGmbH).

Project 99: "*Development of phage display technology for artificial modular antibody fusions targeting the DISORDERered proteOME for novel In Vitro Diagnostics assays (DISORDEROME)*". Enterprise: Icosagen Cell Factory (ICF) OÜ

Abstract, [ENG]: The goal of the project is to develop next-generation phage display technology - special antibody-based collections to detect specific unstructured linear regions of proteins better than before. ICF would use this novel technology to strengthen the value proposition of antibody discovery services by providing customers with novel modular antibody fusion molecules (MAbFs) that are faster to manufacture and validate and work more reliably in diagnostic applications.

Original abstract, [EE]: *Projekti eesmärk on välja töötada järgmise põlvkonna faagkuvamise tehnoloogia - spetsiaalsed antikehadel põhinevad kogud, et tuvastada valkude spetsiifilisi mittestruktureeritud lineaarseid piirkondi senisest paremini. ICF kasutaks seda uudset tehnoloogiat antikehade avastamise teenuste väärtuspakkumise tugevdamiseks , pakkudes klientidele uudseid modulaarseid antikehade liitmolekule (MAbF), mille tootmine ja valideerimine on kiirem ja mis töötavad diagnostilistes rakendustes usaldusväärsemalt.*

Patent search results:

BIOCRUCIBLE CO LTD: WO2021094746A1 (CN114945682A, US11807899B2, MX2022005677A, KR20220113948A, JP2023501002A, IL292885A, EP4058599A1, CA3157435A1, BR112022009072A2, AU2020382121A8); WHITEHEAD INST BIOMEDICAL RES: WO2019183552A2 (US2022120736A1, TW202003051A, SG11202009359WA, KR20210070233A, JP2024029228A, JP2021535737A, IL277533A, EP3768329A4, CN113164622A, CA3094974A1, AU2019239084A1), US2023236190A1; XL PROTEIN GMBH: WO2022136582A1; UNIV WYOMING: US2023054359A1; INSTITUTE FOR CANCER RES: US10436795B2; UNIV PRINCETON: EP3743435A2, WO2022159642A2, US11053492B2, WO2021243050A1; UNIV CITY NEW YORK RES FOUND: US2018003705A1; UNIV CALIFORNIA: US2021269504A1; UNIV TSINGHUA: CN110794129A; ETH ZUERICH: WO2020048996A1; FUNDACION PARA LA INVESTIG BIOMEDICA: CN117396756A; UNIV ROCKEFELLER: US2023061804A1; ASKGENE PHARMA INC: WO2019152827A1, WO2021216468A1; IMMUNOCORE LTD: US12018062B2.

Dunker et al., (2001). Intrinsically disordered protein.

Academic publications potentially linked to Project 99:
Ivarsson, Teyra et al., (2014). Large-scale interaction profiling of PDZ domains through proteomic peptide-phage display using human and viral phage peptidomes.

Project 100: "*3D imaging for increasing safety and efficiency of service robots and vehicles in variable conditions (SAFE-SIGHT)*". Enterprise: LightCode Photonics OÜ

Abstract, [ENG]: LightCode Photonics OÜ will conduct application research on technology solutions that allow the development of a 3D camera that is able to operate in high ambient light conditions. As a result of the SAFE-SIGHT project, LightCode will develop a 3D camera's proof-of-concept (PoC) breadboard model, that operates in an outdoor environment and also conforms to safety standards. In addition, three new patent applications will be submitted to protect its intellectual property.

Patent search results:

AEYE INC: WO2023114253A1; ECOLE POLYTECHNIQUE FED LAUSANNE EPFL: EP3987305A1; SHANGHAI WANSHONG MICROELECTRONICS TECH CO LTD: CN114167388A; SHENZHEN ANGSTRONG TECH CO LTD: CN114076957A; SHANGHAI DAOSENSING MICROELECTRONICS TECH CO LTD: CN113777583A; SAMSUNG ELECTRONICS CO LTD: US11443447B2; CONTINENTAL ADVANCED LIDAR SOLUTIONS US LLC: US2022035006A1; HUAWEI TECH CO LTD: CN114518581A; TEXAS INSTRUMENTS INC: US11428790B2; GM GLOBAL TECH OPERATIONS LLC: WO2020077064A1; NEC CORP: US2024094387A1; HUAWEI TECH CO LTD: WO2022017366A1; UNIV SCIENCE & TECHNOLOGY CHINA: CN112698307A; UNIV SCIENCE & TECHNOLOGY CHINA: CN111880194A; UNIV SCIENCE & TECHNOLOGY CHINA: CN110187357A; KOREA ADVANCED INST SCI & TECH: KR101318951B1; BEIJING INST CONTROL ENG: CN110553599A; UNIV WAYNE STATE: US2022252731A1; SEMIKING LLC: US2021341619A1; SENSL TECHNOLOGIES LTD: CN110073244A; LUMINAR TECH INC: CN110651200A; VOXTEL INC: US10523884B2; APPLE INC: CN111465870A; SZ DJI TECHNOLOGY CO LTD: WO2020062080A1; AMS SENSORS SINGAPORE PTE LTD: WO2021256990A1; US2014226166A1; SHENZHEN ADAPS PHOTONICS TECH CO LTD: CN112558096A; ECOLE POLYTECHIQUE FED DE LAUSANNE EPFL TTO: US2021072360A1; UNIV BARCELONA: WO2017134023A1; FASTREE3D SA: WO2022253422A1; SHENZHEN FORTSENSE CO LTD: CN112804512A.

Patent applications by LightCode Photonics OÜ potentially related to Project 100:

WO2022224037A1, GB2601476A, WO2024013142A1, WO2023012517A1.

Project 101: "*Isekohanev juhtsüsteem autonoomsete robotlaevade dünaamiliseks juhtimiseks*". Enterprise: Mindchip OÜ

Abstract, [ENG]: Together with Tallinn University of Technology, MindChip OÜ has developed an autonomous robot ship control concept based on machine learning algorithms, which theoretically allows small robot ships to anticipate the effects of wind and waves, thus increasing their navigation accuracy in rapidly changing environmental conditions. These models need validation, refinement and integration on a real test platform during applied research project.

Original project title, [ENG]: A self-adaptive control system for dynamic control of autonomous robot ships.

Original abstract, [EE]: *MindChip OÜ on koos Tallinna Tehnikaülikooliga välja töötanud masinõppealgoritmidel põhineva autonoomse robotlaeva juhtimiskontseptsiooni, mis teoreetiliselt võimaldab panna väikerobotlaevad ennetama tuule ja lainetuse mõju suurendades nõnda nende navigeerimis täpsust kiirelt muutuvates keskkonna tingimustes. Need mudelid vajavad rakendusuuringu käigus valideerimist, täpsustamist ning reaalsel testplatvormil integreerimist.*

Patent search results:

MYTHOS AI INC: WO2023154498A1; INTEL CORP: US11663456B2; ASTRA NAVIGATION INC: US11725946B2; FORSSEA ROBOTICS: FR3055607A1; UNIV NANJING SCIENCE & TECH: CN105752280A; UNIV GUANGDONG OCEAN: CN215752931U; ZHUHAI YUNZHOU INTELLIGENCE TECHNOLOGY COMPANY LTD: WO2015154546A1; ANHUI COWIS INTELLIGENCE TECH CO LTD: CN204937441U, CN104960651A; SHENYANG INST AUTOMATION: CN104683019A; CN106357752A; THREE GORGES NAVIGATION AUTHORITY: CN116500894A; UNIV HOHAI: GB2581669A; NO 708 INSTITUTE OF CHINA STATE SHIPBUILDING CORPORATION LTD: CN116374097A; UNIV JIANGSU SCIENCE & TECH: CN116424501A, CN112130575A, CN114047699A; UNIV SOUTH CHINA TECH: CN114035585A; CHINA SHIP DEV & DESIGN CT: CN115900932A; UNIV NANJING INFORMATION SCIENCE & TECH: CN116400591A; UNIV DALIAN MARITIME: CN110362089A, CN115328126A, CN111897225A, CN111290387A, CN112782981A, CN109634289A; UNIV SHANGHAI JIAOTONG: CN116054204A; UNIV SHANGHAI MARITIME: CN113031614A; POWERVISION TECH INC: CN108536140A; CHINA SHIP SCIENT RES CT: CN115871890A; DAEWOO SHIPBUILDING & MARINE: KR102644038B1, KR102587291B1, KR20170088124A, KR20170088123A; KR102122715B1; UNIV WUHAN TECH: CN110715663A; UNIV ZHEJIANG: CN108363407A; BEIJING ZHONGKE YONGQUAN TECHNOLOGY DEV CO LTD: CN104777833A; BIENSYS CO LTD: KR102083167B1; NAT OCEAN TECHNOLOGY CT: CN116489045A; CSSC MARINE TECHNOLOGY CO LTD: CN112665588A; UNIV FUZHOU: CN109941412A; CHONGQING VEAGLES TECH CO LTD: CN106444787A; UNIV HARBIN ENG: CN112241176A; AP MOELLER MAERSK AS: EP3436339A1.

Project 102: "*Myceen – süsiniknegatiivsete seenematerjalide arendus ja uuendusliku tööstustehnoloogia loomine*". Enterprise: Myceen OÜ

Abstract, [ENG]: Myceen is engaged in the creation of environmentally friendly materials and products, valorizing local organic residues by combining them with mycelium. The result is new durable, biodegradable and good building materials. The aim of the project is to carry out research and development work for the creation of innovative and environmentally friendly mushroom materials and their industrial technologies.

Original project title, [ENG]: Myceen - development of carbon-negative fungal materials and creation of innovative industrial technology.

Original abstract, [EE]: *Myceen tegeleb keskkonnasõbralike materjalide ja toodete loomisega väärindades kohalikke orgaanilisi jääke kombineerides need seeneniidistikuga. Tulemuseks on uued vastupidavad, biolagunevad ja heade omadustega ehitusmaterjalid. Projekti eesmärk on viia läbi teadus- ja arendustöö uuenduslike ja keskkonnasõbralike seenematerjalide ning nende tööstustehnoloogiate loomiseks.*

Patent search results:

UNIV JILIN AGRICULTURAL: CN115746386A, CN115850987A; THE FYNDER GROUP INC: WO2023240072A2, WO2020257320A1; ORB TECH LLC: US12031330B2; NOLAX AG: CN110730807A; US2023278255A1; CELSION BRANDSCHUTZSYSTEME GMBH: EP4144821B1; TIANJIN INST IND BIOTECHNOLOGY CAS: WO2022068091A1; US2023056266A1; UNIV SICHUAN: CN116444846A; MYCOWORKS INC: US2023276749A1; M I S ELECTRONICS INC: CA3115538A1; HANGZHOU XINYANG INSULATION ENERGY SAVING BUILDING MAT CO LTD: CN106380166A; BANNERBIO NUTRACEUTICALS INC: CN217578876U; US2016355779A1; ZHEJIANG BAISHANZU BIOLOGICAL TECH CO LTD: CN116478979A; PT117164A; UNIV OF ALASKA ANCHORAGE: CN108699507A; CN103159433A; NANJING UNIVERSITY OF TECHNOLOGY: CN116272924A; ZHONGSHAN TORCH POLYTECHNIC: CN117568186A; GANSU ACADEMY SCIENCES INST BIOLOGY: CN113501994A; MOGU S R L: US2022025318A1; US11866691B2; FONDAZIONE ST ITALIANO TECNOLOGIA: EP4179009A1; US ARMY: US5786188A; ECOVATIVE DESIGN LLC: WO2020154722A1; NEFFA HOLDING BV: US2023295848A1; UNIV JIANGNAN: CN117965658A.

Project 103: "*Development of first-in-class products for enhanced wound healing*". Enterprise: Nanordica Medical OÜ

Abstract, [ENG]: Nanordica Medical OÜ is a medical technology company dedicated to developing advanced wound care products. The main goal of the EAS RUP project is to develop first-in-class nanofibers for enhanced wound healing that have antibacterial and regenerative properties and can be used in all wounds until wound closure. As a result of the project, several product candidates will be developed and evaluated for wound infection prevention and enhanced wound healing properties.

Patent search results:

UNIV LIEGE: EP2575905A1; UNIV CALIFORNIA: WO2017120342A1; T&L CO LTD: KR102268976B1; JIANGXI XIAN CAI NANOFIBERS TECH CO LTD: CN110184705A; AGIENIC INC: WO2012162557A1; ARGAMAN TECH LTD: US11224227B2, CA3199096A1, US2018028712A1; TYCO HEALTHCARE: CA2646289A1; UNIV SOUTH CHINA TECH: CN108201481A; US10092673B2; ROHM & HAAS: KR100693383B1; COVIDIEN LP: AU2006270308A1; DATT MEDIPRODUCTS PVT LTD: EP3281614A1; AURASENSE THERAPEUTICS LLC: WO2016004168A1; UNIV GUANGDONG PHARM: CN112709013A; UNIV HENAN URBAN CONSTRUCTION: CN108684705A; LG ELECTRONICS INC: EP4385605A1; WOONGJIN CHEMICAL CO LTD: KR101309546B1; SHANGHAI JIESHENGYUAN TECH CO LTD: CN105200663A; UNIV CHONGQING MEDICAL: CN116492516A; ZHEJIANG JINCAI NEW MAT CO LTD: CN109943898A; UNIV ANHUI MEDICAL: CN117883240A; NAT UNIV DONG HWA: CN106860906A; UNIV YILDIZ TEKNIK: WO2023146490A1; UNIV MANITOBA: US10973775B2; CONVATEC TECHNOLOGIES INC: CN107708754A; UNIV NEBRASKA: WO2020159946A1; UNIV DEGLI STUDI DI PAVIA: US11801328B2; ZEWAIL CITY OF SCIENCE AND TECH: GB2572566A; MATOKE HOLDINGS LTD: EP3253424A1; PUKYONG NATIONAL UNIV INDUSTRY UNIV COOPERATION FOUNDATION: WO2024143784A1; UNIV AJOU IND ACADEMIC COOP FOUND: KR102358610B1; UNIV SICHUAN: CN116726229A; DALIAN CUSTOMS TECH CENTER: CN110318160A; UNIV NANTONG: CN117398498A, CN114344546A; CHINESE ACAD TECH INST PHYSICS: CN103451849A; UNIV YONSEI IACF: KR102130119B1.

Family of patent applications filed by Nanordica Medical OÜ, which might be connected to Project 103:

EP3789046A1, WO2022224142A1 (US2024041047A1, EP4326353A1, DE102022109392A1).

Project 104: "*Mahekaera väärindamise tehnoloogia edasiarendus*". Enterprise: Tulundusühistu WIRU VILI

Abstract, [ENG]: Tulundusühistu Wiru Vili is a cooperative of organic grain producers, which has been operating since 2010 with the sale of grain and legumes. Estonian grain and legume growers mainly market their crops as raw materials, WV plans to change this for its production, and start producing various oat preparations (for example, oat protein, oil, starch), which could be used in the future in the production of plant-based meat and milk alternatives.

Original project title, [ENG]: Further development of organic oat valorization technology.

Original abstract, [EE]: *Tulundusühistu Wiru Vili on maheteraviljatootjate ühistu, kes tegutseb juba aastast 2010 tera- ja kaunvilja müügiga. Eesti tera- ja kaunvilja kasvatajad turustavad oma saake peamiselt toorainena, WV plaanib seda oma toodangu puhul muuta, ning hakata tootma erinevaid kaerapreparaate (näiteks kaeravalk,-õli, tärklis), mida saaks edaspidi kasutada taimsete liha-ning piimaalternatiivide tootmistes.*

Patent search results:

UNIV ALBERTA: WO2022011475A1; RIPPLE FOODS PBC: CA3141076A1; JIAMUSI DONGMEI SOYBEAN FOOD CO LTD: CN112868707A; PROTEIN TECH INT: JP3502126B2; INNER MONGOLIA YILI IND GROUP: CN112674283A; PROVALOR BV: EP2112885A1; QINGHAI HEJIE BIOLOGICAL PRODUCTS CO LTD: CN106490626A; FLOTTWEG GMBH: EP0859794A1; ENERGETICS: EP0517831A1; BIOGEMMA FR: US2005246792A1; KEEN INGREDIENTS INC: US2010184963A1; RU2275050C1; LANGHAUSER ASSOCIATES INC: US2004187863A1; STAERKE & KARTOFFELVER VEB: EP0221427A2; LURGI PSI INC: WO0158467A1; INSTITUTE OF FUNCTIONAL FOOD OF SHANXI SHANXI AGRICULTURAL UNIV: WO2023115392A1; LEE TECH LLC: US2023285979A1; BIOREFINING INC: WO2006086757A2; WO2014200918A1; NESTLE SA: CN111372474A; SMARTFLOW TECH INC: US11839856B2; ENERGENETICS INC: US5410021A; BIOVELOP INTERNAT B V: EP1706001A1; BIOGEMMA FR: CA2496760A1; CARGILL INC: WO0155283A1; UNIV ANYANG NORMAL: CN111011517A.

Project 105: "*VKG Plastic OÜ plastijäätmete eeltöötluse ja keemilise ringlussevõtu tehnoloogia arendus*". Enterprise: VKG Plastic OÜ

Abstract, [ENG]: The project will carry out applied research and technology, process and product development, within the framework of which the technology of plastic waste pretreatment and chemical recycling will be developed.

Original project title, [ENG]: VKG Plastic OÜ development of plastic waste pretreatment and chemical recycling technology.

Original abstract, [EE]: *Projektis viiakse läbi rakendusuuring ning tehnoloogia-, protsessi- ja tootearendus, mille raames arendatakse plastijäätmete eeltöötluse ja keemilise ringlussevõtu tehnoloogiat.*

Patent search results:

TALLINNA TEHNIKAUELIKOOL: EE01468U1: SABIC GLOBAL TECHNOLOGIES BV: WO2023279022A1; NIPPON SHOENE KANKYO SEIHIN KK: JP2001059089A; CHEVRON PHILLIPS CHEMICAL CO LP: US11746297B2; DOW GLOBAL TECHNOLOGIES LLC: WO2023245044A1; PULSE ENERGY CO LTD: BRPI0621931A2; BASF SE: EP3907267A1; EASTMAN CHEM CO: CN114746531A; CHEVRON USA INC: CN114867822A; BASF SE: WO2024056515A1; ESCHERMANN CHEMICAL COMPANY: CN114630883A; BASF SE: WO2023072644A1; UOP LLC: AU2021306370A1; NYNAS AB PUBL: WO2024104980A1; JGC CORP: WO2023188380A1; TOTALENERGIES RAFFINAGE CHIMIE: WO2022162298A1; TOTALENERGIES ONETECH: WO2024068800A1; SHELL OIL CO: US11920094B2; RIGORTECH SDN BHD: US2023079076A1; RADICAL PLASTICS INC: US11926798B2; VALTION TEKNILLINEN: WO2009047387A1; BASELL POLIOLEFINE ITALIA SRL: WO2023187098A1; BRASKEM SA: WO2024057098A1; EXXONMOBIL CHEMICAL PATENTS INC: US2024084095A1; SAUDI BASIC IND CORP: EA033376B1; MONTANUNIV LEOBEN: WO2023169691A1; CHINESE PETROCHEMICAL INDUSTRY LTD COMPANY: CN114507542A; CHINA PETROLEUM & CHEM CORP: WO2024037592A1; INEOS STYROLUTION GROUP GMBH: CN110869428A; OMV REFINING & MARKETING GMBH: RS54535B1; PLASTIC ENERGY LTD: WO2023161414A1; BLUEALP INNOVATIONS B V: EP4349938A1; FUTURE ENERGY INVEST PTY LTD: US2019275486A1.

Patent/utility model family by Viru Keemia Grupp (VKG) AS potentially related to Project 105:

EE01210U1, EE200900037A, EE05565B1.

RUP funding round VI: Enterprises, Projects Information and Patent Search Results

Project start	Project end	Project name	Enterprise	Project funding
05.04.2024	31.03.2027	***106:*** *Lifeyear digital clinic*	Activate Health OÜ	1 373 038,40
01.06.2024	31.12.2025	***107:*** *Elektriseadmete optimeerimine ja tarbijate energiahinna vähendamine tuleviku energiasüsteemis*	Eesti Energia AS	660 751,75
01.07.2024	31.12.2025	***108:*** *KevadBio*	GeneCode AS	1 567 121,90
01.10.2024	31.03.2027	***109:*** *Elektrivõrkude läbilaskevõime suurendamine masinõppega erinevates piirkondades*	Grid Oracle OÜ	1 480 367,25
01.07.2024	30.06.2027	**110:** Personaaliseeritud vaimse heaolu juht ja varamu	HeBA Clinic OÜ	1 982 773,07
01.05.2024	30.04.2026	**111:** Establishment of a Cell Therapy Center for Personal Chimeric Antigen Receptor (CAR) T Cell Therapy in Estonia (CARTEST)	Icosagen Cell Factory OÜ	1 386 768,73
01.07.2024	30.06.2026	***112:*** *Forest Volume and Carbon Stock Modelling Based on Satellite Observations to Accelerate the Green Transition and Enhance Carbon Market Transparency (SAR4EST)*	KappaZeta OÜ	718 235,50
01.10.2024	01.07.2026	**113:** MenkenMONITOR: AI-driven automated monitoring tool for improved quality and efficiency in clinical research	Menken OÜ	933 249,72
01.08.2024	31.10.2026	**114:** Implementation study of digital chronic pain clinic components	Migrevention OÜ	740 671,90
08.04.2024	07.10.2026	**115:** SLUDGE MASTER (Preservation, long-term storage and revitalization of vacuum freeze-dried activated sludge for rapid inoculation of the SPACEDRIP membrane bioreactor and development of a waste activated sludge dewatering and heat recovery system)	Spacedrip OÜ	1 206 063,37
02.09.2024	01.09.2027	**116:** Beyond-the-pill / Tabletist-kaugemale tehnoloogiline platvorm ja innovatsioon	Techture OÜ	597 193,58

Data source: https://eas.ee/wp-content/uploads/2024/07/rup-projektide-ulevaade-kuni-10.07.24.xlsx

Project 106: "*Lifeyear digital clinic*". Enterprise: Activate Health OÜ

Abstract, [ENG]: Lifeyear is digitalizing heart disease prevention and treatment by building the world's first digital heart clinic. Lifeyear's digital clinic brings together several innovative technologies and medical interventions to create patient-centered care journeys that improve adherence and enable physicians to treat more patients without increasing workload.

Original abstract, [EE]: *Lifeyear digitaliseerib südamehaiguste ennetust ja ravi, ehitades maailma esimest digitaalset südamekliinikut. Lifeyear digikliinik toob kokku mitmed uuenduslikud tehnoloogiad ja meditsiinilised sekkumised, et luua patsiendikeskseid raviteekondi, mis parandavad ravisoostumust ja võimaldavad arstidel ravida suuremat hulka patsiente ilma töökoormust tõstmata.*

Patent search results:

APRICITY HEALTH LLC: US2021057056A1; ECEN INC: KR20230016761A; UNIV KWANGWOON IND ACAD COLLAB: KR102430758B1; UNIV CHANG GUNG: TW201351338A; SUN GENERAL HOSPITAL: KR101400028B1; KR102312596B1; NAYYA HEALTH INC: WO2023163885A1, US11551312B1; CERA CARE CENTRAL LTD: GB2616248A; KR102517708B1; STATE FARM MUTUAL AUTOMOBILE INSURANCE CO: US11923086B2; MAHANA THERAPEUTICS INC: WO2022086781A1, US2022028528A1, US11967432B2, US11610663B2, WO2023133573A1; ODN CO LTD: US2023402142A1; UNIV DANKOOK CHEONAN CAMPUS IND ACADEMIC COOPERATION FOUNDATION: KR20230149384A; VIGNET INC: US11302448B1, US10938651B2, US11841787B1; KOREA ADVANCED INST SCI & TECH: US2023268080A1; DEEPWELL DTX: WO2023168435A1; COGNOA INC: US2019019581A1; HEALING SOUND CO LTD: KR102661561B1; US11963738B2; LEMON HEALTHCARE LTD: KR102626457B1; PHI DIGITAL HEALTHCARE INC: KR102636838B1, KR102636860B1, KR102570479B1; DAEGU GYEONGBUK INST SCIENCE & TECH: US2022392647A1, KR20220159867A; ROWAN INC: WO2024029820A1; STARLIKE INC: KR102670189B1; VDP LABS INC: KR102646733B1; NEUROSKY INC: CN104640498A; US2021217531A1; SHENZHEN YUNTONG WANXUN TECH (SHENZHEN) CO LTD: CN106551688A; UNIV CHONGQING CN116469520A; PREVENTICE SOLUTIONS INC: US11839479B2, EP4145462A1, US2022013240A1; BOSTON SCIENT CARDIAC DIAGNOSTICS INC: US2024221537A1; TATA CONSULTANCY SERVICES LTD: US2021000356A1; BODYMATTER INC: US10786161B1; INSPIRE MEDICAL SYSTEMS INC: AU2016353346A1; ARRHYTHMIA NETWORK TECH S L: ES2958111A1; CARDIAC PACEMAKERS INC: CN109843166A; CHECK POINT R AND D LTD LIABILITY COMPANY: WO2017143411A1; D&J HUMNACARE: KR102043239B1; APPLE INC: CN107106054A; MERMAID CARE AS: EP3076862A1.

Lifeyear – Activate Health OÜ operates the website https://lifeyear.com/.

World Heart Federation – Roadmap for Digital Health in Cardiology.

Project 107: "*Elektriseadmete optimeerimine ja tarbijate energiahinna vähendamine tuleviku energiasüsteemis*". Enterprise: Eesti Energia AS

Abstract, [ENG]: The aim of the project is to conduct an application study, as a result of which the most profitable or cost-effective mode of electricity consumption and production will be found for customers' high-consumption domestic electrical appliances. Also, in the course of the project, models for forecasting customers' electricity consumption will be created, with the help of which it will be possible to reduce the imbalance cost resulting from the inaccuracy of the forecast when trading on the energy market and to offer customers a more favorable electricity price.

Original project title, [ENG]: Optimizing electrical equipment and reducing energy prices for consumers in the energy system of the future.

Original abstract, [EE]: *Projekti eesmärgiks on läbi viia rakendusuuring, mille tulemusena leitakse klientide suure tarbimisega koduste elektriseadmete jaoks kõige tulusam või kuluefektiivsem elektritarbimise ja -tootmise režiim. Samuti luuakse projekti käigus klientide elektritarbimise prognoosimise mudelid, mille abil on võimalik vähendada energiaturul kauplemisel prognoosi ebatäpsusest tulenevat ebabilansikulu ja pakkuda klientidele soodsamat elektrihinda.*

Patent search results:

COMMISSARIAT A IENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES: US2021203160A1; KOREA ENERGY CONVERGENCE ASS: KR20230027730A; KEPCO KDN CO LTD: KR101955504B1; KEPCO KDN CO LTD: KR20220000054A; STATE GRID GANSU ELECTRIC POWER CO ELECTRIC POWER RES INST: CN117691576A; UNIV SOUTHEAST: CN116960984A, CN114037505A, CN115358801A; UNIV SCIENCE & TECHNOLOGY CHINA: CN117634739A; RAONFRIENDS CO LTD: WO2023224387A1; STATE GRID LIAONING ELECTRIC POWER SUPPLY CO LTD: CN112102042A; UNIV NORTHEASTERN: CN115271948A; STATE GRID JIANGSU ELECTRIC POWER CO LTD TAIZHOU POWER SUPPLY BRANCH: CN117670403A; STATE GRID NINGXIA ELECTRIC POWER CO: CN117455138A; KOREA ELECTRONICS TECHNOLOGY: KR102420798B1; NAT UNIV PUSAN IND UNIV COOP FOUND: KR102257350B1; UNIV HOHAI: CN115271438A; UNIV SHANGHAI ELECTRIC POWER: CN113689031A; SHANGHAI ELECTRIC POWER UNIV: CN114663091A; UNIV NAT CHONNAM IND FOUND: KR101929994B1; UNIV NORTH CHINA ELECTRIC POWER: CN112651846A; WO2018020297A1; NANJING CHUNNING ELECTRIC POWER TECH CO LTD: CN112488744A; SIEMENS CORP: US2013046668A1; GREEN ENERGY INST: KR102184645B1; HITACHI LTD: WO2018078750A1; ITECH INC: KR102501163B1; IBT CO LTD: KR102295922B1, KR102234560B1; FUJITSU LTD: JP2017130183A.

Project 108: "*KevadBio*". Enterprise: GeneCode AS

Abstract, [ENG]: Amyotrophic lateral sclerosis (ALS), retinitis pigmentosa (RP), and inflammatory bowel disease (IBD) are devastating progressive diseases. GeneCode focuses on developing disease-modifying drugs to combat neurodegeneration. We have developed a platform of GDNF mimetics that translates the disease-modifying properties of GDNF into small molecules with drug-like properties that have significant potential to treat ALS, RP, and IBD.

Original abstract, [EE]: *Amüotroofiline lateraalskleroos (ALS), pigmentoosne retiniit (RP) ja põletikuline soolehaigus (IBD) on laastavad progresseeruvad haigusedi. GeneCode keskendub haigust modifitseerivate ravimite väljatöötamisele eesmärgiga võidelda neurodegeneratsiooni vastu. Oleme välja töötanud GDNF-i mimeetikumide platvormi, mis kannab GDNF-i haigust modifitseerivad omadused üle ravimilaadsete omadustega väikestele molekulidele, millel on märkimisväärne potentsiaal ravida ALS-i, RP-d ja IBD-d.*

Patent search results:

ZHEJIANG HISUN PHARM CO LTD: US2022177450A1; GLAXOSMITHKLINE IP DEV LTD: US2016271123A1; ARRAY BIOPHARMA INC: US11851434B2.

The publication by the authors of the Project 108: Neuroprotective potential of a small molecule RET agonist in cultured dopamine neurons and hemiparkinsonian rats.

The family of patent applications filed by GeneCode AS and potentially related to Project 108:
WO2024023284A1, WO2024023287A1, WO2024079351A1.

GeneCode received an Enterprise Estonia (EAS) R&D Grant 1.6 million euros to develop an innovative treatment for Amyotrophic lateral sclerosis (ALS), Retinitis pigmentosa (RP), and Inflammatory bowel disease (IBD).

Estonian GeneCode earns global acclaim for novel anti-Parkinson drug.

Kevad Bio.

Project 109: "*Elektrivõrkude läbilaskevõime suurendamine masinõppega erinevates piirkondades*". Enterprise: Grid Oracle OÜ

Abstract, [ENG]: Grid Raven (Grid Oracle OÜ) helps increase power grid capacity by 30% thanks to hyperlocal weather forecasting and a digital twin of the power grid. The biggest bottleneck in the deployment of renewable energy is the capacity of the electricity grid, but the construction of new lines requires decades. The RUP project is globally important for the introduction of renewable energy. During the project, we create machine learning models for weather forecasting in different geographical locations and validate the complete service with the client.

Original project title, [ENG]: Increasing the capacity of power grids with machine learning in different regions.

Original abstract, [EE]: *Grid Raven (Grid Oracle OÜ) aitab suurendada elektrivõrgu läbilaskevõimet 30% tänu hüperlokaalsete ilmastikuennustusele ning elektrivõrgu digitaalsele kaksikule. Taastuvenergia kasutuselevõtu suurim kitsaskoht on elektrivõrgu läbilaskevõime, kuid uute liinide ehitamine nõuab aastakümneid aega. RUP projekt on globaalselt oluline taastuvenergeetika kasutuselevõtu seisukohalt. Projekti käigus loome masinõppemudelid ilmaennustuseks erinevates geograafiliste asukohtades ja valideerime tervikteenuse kliendiga.*

Patent search results:

GUIZHOU POWER GRID CO LTD: CN111030098A; EXAMING & EX CT ULTRAHIGH VOLTAGE POWER TRANSMISSI: CN104166883A; RUIAN POWER SUPPLY COMPANY OF STATE GRID ZHEJIANG ELECTRIC POWER CO LTD: CN115796525A; NARI TECHNOLOGY CO LTD: CN112132325A; SANHE POWER TECH SHENZHEN CO LTD: CN116231871A; ABB SCHWEIZ AG: EP3671374A1; STATE GRID JIANGSU ELECTRIC POWER CO LTD ZHENJIANG POWER SUPPLY BRANCH: CN116822107A; CN114936450A; VCMY GUANGZHOU TECH SHARES CO LTD: CN117669386A; JIANGSU METEOROLOGICAL SERVICE CENTER: CN117972340A; DISTRO ENERGY B V: US2024087019A1; IHI TERRASUN SOLUTIONS INC: US2021344225A1; NANJING NANZI HUADUN DIGITAL TECH CO LTD: CN117249537A; LAKI POWER EHF: WO2022097178A1; STATE GRID CORP CHINA: CN110147931A; OUR NEXT ENERGY INC: WO2023244667A2; ZIBO POWER SUPPLY CO STATE GRID SHANDONG ELECTRIC POWER CO: CN105634012A; HAGER ELECTRO SAS: EP4383499A1; JIAOZUO POWER SUPPLY CO OF STATE GRID HENAN ELECTRIC POWER CO: CN116014797A; ABB POWER GRIDS SWITZERLAND AG: WO2020227476A1; SIEMENS GAMESA RENEWABLE ENERGY: EP4231476A1; CONDUCTIFY LTD: WO2021165688A1; SOLARCITY CORP: US10063053B2; GOOGLE INC: AU2014239934A1; NANJING INST TECH: WO2020143104A1; H2PRO LTD: WO2023181042A2; FUSHUN ELECTRIC POWER SUPPLY COMPANY OF STATE GRID LIAONING ELECTRIC POWER SUPPLY CO LTD: CN113962461A; MOIXA ENERGY HOLDINGS LTD: CN113169579A.

Project 110: "*Personaaliseeritud vaimse heaolu juht ja varamu*". Enterprise: HeBA Clinic OÜ

Abstract, [ENG]: The HeBA clinic in cooperation with the University of Tartu, Net Group and Katriito clinic are conducting a feasibility and application study to develop a personal mental well-being companion - a digital medical device that offers the user AI-based predictive analytics and action recommendations and self-development programs with a virtual assistant via a mobile app. It is a solution for working people with early detection of mental well-being disorders.

Original project title, [ENG]: A personalized mental wellness guide and repository.

Original abstract, [EE]: *HeBA kliinik koostöös Tartu Ülikooli, Net Group'i ja Katriito kliinikuga viivad läbi teostatuvus- ja rakendusuuringu, et töötada välja personaalne vaimse heaolu kaaslane - digitaalse meditsiiniseade, mis pakub kasutajale mobiiliäpi vahendusel AI-põhist ennustavat analüütikat ning tegevussoovitusi ja enesearengu programme koos virtuaalse assistendiga. See on lahendus töötavatele inimestele varakult tuvastatud vaimse heaolu häirete korral.*

Patent search results:

DAEGU GYEONGBUK INST SCIENCE & TECH: WO2024117566A1; S ALPHA THERAPEUTICS INC: EP4322174A1, US11903721B1, KR20240019053A; KR20240078075A; THE JOAN AND IRWIN JACOBS TECHNION CORNELL INST: US2021335498A1; HUMART COMPANY: KR20230090430A; VIGNET INC: US11616688B1, US11302448B1, US11456080B1; COGNOA INC: WO2017106770A1; MAHANA THERAPEUTICS INC: US11967432B2, US11610663B2; XIAMEN BONAI MODEL DESIGN CO LTD: CN112102907A; INSIGHT DIRECT USA INC: US2024120050A1, US2024120108A1; SHENZHEN QIXIN PSYCHOLOGICAL COUNSELING SERVICES CO LTD: CN117476179A; BEHAVIDENCE INC: US2023091240A1; MINDSTRONG HEALTH: US2020245949A1; MINDSTRONG INC: WO2020160293A1, US2017258382A1; ORANGEDOT INC: US2024177816A1; ELEUSIS HEALTH SOLUTIONS US INC: AU2018351515A1; INST OF PSYCHOLOGY CHINESE ACADEMY OF SCIENCES: CN104715129A; LIVNAO TECH CORP: WO2021144652A1; COGNIANT PTY LTD: WO2018102867A1; UNIV KWANGWOON IND ACAD COLLAB: KR102496561B1; FUTUREWEI TECHNOLOGIES INC: US10610109B2; COGITO CORP: US10276188B2; NANJING MENGBAO RUIBEI EDUCATION TECH CO LTD: CN108042146A; THE VISTA GROUP LLC: US2021118323A1; GINGERIO INC: US10748645B2; IESO DIGITAL HEALTH LTD: US2021082563A1; UNIV DUKE: US9483957B1, US11158403B1; HEALMED SOLUTIONS LLC: WO2021247792A1; CODEX CORP: US2013002433A1; CUTTING EDGE EHEALTH SOLUTIONS LLC: US2024000161A1.

Project 111: "*Establishment of a Cell Therapy Center for Personal Chimeric Antigen Receptor (CAR) T Cell Therapy in Estonia (CARTEST)*". Enterprise: Icosagen Cell Factory OÜ

Abstract, [ENG]: (Blood) cancer is a common, serious and often fatal disease. Personal CAR T cell therapy, which is a personalized treatment created from the patient's immune cells during genetic modification, would enable saving 50% of incurably ill blood cancer patients, but it is currently not available in Estonia. We have created a consortium to develop and produce novel CAR T cell drugs in Estonia for the treatment of hematological diseases, solid tumors and autoimmune diseases.

Original abstract, [EE]: *(Vere)vähk on levinud, raske ja tihti surmaga lõppev haigus. Personaalne CAR T rakuravi, mis on patsiendi immuunrakkudest temale geneetilise muundamise käigus loodud personaalne ravi, võimaldaks päästa 50% ravimatult haigetest verevähi patsientidest aga pole hetkel Eestis kättesaadav. Oleme loonud konsortsiumi, et Eestis arendada ja toota uudseid CAR T rakuravimeid nii hematoloogiliste haiguste, soliidtuumorite kui ka autoimmuunhaiguste raviks.*

Patent search results:

NOVARTIS AG: WO2017114497A1; BOSTONGENE CORP: WO2022010866A1; MEMORIAL SLOAN KETTERING CANCER CENTER: US2024000939A1; UNIV PENNSYLVANIA: WO2012079000A1; SEATTLE CHILDREN S HOSPITAL DBA SEATTLE CHILDREN S RES INST: WO2015157386A1; UCL BUSINESS PLC: WO2015075468A1; CELLECTIS: WO2013176916A1; SLOAN KETTERING INST CANCER: WO2011119979A2; THERAVECTYS: WO2016012623A1; BIONTECH CELL & GENE THERAPIES GMBH: WO2015150327A1; HAEMALOGIX PTY LTD: WO2016172703A2; BLUEBIRD BIO INC: WO2016187216A1; CANCER RES TECH LTD: WO2017158337A1; HUTCHINSON FRED CANCER RES: WO2014031687A1; DARTMOUTH COLLEGE: WO2011059836A2; NOVARTIS AG: WO2014153270A1, WO2015142675A2.

Reinhard, Sahin et al., (2020). An RNA vaccine drives expansion and efficacy of claudin-CAR-T cells against solid tumors.

Chimeric Antigen Receptor T-cell Immunotherapy – Landscape study on patent filing, ISBN 978-3-89605-375-6, European Patent Office.

Project 112: "*Forest Volume and Carbon Stock Modelling Based on Satellite Observations to Accelerate the Green Transition and Enhance Carbon Market Transparency (SAR4EST)*". Enterprise: KappaZeta OÜ

Abstract, [ENG]: The aim of the SAR4EST project is to develop an accurate methodology for assessing carbon stored in forests using satellite monitoring. KZ integrates data streams from existing satellite sensors and ground-based databases to create a capability for assessing forest resources and carbon balance with the best temporal resolution and spatial generalization.

Patent search results:

INDUSTRIAL BANK CO LTD: CN115619553A; ELECTRIC POWER RES INSTITUTE OF STATE GRID NINGXIA ELECTRIC POWER CO LTD: CN117789045A; ANHUI UNIV GREEN INDUSTRY INNOVATION RESEARCH INSTITUTE: CN117648868A; MITSUBISHI ELECTRIC CORP: JP2023001437A; UNIV WUHAN: CN116070926A, CN114781011A, CN115561773A; PLANETARY EMISSIONS MAN EP2391881A2; SK FOREST CO LTD: WO2024010127A1; EARTHBANC AB: SE2150439A1; UNIV CORNELL: WO2012015733A1; UNIV SOUTHWEST: CN116452023A; BEIJING MUNICIPAL ECOLOGICAL ENV MONITORING CENTER: CN117114147A; SUMITOMO FORESTRY: JP2015132863A; UNIV XIAMEN: CN116734924A; ZHONGNONG HUAMU GROUP CO LTD: CN117876190A; SHANXI INST OF METEOROLOGICAL SCIENCES: CN117217632A; UNIV TIANJIN: CN115630567A; CARBONCO LTD: WO2024100581A1; GOVGO BEIJING COMMUNICATION TECH CO LTD: CN113705015A; HEFEI DONGXING INFORMATION TECH CO LTD: CN115223055A; UNIV BEIJING FORESTRY: CN116451977A; HAINAN SPECIAL ECONOMIC ZONE WUQUAN DIGITAL NETWORK TECH CO LTD: CN115455490A; UNIV XIAN ARCHITECTUR & TECH: CN113177744A; ZHUHAI YOUJIE TECH CO LTD: CN217032369U; FUJIAN ZHONGSEN CARBON INVESTMENT TECH CO LTD: CN116385877A; SHANGHAI YIMA INTERNET OF THINGS CO LTD: CN117036928A; SICHUAN FORESTRY AND GRASSLAND INVESTIG AND PLANNING INSTITUTE: US2024004864A1.

Patent applications by **KappaZeta OÜ** potentially related to **Project 112**:

EP4187281A1, US2023168365A1

Project 113: "*MenkenMONITOR: AI-driven automated monitoring tool for improved quality and efficiency in clinical research*". Enterprise: Menken OÜ

Abstract, [ENG]: Menken OÜ's project is the first of its kind, which aims to develop the MenkenMONITOR AI tool based on artificial intelligence to automate the monitoring of clinical trials, thereby increasing the efficiency and quality of trials. The tool provides support, increases engagement, simplifies monitoring processes and improves the quality and speed of clinical trials.

Original abstract, [EE]: *Menken OÜ projekt on esimene omataoline, mille eesmärk on välja arendada tehisintellektil põhinev tööriist MenkenMONITOR AI, et automatiseerida kliiniliste uuringute monitoorimist, suurendades seeläbi uuringute efektiivsust ja kvaliteeti. Tööriist pakub tuge, suurendab kaasatust, lihtsustab monitoorimise protsesse ning parandab kliiniliste uuringute kvaliteeti ja kiirust.*

Patent search results:

PEACH INTELLIHEALTH INC: US2018039763A1; HALO HEALTH SYSTEMS INC: US2022059197A1; CLINIOPS INC: US11600396B2; WO2022162421A1; US2011004110A1; UNIV RUTGERS: US2024006061A1; INSTITUTE OF SOFTWARE APPLICATION TECH GUANGZHOU & CHINESE ACADEMY OF SCIENCES: CN109065101A; BANDAI NETWORKS CO LTD: JP2008152489A; MICROSOFT CORP: US2008140444A1; PANGEA BIOMED LTD: WO2023239714A1; IBM: US11538559B2, US11556806B2; GROUPE SORINTELLIS INC: WO2023245301A1; TRANSPARENCY LIFE SCIENCES INC: WO2020139751A1; BEIJING HOUPU MEDICAL TECH CO LTD: CN117473241A; HAWTHORNE EFFECT INC: US2023035208A1; TRIALS AI INC: US11328795B2; SUSTAINABLE MEDICINE INC: WO2020230257A1; UNIV CASE WESTERN RESERVE: US2017185730A1; ACCLINATE INC: US2023386619A1; MUEHLHAUSEN LTD: US2022165370A1; VIGNET INC: US11841787B1; SCIPHER MEDICINE CORP: US2024203555A1; CYPHA PHARMACEUTICALS INC: CN117916392A; PAIGE AI INC: US11227684B2, US11475990B2; ZURICH INSURANCE COMPANY LTD: EP4191609A1; NOVARTIS AG: WO2021220138A1.

Project 114: "*Implementation study of digital chronic pain clinic components*". Enterprise: Migrevention OÜ

Abstract, [ENG]: Every year, one in 10 people is diagnosed with chronic pain, a major public health problem that affects millions of people, leads to high economic costs and impairs the quality of life for many. The project partners are committed to applied scientific research, contributing to the digital health sector. The goal is to create a minimum viable product (MVP) for a digital chronic pain clinic based on Migrevention's complete solution. The results of the project will be shared as published scientific articles.

Original abstract, [EE]: *Igal 10-l inimesel diagnoositakse igal aastal krooniline valu, oluline rahvatervise probleem, mis mõjutab miljoneid inimesi, toob kaasa suuri majanduslikke kulutusi ning kahjustab paljude elukvaliteeti. Projekti partnerid on pühendunud rakendusteaduslikele uuringutele, panustades digitervise sektorisse. Eesmärk on Migreventioni täislahenduse baasil luua digitaalse kroonilise valu kliiniku minimaalne elujõuline toode (MVP). Projekti tulemusi jagatakse avaldatud teadusartiklitena.*

Patent search results:

PEAR THERAPEUTICS INC: WO2020172520A1; BRAINBOX SOLUTIONS INC WO2021262905A2; COGNOA INC: WO2024081964A1; MAHANA THERAPEUTICS INC: WO2023133573A1, WO2024011105A1; SICHUAN SMART MEDICINE TECH CO LTD: CN116110615A; UNIV OKLAHOMA: WO2023196385A1; US2014114119A1; UNIV TIANJIN: CN111493836A; CLOSED LOOP MEDICINE LTD: WO2022167781A1; WO2016037055A1; APRICITY HEALTH LLC: US11923051B2; PARER THERAPY STOCK LTD COMPANY: CN114303204A; IUCF HYU: KR20240050185A; DAEGU GYEONGBUK MEDICAL INNOVATION FOUND: KR20240075230A; US10878691B1; SENSORRX INC: US11887729B2, WO2018093549A1; HEAD HEALTH INC: US2022392596A1; HEALINT PTE LTD: GB2578887A; IBM: US11276493B2; ELECTROCORE INC: US10874857B2, WO2016014436A1; NORWEGIAN UNIV SCI & TECH NTNU: WO2021249674A1; INDOLEX PHARMATECH LTD: WO2024069338A1; MAGNUS MEDICAL INC: US2024115199A1, WO2022204072A1; UBIOME INC: US10388407B2; GUIZHOU PROVINCIAL PEOPLE S HOSPITAL: CN115331798A; LUCINE: EP4245348A1.

Project 115: "*SLUDGE MASTER (Preservation, long-term storage and revitalization of vacuum freeze-dried activated sludge for rapid inoculation of the SPACEDRIP membrane bioreactor and development of a waste activated sludge dewatering and heat recovery system)*". Enterprise: Spacedrip OÜ

Abstract, [ENG]: The SludgeMaster project addresses a critical need in wastewater treatment, aiming to enhance the efficiency of small wastewater treatment plants by tackling key challenges related to inoculation of the biological stage of wastewater treatment, excess sludge management, and reducing the carbon footprint.

Patent search results:

ALFA LAVAL CORP AB: EP3527539A1; CYPRESS TECH LTD: EP3099638A1; PRAXAIR TECHNOLOGY INC: EP1905744A1; UNIV HONG KONG SCIENCE & TECHN: US2013264282A1; MITSUBISHI HEAVY IND LTD: JP6716289B2, JP2010119963A, US2017233278A1, JP6716289B2, WO2015145866A1 (US10259733B2, JP6376798B2, EP3098204A4), JPH0645035B2; UNIV WUHAN TECH: CN109926029A; JPS52100751A; CHONGQING RONGJI ENV PROT ENG CO LTD: CN106277308A; UNIV NANCHANG HANGKONG: CN113174357A; KWEICHOW MOUTAI CO LTD: CN117819685A; UNIV SHANDONG: CN100350037C; UNIV HEBEI TECHNOLOGY: CN117699969A; JP2003300100A; GUIZHOU CHUANGWEIDAO ENVIRONMENT TECH CO LTD: CN110921984A; CECEP CITY ENERGY CONSERVATION CO LTD: CN207418504U; CN107226591A; UNIV LELAND STANFORD JUNIOR: WO2022232603A1; ASAHI CHEMICAL CORP: CN101372375A; UNIV BEIJING UNION: CN111137972A; VEOLIA WATER SOLUTIONS & TECH: CA2909609A1, GB2536132A; SHANDONG SHUANGRONG ENVIRONMENTAL PROT ENGINEERING CO LTD: CN210313923U; SHANDONG SHUANGRONG ENVIRONMENTAL PROT ENGINEERING CO LTD: CN210313930U; RU2009146473A; RU94569U1; SWING CORP: JP2022109088A; CH2M HILL INC: US6723244B1, US2006113244A1; RU196902U1; EVOQUA WATER TECH LLC: CN110431114A; AQUAFIN N V: EP1960316A1; KOREA INST SCI & TECH: KR101736066B1; TSKWATER CO LTD: KR101142860B1, KR101237408B1, WO2015102246A1; TORAY INDUSTRIES: JP2006272313A; SHAW ENVIRONMENTAL & INFRASTRUCTURE INC: US2008223783A1; NANO FNC CO LTD: KR20080043614A; SIEMENS WATER TECH CORP: AU2011202055A1, US2007209998A1, CA2666503A1; CAROLLO ENG INC: WO2022072270A1; HAMPTON ROADS SANITATION DISTR: US10112856B2; BL TECHNOLOGIES INC: WO2024015799A1; US2014131274A1; LUXEMBOURG INST SCIENCE & TECH LIST: EP3365285A1; D C WATER & SEWER AUTHORITY: US2014131273A1; DRYLET LLC: CN110709370A; XYLEM WATER SOLUTIONS ZELIENOPLE LLC: WO2023239680A1.

Project 116: "*Beyond-the-pill / Tabletist-kaugemale tehnoloogiline platvorm ja innovatsioon*". Enterprise: Techture OÜ

Abstract, [ENG]: Beyond-the-pill technologies platform and innovation. The objective of the project is the creation and characterization of novel liquid food supplement platforms according to market trends and potential customer demands. The goal is to create knowledge transfer (crossover) platforms that would be used in prophylactic health products, first of all food supplements, but later also in other product categories with higher added value.

Original abstract, [EE]: *Beyond-the-pill technologies platform and innovation. Tabletist-kaugemale tehnoloogiline platvorm ja innovatsioon projekti sisuks on uudsete vedelate toidulisandite platvormide loomine ja karakteriseerimine vastavalt turutrendidele ja potentsiaalsete klientide nõudlustele. Eesmärgiks on luua teadmussiirde (crossover) platvormid mis oleks kasutatavad profülaktilistes tervisetoodetes, ennekõike toidulisandites, kuid hiljem ka teistes kõrgema lisandväärtusega toodekategooriates.*

Patent search results:

DOW GLOBAL TECHNOLOGIES LLC: WO2011139763A1; LAMINARIA GROUP AB: WO2017186940A1; OUE TERVISLIKU PIIMA BIOTEHNOLOOGIATE ARENDUSKESKUS: WO2012126481A1; CZ14057U1; ADM INT SARL: EP4302615A1; NUTRICIA NV: WO03030918A1; UNIV NEBRASKA: US10531680B2; MUSCLETECH RES AND DEV INC: US6620425B1; SIGMA TAU HEALTHSCIENCE SPA: CN1315835A; ETHICON ENDO SURGERY INC: US2020237835A1; EP1842547B1; UNIV BERN: CZ299766B6; ROQUE INICIATIVAS SL: ES2804376A1; VEOS NV: EP2606741A1; ZONOLITE COMPANY: CA675332A; NATURAL ALTERNATIVES INTERNAT: KR101190791B1; ALTERGON SA: IT202100017666A1; BASF ENZYMES LLC: JP2016039823A; SEB SA: US10602766B2; NESTEC SA: PT1716210T; BIONORICA SE: EP4003385B1; ALIOPHARM S R L: US2023101466A1.

Patent applications by Techture OÜ potentially related to Project 116:

WO2023104306A1