



DMi case study

ERP and Beyond at Land Rover



70% reduction in inventories

95% Stores record accuracy

300% improvement in Stock Turn

90% vendor schedule arrears

50% reduction in unfinished vehicles

1 day vendor schedule arrears

50% of vehicles passed to Sales as promised

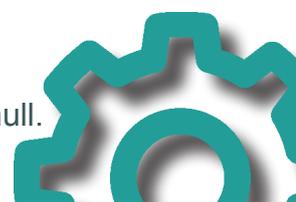
80% increase in overall volume

Back in the 80's Land Rover (then a relatively independent member of the Rover Group) was fighting for survival. Many of the 'traditional' high volume export markets, predominantly in Africa, had collapsed. The product range was very dated, leading to decreasing sales in 'developed' European and British Markets. Its manufacturing operations were spread between many UK sites each of which operated to optimise its own performance, rather than that of the whole Company. Computer systems had their origins in the late 1960's. Dramatic changes were needed.

A full review of Commercial and Manufacturing strategy was commenced.

During the late 80's key decisions came from these reviews:-

- From Commercial to move Range Rover up market in the USA market, exploit the flexibility, and continue upgrading, Land Rover products to bring to the business a customer focus.
- From Manufacturing to consolidate all activities, properly co-ordinated onto the single site at Solihull.



LEADERSHIP through **INTEGRATION**



To support these strategies, a new fully integrated suite of systems was seen as essential.

By the end of the 80's the Commercial strategy had been fleshed out, and site rationalisation was progressing well.

In parallel with these activities, a group of senior managers from all disciplines began an in-depth investigation of the systems and processes needed to support these strategies.

It quickly became clear that early developments should concentrate on improved and a more responsive suite of planning systems. Shop floor control would be achieved by use of simple, robust 'Lean' type processes. It was further decided that unless absolutely unavoidable, a 'standard best in class' solution would be sought for the system elements, rather than bespoke development.

The culmination of these investigations was that elements of an ERP solution would meet most of the business needs determined, but would also demand a change in management style and organisation to be fully effective. Adoption of this as a strategy was put to the Directors, with outline costs, benefits and timing, and was agreed. It was recognised that, on the basis of the then criteria for world class status, the extent of the implementation

planned would not allow this to be achieved due to the lack of planning modules.

Amongst the primary benefits targeted were:-

- Reduction for 14 'official' and numerous 'unofficial' Bills of Materials down to 1 Company Bill of Materials and Product Definition System.
- Reduction of inventories, both components and unfinished vehicles including obsolescence
- Ability to make customer delivery promises, and achieve them
- Ability to move away from crisis management, multiple plans and expedite lists to a controlled business environment with a single plan cascading through increasing levels of detail to material and manufacturing plans.

Implementation was achieved through a multi-disciplined full time Project Team, working with departmental groups and specially educated and trained internal agents of change together with external Consultants. Much emphasis was given throughout this period that it was not an IT solution but a set of planning and control processes, with people as the critical element in making it work.

Education of a large part of the workforce was seen as essential for success, together with specific and general training for those who would





need to use the information within the system. All Board Members, Project Team members and a number of key functional and specialist staff underwent external education with Dave Manning and, subsequently detailed practical training on Land Rover's specific implementation conducted by the Project Team. These individuals were then responsible for cascading the education and training through their own functions.

Implementation of the final functionality of the main phase was completed by 1990 and the remaining 'old' systems were 'switched off'. The hard work of getting acceptable reliability, accuracy of data, credibility of the process and delivery of the benefits still lay ahead.

Development and use of systems and procedures started to positively deliver benefits from early 1991 with substantial progress being made in 1992. During this time, Land Rover also adopted the Six Sigma/Lean philosophy. Initial training was again cascaded from the top and proved to be very supportive of the customer focus. Measurement, as a means of identifying improvement areas and thus focusing and directing plans, assisted overall progress. The 'Eliminate Waste' message of Lean also gave renewed impetus to the continuous improvement activities which, although progressing, were not as advanced as originally planned and certainly had not passed the 'critical mass' to become self sustaining.

An internal review was conducted in early 1992 and after some detailed actions were implemented,

Dave Manning was called in mid 1992 to make a preliminary assessment. We worked with Dave during the next few months on the 'weaker' points of our assessment and were awarded 'A' class status later that year.

The results achieved included:-

70% reduction in inventories

300% improvement in Stock turn

50% reduction in unfinished vehicles

80% of vehicles passed to Sales as promised

95% Stores record accuracy

90% vendor schedule accuracy

< 1 day vendor schedule arrears

40% reduction in materials planning and control staff

80% increase in overall volume

Land Rover recognises, however, that 'A' class ERP status is a big milestone on the way we have chosen to achieve the status of a World Class manufacturer. ERP gives us an effective planning and control base. We need to complement this with the further development of Six Sigma and Lean philosophies.



Lean is the umbrella under which all our employees are encouraged not only to improve their own education and training, but also to contribute to continuous improvement of all their processes.

All employees have had formal Lean training and regular follow up tailored to the needs of each respective group and this is now part of the way of life.

We have a well developed and growing series of Discussion Groups, many of which make significant contributions to the Company well being. In cash terms, the readily quantifiable benefits now exceed £500,000 and improvement have also been made in the productivity, quality, reliability and cosmetic aspects of vehicles.

Though the 'Kaizen' programme there are now approaching 200 Quality Action teams in operation, each addressing a specific process or quality issue – some of these teams have now evolved permanent solutions to problems which have persisted for several years.

Similarly, on improvement suggestion schemes, target for the year has already been exceeded – the equivalent of 80% of employees submitting a suggestion per year – and the year end target has now been revised upwards to 100% participation. This still falls well short of World Best levels which exceed 80% but is excellent by traditional UK standards.

By the mid 90's our progress on a number of fundamental material management issues had slowed. We had come a long way using 'progressive tightening of the screw' on our ERP implementation. The realisation came. Albeit somewhat late, that the missing link was the integration of ERP, Lean and behaviour.

The 100 Inventory Turn programme had been launched. This programme in effect requires all material to be delivered daily, in the correct quantities. Not only will this programme take us to approaching World Class in Inventory Turns (Best automotive currently Toyota in Japan at 130 – Best automotive outside Japan currently about 100) but the processes necessary to make this happen are also addressing in excess of 40 other problem areas previously identified for action.

In addition, it is seen as a programme to allow a significant improvement in productivity and other key financial measures; experience of others has shown the process capability necessary to succeed in such a programme has substantial spin-off benefits in product quality...hence warranty/reliability problems are reduced...costs reduced.... customer satisfaction increases....customer retention increases.... Sales growth.

I have set some ambitious targets. I still do not fully understand what has to be done to achieve them, but my Co-Directors and many other employees are now fully committed to moving down this road as fast as possible. There are now some 20



working groups, each sharing the future vision, developing detailed and timed plans for identifying early activities necessary to fulfil their vision.

In conclusion ERP has provided Land Rover with a sound planning and control base. On its own it was not enough to deliver World Class performance. When complimented with the Lean programme and the 100 Inventory programme we believe it will move us into the top league..... provided we move forward at a much faster rate than World Class is moving forward. We are now establishing benchmarks on a number of key business activities to measure both the movement in World Class and our progress towards it.

Phil Breckon
Logistics Director, Land Rover

