Report of the visit to Shima Seiki on 2/12/2009

Team A (*English*)

The visit to Shima of Wednesday 2/12/2009 was very useful to understand in detail how should / could work the process of creating real-time knitwear with Shima knitting machine SWG-X Wholegarment. Process should consist in two main phases of PERSONALIZATION + PRODUCTION

Production

During the visit in Carpi last July we had seen the production process of the leaders. These are produced by the machine from a single cloth, made with bobbins of yarn positioned on the machine, without any additional seams.

The garments are then modeled with calature on the sleeves, hem or neckline, according to the needs of style. This type of production that retains the characteristics of workmanship, is destined to high value garment, because its implementation has several technical difficulties. There are knitting mills specializing in knitwear manufacturing prototype, to which designers are turning to obtain the first samples, which will then produce on a large scale. However, Shima machines especially designed for producing high quality garments are used by many mediocre façon, especially in the district of Carpi, because they are able to ensure low production costs.

Personalization

To address these critical Shima has developed a new business, the technology for rapid prototyping. Many companies do not buy Shima machines to realize the production of their leaders but to refine and speed the process of prototyping. Shima offers to its clients this package, made by **SDS-ONE software + Shima machine** that translates the sketch of a stylist in a virtual prototype of the garment and in a paper tissue, incredibly real. This allows companies, in the prototype stage:

- to reduce production time

- to save costs

- to reduce wastes

- to reconstruct the process of prototyping an infinite number of times, and then, according to the same Mr Shima, increase product quality in terms of adherence to the specifications given by the designer: speed is quality!

Traditionally, the prototyping process is divided into the following phases:

1. Sketch of the designer

2. Sampling

    2.1.   Programming software (5 - 6 h)

    2.2.   knitting (90 ')

    2.3.   *Confezionatura* and finishing (a few days)

3. Evaluation of the designer

4. Changes

5. Sampling

6. Evaluation of the designer

7. Decision

8. Production

In contrast, thanks to Shima technology, sampling is only virtual. Therefore, prototypes and evaluations of the designer can be made an infinite number of times at costs close to zero and with a very short time.

Consequently, to use Shima technology the buying company needs:

- a "model" that translates the specifications of the designer in a "shape-model". This role is typically covered by professional women with experience in the knitwear industry, which often have never used a PC, to which Shima is dedicated to providing a training course lasting a week, enough time to explain the restricted functionality necessary to perform the work on a PC.

- an "operator" that works on the SDS-ONE and that l introduces the changes indicated by the designer on the shape mode.

- the work of a "programmer", that is Shima employee, which translates the work of the operator and of the model in specifications for the machine, working directly with SDS-ONE on the needles and the ranks of bushings that make up the mesh.

The virtual prototype is then made in a few hours. Furthermore, with features similar to Photoshop, is really immediate to change colors and patterns of knitwears. However, even the simple change in length leads to a new program of the garment.

Furthermore, the scanning of the yarn you wish to use allows the machine to print a paper prototype of the tissue of the garment: this prototype printed on paper reflects exactly the shirt once achieved: this is the real innovation!

The cost savings are therefore:

- Machine costs: buyer needs only a machine

- Cost of labor: programming, threading the machine, machine operators, *confezionatura*, inventory management.

- Materials: a fortress of cashmere costs about 100 € and it takes 3 to 5 rocks for each sampling. The savings is then immediate.

Other considerations

From the discussion above we understand that we must address some critical issues:

• to create a garment scratch we need to store or otherwise immediately available not only the model and the operator, but also a programmer Shima, who works for about 5 - 6 h on the garment customization

• even the only change in length results in a new programming work of the knitwear: how we handle this in our store? We might think that customers pay a certain amount and make sure a certain number of hours of our professionals? Otherwise we can reduce significantly the number of variants and keep all the possible models in a database (see Collection Zero of Casinovi)?

• is not possible to show the interface of the SDS-ONE to the customer: he/she will not understand anything! Interface must be re-intermediate between the customer and programmer.

• only certain tissues, such as cashmere and linen should not need washing after production but only fulling: furthermore to execute the process of washing / fulling, an industrial machinery is required and it could be really difficult to keep it in our store