

FUNDING PROGRAMME: Competitiveness Operational Programme (COP)/ Priority Axis 1 - Research, Technological Development and Innovation (RDI) supporting the economic competitiveness and business development/ **Investment Priority 1.1** Promoting investments in R&I, developing links and synergies between businesses, research and development centres and higher education, in particular promoting investment in product and service development, technology transfer, social innovation, eco-innovation and public service applications, stimulating demand, networking and clustering and open innovation through smart specialization, as well as supporting technological and applied research activities, pilot lines, early product validation actions, advanced production capacities and first generation capabilities, particularly in the field of key enabling technologies and the diffusion of general use technologies/ **Specific Objective: 1.3** Increasing private investment in RDI/ **Action: 1.2.1** Stimulating companies' demand for innovation through RDI projects undertaken by companies individually or in partnership with R & D institutes and universities for the purpose of product and process innovation in the economic sectors presents potential for growth,/ **Project type - Innovative technological project.**

TPROJECT TITLE/ACRONYM: Development of R&D capacity for obtaining functional knitted textile products in order to increase the competitiveness of DATSA TEXTIL SRL through innovation/ CareKnits

CONTRACT NO.: 405/390081/31.12.2021 Cod SMIS 2014+: 121567

TOTAL PROJECT BUDGET: 7.123.245,71 RON

INCDTP'S BUDGET: 1.325.721,93 RON

PROJECT STARTING DATA: 01/01/2022

PROJECT ENDING DATA: 31/12/2023

PAGINA WEB:

PARTNERS:



DATSA TEXTIL SRL Buzau – Partnership Leader



National Research & Development Institute for Textiles and Leather - Partner

GENERAL OBJECTIVE: To increase the competitiveness of SC DATSA TEXTIL SRL through research–development–innovation (RDI) activities carried out in partnership with the National Research & Development Institute for Textiles and Leather – INCDTP and through the development of new processes and products for the company and the Romanian textile sector.

SPECIFIC OBJECTIVES:

- 1. OS1:** Strengthening the RDI capacity of DATSA TEXTIL SRL to produce functional knitted textile products by developing a new 3D knitting technology for orthotic support devices adapted to different body areas and implementing it in production processes to diversify the company's activity with new products offered on the market.
- 2. OS2:** Strengthening the RDI capacity of DATSA TEXTIL SRL to produce functional knitted textile products by developing a new ecological finishing technology for knitted garments and orthotic support devices and implementing it in production processes to diversify the company's activity by offering products with new or improved technical characteristics.
- 3. OS3:** Increasing the company's competitiveness in a smart specialization field with tradition in Romania by developing its innovation capacity.
- 4. OS4:** Developing the product and process innovation skills of DATSA TEXTIL SRL staff.
- 5. OS5:** Developing an innovative product portfolio for DATSA TEXTIL SRL through the implementation of manufacturing technologies developed in the project and introducing them into production.

NOVELTY ELEMENTS:

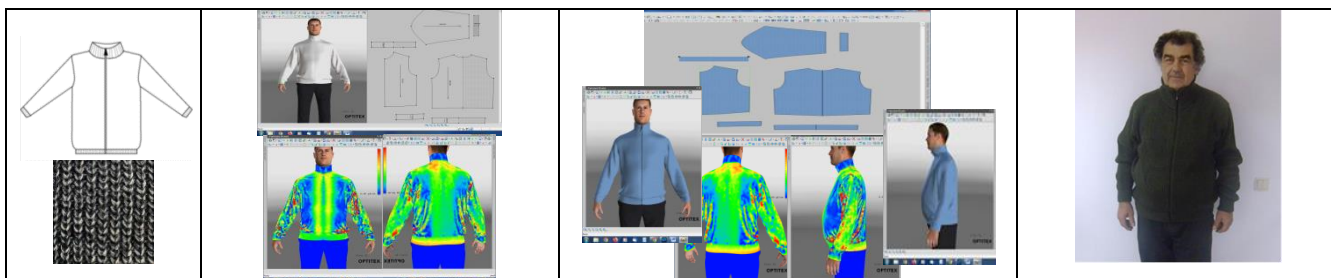
- Enhancing the RDI capacity of SC DATSA TEXTIL SRL through investments in latest generation equipment and the development of new products and/or products with substantially improved characteristics, as well as ecological finishing technologies, in collaboration with the representative research institute of the sector.
- Enhancing the technological level by integrating research outcomes into production processes and acquiring both tangible and intangible assets that strengthen the technological workflow, going beyond the limitations of pre-project technologies.

EXPECTED EXPLOITABLE RESULTS:

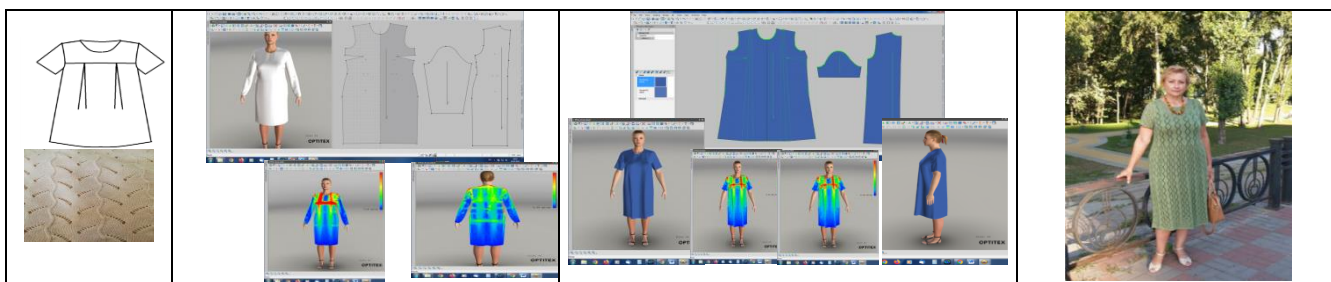
- **Predefined result indicators:** Public–private scientific co-publications [publications/ 1 million inhabitants]: 4
- **Predefined output indicators:** Productive investment – number of companies supported: 1; Number of companies benefiting from support for introducing new products to the market: 1; Number of researchers in supported entities [full-time equivalent]: 1; Private investments complemented by public funding for innovation or R&D projects [EUR]: 430,000; Patent applications resulting from the project: 1
- **Additional result indicators:** Increase in turnover: 620,000 RON; Number of contracts resulting from the project: 2
- **Additional output indicators:** Jobs created, other than those for researchers in the supported entity: 5; Number of new products introduced to the market: 5; Number of improved products introduced to the market: 4; Number of new or improved technologies: 2.

OBTAINED RESULTS:

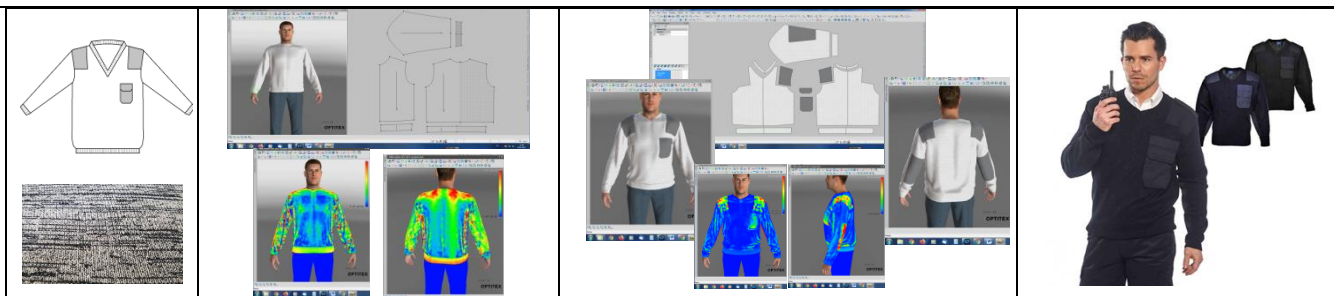
- **Technical–scientific study** regarding: **a)** definition of performance and comfort requirements for functional knitted textile products; **b)** innovative methods and techniques used in the design and production of functional knitted textile products; **c)** solutions for producing orthotic support devices.
- **Technical documentation** for: **a)** technical and structural characteristics of mechanical processing equipment for knitted functional textile articles; **b)** unconventional finishing equipment for specific knitted articles.
- **Experimental models (EM) of functional knitted textile products:** **12 EM** intended for **elderly persons/persons with atypical**, non-standard body shapes; **6 EM** intended for **operational staff** within defense/public order/security structures operating in varying temperature conditions.
- **Experimental models of orthotic support devices:** **10 EM.**
- **Prototypes of functional knitted garments** for people with special needs: **3** prototypes of **new articles** and **3** prototypes of substantially **improved articles** for **elderly persons**; **3** prototypes of **new articles** and **3** prototypes of substantially **improved articles** for **persons with atypical**, non-standard body shapes; **4** prototypes of **new articles** and **2** prototypes of substantially **improved articles** for **operational staff** within defense/public order/security structures operating in varying temperature conditions; **2** prototypes of **new articles** and **2** prototypes of substantially **improved functional knitted home products** for children.



Prototypes of functional knitted garments: Jacket for elderly men

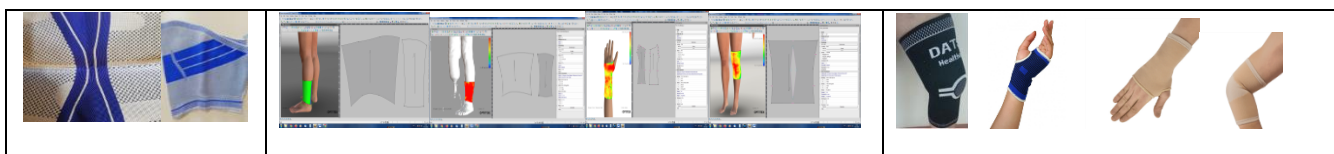


Prototypes of functional knitted garments: Dress for the elderly female



Prototypes of functional knitted garments: Sweater for operational staff within defense/public order/security structures

- **Prototypes of orthotic support devices: 10** new product prototypes **adapted to different body areas:** elbow, knee, ankle, waist.



Prototypes of knitted orthotic support devices

- **Finishing technologies for functional knitted garments: 2 optimized finishing technologies** for knitted articles containing **functionalized fibers**; **2 optimized functional finishing technologies** for knitted articles made from traditional **fiber blends**.
- **Technical documentation** for producing new and/or substantially improved functional knitted textile products for people with special needs: **1 technical documentation for each product group** addressed in the project.
- **Technical documentation** for producing orthotic support devices: **1 technical documentation for orthotic support devices**.



DISSEMINATION, PATENT APPLICATIONS, AWARDS:

- **WoS published papers: 1**

1.Doina Toma, Alina Popescu, Claudia Niculescu, Cristina Lite, Minela Neneciu, Sara Wechsler, Ionut Daniel Ion, Mirela Greti Puiu, Crina Raican, *Evaluation of comfort properties of functional knitted fabrics for people with special needs*, Industria Textila, ISSN 1222-5347, vol.74 (6), pp. 753-759, 2023.

- **BDI published papers: 3**

1.Georgeta Popescu, Doina Toma, Claudia Niculescu, Alina Popescu, Adrian Salistean, Ionela Badea, Minela Neneciu, Sara Wechsler, Ionut Daniel Ion, Mirela Greti Puiu, Crina Raican, *3D Virtual Prototyping of Functional Knitted Garments for Persons with Special Needs*, Proceedings of ICAMS 2022 - 9th International Conference on Advanced Materials and Systems, 26-28.10.2022, p. 339-344, ISSN: 2068-0783.

2.Alina Popescu, Doina Toma, Claudia Niculescu, Minela Neneciu, Sara Weschsler, Mirela Greti Puiu, *Antibacterial treatment of knitted fabrics made of fiber blends using tumbler-type equipment*, Annals of the University of Oradea, Fascicle of Textiles, Leatherwork, ISSN 2457-4880, vol. 24 (1), pp 85-88, 2023.

3.Claudia Niculescu, Ggeorgeta Popescu, Doina Toma, Alina Popescu, Adrian Salistean, Minela Neneciu, Sara Wechsler, Ionut Daniel Ion, Mirela Greti Puiu, Crina Raican, *Design and virtual simulation of knitted orthotic support devices*, Proceedings of the 11th International Conference TEXTEH 2023, 12 - 13 October 2023, pp 82-87, ISBN: 978-83-67405-38-6, DOI: <https://doi.org/10.0000/9788>

- **Scientific communications: 3**

1. Georgeta Popescu, Doina Toma, Claudia Niculescu, Alina Popescu, Adrian Salistean, Ionela Badea, Minela Neneciu, Sara Wechsler, Ionut Daniel Ion, Mirela Greti Puiu, Crina Raican, *3D Virtual Prototyping of Functional Knitted Garments for Persons with Special Needs*, ICAMS 2022- 9th International Conference on Advanced Materials and Systems, Online 26-28.10.2022.
2. Doina Toma, Alina Popescu, Claudia Niculescu, Adrian Săliștean, Georgeta Popescu, Ionela Badea, Minela Neneciu, Sara Wechsler, Ionuț Daniel Ion, Mirela Greti Puiu, Crina Raican, *Development of R&D capacity for obtaining functional knitted textile products in order to increase the competitiveness of DATSA TEXTIL SRL through innovation*, Workshop -Advanced materials for innovation in the textile industry, Bucharest, Romania 7.11.2022.
3. Claudia Niculescu, Georgeta Popescu, Doina Toma, Alina Popescu, Adrian Salistean, M. Neneciu, S. Wechsler, I.D. Ion, M.G. Puiu, C. Raican, *Design and Virtual Simulation of Knitted Orthotic Support Devices*, 11th International Conference on Textiles and Connected R&D Domains TEX TEH XI, Bucharest, Romania, 12-13.10.2023.

- **Patent Applications: 1**

1. OSIM A 00446/ 10.08. 2023, *INNOVATIVE KNITTED PRODUCT FOR CHILDREN'S STROLLER*, Neneciu Minela, Wechsler Sara, Puiu Mirela Greti, Ion daniel-ionut, Bucur Raluca Carmina, Raican Crina Gabriela

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