E-Textiles Network

DIRECTORY OF SKILLS AND EXPERTISE

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Introduction

The E-Textiles Network is an EPSRC funded activity to bring together researchers and developers from academia and industry interested in adding smart electronic functionality to textiles and their related products. E-textiles is inherently multidisciplinary and typically requires knowledge of fabrics, electronics, sensors, manufacturing and assembly. It is difficult for organisations and individuals to cover all such areas and therefore working in collaboration with others is often a necessity.

The intention of this directory is to create a comprehensive list of Network members working in the field of E-textiles and detail their relevant expertise. This is intended to help E-Textile Network members and other interested parties identify where certain expertise, facilities and know-how can be found, and who to contact. This may be used to identify potential collaborators for specific projects and research, or to assist in the development of new etextiles products.

The E-Textiles Network is engaged in numerous activities to help promote the development of E-Textiles. For full details of the Network's activities, please visit our website: https://e-textiles-network.com/

How to use this directory

The first part of the directory is split into areas of expertise, such as manufacturing, and services offered. Underneath each area is a list of the academic institutions, companies, or individuals with expertise in that area with links to their contact details.

Keywords, such as "conductive inks" can also be searched using the find or ctrl F function.

The second part of the directory is an index of the academic institutions, companies and individuals working on aspects of E-Textiles. This index details their areas of expertise, skills, facilities and services offered, and provides their full contact details.



Areas of Expertise

Search the below areas of expertise to identify the expertise required:

Electronics in Textiles

- <u>Ashish Kapoor</u>
- <u>Cardiff Metropolitan University</u>
- <u>Conductive Transfers Limited</u>
- <u>Coventry University</u>
- Centre for Process Innovation Limited (CPI)
- FabTextiles, IAAC
- Ghent University
- Giulia Tomasello
- GKAWeartech
- Imperial College London
- <u>Mili Tharakan</u>
- Moderncraft
- North Carolina State University
- Power Textiles Limited
- Royal College of Art
- Siksha O Anusandhan
- Smart Fabric Inks Limited
- Smart Textile Alliance
- Svetoslav Makaveev
- <u>Thrive Wearables Ltd</u>
- <u>Tinker Design</u>
- <u>Touchcraft</u>
- University of Cambridge
- University of Southampton, Centre for Flexible Electronics and E-Textiles
- Waterford institute of technology
- <u>Winchester School of Art, University of Southampton</u>

Textile Power Supplies

- <u>Centre for Process Innovation Limited (CPI)</u>
- <u>Moderncraft</u>
- National Textile University, Pakistan



- North Carolina State University
- Power Textiles Limited
- Siksha O Anusandhan
- <u>Thrive Wearables Ltd</u>
- University of Cambridge
- University of Southampton, Centre for Flexible Electronics and E-Textiles

Textile Sensors and Actuators

- Ashish Kapoor
- <u>Cardiff Metropolitan University</u>
- Conductive Transfers Limited
- Centre for Process Innovation Limited (CPI)
- FabTextiles, IAAC
- Footfalls and Heartbeats
- Ghent University
- Imperial College London
- Infi-tex
- Mili Tharakan
- Moderncraft
- National Textile University, Pakistan
- North Carolina State University
- Royal College of Art
- Siksha O Anusandhan
- Smart Fabric Inks Limited
- <u>Teknopalas Yüksek Teknoloji sistemleri A.Ş.</u>
- <u>Thrive Wearables Ltd</u>
- <u>Tinker Design</u>
- <u>University of Cambridge</u>
- University of Southampton, Centre for Flexible Electronics and E-Textiles
- <u>Waterford institute of technology</u>
- <u>Winchester School of Art, University of Southampton</u>



Manufacturing

- <u>Ashish Kapoor</u>
- Barbara Shepherd Associates
- Cardiff Metropolitan University
- <u>Conductive Transfers Limited</u>
- <u>Centre for Process Innovation Limited (CPI)</u>
- Etexsense Limited
- FabTextiles, IAAC
- Footfalls and Heartbeats
- GKAWeartech
- Manchester Metropolitan University
- Moderncraft
- Smart Fabric Inks Limited
- Svetoslav Makaveev
- <u>Thrive Wearables Ltd</u>
- <u>Tinker Design</u>
- <u>Winchester School of Art, University of Southampton</u>

Materials

- Cardiff Metropolitan University
- Ashish Kapoor
- <u>Coventry University</u>
- <u>Centre for Process Innovation Limited (CPI)</u>
- Etexsense Limited
- FabTextiles, IAAC
- Giulia Tomasello
- GKAWeartech
- Mili Tharakan
- Moderncraft by MAS
- National Textile University, Pakistan
- OrelTech
- Power Textiles Limited
- Royal College of Art
- Siksha O Anusandhan
- Smart Fabric Inks Limited



- Syscom Advanced Materials
- <u>Teknopalas Yüksek Teknoloji sistemleri A.Ş.</u>
- <u>Thrive Wearables Ltd</u>
- <u>Touchcraft</u>
- University of Cambridge
- University of Nottingham
- University of Southampton, Centre for Flexible Electronics and E-Textiles
- Winchester School of Art, University of Southampton

Applications

- <u>ALTEX_PROTolab</u>
- <u>Ashish Kapoor</u>
- Bonnie Binary
- Cardiff Metropolitan University
- Centre for Process Innovation Limited (CPI)
- Etexsense Limited
- FabTextiles, IAAC
- Ghent University
- Giulia Tomasello
- Imperial College London
- Mili Tharakan
- Moderncraft
- North Carolina State University
- Power Textiles Limited
- Siksha O Anusandhan
- Smart Fabric Inks Limited
- Svetoslav Makaveev
- <u>Teknopalas Yüksek Teknoloji sistemleri A.Ş.</u>
- <u>Thrive Wearables Ltd</u>
- Tinker Design
- <u>Touchcraft</u>
- University of Cambridge
- University of Southampton, Centre for Flexible Electronics and E-Textiles
- Waterford institute of technology
- <u>Winchester School of Art, University of Southampton</u>
- Zelemiq Ltd



Sustainability

- Centre for Process Innovation Limited (CPI)
- FabTextiles, IAAC
- Moderncraft
- Power Textiles Limited
- <u>Thrive Wearables Ltd</u>
- <u>Tinker Design</u>
- <u>Touchcraft</u>
- University of Southampton, Centre for Flexible Electronics and E-Textiles
- <u>Winchester School of Art, University of Southampton</u>



Services Offered

Consultancy

- <u>ALTEX_PROTolab</u>
- <u>Ashish Kapoor</u>
- Barbara Shepherd Associates
- <u>Cardiff Metropolitan University</u>
- Centre for Process Innovation Limited (CPI)
- Giulia Tomasello
- Manchester Metropolitan University
- Nottingham Trent University
- Power Textiles Limited
- Smart Fabric Inks Limited
- Smart Textile Alliance
- <u>Tinker Design</u>
- University of Cambridge

Research

- <u>Coventry University</u>
- Etexsense Limited
- FabTextiles, IAAC
- Giulia Tomasello
- Imperial College London
- Nottingham Trent University
- Siksha O Anusandhan
- <u>Touchcraft</u>
- University of Cambridge
- University of Southampton, Centre for Flexible Electronics and E-Textiles
- Waterford Institute of Technology
- Winchester School of Art, University of Southampton

Product Design/Modelling

• Siksha O Anusandhan



- <u>Thrive Wearables Ltd</u>
- <u>Touchcraft</u>
- <u>University of Nottingham</u>
- Winchester School of Art, University of Southampton
- Zelemiq Ltd

Development/Prototyping/Testing

- Bonnie Binary
- Conductive Transfers Limited
- <u>Coventry University</u>
- Etexsense Limited
- FabTextiles, IAAC
- Footfalls and Heartbeats (UK) Limited
- Ghent University
- <u>Mili Tharakan</u>
- Moderncraft by MAS
- National Textile University, Pakistan
- Royal College of Art
- Smart Fabric Inks Limited
- Syscom Advanced Materials
- Texber S.A.
- <u>Thrive Wearables Ltd</u>
- <u>Touchcraft</u>
- University of Southampton, Centre for Flexible Electronics and E-Textiles
- <u>Winchester School of Art, University of Southampton</u>
- Zelemiq Ltd



Directory

Academic Institutions



Cardiff Metropolitan University

Contact: Aidan Taylor - artaylor@cardiffmet.ac.uk

electricnoodlebox.com/hug.world

Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Manufacturing, Materials, Applications

Skills and Facilities: Embedded electronics, programming, PCB design, electronics manufacture, rapid prototyping, interaction design, embedded audio, sound design

Services offered: Design consultancy



Coventry University

Contact: Latha Krishnan- ab9187@coventry.ac.uk

Area of Expertise: Materials, Textiles, E-Textiles

Skills and Facilities: Metallisation of textiles, Pre-treatments for E-textiles, electroless conductive coatings on textiles, Inkjet printing, E-Textile testing facilities, nanoparticle and conductive ink formulation, Materials

Services offered: Collaboration on R&D, Feasibility studies, Printing of e-textiles, Research services



Ghent University

Contact: Benny Malengier - benny.malengier@ugent.be



https://www.ugent.be/ea/match/textiles/en Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Applications Skills and Facilities: Academic textile lab Services offered: testing facilities GKAWeartech Contact: Gunikka Ahuja - <u>https://www.gkaweartech.com/</u> Area of Expertise: Electronics in Textiles, Manufacturing, Materials Skills and Facilities: e-textiles, nanotechnology

Imperial College London

Imperial College London

Contact: Rebecca Stewart - r.stewart@imperial.ac.uk

https://www.imperial.ac.uk/design-engineering/

Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Applications

Skills and Facilities: Design and prototyping of interactive e-textile systems using sewn, knit, or woven techniques.

Services Offered: Research collaborations



Manchester Fashion Institute, Manchester Metropolitan University

Contact: Barbara Shepherd - B.Shepherd@mmu.ac.uk Area of Expertise: Manufacturing, Recognised industry expert in garment manufacturing Skills and Facilities: +20 years Industrial experience + 10yrs Academia Services offered: Textile Consultancy





National Textile University, Pakistan

Contact: Usman Zubair - usman.zubair@ntu.edu.pk

Area of Expertise: Textile Power Supplies, Textile Sensors and Actuators, Materials

Skills and Facilities: Power/Energy autonomous Sensing applications

Services offered: Development, testing and characterization of smart e-textiles



North Carolina State University

Contact: Md Milon Hossain

Area of Expertise: Electronics in Textiles, Textile Power Supplies, Textile Sensors and Actuators, Applications

Skills and Facilities: Carbon Nanotube synthesis, spinning of carbon nanotube yarn, electromechanical characterizations, sensing and Joule heating applications

Nottingham Trent University

Contact: Rachael Wickenden - rachael.wickenden@ntu.ac.uk

www.linkedin.com/in/rachael-wickenden

Area of Expertise: Manufacturing, Applications, Sustainability

Skills and Facilities: Human-Centred Design, Textile Design, Textile Manufacturing

Services offered: Teaching, Consultancy, Research





Royal College of Art

Contact: Elif Ozden Yenigun - elif.ozden-yenigun@rca.ac.uk

Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Composite Materials

Skills and Facilities: All sort of textile making facilities, and nano materials synthesis



Siksha O Anusandhan Contact: Priyabrata Pattanaik - <u>priyabratapattanaik@soa.ac.in</u>

www.soa.ac.in

Area of Expertise: Electronics in Textiles, Textile Power Supplies, Textile Sensors and Actuators, Materials, Applications

Skills and Facilities: Material preparation and sensor design

Services offered: research modelling and analysis



University of Cambridge

Contact: Tommaso Busolo- Tomma92@gmail.com

https://www.linkedin.com/in/tommaso-busolo/

Area of Expertise: Electronics in Textiles, Textile Power Supplies, Textile Sensors and Actuators, Materials, Applications

Skills and Facilities: Energy harvesting textiles, triboelectric, materials characterization, textile sensors,

FEA modelling, electrospinning

Services offered: Consultancy, R&D





University of Nottingham

Contact: Dr Louise Brown - louise.brown@nottingham.ac.uk

www.texgen.sourceforge.net

Area of Expertise: Materials, Textile modelling and simulation

Skills and Facilities: TexGen software for 3D modelling of textiles, textile modelling and simulation

Services offered: Support for textile modelling using TexGen and potential collaboration for textile modelling related research



University of Southampton - Centre for Flexible Electronics and E-Textiles

Contact: Steve Beeby - spb@ecs.soton.ac.uk

www.ecs.soton.ac.uk

Area of Expertise: Electronics in Textiles, Textile Power Supplies, Textile Sensors and Actuators, Materials, Applications, Sustainability

Skills and Facilities: Flexible electronics design and fabrication, textile-based energy harvesting and energy storage (batteries/supercapacitors), ink formulation and printing, MEMS sensor integration and packaging, materials testing

Services offered: Electronics and sensor integration within textiles, electronics circuit design, proof of concept and prototyping, functional ink development, printing e-textiles, research services.





Waterford Institute of Technology - TSSG

Contact: Frances Cleary-fcleary@tssg.org

https://www.tssg.org/

Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Applications

Skills and Facilities: Research organisation - ICT software development expertise -e-textile laboratory (inkjet printing / technical embroidery techniques)

Services offered: Research investigation/ analysis / experimentation



Winchester School of Art, University of Southampton

Contact: Dr Kai Yang - ky2e09@soton.ac.uk

https://www.southampton.ac.uk/wsa

Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Manufacturing, Materials, Applications, Sustainability

Skills and Facilities: E-textile design, printing (Semi-automatic paste printer), weaving (Digital Jacquard loom), knitting (Shima Seiki knitting machine), application development

Services offered: Collaboration on R&D, feasibility studies, advice on e-textile technologies, market study, design, and development



Industry



Bonnie Binary

Contact: Annie Lywood - a.lywood@btinternet.com www.bonniebinary.co.uk

Area of Expertise: Electronics in Textiles, Applications, SustainabilitySkills and Facilities: Design of e-textile products for social care solutionsServices offered: Sensory and interactive textile products for wellbeing



Centre for Process Innovation Limited (CPI)

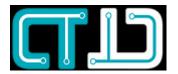
Contact: Sean Bolton info@uk-cpi.com

https://www.uk-cpi.com/

Area of Expertise: Electronics in Textiles, Textile Power Supplies, Textile Sensors and Actuators, Manufacturing, Materials, Applications, Sustainability

Skills and Facilities: Extensive innovation capabilities and assets, helping to guide our partner's/collaborator's/customer's projects through to commercialisation.

Services offered: The combination of our innovation processes and outstanding scientific expertise enables our partners to get more products to market faster, and at a lower cost.



Conductive Transfers Limited

Contact: Mark Catchpole - mark@conductivetransfers.com

www.conductivetransfers.com

Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Manufacturing



Skills and Facilities: Printed circuits for e-textiles using patented transfer process. 1100m2 UK factory

Services offered: Prototype circuits (2 weeks, <£1k). Volume production. IP licensing & tech. transfer



Etexsense Limited Contact: Dr Kai Yang - <u>etexsense@gmail.com</u> http://etexsense.com/

Area of Expertise: Manufacturing, Materials, Applications
Skills and Facilities: E-textile based wearable electrotherapy for pain relief and rehabilitation
Services offered: Pain relief products, bespoke electrode manufacturing, collaboration on R&D



Footfalls and Heartbeats (UK) Limited

Contact: Simon McMaster - info@footfallsandheartbeats.com

www.footfallsandheartbeats.com

Area of Expertise: Textile Sensors and Actuators, Manufacturing

Skills and Facilities: Prototyping and small-scale manufacturing of knitted smart textile solutions. Flatbed and circular knitting machines.

Services offered: Pressure, strain, bio-electrical and optical sensors knitted into textile garments, surfaces and shoes.



Infi-tex

Contact: Myra Waiman - myra@infi-tex.com

www.infi-tex.com

Area of Expertise: Textile Sensors and Actuators



Skills and Facilities: designing and making textile sensors using our own proprietary ink.

Services offered: sensors measure change of pressure - sensors designed as inner soles, multitouch mats and button actuators

MODERNCRAFT 3 bv MAS

Moderncraft by MAS

Contact: Moderncraft - hello@moderncraft.io

www.moderncraft.io

Area of Expertise: Electronics in Textiles, Textile Power Supplies, Textile Sensors and Actuators, Manufacturing, Materials, Applications, Sustainability

Skills and Facilities: 1. Technical Multi-functional Knit

- Facilitate integration of monitoring devices for vital tracking that are small & non-invasive
- Ability to create 3D knit structures with different designs & thicknesses
- Ability to incorporate different modulus, & different structures and layers on the same fabric
- 2. Advance Surface Modification
- Water repellency and other resistive properties
- Enhance grip for performance application
- Silicon flocking for elevated hand feel
- 3. Powerful Electronics
- Washable sensors and support electronics
- High speed data cables seamlessly integrated into fabric
- High power transfer safely and reliably.

Services offered: Proprietary process with development and formulation of any product through rigorous testing and wear involvement with ISO 9001, 14001 & 13485, OHSAS 18001 and LEED compliant manufacturing facilities globally.



OrelTech

Contact: Marie Westphal - marie@oreltech.com

www.oreltech.com

Area of Expertise: Materials

Skills and Facilities: Conductive ink manufacturer

Services offered: Conductive inks



Power Textiles Limited

Contact: John Wilson and Robert Mather - info@powertextiles.com

www.powertextiles.com

Area of Expertise: Electronics in Textiles, Textile Power Supplies, Materials, Applications, Sustainability, Photovoltaics

Skills and Facilities: Photovoltaic power generation, textile chemistry and technology

Services offered: Consultancy in the topics above



Smart Fabric Inks Limited

Contact: Dr Russel Torah and Dr John Tudor - enquiries@fabinks.com

http://www.fabinks.com/

Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Manufacturing, Materials, Applications, Ink formulations

Skills and Facilities: E-textiles, functional inks for e-textile, e-textile based sensors and actuators, applications (e.g. textile, healthcare, automotive, creative industry), screen printing

Services offered: Feasibility studies, Advice on printing technology, Technology surveys, Design and development, Literature and patent surveys

Smart Textile Alliance

Contact: Christian Dalsgaard and Mili John Tharakan

https://smarttextilealliance.com/

Area of Expertise: Electronics in Textiles, Develop Industry Standards and certification programs for Smart Textiles

Services offered: Standardisation Program: We are an independent body seeking to align the smart textiles industry and mature the supply chain for the emerging technology. We facilitate the development of smart textile standards and certify solutions that are interoperable through cross industry collaborations and partnerships.

Support Lab: Collaborating on R&D projects and consulting for clients,

Product development, manufacturing capability or adaptation of smart textiles in general,

Provide training and advisory services for partners in the supply chain

Coordinating expert panels or advisory boards

Matchmaking investments in smart textile ventures





Syscom Advanced Materials

Contact: Jake Courtright - jcourtright@metalcladfibers.com

http://www.metalcladfibers.com/

Area of Expertise: Materials

Skills and Facilities: Producer of conductive yarns and fibers.

Services offered: Syscom Advanced Materials are a producer of highly conductive yarns. Some with DC resistances under $\sim 1\Omega/ft$. Our products range from high tensile strength bases like PBO and liquid crystal polymers to flexible fibers like nylon.



Texber S.A.

Contact: Josep Miquel Canal - ino@texber.com

www.texber.com

Area of Expertise: Manufacturing

Skills and Facilities: Custom fabric manufacturer

Services offered: We develop and manufacture custom made fabrics



TINKER

Tinker Design Contact: Thushara Sabreen - Thushara@tinker-design.com www.tinker-design.com



Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Manufacturing, Applications, Sustainability, Fashion Technology

Skills and Facilities: Innovation /Wearable Technology / Product development concept to launch

Services offered: Consultant



Thrive Wearables Ltd

Contact: Jacob Skinner and Dave Sandbach - <u>jacob@thrivewearables.com</u> <u>dave@thrivewearables.com</u>

www.thrivewearables.com

Area of Expertise: Electronics in Textiles, Textile Power Supplies, Textile Sensors and Actuators, Manufacturing, Materials, Applications, Sustainability, Full wearable technology design and development services

Skills and Facilities: Full wearable tech development labs and facilities, including fabrication and assembly, test and debugging.

Services offered: Technology Strategy, full hardware prototyping, app and interface design, back end, service design, data science, deployment strategy, mass production management, support in field.



Zelemiq Ltd

Contact: Dr Rod Lane - rod@zelemiq.com

www.zelemiq.com

Area of Expertise: Applications

Skills and Facilities: Med Tech, Electronics design and manufacture, Software and application development, Development Lab and Clinical testing facilities.

Services offered: Product Design, Clinical testing, Manufacture, Medical Regulatory Affairs Consultancy



Consultants

ALTEX_PROTolab

Contact: VICENTE JORGE SANCHIS RICO - vsanchis@mixmail.com

Area of Expertise: Applications

Skills and Facilities: Creativity in products and applications

Services offered: Advice and development of ideas

Ashish Kapoor Contact: Ashish Kapoor - <u>akapoor5@ncsu.edu</u>

https://www.linkedin.com/in/ashish-kapoor-ph-d-a9400b55/

Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Manufacturing, Materials, Applications

Skills and Facilities: Textile based sensors, Fibre based sensors, Fabric based Sensors, Polymer extrusion printing, Conductive fibres, Conducting polymer composites, E-Textiles in Biomedical applications. +10yrs Academia.

Services offered: Consultation

Barbara Shepherd Associates

Contact: Barbara Shepherd - barbara@barbarashepherdassociates.co.uk

Area of Expertise: Manufacturing, Recognised industry expert in garment manufacturing

Skills and Facilities: +20 years Industrial experience + 10yrs Academia

Services offered: Textile Consultancy



FabTextiles, IAAC

Contact: Anastasia Pistofidou - info@fabtextiles.org

http://fabtextiles.org/

Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Manufacturing, Materials, Applications, Sustainability, biomaterials, 3D printing, 3D modelling

Skills and Facilities: Fab Textiles research lab at IAAC Fab Lab Barcelona is equipped with digital fabrication equipment (laser cutters, 3D printers, robotic arm, cnc milling machines, digital



embroidery, sewing machines, biolab) and offer design, hardware development, learning experiences and educational programs.

Services offered: R&D, training, EU projects partnerships

Giulia Tomasello

Contact: Giulia Tomasello - tomasello.gi@gmail.com

https://gitomasello.com/ https://al-ma.org/

Area of Expertise: Electronics in Textiles, Materials, Applications

Skills and Facilities: hardware development

Services offered: research innovation, product design, user experience, interaction design, material, sensor technology consultation

Mili Tharakan Contact: Mili Tharakan - mili@militharakan.com

Area of Expertise: Electronics in Textiles, Textile Sensors and Actuators, Materials, Applications

Skills and Facilities: Skills: Smart Textiles / E-textiles research, Innovation pipeline, Product Development and Management

Services offered: Prototyping, Product Development, Product Management of e-textiles and related products, Business strategy, Innovation services



Teknopalas Yüksek Teknoloji sistemleri A.Ş.

Contact: Mujgan Naycı Duman - proje.yonetim5@teknopalas.com.tr

www.teknopalas.com.tr

Area of Expertise: Textile Sensors and Actuators, Materials, Applications

Skills and Facilities: Innovation, software, and product development, IoT and RFID embedded applications (e.g. textile, healthcare, automotive, transportation, retail industries), automation and management systems with RFID labels and readers.

Services offered: R&D, product and process solutions with ISO 9001 globally.



The Textile Institute/AATCC member Contact: Svetoslav Makaveev - smakaveev@outlook.com

Area of Expertise: Electronics in Textiles, Manufacturing, Applications

Touchcraft

Contact: Lucie Hernandez – lucie@touchcraft.org.uk

http://touchcraft.org.uk/

Area of Expertise: Electronics in Textiles, Materials, Applications, Sustainability, e-textiles for wellbeing

Skills and Facilities: Creative workshop facilitation, e-textiles for storytelling

Services offered: Design & Development, Research, Creative Engagement Activities, Fabrication

