ALGORITHM CONSULTING
[Pvt.] Limited

ALGOERP™

Key Business Processes that are Reengineered by ALGOERP

Transformation.

The table below contains the software features that either transform or improve the existing business processes in this industry.

	SOFTWARE FEATURE	WHAT DOES THIS SOFTWARE FEATURE DO?	CURRENT BUSINESS PROCESSES IN THE INDUSTRY	ADVANTAGES OF THE RE-ENGINEERED BUSINESS PROCESSES
	Apparel and home textile Product Configurator	It defines, stores, edits and maintains versions of apparel and home textile product specifications in a product database. It is this central repository of product and order specifications data that is accessed by all concerned.	The industry practice is to maintain bulky paper based files on product specifications and to rely on the experience, efficiency and memory of merchandisers in maintaining these files. Consequently, any errors in up dating these files result in costly mistakes and product failures due to wrong product specifications.	The software maintains accurate, transparent, up to date, information rich, graphically illustrated product specifications library, accessible anywhere any time. The controlled versions ensure that every one in the organization gets to see only one set of product specifications.
*	Sewing Process engineering	Creates a detailed sewing line layout and calculates the sewing costs and lead-time.	This business process is mostly ignored by the industry at the cost of reduced productivity, increased costs, lower sewing quality and delayed shipments. Some good factories, however, hire foreigners at exorbitant salaries to create sewing process layouts on spread sheets or stand alone proprietary software tools.	The software creates efficient and balanced sewing machine layouts, predicts competitive worker wages as well as sewing lead-time. Results in at least 30% increase in sewing productivity. Without requiring the services of expensive foreign garment engineers.
*	Thread requirements calculator	Calculates thread procurement requirements based on seam lengths, sewing machine properties and the sewing layout.	Thread requirements are generally calculated using hand held calculators. The requirements are based on average thread consumption per piece, which is a very inaccurate method. It results in excess purchase and ensuing wastage or worst still; thread shortages that disrupt smooth sewing operations.	The software eliminates unplanned stoppage of work due to thread shortages. It also ensures that after completing the sewing there is no left over thread. This results in smoother sewing floor operations and reduction in costs of thread procurement.
	Apparel Product costing	The software automatically costs the apparel product based on product specifications captured in the product configurator.	Excel spreadsheets are widely used by very experienced merchandisers for calculating initial product cost. The cost is based on their experience, guesstimates and their knowledge of the product specifications. It takes years of practice to create accurate initial cost sheets in quick time. Initial costing is also a risky business. Overstated cost sheet discourages new business and when understated it wins orders all right, but at a loss.	The software completely does away with the requirement of an experienced and well- seasoned person for costing. Manual work is completely eliminated and so are the risks of costing either too low or too high. The entire process is driven with the costing database. As long as the product specifications are available, a product cost is also available automatically. The costs are always based on the actual product specifications as present in the system's product database.
	Procurement requirement calculator for trims and accessories.	Based on customer order quantity, it calculates the exact requirements for trims and accessories in the apparel product. These requirements are inclusive of	Hand held calculators (not even excel sheets) are the only way to calculate complex colour and size dependent trims and accessories requirements based on per piece consumption and order quantity are even now the only way to do this tedious and error	All procurement requirement calculations are done automatically. Human errors are completely eliminated. Embezzlements and excess or shortage in procurement quantity are also eliminated. Multiple requirements of multiple products are processed

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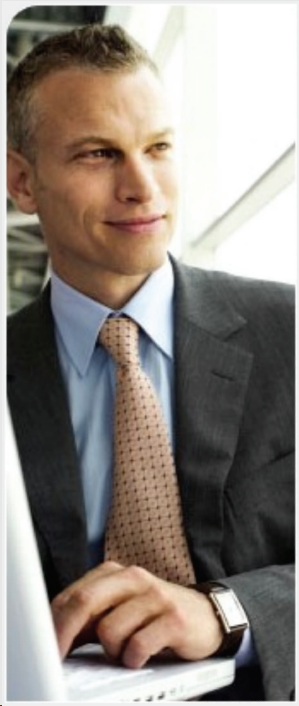

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		colour and size dependencies of the materials.	prone work. Procurement requirement is calculated only against a single product, one at a time.	simultaneously. Results in timesavings to a factor of 1:100 in calculations. An additional 2-3% savings of the value of materials purchased due to better accuracy.
*	Finishing and packing process engineering	Creates a detailed finishing and packing layout calculates the costs and process lead-time.	Current industry practice does not provide for any systematic way of calculating the manpower requirements, either on paper forms or using any software. As a result finishing and packing work centers are either overstaffed or over loaded. Depending, on how many orders are under process.	The staffing in finishing and packing work centers is maintained in accordance with the finishing and packing expected workload. Thus the incidents of excess staffing or severe bottlenecks and delays in shipments are averted. Usually results in 20-30% payroll reduction in finishing and packing work centers including reduction in overtime.
	Materials Management for Variant materials.	Ability to procure, store and issue raw materials that have generic names but may have millions of possible variants such as zippers, buttons, labels etc.	This is a hard mathematical problem and the Achilles heel of this industry. There is no inventory management system that is scalable to millions of possible material variants, as is required in the case of this industry. The current practice is to order exactly what is expected to be consumed in an order and forget whatever happens to this material. If the order is shipped, most probably the raw materials were consumed. Hopefully.	Up to 1-2% savings in the cost of procurement of trims and accessories through better inventory management. P-3 offers the only inventory management solution of variant raw materials. P-3 generates raw material codes on the basis of the material properties rather than any arbitrary coding schemes. There is always the possibility of reusing the leftover materials if similar specifications are demanded in a future order.
	Shop floor control system	Ability to launch work orders or batches on the shop floor, issue materials, monitors the progress of jobs till their completion.	Mostly excel sheets are used for daily work center reporting in which how many pieces cut, stitched or packed are monitored by the managers. Some factories have developed in-house MIS systems for this purpose. The trouble with stand-alone shop floor systems is that jobs cannot be prioritized, work in process inventories run high and reports across different departments do not match. Finally, it only offers a retrospective view of "what has happened today" and not "what should be happening now" and "how efficiently it is being done".	The shop floor system authorizes jobs to be done around the target dates not before not after. This reduces work in process inventories by half. Integration with the materials management ensures that only those jobs are launched that have the raw materials available in the stocks. This again averts launching jobs on the floor that cannot be completed because of some missing raw material. Finally, the shop floor control system measures the efficiency of the performance against the targets given by the finite scheduler in real time.
*	Embroidery & printing Process engineering	For each embroidery and print design, it calculates the thread and other raw material requirements as the embroidery costs and lead-time.	The current practice is to hope that embroidery or printing will be done in time and the department manager will hopefully not forget to order the raw materials in correct quantity. As the luck would have it sometimes this does not happen and the orders are delayed.	The software predicts how long will it take to finish the embroidery or the printing jobs. Which raw materials will be required in what quantity to do them? This averts costly bottlenecks and order delays in the future' keeping shipment son time.
*	Master Scheduling	Creates valid production targets and realistic order delivery promises to customers, based on available time and aggregate plant capacity.	The industry uses no scientific method to do this extremely important activity. The only help available is senior management experience and informed opinions of key managers on whether an order should be taken or not and	The software maintains a planning horizon with a summary of engaged as well as available capacity over the next six months. Any new order is subjected to the litmus test of a well known planning technique called rough cut capacity planning (RCCP). This technique

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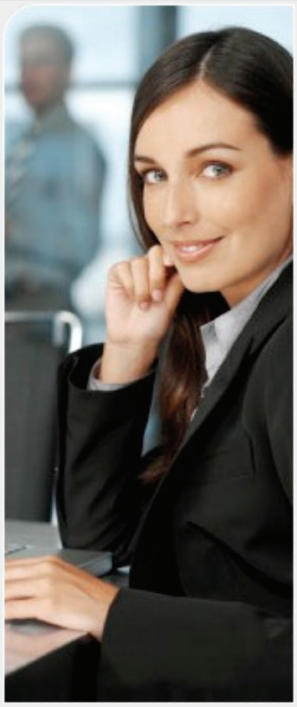

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			which delivery date should be given to the customer. The industry is notorious for making optimistic promises of shipments and then shipping merchandise by air at a very heavy loss.	calculates a realistic shipment date and also verifies that the capacity will be available at all concerned work centers to process the new order. Wrong promises and costly air shipments are thus avoided.
*	Material Requirement Planning (MRP)	It is a complex and very sophisticated planning technique called Material requirement Planning (MRP). It is well established in the West. It has been adapted for use to this industry after some modifications. It creates the detailed process and raw material procurement plan for each customer order.	The industry is unfortunately not aware that MRP technique is supposed to do exactly this. The current practice is based on experience of senior managers, constant follow-up activities, guesstimates on expected process lead times and daily production rates expected together with early procurement of trims, accessories and raw materials. Despite the best efforts of the industry pays the penalty of 2-3% of revenues as air shipment bill as a penalty for late shipment.	The shipment performance can be raised to more than 97% by using the MRP technique for planning. The raw material inventories can be reduced by as much as 50%, as the MRP plans the arrival timing of each raw material. The work in process inventory is reduced by at least 30% using the MRP techniques. The velocity within the organization i.e. the rate at which raw materials are converted into finished products is increased by 50%. The organization can cope up with tight delivery dates and smaller order quantity.
*	Capacity Requirement Planning (CRP)	It is a well-established detailed capacity planning technique that has been adapted for use to this industry after some modifications. It maintains capacity profiles of each work center and keeps a track of available capacity before assigning work to any resource. Thus only resources with available capacity are assigned jobs, improving bottlenecks and averting shipment delays.	The industry practice does not use any software for capacity requirement planning. Unfortunately the lack of education ensures that even the senior management is not aware of this world renown planning technique. Guesswork, firefighting, daily follow-ups and last minute heroic efforts are the norm in the industry. Despite all these efforts, shipment delivery performance for the industry is quite dismal and is one of the major reasons for strained relations with foreign buyers.	The CRP software constantly updates and maintains, on a time phased planning horizon, the capacity profile of each production resource. Each capacity profile displays the planned jobs, the work in process and that available capacity of each production resource. The software warns the planners whenever the workload for a resource exceeds his capacity. The job routing algorithms automatically select the appropriate resource with available capacity. Thus averting future disasters and delays. Shipment performance is improved up to 97%. Senior management is relieved from the day-to-day fire fighting due to unsound planning.
*	Finite schedulers for sewing and Cutting	These are again, fairly sophisticated execution end of the planning techniques. These finite schedulers automatically calculate expected lead-time of each job. They help prioritize and schedules day-to-day work in cutting and sewing work centers. The schedulers work on planning priorities given by the MRP. The finite schedulers are also	There is no concept of a finite scheduling in the industry. Whatever fabric is available is generally pushed through the cutting work center, regardless it cutting is on priority or not. Similarly whatever cut fabric is available is pushed into sewing. Problems are generally encountered after these decisions have been made. Given this scenario control over fabric consumption and sewing floor cannot be exercised increasing the wastages and costs. Similarly work in process inventory pile sup needlessly by starting jobs that are not required yet at the cost of those jobs that are.	Work in process inventory is drastically reduced and only the prioritized jobs are sent for cutting and sewing. If a product involves multiple fabrics, unless all fabrics are not available in the fabric store, cutting job is not authorized. Similarly unless all the sewing raw materials are not available in the stocks the sewing job is also not authorized. This is to discourage needless buildup of WIP inventories. Issuance form the stocks are only made against the legitimate expected consumption. Thus wastages, shortages and excess issuance are averted. A real time process view against the cutting and sewing targets is perpetually maintained giving senior management greater visibility of efficiency and productivity.

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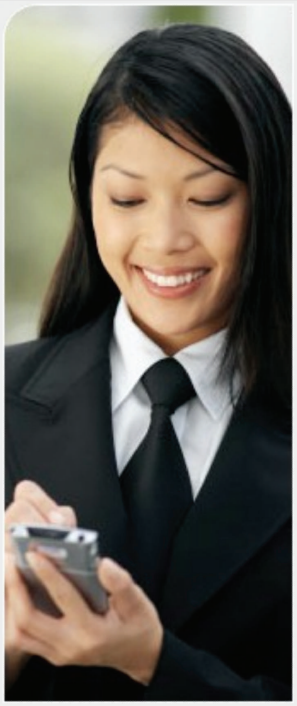
		linked with the stock rooms thus authorizations of material issuances are triggered by these schedulers.		
*	Fabrication requirement calculation through CAD/CAM	A calculator that determines the fabric requirements for each apparel product based on patterns, markers and size and colour wise quantity of the order.	The industry practice amongst the large and more organized players is to use the digital pattern and marker-making equipment for calculation of expected average per piece fabric consumption. This consumption is later on multiplied by the order quantity with 5-7% wastage and over cutting allowances. The required finished fabric quantity is than earmarked for either procurement or in-house fabrication.	Fabric procurement accounts for 50-60% cost of the home textile or apparel product. Cutting costs here improves the bottom line directly. The software introduces further refinements improves to this well-established practice. The software instead of per piece average consumption, actually calculates the total fabric requirements to successfully cut a given number of colour wise size wise pieces. This is done by calculating the marker length, width and the maximum number of fabric lays to complete the cutting requirements in the order. The fabric quantity calculated with this method is more accurate, has less chances of shortages or excess, thus the procurement costs are reduced further by 2-4%.
*	Fabrication requirement Planning (MRP)	This is an MRP based fabric requirement planning technique that determines the quantity of raw materials such as yarns and greige fabrics along with their requirement date. The MRP also determines the start and finish date of fabric conversion processes that may include yarn dyeing, twisting, knitting, weaving, dyeing and finishing.	The current practice is to take the finished fabric requirements of an order and to convert them into Greige fabric and yarn requirements by applying standard wastage formulae. This is usually done on desktop applications such as Excel. The down side is that processing targets are manually created and monitored. If any of the dependent raw materials such as greige fabric or yarns are already present, they cannot be automatically allocated to reduce the procurement requirements. Human errors cause excess fabrics or shortages that delay shipments.	This is a local improvisation where the software has adapted the universally acknowledged planning technique, the MRP in solving the challenge of planning fabric conversion processes and planning the purchasing of yarns, greige fabrics and dyeing and processing services. Apart from sound planning, the most powerful feature remains the MRP's ability to look for the procurement requirements in available stocks first and then to recommend purchasing after subtracting the quantity available. This results in tremendous amounts of savings in the fabric procurement budget, to an extent of 2-3% reusability of the left over materials.
*	Actual Product Costing	Ability to cost each manufacturing work center through the process chain and to calculate the cost of goods sold for the manufactured product.	The senior management in the industry is extremely conscious of the need to closely watch the actual cost and profit in every order. Such is the quantum of competitive pressures on the senior management. However, the tools to do so are brittle and erratic at best. Many cost accountants struggle constantly to gather the data for costing. Without integrated systems, the data gathering is difficult, costly, labour intensive and even then not very accurate.	The integrated software makes the actual product costing completely automatic. It constantly maintains data on all cost drivers whether process costs, overhead allocations, direct material costs or direct labour costs. All data remains available in the system in real time. The standard cost and the budget of the order is also automatically calculated and compared with the actual costs in real time. Variances between the planned and actual costs are identified easily for investigation and establishment of controls.



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