Search for a Spanish Partner for a Bilateral R&D Project

Organization	
Date of Request:	29 October 2026
Company name:	Textile Research and Technology Institute (TRTI), National Research Centre (NRC), Egypt
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SECTION 1: Entity launching the partner search *(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)*	
Sector	**NRC, TRTI specialized in the textile research and engineering sector (research & experimental),** including the clothing and garment manufacturing, textile materials, chemical textile dyeing and finishing, color measurement, and digital apparel technologies. **Innovi** Creative Innovation & Market Development **BTM** Industrial Implementation & Manufacturing
Entity mission or core functions	The (NRC) is a public research institution in Egypt conducting scientific research and developing solutions to industrial challenges. Through TRTI, it undertakes research in **textile materials, fabric performance, clothing technology, and industry-oriented digitalisation.**
Date of establishment	June 1956
Ownership (if public and traded, add stock exchange and ticker symbol)	Public governmental research institution; NRC. Creative Innovation & Market Development; INNOVI Industrial Implementation & Manufacturing; BTM
Total number of employees	More than 5,000 employees across NRC (institution-wide; please verify the current figure before submission).
Number of employees in R&D	2000 researchers and scientists
Key products sold or services provided	• Applied scientific research, textile and garment testing and evaluation, research and development, technical consultancy, and industry-oriented collaboration **(NRC)**. • **Innovi** Creative Innovation & Market Development • **BTM** Industrial Implementation & Manufacturing
Entity core technical competences	Textile science and engineering; physical and performance testing of fabrics; evaluation of chemically treated, dyed and finished textiles; color measurement and color-difference assessment; garment technology; digital garment development and 3D simulation using CLO3D; and interdisciplinary collaboration with NRC expertise in engineering, physics, chemistry, and related fields.

Key R&D programs and activities	Research and validation of an integrated connecting: **(1) fabric characteristics and laboratory test results** before and after chemical treatment; **(2) dyeing/finishing conditions and measured color data**; **(3) prediction of treated-fabric appearance and performance**, including color assessment and identification of the closest suitable Pantone reference; and **(4) 3D scanning garment simulation, garment specifications, and material-consumption analysis**. The workflow will support more reliable fabric approval, technical-pack development, garment merchandising, and production planning.
Examples of accomplishments	**NRC** The research team has experience in textile and clothing R&D, experimental evaluation of textile and garment properties, digital garment development, and scientific research projects supported by Egypt's STDF. Specific project titles and grant numbers can be added once confirmed. **INNOVI** Digital innovation, design intelligence and market requirements **BTM** Production, technical application and industrial validation
Company strategic orientation	**NRC** To connect applied textile and garment research with industrial needs; improve fabric selection and color approval before bulk production; 3D scanning, promote digitalization and data-informed product development; and develop experimentally validated solutions that may reduce avoidable trials, color mismatches, quality problems, and material waste. To minimize the transportation of physical fabric and garment samples, streamline communication between stakeholders, and enable faster, more informed decision-making throughout the garment development process. **INNOVI** will play a strategic role in ensuring the project's market orientation and connecting scientific research and technological development with actual market needs. With expertise in Creative Innovation & Market Development, particularly in digital innovation, design intelligence, and market requirements, the partner will contribute to identifying and analysing market trends, consumer and industry needs, product-development requirements, and emerging opportunities within the textile and apparel sector. **BTM** will serve as the industrial pilot site for the proposed project, providing a real manufacturing environment in which the developed system and proposed methodologies can be implemented, tested, and validated under actual production conditions.

SECTION 2: Spanish Company Profile *(Please provide a brief summary of the prospective partner company or organization. This summary may address some or all of the points below)*	
Profile of ideal technology partner	Potential examples of companies matching the desired profile include major Spanish fashion and apparel groups such as Inditex, including its brands Zara, Stradivarius, Bershka, and Pull&Bear, as well as other Spanish apparel manufacturers and fashion companies with relevant expertise in textile materials, fabric finishing, product development, and digital innovation. These companies are considered potential examples of the target industrial profile, rather than confirmed project partners. Their participation would be subject to their interest and agreement to collaborate in the proposed R&D activities.
Core technological competencies and expertise	Relevant capabilities may include textile dyeing and finishing; color formulation, lab-dip development and color correction; spectrophotometry and color-difference assessment (e.g. CIELAB and ΔE); Pantone or other standard color-reference workflows; fabric testing and

	quality control; AI/data analytics; digital textile characterization; 3D garment simulation; and tech-pack/product-data management. The partner need not cover every area.
Other essential qualifications (e.g.: ownership, track records etc.)	Experience in industrial R&D or innovation; practical expertise in textile dyeing/finishing or color management; access to relevant fabric samples, color standards, process data, laboratory measurements and/or apparel product-development workflows; staff available for technical collaboration and pilot validation; and willingness to participate in the Egypt–Spain Joint Call 2026.
If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details	DIMTECH 3D (Spain) — contact initiated; participation not confirmed: https://dimtech3d.com/en/contact Mango StartUp Studio — potential company to approach; no collaboration confirmed: https://startupstudio.mango.com/en/home The search is also open to Spanish companies specialising in textile dyeing, chemical processing/finishing, color formulation and matching, spectrophotometry, or digital textile technologies.
If you are interested in collaboration: please specify details and other important information you want to share with a potential company	We are seeking a Spanish industrial partner interested in collaborating on research and development related to the effects of chemical treatments on fabric appearance and properties, particularly color changes, dye chemistry, color formulation, and the interaction between dyes, fibres, and finishing agents. The collaboration may involve exchanging technical expertise, sharing relevant industrial information and fabric samples, identifying practical industrial requirements, and contributing to the evaluation and validation of the research outcomes. Expertise in textile dyeing, chemical finishing, color development, and digital textile technologies would be particularly valuable. Further details of the collaboration and the specific contributions of each partner can be discussed and agreed upon jointly.
Interested areas of collaboration	Prediction of fabric appearance and 3d performance after chemical treatment/finishing; textile color prediction, matching and correction; identification of the closest suitable Pantone color reference from measured or target color data; spectrophotometric color measurement and color-difference assessment; pre-production fabric testing; integration of treatment parameters with laboratory data; AI-assisted textile property/appearance prediction; digital textile and 3D garment simulation; AI-assisted technical-pack development; garment merchandising; material-consumption analysis; and sustainable apparel manufacturing.
Specific R&D contribution you are seeking/offering	Seeking from the Spanish partner: expertise in textile dyeing/chemical finishing and color management, including color formulation, lab dips, color correction and instrumental color measurement; guidance on process variables and industrial color tolerances; relevant data where available; and pilot-validation participation. Seeking from the Egyptian industrial company: a real production challenge, representative untreated and treated/dyed fabric samples, target color references (including Pantone references where used), dyeing/treatment conditions, measured color results, quality tolerances, and industrial feedback. Offering from NRC/TRTI: research design; laboratory testing before and after treatment; textile-science expertise; color and performance data analysis; development and validation of data-driven prediction methods; CLO3D/digital garment expertise; and analysis of effects on garment appearance, specifications, and material planning. Color matching will be evaluated against measured color values and agreed tolerances; a Pantone recommendation will

	be treated as a closest-reference decision support, not a substitute for physical lab-dip approval.



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Date3/11/2026

PROJECT CHALLENGE, TOPIC AND CONSORTIUM ROLES

Proposed project topic

AI-Assisted Prediction of Chemically Treated Fabric Appearance and Performance, Integrated with 3D Garment Simulation and Digital Technical-Pack Development

1. Industrial challenge

Before bulk production, textile and apparel manufacturers must select and approve fabrics whose appearance and performance may change after chemical treatments or finishing. Depending on fabric composition, construction, initial properties, and process conditions, treatment may affect color/appearance, surface characteristics, handle, drape, dimensional stability, and other performance properties. If these changes are not evaluated adequately in advance, manufacturers may need repeated laboratory or production trials and may face delays, inconsistent quality, unsuitable fabric selection, and avoidable material or cost losses.

A further challenge is that fabric test results, treatment records, garment specifications, 3D garment models, and material-consumption estimates are often handled separately. Product-development and merchandising teams may therefore lack an integrated evidence-based way to anticipate how a treated fabric will look and behave in the final garment and to translate this information into reliable technical-pack and production decisions.

2. Proposed research topic and approach

The project will investigate an experimentally grounded, AI-assisted workflow to predict selected appearance and performance characteristics of fabrics after chemical treatment, before bulk production. Representative fabrics will be characterised before and after selected treatments. Laboratory measurements will be linked to fabric composition and construction, initial properties, and documented treatment/finishing parameters. Statistical and machine-learning methods will be explored to estimate measurable post-treatment properties and appearance-related indicators, subject to the availability and quality of suitable data.

Measured and predicted fabric data will then be used, where appropriate, in digital garment development and 3D simulation to examine implications for garment appearance, drape, fit, and product specifications. The workflow will also explore how the results can inform technical-pack content, fabric/component selection, preliminary material-consumption estimates, and production planning. Predictions will be compared with laboratory measurements and, where feasible, industrial or garment-level validation. Experimental testing and expert verification will remain essential; the project will not assume that every property can be inferred from images alone.

3. Roles of the three mandatory entities under the ESIP Call

A. Egyptian industrial company – industrial end-user and validation partner

The Egyptian company will define the real industrial problem and priority fabric/treatment cases; provide representative untreated and treated fabric samples and, subject to availability and confidentiality arrangements, treatment parameters, quality specifications, production records, and feedback; identify the appearance and performance requirements relevant to its products; participate in selecting pilot cases; and assess the workflow in its production/product-development environment. It will support industrial validation and help evaluate potential benefits such as fewer trial iterations, improved fabric approval, reduced quality risks, and better production decisions. This mandatory industrial partner is still to be identified/confirmed.

B. Egyptian research institution – NRC/TRTI: scientific and experimental lead

NRC, through TRTI, will lead the scientific methodology and experimental work: design the research and test plan; select and characterise fabrics; conduct relevant physical and performance tests before and after chemical treatment; organise and analyse the dataset; develop and validate statistical or AI/ML prediction models where data permit; assess prediction accuracy against measured results; and investigate integration of fabric data into 3D garment simulation and technical-pack development. NRC/TRTI will coordinate the Egyptian research contribution and report the scientific findings.

INNOVI Design Studio is the creative innovation and market-oriented partner, responsible for translating research outcomes and technological developments into commercially viable solutions for the fashion and textile industry. INNOVI will lead the development of innovative approaches to digitalising textile data, including color specifications, fabric construction, and design information, to streamline communication, reduce physical sampling, and accelerate product development and approval processes. It will also ensure that the proposed solutions respond to the needs of international B2B markets, particularly the Spanish fashion and textile industry.

www.innovistudio.com

BTM (Beshara Textile and Garment Manufacturing) is the industrial and manufacturing partner, responsible for the practical implementation, testing, and validation of the project's innovative solutions within a real production environment. BTM will contribute its manufacturing expertise, technical capabilities, and production facilities to test and implement the developed digital tools and processes, ensuring their industrial feasibility, efficiency, and scalability. Its role will focus on optimising production workflows, reducing sampling and development lead times, and establishing more efficient manufacturing and communication processes for international B2B collaborations.
www.bisharaeg.com

C. Spanish industrial company – technology/process partner and bilateral R&D collaborator

The Spanish company will contribute complementary industrial or technological expertise according to its profile. This may include textile chemical processing and finishing, advanced fabric characterisation, digital textile technologies, AI/data analytics, or digital apparel development. It will help refine industrial requirements and technical specifications, advise on relevant treatment/process variables and validation criteria, contribute suitable expertise, tools, or data where available, and collaborate with the Egyptian partners in evaluating the workflow. The exact work package will be agreed with the selected company.

Expected outputs

A validated prototype workflow and dataset linking fabric characteristics, chemical-treatment conditions, and selected post-treatment appearance/performance indicators; prediction models or decision-support rules for selected fabric/treatment cases; experimental validation results; and a demonstration of how the resulting fabric information can support 3D garment simulation and more reliable technical-pack and pre-production decisions.

Consortium status

The Egyptian research institution is NRC/TRTI. An Egyptian industrial company and a Spanish industrial company are mandatory partners under the call and are being sought. Their identities, detailed tasks, resources, and budget shares will be confirmed during consortium formation in accordance with the call rules.



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PROJECT CHALLENGE, TOPIC AND CONSORTIUM ROLES

Proposed project topic

AI-Assisted Prediction of Chemically Treated Fabric Appearance, Performance and Color, Integrated with Pantone Color Matching, 3D Garment Simulation and Digital Technical-Pack Development

1. Industrial challenge

Textile and apparel manufacturers need to approve fabric appearance, performance and color before bulk production. However, dyeing and chemical finishing can change a fabric's color, surface appearance, handle, drape, dimensional stability and other performance properties. Achieving a target shade consistently is a practical challenge: the color obtained after processing may differ from the requested standard or reference, leading to repeated lab dips, color corrections, delays, shade variation between batches, and additional costs. In the Egyptian textile and apparel sector, improving the ability to predict and control the resulting color and fabric appearance before production is an important industrial need.

A related challenge is that color approval, laboratory test results, treatment records, garment specifications, 3D garment models and material-consumption estimates are often handled separately. Product-development and merchandising teams may therefore lack an integrated, evidence-based way to assess whether a treated fabric will meet the required color and performance specifications and how it will appear in the final garment.

2. Proposed research topic and integrated approach

The project will investigate an experimentally grounded, AI-assisted workflow with interconnected research modules. The primary scientific module will study the relationship between fabric composition/construction, initial properties, dyeing or chemical-treatment conditions, and the resulting fabric appearance and performance. Representative fabrics will be tested before and after selected treatments. Instrumental color measurements (where available, spectral reflectance and CIELAB values) and color-difference calculations (such as ΔE using an agreed method) will be combined with relevant physical and performance tests.

Using these data, the project will explore statistical and machine-learning methods to predict selected post-treatment fabric properties and color outcomes. For color development, the workflow will support comparison of a measured or predicted color with a target color and identification of the closest suitable Pantone reference, where applicable. This is intended as a decision-support tool for color selection and communication. Final shade approval will remain subject to agreed instrumental tolerances and physical laboratory-dip assessment with the industrial partner; Pantone references will not be treated as a replacement for measurement or production approval.

The measured and predicted fabric data will then be connected to complementary digital apparel applications: (a) 3D garment simulation to examine how treated-fabric properties may influence drape, appearance and fit; (b) digital technical-pack development and checking to improve the consistency of fabric, color and garment specifications; and (c) preliminary material-consumption analysis and production-planning support. These applications extend the core textile prediction work and demonstrate its value to garment development and manufacturing. Model performance will be evaluated against laboratory measurements and, where feasible, industrial or garment-level validation.

3. Roles of the three mandatory entities under the ESIP Call

A. Egyptian industrial company – industrial end-user and validation partner

The Egyptian company will define the real industrial challenge and priority fabric, dyeing and finishing cases; provide representative untreated and treated/dyed fabric samples and, subject to confidentiality arrangements, target color standards or Pantone references, dyeing recipes/process parameters, instrumental color readings, quality tolerances, production records and feedback; identify the color and performance requirements relevant to its products; participate in selecting pilot cases; and assess the workflow in its production environment. It will support industrial validation of color prediction/matching, fabric-property prediction and the related digital apparel applications. This mandatory industrial partner is still to be identified/confirmed.

B. Egyptian research institution – NRC/TRTI: scientific and experimental lead

NRC, through TRTI, will lead the scientific methodology and experimental work: design the research and test plan; select and characterise fabrics; conduct relevant physical and performance tests before and after chemical treatment; organise and analyse fabric, process and color datasets; develop and validate statistical or AI/ML methods where data permit; assess prediction accuracy against measured results and agreed tolerances; and investigate integration of the resulting fabric and color

data into 3D garment simulation and digital technical-pack development. NRC/TRTI will coordinate the Egyptian research contribution and report the scientific findings.

C. Spanish industrial company – chemical/color technology and/or digital R&D partner

The Spanish company will contribute complementary industrial or technological expertise. A textile chemical or dyeing company may advise on dyeing and finishing processes, color formulation, lab-dip development, color correction, process parameters and industrial shade tolerances, and support pilot trials. A specialist in color measurement or digital textile technologies may contribute spectrophotometric workflows, color data processing, AI or digital tools. A complementary digital apparel partner may contribute 3D simulation or technical-pack technologies. The selected Spanish partner's work package will be agreed according to its actual capabilities and the consortium's needs.

Expected outputs

A validated prototype workflow and dataset linking fabric characteristics and treatment/dyeing conditions with selected post-treatment performance and color indicators; prediction/decision-support models for selected fabric and process cases; a color-comparison and closest-Pantone-reference recommendation function where supported by the data and reference libraries; experimental validation against instrumental readings and agreed tolerances; and a demonstration connecting the resulting fabric information to 3D garment simulation, digital technical-pack development and pre-production decisions.

Consortium status

The Egyptian research institution is NRC/TRTI. An Egyptian industrial company and a Spanish industrial company are mandatory partners under the call and are being sought. Given the importance of the color and chemical-treatment work package, priority is being given to Spanish companies with textile dyeing, chemical finishing, color formulation/matching or instrumental color-measurement expertise. Their identities, detailed tasks, resources and budget shares will be confirmed during consortium formation in accordance with the call rules.

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