# Knowledge for Innovation

27 March 2007

The **K4I** Development Partnership is part funded by the
European Social Fund under the Equal Community Initiative Programme

# Rationale behind the Knowledge for Innovation Development Partnership

- The UK textile Industry is facing the challenge of moving from ‘competing on relatively low costs to competing on value and innovation’
- The UK has the potential for early and high impact in niches areas
- K4I will enable this to happen by focusing on skills and knowledge

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# Knowledge for Innovation Development Partnerships 2 Main Objectives

- The development of the Knowledge Bank – an online learning system which will enable SMEs to take advantage of the latest academic and technical knowledge.
- The creation of the Industry Innovation Unit – a team of experts researching ways in which SMEs can take advantage of new technology and learn to innovate.

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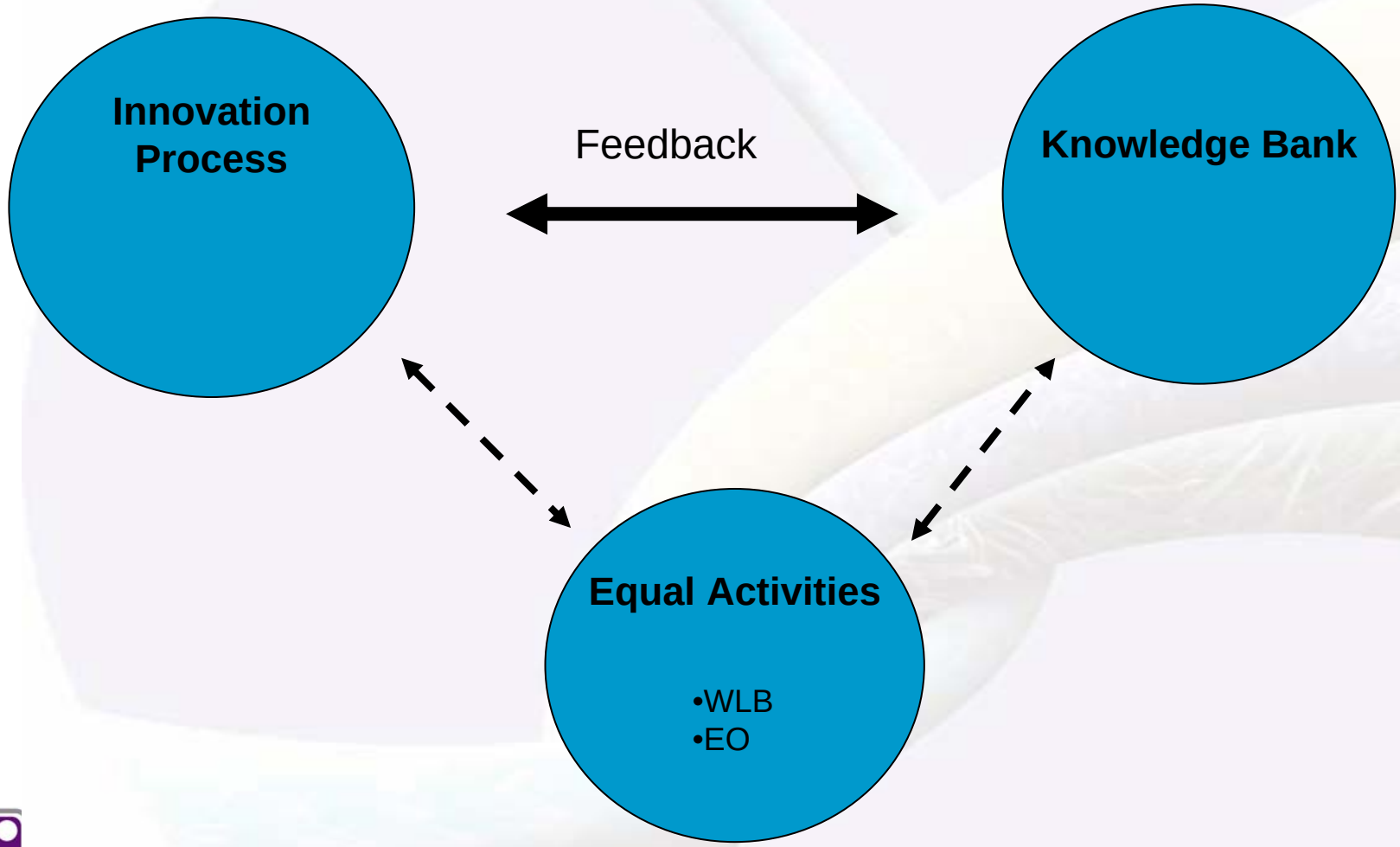
# Knowledge for Innovation

## Overview of how the project operates.



# Objective 1: The Knowledge Bank

- Bespoke learning environment
- The first module ‘Knitting Technology’ has been produced
- Awareness raising, Equal Opportunities and Scan2knit modules are currently in production
- Specific Knowledge will be managed via secure premier login sites

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# Objective 2: The Industry Innovation Unit

- The unit is established
- Work with the Industrial Associates
- Clusters are being developed
- 9 industrial associates
- 10 Patents have been filed
- 6 patents are under development
- 6-7 patents have assigned or licensed

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# Industry Innovation Unit Case study: Scan2Knit Technology

- The Scan2Knit development partnership
- Industrial partner Advanced Therapeutic Materials Ltd, (ATM)
- The uses of Scan2Knit technology
- As a treatment for Venous Leg Ulcers

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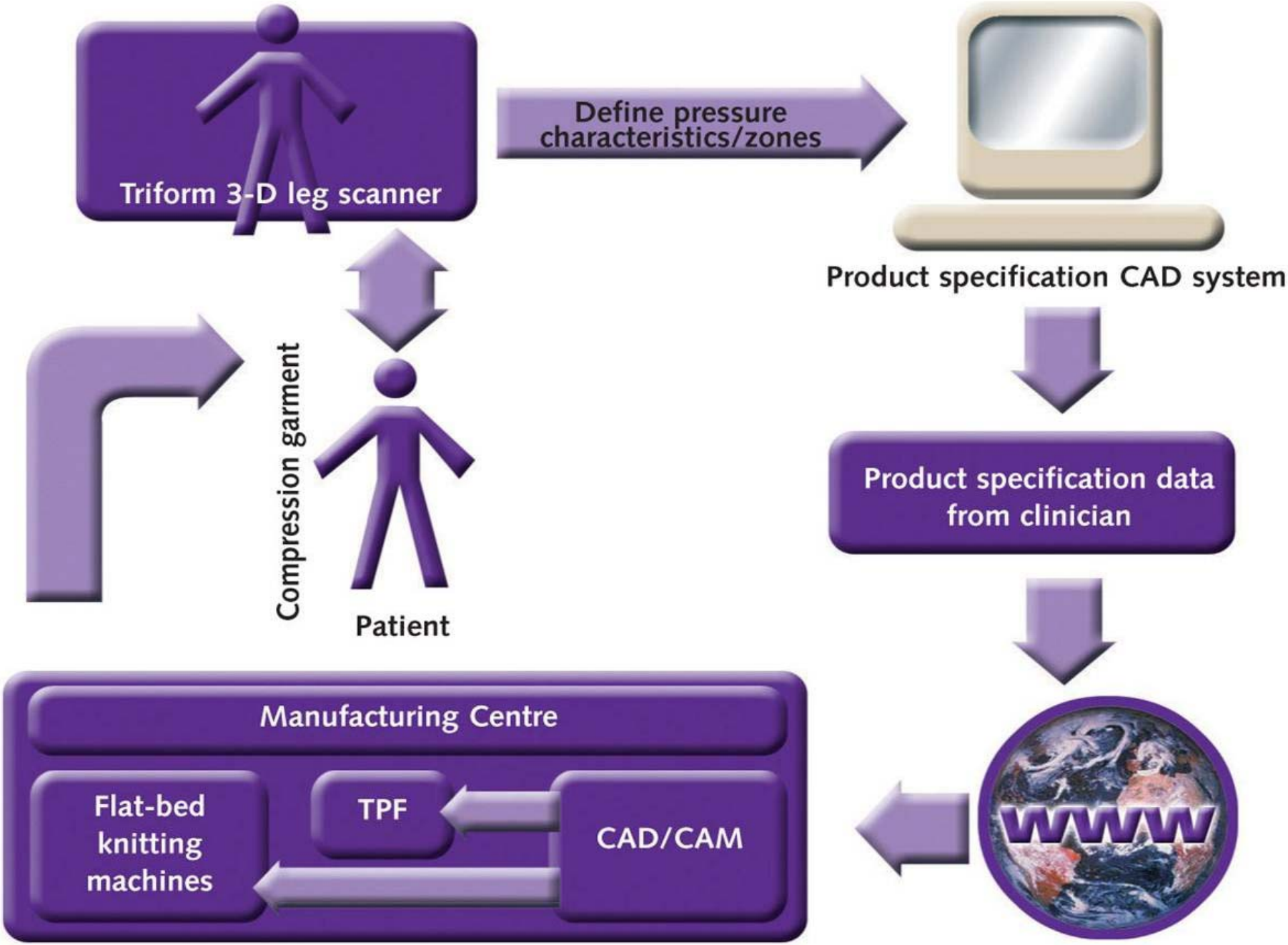
Triform 3-D leg scanner
Define pressure characteristics/zones
Product specification CAD system
Compression garment
Patient
Product specification data from clinician
Manufacturing Centre
Flat-bed knitting machines
TPF
CAD/CAM
WWW

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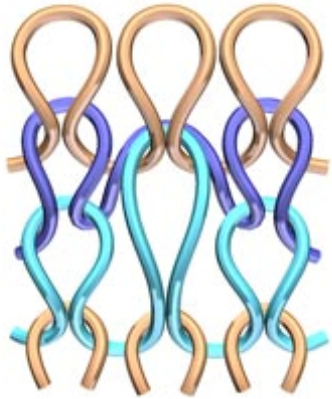
# Welcome to the digital knowledge portal

One of the most vital tools in the innovation process is education. Unfortunately, many small businesses are unable to afford the high costs of specialised textile courses, or have staff who work irregular hours making training difficult to co-ordinate. The Knowledge Bank addresses both of these issues by making high- quality training available to companies and their staff completely free of charge, 24 hours a day.



Detailed Images

Developed by academic experts, business experts and a dedicated IT team at the University of Manchester, School of Materials, the Knowledge Bank presents practical and detailed technical information in the form of modules. It provides an online structured study environment which enables the trainee to focus on specific areas from many disciplines. Each employee's progress will be tracked, enabling them to easily identify areas which have been completed. The interface will be customisable to maximise accessibility, and individuals can be profiled to enable the system to highlight those areas which are likely to be most applicable to them. It will be the most advanced training tool of its kind.

In addition to the training modules, the Knowledge Bank will also provide a searchable technical reference source for researchers and businesses, including information on patents and legislation. There will also be a module covering equal opportunities for both employers and employees.

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# Rib knitted structures

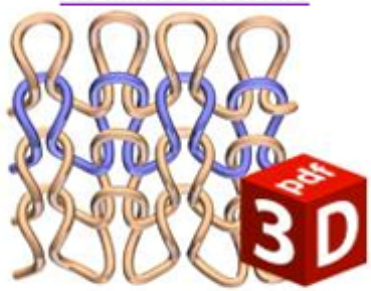
edit | print module | bookmark | Element 8 of 12 << prev next >>

If on both sides of a relaxed weft knitted fabric only face stitches are visible, then it is referred to as a rib knitted fabric. It is produced by meshing the stitches in adjacent wales in opposite directions. This is achieved by knitting with two needle systems which are placed opposite to one another other. As such these fabrics are also known as double jersey or double face fabrics.

When the fabric is stretched widthwise, both sides of the fabric show alternately face and reverse stitches in each course. Once the fabric is released, it shrinks in its width, thus hiding the reverse stitches between the face stitches. These fabrics do not curl at their edges. The simplest rib structure is 1 x 1 rib shown above.

The longitudinal extensibility of the rib structure equals that of a plain knitted structure. The geometry of the yarn path influences the elastic behaviour of the knitted structures. The change of direction of the interlooping of the stitches of neighbouring wales (cross-over points) results in the wales of a rib knitted structure closing up. This gives rib structures

Rib knitted structure




Rib knitted structure

Rib_3D

Rib_fabric

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# Interlock knitted structures

edit | print module | bookmark | Element 10 of 12 << prev next >>

Interlock knitted structures could be considered as a combination of two rib knitted structures. The reverse stitches of one rib knitted structure are covered by the face stitches of the second rib knitted structure. On both sides of the fabric, therefore, only face stitches are visible, and it is difficult to detect the reverse stitches even when the fabric is stretched widthwise.

The geometry of the yarn path influences the stretch behaviour of the knitted fabrics. The change of direction of the meshing of the stitches in adjacent wales results in the wales of a rib knitted fabric closing up giving it better stretch properties widthwise as opposed to other basic knitted structures.

The combination of two rib knitted structures in the interlock structure gives very little or no room at all for the wales or courses to close up, and therefore the interlock fabrics show relatively poor stretch properties in both directions.

continue >>

Interlock knitted structure


Interlock knitted structure

# Interactive objects

Interactive 3D pdf’s enable investigation of knit structures.

A facility to manipulate images assists understanding of fabric properties.

Adobe Acrobat 7.0 Document

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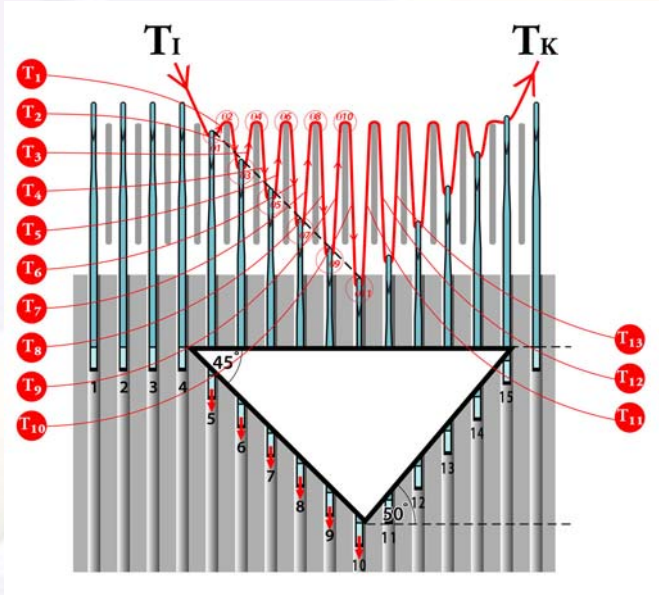
# Further Development of Flash animations

- Considerable effort is currently being devoted to the development of complex technical illustrations to explain difficult concepts such as robbing-back

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- Once the diagram is created as a template the next stage is to develop Flash animations to help the student understand the concept

Click to view animation

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# Comments or questions?

Thank you.

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European Social Fund

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