

Making the Difference

Avionic Systems has a wide range of world beating products, many truly astounding technologies and some excellent market positions. These things have grown out of our creativity in the past and have ensured our success today. However, in the future we cannot rely on our heritage to maintain our pre-eminent position. Our competitors are constantly improving their capabilities and processes. We have to rise to the challenge that they offer us. We must reinvent our organisation to deliver truly outstanding levels of performance. I believe that if we harness the talents of all our people we will be able to do this, and emerge victorious in the competitive war.

The battle will be a long one but we have made a start.

Our latest BEM assessment indicates that we are making progress.

The roll-out of CBI is on schedule and the number of CBIs in progress is increasing.

I introduced a Business Improvement Policy last November that has been the guide for improvement activity at all levels in the Business. My Business Improvement Steering Board, chaired by Kevin Jones reviews activities regularly.

Some of the major activities that have been undertaken include:-

- ERP, which has been successfully implemented at Edinburgh and Rochester
- In the Manufacturing area the 5S's programme is making good progress
- Software Engineering CMM Level 3 activities are bringing about real benefits



- The Design for Manufacture team is confidently predicting achievement of their targets
- Supply Chain improvements are providing reductions in the cost of materials
- A process is in place for gathering information on customers' perception of our performance

But there are many more local improvement ideas being brought forward for implementation by teams after approval by their own Manager.

I will continue to be personally involved in the continual search for improvements and you have my support for your efforts to make the difference.

Jonathan Flint



Introduction

Over the past 12 months Avionic Systems has seen improvements to the business measured by BEM and independent assessments.

Our self assessment indicated an improved score of 443 from 341 the previous year. This is further supported by the BEM assessments undertaken in the CBI training course. Independent Business Assessments (Lloyds, Boeing and Lockheed) have also provided us with evidence of good progress. This has been achieved despite the BAe/Marconi merger and resulting organisational change.

How does this impact the AS Business?

The full potential of these improvements has to be converted into improvements in our Business Results.

Much of the improvements are related to 'Capability' as opposed to key results.

Over the past 3 months work has been undertaken to formulate the AS strategy. We have identified "What" needs to be done and "How" we need to ensure the strategy is implemented.

A balanced set of top level metrics have been identified which will provide us with the focus to implement our strategic aims. The strategy and associated metrics will be communicated to everyone to ensure we have a common understanding.

The improvements realised over the past 12 months will provide us with the momentum and capability to successfully implement the strategy.



Kevin Jones, Business Improvement Director

Business Improvement Website now accessible from AS Homepage

Foreword

Our Business Improvement Plan identifies the major strategic activities that we need to pursue on our way to achieving the targets that we have set for the next few years.

The Continuous Business Improvement programme, @ @ @, is the framework for involving everyone in challenging and changing what we do.

My aim is to let everyone know what is happening and how we are progressing towards our goals.

Improvements to the Business will only be achieved through everyone's involvement. This newsletter is no exception, your contributions, comments and help are very welcome to ensure that, together with the Business improvement website, it provides the information you need in pursuit of improvements.

My thanks to all those who have contributed to this issue.

Paul Baillie, Business Improvement Manager



Customer Perception

"Percep'tion - the combining of sensations into a recognition of an object".

Every day, based on our perceptions, we all make decisions on what we buy. When challenged we may well use a slightly modified argument for why we selected a particular object, or, in some cases, we cannot quite put our finger on the exact reason.

Arguably, it is no different for our customers buying from us. However, we do have the benefit in many cases that the buyer has to fully justify their decisions.

Customer Satisfaction has been used as a mechanism for evaluating our relationship with a customer. This has generally been determined on the basis of on-time delivery and quality. In the last year, Avionic Systems has extended this by conducting Customer Satisfaction Surveys on most of it's major programmes. These have taken into account the wider aspects of:

Management	Quality
Delivery	Cost
Technical Solution	Communications

Not surprisingly, the results have shown that we have strengths and weaknesses across each of the above elements and on each programme. Overall we have been rated "Very Good", but in certain areas were marked "Marginal" or "Unsatisfactory". Action Plans are in place to close out these poor areas of satisfaction.

For the future we are providing input to a new BAE SYSTEMS exercise that will be looking at the wider aspect of Customer Relationship Management (CRM).

CRM will not replace the existing programme satisfaction surveys, but will enhance the view with a differing perspective.

Ashley Strachan

Preferred Supplier Programmes

During the year we have gained recognition from major customers
BAE SYSTEMS, Warton - Bronze
Boeing - Silver
Lockheed - Silver

Recognising Excellence

Twenty five monthly awards have been made. Some have received the Chairman's Bronze award for Innovation.

Fundraising activities in support of MacMillan Cancer Nurses. This raises the profile of our company in the eyes of our community

***Tony Porter, Michael Janney, David Hallowell, Mark Harrison and Graham Read.** By reducing machining cycle times, lead times, work movements and machining operations the setting-up and running of a manufacturing cell around a new machine helped us win three major contracts

The IFMP team have resolved all of the serious problems of poor product, delivery, performance and customer relations through determination, hard work and excellent customer focus

***Allan Dowdy, Ravi Nijjer and Emma Williams.** A Just In Time (JIT) System for packaging boxes in partnership with our box supplier BOB packing. The implementation and resulting process improvements have lead to saving of 40% off the price of boxes

A contribution in the employees' own time. Updated test software in accordance with CRs for the Airbus A321 SGCC. This work could not easily be completed in-house due to a lack of relevant skills

Exceptional personal commitment and determination has made a significant contribution to the successful capture of the Tiger Knighthelm, Production Investment and Series Production contract

***Martyn Ingleton.** The quick release connector, used on Helmet Assemblies, had no source of supply. A design concept was quickly produced and demonstrated by applying specialist design skills and a winning attitude

A Just-In-Time stock process was developed in partnership with the supplier to dramatically change the way consumable materials are supplied to the business.

***Gordon White.** In the use of electricity some innovative ideas have been applied. Trial exercises were conducted on 'Plant' chillers and cleanroom humidity bandwidth

Original and innovative work to create a template for productivity improvement has been used for both Boeing and Lockheed JSF Bids and is now adopted by the business

Improvements to the outbound freight shipping process have resulted in a saving of 45% off the cost of exporting hardware from the Rochester site.

Working as "one team", the team, brought together from different functions, developed, integrated and supported a cockpit system in partnership with Singapore Technologies Aerospace

The C-130 AMP simulator was built and commissioned in 90 days. The adaptation and re-use of the JSF Simulator Software saved over one man years effort

The implementation of ERP has provided a "Window of opportunity" to reduce the number of stock codes. This will enable the Business to utilise the benefits associated with a common stock policy

The turn around in performance on the F-14 programme over the past year has been exceptional, culminating in the team achieving the targeted incentive payment

Demonstrating commitment and dedication through working from home the VHDL design and definition was completed. This enabled a hardware module to commence commissioning as soon as it was built.

***Bob Hooker, Dean Morgan and Alan Holding.** The value volume concept has been demonstrated to substantially alter our stock placement philosophy and produce savings for the Business

Extraordinary efforts were made under difficult circumstances to deliver a Cobra Electronic Processing Unit on time

Working simultaneously on three important projects a contribution of exceptionally high standard has been recognised

Great determination and customer focus was shown by the SMS update team who identified the root cause of a safety critical design error, assessed its severity, briefed the customer on both the problem and solution and implemented the solution in an extremely short time

*** Malcolm Homan, Paul Thorne and Paul McLean.** Working every weekend and some evenings a team developed a Eurofighter/Typhoon Cockpit integration rig. A lot of ingenuity was required as the team had to reproduce the system from photographs

The helmet mounted equipment team, working largely in their own time, developed a solution to a Jaguar cockpit problem which exactly fitted the RAF's requirements and avoided costly re-qualification

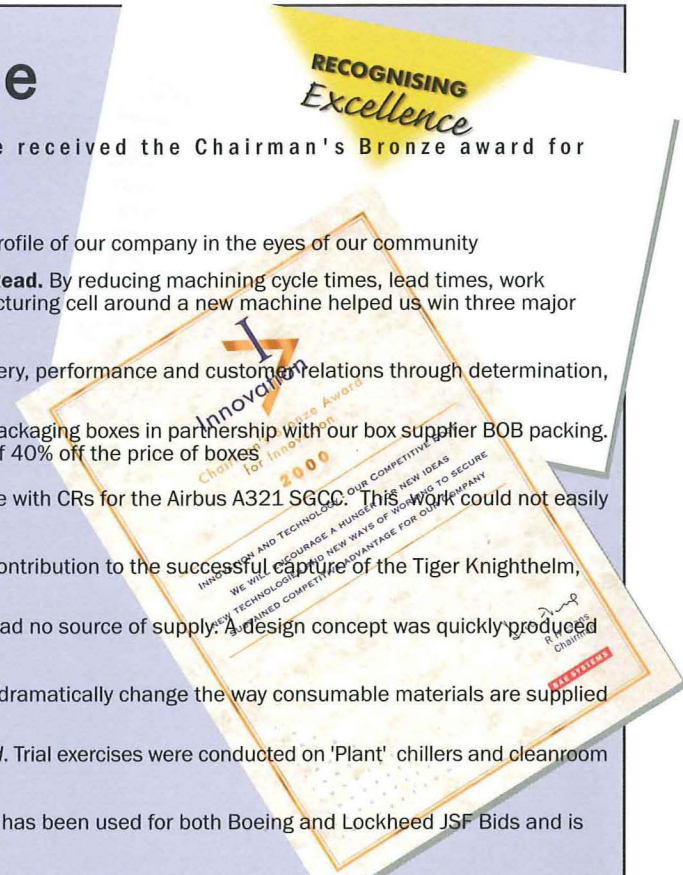
An innovative ERP report template for Procurement and Production was developed in the employees own time

A modular training and certification programme, based on IS2000 has been developed. This is key to our objective of becoming a world class manufacturer

*** Paul McGarry, Dave Golding, Dave Crouch, David Williams, Kevin Earl, Martin Turnbull.** Boeing JSF Collaborative Environment Implementation for Program Management Across a Virtual Enterprise

Congratulations to all the award winners.

*** Chairman's Award Bronze Award for Innovation.**



Continuous Business Improvement



In little over a year since Jonathan Flint introduced CBI to Avionic Systems over 75% of our people have attended the one-day Workshop. Our three sites have all been involved and the feedback that has been received shows that most have found the Workshop a worthwhile and thought provoking experience.

All areas of the Business are challenging the effectiveness of their processes and CBI Teams, CBITs, are being formed to address the issues and implement changes. So far thirty eight CBITs have been registered involving a considerable investment in time and effort from many disciplines. At the same time over 200 improvement activities at the local level are bringing real benefits to our performance.

CBIT Update

Internal Customer Satisfaction team led by Gillian Cowe at Edinburgh will be delivering a closing presentation to the management team highlighting potential improvements.

Introduction of the **5S's** to the front offices at Edinburgh has commenced. It will be interesting to see how much better these departments do, compared to Production!

The **Unit 13 Relocation** was successfully co-ordinated by the team, with an abundance of help given by many employees. All those who were involved enjoyed an afternoon out at the Caledonian Brewery as a thank you. Many others will be receiving vouchers for their help and support. Information on the process of archiving material will be made available soon, with the archive database being controlled by the Documentation department.

The **SHERPA** team at Edinburgh is due to give a final presentation on their findings to the Management Team. The opportunity to attend a presentation, ask questions and discuss the issues will be communicated to you all by the CBI co-ordinator.

The **Strategic CBITs** are covered elsewhere in this newsletter.

Workshop Feedback

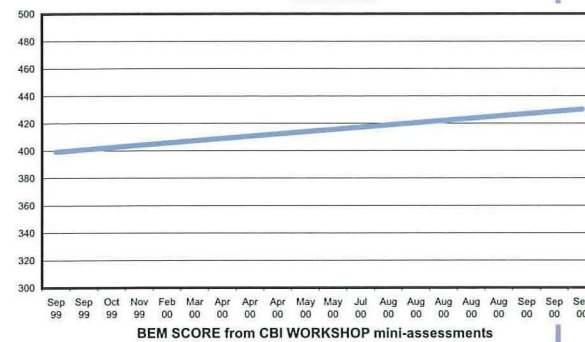
Comment Sheets
Your feedback sheets from the start of CBI Roll-out have been analysed with the following results where people have rated the factors Good to Excellent

Delivery	88%
Delivery Media	88%
Rooms & Environment	76%
Catering	69%

Mini-BEM assessment

Everyone who has attended a Workshop was asked to indicate their perception of how Avionic Systems measured up to the BEM model. The mini-assessment results show an improving trend in the average score over the year.

CBI Coordinators
Paul Baillie and Natalie McCullagh



"The best way to have a good idea is to have lots of ideas"

Procurement & Supply

During recent Months the Procurement Management team have been pursuing the definition and implementation of an improvement programme aimed at the supply chain. This plan is managed using Lifecycle Management principles and is subject to Phase Reviews by the Avionics Group Procurement Director, Ian Snow.

KEY OBJECTIVES

Strategic Supplier Management

- Achieve 6 Strategic Agreements by June 2001
- 12 Key Suppliers initiated by June 2001

- Published SSM Strategy by end September 2000

Sub-Contract Management

- Quality (CMM) measurement for Sub-Contract MGT Deployment by September 2000
- Reach CMM Baseline +1 by August 2000
- Deployed cost tracking process August 2000

Strategic Commodity Management

- 10 SDT deals deployed by August 2000 (i.e. placement of PO's)
- Generic SLA by end August 2000
- Reduce No of suppliers by 25% end of this year, and to 50% by June 2001

Inbound/Outbound Supply

- Stock turnover of 3 by end 2000, 4 by mid 2001
- 80% shortage free kits to manufacturing plan by 31.12.00

- Reduce cost of O/H by 10%

IT & Systems

- Deployment of SCP by 31.12.00
- Availability of SIS V2 to procurement

Community

- 250 Suppliers trading electronically with AS by Oct 2000
- Identify candidates for (supplier owned?) common stock

People

- Career Development Framework deployed by December 2000
- 40% CIPS by 2003
- 70% Degree / HND / HNC by 2003

"They say treat Suppliers like customers, but aren't we reducing the number of suppliers?"

Lean Manufacturing Business Groups

Boeing have been interested in our Lean Manufacturing Initiatives and have carried out assessments on our Civil and Military Aircraft products. Presentations on Lean Thinking have been made to our Suppliers. **Lockheed Martin** have helped us with Value Stream mapping our HUD and Stick products. **Eurofighter / Typhoon** are piloting lean manufacturing techniques for their HUD's. Manufacturing Masterclasses have been held on Air Data products.

Main Shop

A schedule for the re layout of the main shop floor is being drafted. Eurofighter / Typhoon will be the first cell to be completed. Activity is being planned during October and November. All cells will be consulted.

*"If we don't Design for Manufacture...
...what do we design for?"*

PCB

Darren Hollands is leading the PCB improvement programme. **Jason Sowerby** is leading the Ilford Integration Programme. **Richard Jarvis** is leading the introduction of the new In-line cleaner.

New Workmanship Standard

IS 2000, our new workmanship standard, has recently been approved by the US Department of Defense. This is now available on the intranet. Training courses have started and will replace our old Mil Standard 2000 certification scheme.

The standard covers all BAE SYSTEMS Avionics Systems Products, Manufacturing Staff at Rochester and our suppliers. The new IS 2000 is based on a combination and rationalisation of Mil Std 2000, 2000A and 454 requirements 5 & 9 and our internal specifications PIS 2101, IS 2000 Manufacturing Standard - Electrical, IS 2002 Splicing of wires and IS 2008 Wire Preparation.

Clive Simmonds

Status of our 5 S improvement programme

IMT	IMT Count	Total IMT Score	Average IMT Score	Colour	IMT Non-Assessments	No. @ Level
ADD	7	157	22	YELLOW	2	LEVEL 1 19
CAS	9	124	14	RED	2	LEVEL 2 28
EFA	5	172	34	YELLOW	0	LEVEL 3 20
FDS	14	503	36	YELLOW	0	LEVEL 4 7
MEng	12	335	28	YELLOW	1	LEVEL 5 3
SERV	17	350	21	YELLOW	7	No. of Cells 107
Stores	4	99	25	YELLOW	0	No. of Assessments 77
Goods In	4	151	38	YELLOW	0	No. of Assessments 30
P/Bay	3	194	65	PURPLE	0	Percent completed 72%
PROC	11	41	4	RED	10	
PCB	18	529	29	YELLOW	3	

Design for Manufacture (6 Sigma)

Real momentum is now gathering behind the flow-out of this important initiative across Avionic Systems and as DFM becomes part of our culture it will ensure a much better match between our **product designs** and our **manufacturing process capabilities**.

The original core team of four has increased to eight to include representatives from the key functional areas of Systems and Hardware engineering as well as Manufacturing and Procurement. A discipline of Technical Review Boards is now in place, they are held monthly and are chaired by the Engineering Director. This is the forum where each Integrated Product Team will be expected to report manufacturing defect and yield trend information. If the trends are unsatisfactory they will be expected to present their corrective action plans to reverse these trends.

Defects per Million Opportunities (DPMO), is the key DFM metric and tough targets have been set within Avionic Systems to dramatically reduce DPMO on new products over the next 3-4 years. To achieve these targets it is very important that Engineering work closely with Manufacturing and many of our suppliers to make sure that product designs and manufacturing processes are perfectly matched. The fundamental message through the DFM initiative is to maximise design robustness and minimise manufacturing process variation.

A major 'Design of Experiment' activity is being planned under the DFM initiative to establish Rochester's surface mount PCB process capabilities. The results of this will be key to identifying areas where improvements need to be made. The DFM initiative has already

established 'where we are' for Rochester's through hole PCB processes.

A comprehensive training activity is underway with a target of two courses per month being achieved during August. There are four Motorola certified trainers at Rochester and 86 AS employees have already been trained. It is intended to increase this to 200 by the end of this year. Our aim is to train most of Engineering, Manufacturing & Production Engineering, Test Engineering, Procurement and Key Suppliers as well as some members of other functions including Project Management, Finance, Estimating and Management.

Dave Silsbey

Visit the DFM web page in 'Avionic Systems', 'Organisation'.

Implementation of Artemis

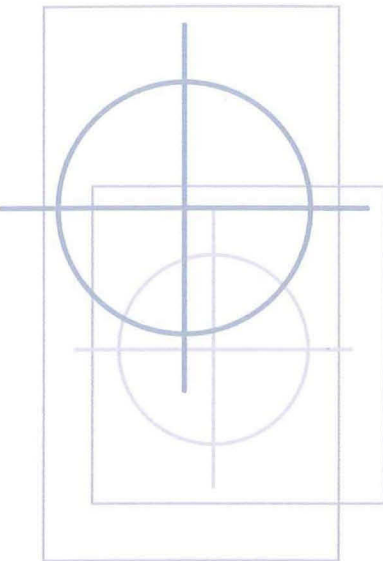
Implementation of Artemis as the Project Management support tool has continued through the Summer. A successful Phase 3A review for the Artemis Implementation pilot project was held. The Directors have approved the initial roll-out plan on six projects.

The six projects have been selected to ensure all Business Directorates at Rochester are involved. AS Edinburgh will commence roll-out with an initial project in January 2001. The initial projects are a mixture of established programmes, new business, bids, PVR&D and funded development.

MAFAS Tiger Helmet	Eurofighter/Typhoon FCC Software 1 & 2 box VGS	Eurofighter/Typhoon Throttle Eurofighter/Typhoon HEA	Boeing JSF
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Over 130 people have attended Artemis awareness presentations. Further sessions are planned prior to the full roll-out in 2001. To date 70 people have received user training. Further training courses are scheduled. A Project Management web site is now online.

Dave Stoddard



Lloyds Register Quality Assurance Management System Assessment



During July 2000 Lloyds Register Quality Assurance (LRQA) performed the tri-annual certificate renewal assessment against the requirements of ISO9001. For the first time this took the form of a single approval covering Avionic Systems at Edinburgh, Rochester and Portsmouth.

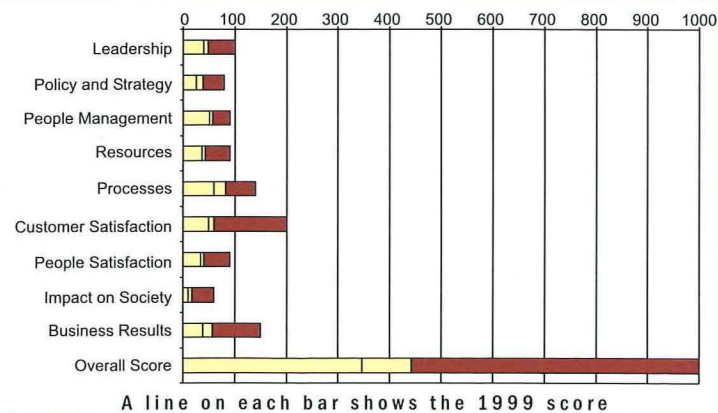
LRQA recommended the renewal of our approval to ISO9001:1994.

A transition assessment to the new requirements of Draft International Standard (DIS) 9001:2000 was also performed. Avionic Systems is the first organisation to gain an Advanced Compliance Statement for the new standard.

Our thanks to everyone at Edinburgh, Rochester and Portsmouth who supported this important activity either during the preparation or the actual assessment week.

Mark Philips

BEM Score for Year 2000



Our latest self-assessment shows an improvement on last year's score of almost 100 points. This is an indication that we are beginning to 'Do Things Differently'.

The chart shows for each Criterion and Overall Score

- The maximum score achievable - brown
- The score for 2000 - yellow
- The score for 1999 - a vertical line on the yellow bar

The assessors identified many strengths in the Business together with a number of suggestions for improvement. They noted that a good business would expect a score of about 300, a business performing better, 300 to 500 and there are areas in Avionic Systems that are doing things differently.

Year 2000 score - 443

Engineering Process Improvement

Capability Maturity Model Assessment

This is a major milestone in the software process improvement programme. The assessment showed that we are well on our way to achieving the Level 3 target.

The two charts show just how close we were to achieving Level 3.

The final findings presentation is available on the intranet.

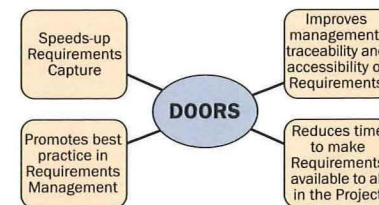
Level 3KPA	Goals	Activities Performed	Commit	Ability	Meas	Verifica
Organisation Process Focus	1	3 4 5 6 7	1 2 3	1 2 3 4	1	1
	2	1	1 2 3	1 2 3 4	1	1
	3	2	1 2 3	1 2 3 4	1	1
Organisation Process Definition	1	1 2 3 4	1	1 2	1	1
	2	5 6	1	1 2	1	1
Training Programme	1	1 2 3	1	1 2 3 4	1	1 3
	2	3 4	1	1 2 3 4	1 2	1 2 3
	3	5 6	1	1 2 3 4	1	2 3
Integrated Software Management	1	1 2 3	1	1 2	1	2 3
	2	3 4 5 6 7 8 9 10 11	1	1 3	1	1 2 3
Software Product Engineering	1	1 2 3 4 5 6 7 8 9	1	1 2 3 4	1 2	1 2 3
	2	10	1	1 2 3 4	1 2	1 2 3
Intergroup Coordination	1	1	1	1 2 3 4 5	1	2 3
	2	3 4 5	1	1 2 3 4 5	1	2 3
	3	6 7	1	1 2 3 4 5	1	1 2 3
Peer Reviews	1	1	1	1 2	1	1
	2	2 3	1	1 2 3	1	1

1998 level 3 KPs mapped to goals

Opening the DOORS to Requirements Management

Requirements Traceability and Management is key to ensuring our products satisfy the needs and aspirations of our customers. We must capture, maintain and manage requirements effectively and consistently. It is also important to ensure that the requirements at all levels are available to those who need the information.

The Systems Engineering Group at Rochester and Edinburgh is using DOORS, the tool selected as the standard, to manage the Requirements on a group of projects.



The first round of training for the new tool took place on 10th and 11th October and two further courses have been arranged for mid November.

Level 3KPA	Goals	Activities Performed	Commit	Ability	Meas	Verifica
Organisation Process Focus	1	3 4 5 6 7	1 2 3	1 2 3 4	1	1
	2	1	1 2 3	1 2 3 4	1	1
	3	2	1 2 3	1 2 3 4	1	1
Organisation Process Definition	1	1 2 3 4	1	1 2	1	1
	2	5 6	1	1 2	1	1
Training Programme	1	1 2 3	1	1 2 3 4	1	1 3
	2	3 4	1	1 2 3 4	1 2	1 2 3
	3	5 6	1	1 2 3 4	1	2 3
Integrated Software Management	1	1 2 3	1	1 2	1	2 3
	2	3 4 5 6 7 8 9 10 11	1	1 3	1	1 2 3
Software Product Engineering	1	1 2 3 4 5 6 7 8 9	1	1 2 3 4	1 2	1 2 3
	2	10	1	1 2 3 4	1 2	1 2 3
Intergroup Coordination	1	1	1	1 2 3 4 5	1	2 3
	2	3 4 5	1	1 2 3 4 5	1	2 3
	3	6 7	1	1 2 3 4 5	1	1 2 3
Peer Reviews	1	1	1	1 2	1	1
	2	2 3	1	1 2 3	1	1

2000 level 3 KPs mapped to goals

Electronic Hardware Process Improvement

A new process for Electronic Hardware Development is being introduced.

This easy to follow milestone driven approach will provide consistent and repeatable results for module design by

- making use of template documentation, generic plans and standard design tools
- focusing on key areas like component lead times
- defining tasks and deliverables
- using reviewing checklists for mandatory reviews
- ensuring that the design steps are measurable
- employing estimating templates
- ensuring that a complete design record is created

The new process helps to identify areas for improvement and is fully auditable.

Are we all Singing to the Same Song Sheet?

How often have you heard or experienced conflicting information of what we, as a Company, are planning to do? Chances are it has been far too often.

Introduction of new Information Systems has transformed the way most of us do our jobs. Project Plans provide us with reams of manpower and material requirements; detailed spreadsheets provide Sales and Order Intake Forecasts; detailed schedules provide our customers and suppliers with future business expectations. Chances are that at least some are in conflict.

The good news is that as a Company we are not unique. This is a problem across industry. The solution is a process called Sales & Operations Planning, S&OP.

What is S&OP?

S&OP is a manual process operated by a small team that on a monthly basis, examines all of the Company's current plans to ensure they are in synchronisation. S&OP will then address and resolve any variances, conflicts or issues.

Who will run S&OP?

Senior Functional Managers will check that the basis of their respective plans align with those of other functions.

Consolidated and agreed variances, conflicts and issues will be presented to the directors at a monthly S&OP Meeting. The Meeting will resolve priorities and set action plans to resolve issues. Any major issues will be presented to the Board.

What are the benefits of S&OP?

S&OP will provide a single reference plan for the Company. That is only one resource plan, with all other resource plans feeding into it and one forward sales plan with all financial and product plans aligned to it.

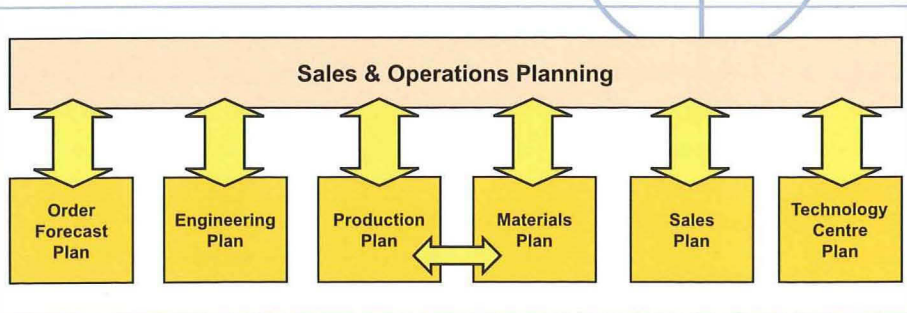
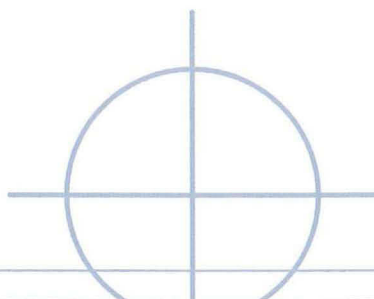
How will S&OP affect me?

S&OP will affect most people within the Company in a greater or smaller way. A series of S&OP awareness sessions will be held for those most directly affected.

Whilst not setting out to stifle flexibility, S&OP will be the process striving to ensure everyone is singing to the same song sheet. It will drive improvement in the quality of our plans, with deviations to each plan being scrutinised on a monthly basis.

Ashley Strachan

...and the song is: "Always Look on the Bright Side of Life"



ERP

ERP (Enterprise Resource Planning) went live in AS Rochester at the end of May 2000. This is the second biggest WDS ERP installation in the world. The new system brings together for the first time Commercial, Finance, Engineering, Project, Operations and Receive and Dispatch into one database.

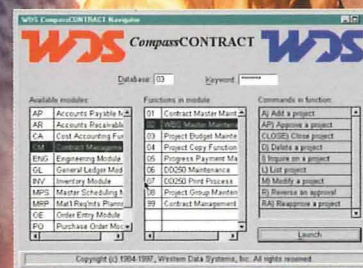
To accomplish this major improvement in the way we do our business, hundreds of processes and procedures were reviewed and changed to adopt 'Best Practices'.

Over 1200 people were trained in the new processes in their own discipline and given an understanding of how their area of business affect other people.

A data clean up exercise is underway to clear up legacy information and review the new processes now that the system is live.

The new ERP system will enable us to perform more effectively, with more precise information, greater detail, and quicker updates to the current situation.

Bill McCutcheon



"Company merger, Year 2000, Management Changes, Re-organisations, I.T. Outsourcing....it's a good job no major changes occurred during ERP roll out."