E-Textiles: Electronic Textiles 2016-2026

Description: We are in contact with textiles for more than 90% of our lives, and they are starting to become intelligent. The basis of this new functionality is the integration of textiles and electronics. From clothing to bandages, bed linen to industrial fabrics, new products integrating e-textiles are being created. The market has been slow to start due to many challenges, but with large companies investing heavily and releasing early products, we expect the growth to accelerate rapidly over the next decade.

In their purest form according to the definition, e-textiles based on the integration of inherently electrically or electronically active fibres have begun to see integration into early products. However, with many associated challenges around reliability, performance and comfort, there has been a strong push towards other solutions that can achieve better properties including washability, stretchability and new functionalities. The result is a complex ecosystem of different material, component and connection options that are now available for product designers.

The author has produced a comprehensive guide to all of the key techniques in use throughout industry and research today. Key advances in the last five years have led to early commercial products, with a market of around $100m in 2015. However, as larger names enter the space and returns on the significant investments made start to surface, the author forecasts that the market will reach over $3bn by 2026, with 'Sports & Fitness' and 'Medical & Healthcare' being the two largest sectors.

The report describes the full value chain, looking from the material and component options, to the manufacturing challenges, through to the applications, markets and key end users. Trends by market sector are crucial, as the addressable markets are both large and diverse. The report characterises key market sectors including 'Sports & Fitness', 'Medical & Healthcare', 'Wellness', 'Home & Lifestyle', 'Industrial, commercial, military', 'Fashion' and 'Others' (including automotive). For each, we report on progress amongst key players and projects, as well as outlining the unmet needs and growth potential of each.

Finally, the report looks further into the future, describing the cutting-edge of e-textile research. Componentry such as photovoltaics, supercapacitors, batteries and even memory are made directly as a fiber. Materials such as carbon nanotubes, inorganic nanorods and piezoelectrics are integrated within textile structures, introducing new properties. Systems combining the best in conventional electronics with flexible sensors and actuators via bespoke connectors enable new product options. Whilst some of these options remain further in the future, we report on key findings that will impact the industry in years to come.

Contents:

1. EXECUTIVE SUMMARY

2. INTRODUCTION
2.1. Definitions
2.2. E-Textiles: Where textiles meet electronics
2.3. The intersection of electronics and textiles industries
2.4. Examples of e-textile products today
2.5. Context within the broader subject: Wearable Technology
2.6. Key trends in wearable technology
2.7. Related applications in Technical Textiles
2.8. Modern developments in context: Woven Electronics®
2.9. Prominent related areas to e-textiles
2.10. Electromagnetic Shielding
2.11. Antistatic protective clothing
2.12. Antimicrobial textiles
2.13. Thermal regulation in textiles
2.14. Protective clothing for impact resistance
2.15. Strategies for creating textile-integrated electronics
2.16. Challenges when moving into the e-textiles space

3. E-TEXTILE MATERIALS AND COMPONENTS
3.1. E-textiles materials use today
3.2. Fibres, yarns and textiles
3.3. Entirely metallic fabrics
3.4. Use of metal cabling
3.5. Fibres & Yarns
3.6. Textile Cabling
3.7. Textiles and Fabrics
3.8. Inks and Encapsulation
3.9. Polymers
3.10. Example suppliers for each material type
3.11. Working alongside conventional electronics
3.12. Connectors for e-textiles
3.13. Connector options today
3.14. Snap fasteners
3.15. Thermoplastic adhesive bonding: Fraunhofer IZM
3.16. Soldering
3.17. Conductive adhesives
3.18. Metallic contacts: conventional and bespoke
3.19. Embroidery
3.20. Component types: who is making what?

4. E-TEXTILES MARKETS
4.1. Categorisation by market sector
4.2. Sports & Fitness: Overview
4.3. Sports & Fitness: Key product characteristics
4.4. Sports & Fitness: The impact of VC funding
4.5. Sports & Fitness: Key Players
4.6. Wellness
4.7. Medical & Healthcare
4.8. Home & Lifestyle
4.9. Hospitality markets
4.10. Industrial, Commercial, Military
4.11. Fashion
4.12. Examples of high fashion and bespoke work
4.13. Others: Vehicular interiors

5. MARKET FORECASTS, 2016-2026
5.1. Market forecast for e-textiles - by industry sector
5.3. CAGR by industry sector

6. ENABLING TECHNOLOGIES FOR THE FUTURE OF E-TEXTILES
6.1. Emerging types of electrically active fibres and textiles
6.2. European Commission projects
6.3. New conductive fibres from industry and academia
6.4. Novel approaches to conductive textiles: CNT & graphene
6.5. RFID Yarns for asset tracking
6.6. Integrating other electronics within yarns

7. ENERGY HARVESTING TECHNIQUES IN TEXTILES
7.1. Piezoelectric fibres: Georgia Institute of Technology, USA
7.2. Piezoelectric fibres: University of Bolton, UK
7.3. Piezoelectric Fabric
7.4. Piezoelectric Fabric: University of Bolton, UK
7.5. Concordia University XS Labs, Canada
7.6. Cornell University, USA
7.7. Georgia Institute of Technology, USA
7.8. Southampton University, UK
7.9. University of California Berkeley, USA
7.10. Energy-Scavenging Nanofibers: UC Berkeley, USA
7.11. Photovoltaic Fibres
7.12. Illuminex, USA
7.13. Penn State University, USA
7.14. University of Southampton, UK
7.15. Multi-mode energy harvesting in textiles
7.16. Textile Supercapacitors
7.17. Drexel University, USA
7.18. Imperial College London, UK
7.19. Stanford University, USA
7.20. University of Delaware, USA
7.21. University of Wollongong, Australia
7.22. Flexible Woven Batteries
7.23. Polytechnic School of Montreal, Canada
7.24. Logic and Memory

8. CASE STUDY - SMART CLOTHING: PAST, PRESENT, FUTURE
8.1. 75 years of 'Smart Clothing'
8.2. Early commercial examples: Infineon, Philips, O’Neill
8.3. Related products: HRM Chest Straps
8.4. Integrating HRM into clothing
8.5. The wearable technology boom
8.6. The implications of BLE for smart clothing
8.7. Who uses smart clothing today?
8.8. Market Forecast (apparel only), 2016-2026
8.9. Examples from key sectors
8.10. Large players enter the market: 3 strategies

9. RAW DATA
9.1. E-Textiles - number of units sold in millions
9.2. Apparel only - number of units sold in millions
9.3. E-Textiles - total revenue in USD millions
9.4. Apparel only - total revenue in USD millions

10. INTERVIEW BASED COMPANY PROFILES
10.1. AiQ Smart Clothing
10.2. BeBop Sensors
10.3. Brochier Technologies
10.4. Cetemmsa
10.5. Clothing+
10.6. Footfalls and Heartbeats
10.7. Forster Rohner AG
10.8. Hexoskin
10.9. Holst Centre
10.10. IMEC
10.11. Infi-tex
10.12. Intelligent Textiles Limited
10.13. Interactive Wear
10.14. MC10
10.15. Medical Design Solutions
10.16. Primo1D
10.17. Ohmatex ApS
10.18. Samsara S.r.l.
10.20. Sensing Tex
10.21. Sensoria
10.22. Smartlife Technology Ltd
10.23. Stretchsense
10.24. Vista Medical
10.25. Wearable Life Science

Ordering: Order Online - http://www.researchandmarkets.com/reports/2782573/
Order by Fax - using the form below
Order by Post - print the order form below and send to

Research and Markets,
Guinness Centre,
Taylors Lane,
Dublin 8,
Ireland.
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit http://www.researchandmarkets.com/contact/

Order Information
Please verify that the product information is correct and select the format(s) you require.

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>E-Textiles: Electronic Textiles 2016-2026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Address:</td>
<td><a href="http://www.researchandmarkets.com/reports/2782573/">http://www.researchandmarkets.com/reports/2782573/</a></td>
</tr>
<tr>
<td>Office Code:</td>
<td>SCPLIRFS</td>
</tr>
</tbody>
</table>

Product Formats
Please select the product formats and quantity you require:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic (PDF) - 1 - 5 Users:</td>
<td>USD 5587</td>
</tr>
<tr>
<td>Electronic and Hard Copy (PDF) - 1 - 5 Users:</td>
<td>USD 5893 + USD 57 Shipping/Handling</td>
</tr>
<tr>
<td>Electronic (PDF) - 1 - 10 Users:</td>
<td>USD 8366</td>
</tr>
<tr>
<td>Electronic and Hard Copy (PDF) - 1 - 10 Users:</td>
<td>USD 8673 + USD 57 Shipping/Handling</td>
</tr>
</tbody>
</table>

* Shipping/Handling is only charged once per order.

Contact Information
Please enter all the information below in BLOCK CAPITALS

<table>
<thead>
<tr>
<th>Title:</th>
<th>Mr</th>
<th>Mrs</th>
<th>Dr</th>
<th>Miss</th>
<th>Ms</th>
<th>Prof</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email Address: *</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Title:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postal / Zip Code:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fax Number:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check: Please post the check, accompanied by this form, to:
Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

☐ Pay by wire transfer: Please transfer funds to:
Account number 833 130 83
Sort code 98-53-30
Swift code ULSBIE2D
IBAN number IE78ULSB98533083313083
Bank Address Ulster Bank,
27-35 Main Street,
Blackrock,
Co. Dublin,
Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: 

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp