Şafak Birol

Digital Transformation Executive, TYH Tekstil

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PROFILE

Thirteen years leading the digital and operational transformation of apparel manufacturing on the factory floor; today I head digital transformation at TYH Tekstil. Since 2025 I also solve the same problems with software platforms I build. The systems I built run live in two countries, across more than four factories and fifty production lines. Textile engineer with two master's degrees (engineering management; operations management and quantitative methods) and eighteen peer-reviewed papers. My principle: simplify the process first, then transform it with cutting-edge technology; technology makes a good process better and a bad one bigger.

13	4	2	50+	18	80+
years on the factory floor	live platforms	countries with live systems	production lines on my software	peer-reviewed papers	R&D projects, idea to production

SOFTWARE PLATFORMS I BUILD

MESSEA · pilot — Manufacturing execution system with an AI assistant · messea.app

Ahi Evrak · live — Digital product passport for textile exporters (EU ESPR) · ahievrak.com

BeOne Patterns · live — XS–5XL sewing patterns with a pattern studio · beonepatterns.com

birolay · coming soon — Calm, source-linked news with AI summaries · birolay.com

Followup One · live — Order, lead-time and quality tracking for textile makers · followupone.com

TRUE BASE 96 · live — E-commerce with AI virtual try-on and made-to-measure orders · truebase96.com

Über Zeka · in development — Unified Intelligence Platform: decision layer above ERP · uberzeka.com

EXPERIENCE

Digital Transformation Executive · TYH Tekstil, İzmir

2025 – present

- Generative AI in live production: first design visuals in minutes instead of days; AI agents and RPA have removed 500+ hours of manual work per month from operations.
- ERP, MES and IoT fused into a single decision layer; systems live in Türkiye and Bulgaria across 4+ factories and 50+ production lines.

R&D Center Manager · TYH Tekstil, İzmir

2019 – 2024

- Built and led a government-certified R&D center for five years: 80+ R&D projects carried from idea to the production floor; national and international funded programs, university–industry partnerships, IP strategy.
- Project lead of Quantum MES — a TÜBİTAK-funded, IoT-based manufacturing execution system developed in-house and now live in production.
- Produced eighteen peer-reviewed publications with the team — simulation, machine learning, LCA, quality engineering.

R&D Engineer · TYH Tekstil

2017 – 2019

- New products, materials and processes optimized for measurable gains at one of Türkiye's leading apparel exporters.

Manufacturing Engineer · Shamrock Textile

2013 – 2015

- Live production lines — costs, shifts, safety; then integrating the production systems of weaving, dyeing and apparel factories into one.

SELECTED RESULTS

- **+9.5% overall operating productivity in three months** — a system recording 100% accurate production data without relying on people (ERP · MES · IoT); production +8.0%, packaging +14.2%.
- **Embroidery defect rate from 42.4% to 4.6%** — defects classified, Pareto-ranked and eliminated with a purpose-built machine fixture.
- **Model setup times cut 15%** — a competency analysis system for sewing operators feeding line assignment and training.

EDUCATION

M.Sc. Operations Management & Quantitative Methods
Ege University · 2019 – 2021

M.Sc. Engineering Management
Manisa Celal Bayar University · 2016 – 2018

B.Sc. Textile Engineering
Pamukkale University · 2009 – 2014

LANGUAGES

Turkish — native · **English** — full professional use (all 18 papers written in English)

EXPERTISE

Digital transformation strategy
Building AI products (SaaS)
Operational excellence · Lean · Kaizen
ERP · MES · IoT integration
Generative AI & AI agents
RPA & process automation
Low-code (Power Platform)
Simulation & optimization
Machine learning in planning
Quality & TQM
Workforce analytics
LCA & sustainability

SELECTED PUBLICATIONS

Environmental Benefits of Virtual Sampling for Garment Production
Journal of Cleaner Production 538 · Elsevier · 2026 · DOI 10.1016/j.jclepro.2025.147401

Water and Energy Consumption of Textile Products: Case Studies
International Caucasus Water and Energy Symposium (CAWES), Artvin · 2024

Digital Transformation and Its Effects on Productivity in a Clothing Company
XVIth International Izmir Textile and Apparel Symposium · 2023

Environmental Benefits of Cleaner Production Practices in the Apparel Industry
Pamukkale University Journal of Engineering Sciences 29(6) · 2023 · DOI 10.5505/pajes.2022.13794

Prevention of Measurement and Symmetry Errors Encountered in Clothing Production
SDU Journal of Natural and Applied Sciences 27(3) · 2023 · DOI 10.19113/sdufenbed.1281759

A Simulation-Based Analysis for Sewing Lines of the Apparel Industry
International Symposium for Production Research (ISPR) · Springer · 2023 · DOI 10.1007/978-3-031-24457-5_56

Prediction of Cloth Waste Using Machine Learning Methods in the Textile Industry
9th International Conference on Electrical and Electronics Engineering (ICEEE) · IEEE · 2022 · DOI 10.1109/ICEEE55327.2022.9772517

Evaluation of Embroidery Defects and Solution Proposals in Clothing Sector
European Journal of Engineering Science and Technology 5(1) · 2022 · DOI 10.33422/ejest.v5i1.979

Estimating Lead Time Using Machine Learning Algorithms: A Case Study by a Textile Company
Innovations in Intelligent Systems and Applications Conference (ASYU) · IEEE · 2021 · DOI 10.1109/ASYU52992.2021.9599012

Development of Competency Analysis System for Sewing Operators in Clothing Industry
4th Int. Conference on Modern Research in Engineering, Technology and Science (ICMETS) · 2021 · DOI 10.33422/4th.icmets.2021.07.03

18 peer-reviewed publications in total — interactive list at **safakbirol.com**