

## Home Grown ET

ET – the Extra Terrestrial appeared in 1982(??). However, some years earlier we were experiencing ET. In our case it was ET - Emerging Technology. We had implemented two forms of real-time, mini-computer based assembly line broadcasting systems at Cowley Assembly plant and a further one at Solihull. We had taken a giant leap forward in the development and implementation of the Press Line Monitoring system at Swindon Pressings plant based upon duplex DEC PDP 11/70 computers



enabling real time recognition, recording, reaction to, and reporting of events as they happened. And now ET opened up further opportunities.

In our work with and alongside those planning and running the press shops at Swindon in the late '70s the problems caused by inaccurate and out of date information was very apparent. As a finished part came off a press it was placed into a pallet. That pallet had a label that indicated what the part was (part number), when it was produced (week number) and, eventually, number of parts in the pallet. Major stampings/parts/panels such as a roof, bonnet or body side would be in a pallet like a toast rack and the number obvious. Where pallets contained smaller parts, the pallet would go to a weight bridge as it left the press shop, the contents weigh counted and the quantity recorded on the pallet label. The pallet would then be taken, by fork lift truck, to a storage area and held until shipped to the customer which might be another area of the plant or another factory. All of this manually recorded data gradually trickled back to plant supervisors, planners and management. Thus, when faced with desperate calls:

- How many parts have we produced?
- Where are they?
- Cowley need more of these parts or they are going to have to stop production.
- Have we despatched them?
- Are you sure you haven't received them?
- Need we do an emergency production run to keep things going?

There was no up to date information.



ET - new technology meant that a machine-readable code (bar code) could be constructed and printed. The code could be read by a new device in the form of a light pen that was attached to the computer. Thus, we could put labels onto pallets that were machine readable and capture the pallet movements as they moved into and out of storage areas

and, eventually, as they left the factory. The bar code would refer to a record on the computer that would hold details of the content of that individual pallet (part number, quantity, date of production, pallet type, location etc.). As the pallet passed “check points” the bar code could be read and the relevant detail updated providing that accurate, up to date information needed for efficient operation.

Great, as long as it all works! But what if we can't read the label as the pallet moves because the computer or light pen is not working? Well, we know there are key control points the pallet will pass: leaving the production area, into storage, out of storage, despatch. We will design a pallet label that can be printed as and when required with a tear off strip for each of these key points with the bar code on each strip. Thus, if the data cannot be captured immediately the strips can be collected and read as soon as possible thereafter.

So when a press run producing stampings was planned, a batch of labels could be produced to go onto each of the pallets/containers holding the stampings. The system we designed, coded and implemented was called Stamping Control.

It was an immediate success providing accurate, up-to-date information regarding the amount and location of stamping stock within the Swindon plant. Consequently, the system was extended to cover all production material. A central receiving point was established so that all production goods arriving could be logged in, labelled and subsequently tracked around the plant. Stamping Control became Stockman. This system was soon implemented at Cowley and elsewhere. As emerging technologies enabled better communications it was not long before Swindon could send Cowley details of what was on a lorries load of pallets despatched from Swindon so that Cowley could prepare their labels in readiness. And as technology improved, a further revolution took place.



Assembly plants, such as that at Cowley, held stocks of parts to ensure that vehicle assembly was not affected by supply interruptions. Suppliers were tasked with holding a number of assembly shifts worth of stock in the on-site stores. Orders on suppliers were based upon sales predictions for the various vehicles and upon forecasts of production in the weeks ahead. Suppliers would also receive information regarding actual production. Thus, calculations regarding store stock was only confirmed when a physical stock take was performed at “shut downs” – summer break and Christmas/New Year. Assembly of vehicles less one or more parts was not unusual therefore. I can remember vehicles being driven off the assembly track using “slave” seats due to shortages resulting in factory car parks being filled with incomplete vehicles awaiting parts before they could be despatched.

Thus, the dawn of machine-readable labels and real-time stock recording (Stockman) had an immediate impact. As a container of parts was used on the assembly track, its bar coded label could be read and a replacement container was summoned and brought from the stores. ET also applied to communications. The ability to communicate with remote sites opened up even more opportunities for Cowley Assembly plant: move the stores off site where they can be managed by a third party and we will call in the parts as we need them. A site half a mile from the factory was managed by BRS where they used the Stockman system to receive and store the parts/containers. Individual containers were then called into the assembly area as required using the bar coded labels and light pens.

At a stroke some millions of pounds of stock were removed from the Assembly Plant books! Stockman meant that accurate and up-to-date information was available to all parties involved: the customer (Cowley Assembly), the middle man (BRS) and the suppliers. Suppliers were paid for their goods as they were received in Assembly, but also

had accurate information regarding stock now held by BRS. Suppliers were still tasked with maintaining X shifts worth of stock at the BRS warehouse. However, they were paid more efficiently as stock was transferred into the factory. Previously a delivery was paid only if everything on that delivery was uncontested. If a quantity or quality of an individual item was queried payment for everything on that delivery was withheld until the query had been cleared. Which could be weeks.

A revolution for production stock and parts supply. This was soon to be further enhanced as improved stock and production figures led to improved production planning meaning improved forecasting of requirements. This led to the ability to schedule deliveries from some suppliers directly into the factory. By having a set delivery time their vehicles could be received, goods unloaded, reloaded with empty



vehicles.

containers and be back on the road speedily. No longer hanging around in a queue. Off-site, third party sub-assembly also became common. Items such as seats, engines etc being prepared and assembled by third parties at local factories. The end of traditional areas such as the trim shop where seat material was cut, sown and seat cushions covered. The trim shop! Not an area for a shy young man!

With further sophistication in assembly planning came “sequenced deliveries”. Suppliers would prepare and then pack/load their parts/sub-assemblies in the sequence required to match vehicle assembly all being “tracked” using ET: the emerging technologies of machine-readable labels, real-time computing and uninhibited communications.

I have told the story as we - Cowley based BL Systems/ISTEL staff - saw it at the BL Swindon and Cowley body and assembly plants in the '80s'. Similar was happening elsewhere (Longbridge, Solihull etc) but not apparent to us at the time. We very much had our heads down, busy developing and implementing these new systems within these factories where we felt part of the family. We were BL Systems and knew we were part of a bigger “systems” family; but were not cognisant of what was going on elsewhere. We were aware that CDC existed and was at the heart of what was becoming ISTEEL, but to us it was just a data centre doing batch processing. Just bigger than that at Swindon, Cowley Assembly and Cowley Body plants. To us in the '80s, real-time mini-computers was where it was at: ET.

## **Rogan Meadows**

*Images included for illustrative purposes and not specific BL Systems output.*