

Quarterly Review

DECEMBER 2001

**DRAMATIC
DECLINE
IN ALL
MANUFACTURING
INDICATORS***

- Order intake
- Output volume
- Optimism
- Capacity utilisation
- Capital investment
- Employment levels
- Training plans

*** Oil and gas holding up**

The latest figures confirm what we have known for some months - that the manufacturing engineering sector is in recession. Whilst the oil and gas sector continues to be buoyant, all other areas are suffering to a greater or lesser extent.

Companies which were expecting some positive input from the Chancellor's pre-budget statement have been extremely disappointed, particularly regarding his seeming complacency concerning the current difficulties being experienced.

When we consider that the manufacturing engineering sector has a significant input to our overall GDP, possibly in excess of 30%, then Chancellors and other politicians ignore us at their peril.

The situation with exports continues to decline thanks in no small part to the weakness of the Euro against the pound. We are also witnessing a continuing erosion in our trade with the US despite the best efforts of their government agencies who undoubtedly are fully aware of the importance to their economy of the manufacturing sector.

Against that background, however, senior executives within our industry are working hard to get their organisations turned around despite the global market problems. The adoption of lean manufacturing and other productivity improvement initiatives are good examples of our industry's self-help programmes.

The present situation where the Euro is extremely weak against the Pound has made things particularly difficult for our exporters, and this can be seen in our latest quarterly review figures. Hopefully, further interest rate reductions will improve this situation.



PETER HUGHES, OBE FREng
Chief Executive
Scottish Engineering

ANNUAL TRENDS

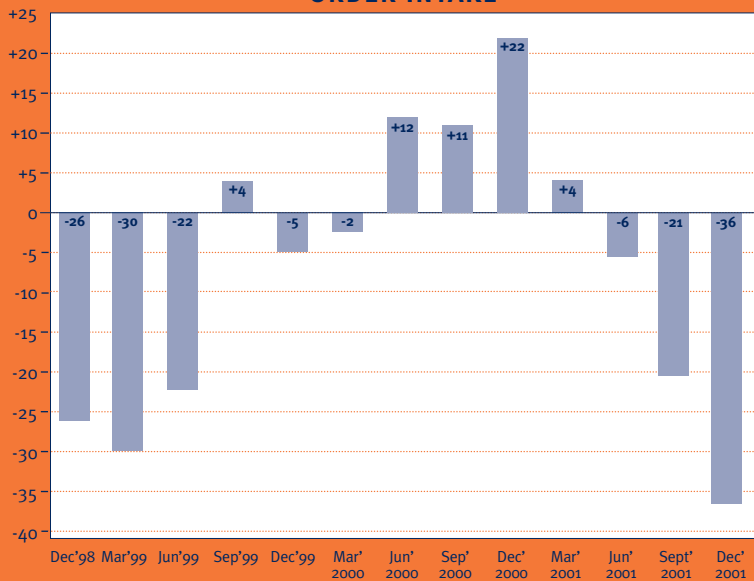
Throughout the manufacturing engineering industry only the oil and gas sector is continuing to push ahead in terms of order and output growth. All other sectors are showing extremes of negativity.

The electronic sector, for so long the saviour of the industry is still not picking up. For the third consecutive quarter it's order intake is still negative, though improved on the second quarter of 2001, which was the worst recorded result.

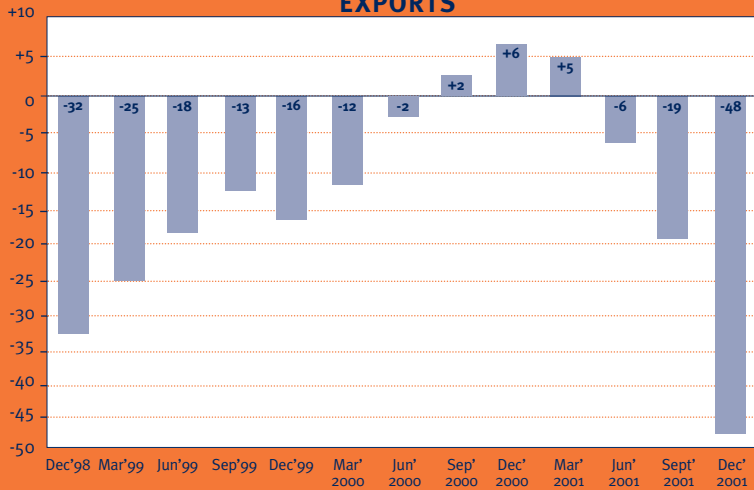
Generally, throughout the industry order intake has declined further than the previous worst in March 1999 and is the fourth consecutive fall in four editions of the Review. Export orders have hit an all-time low, recording the problems with the Euro and the further decline in US industry made worse by the September 11 disaster. We have to look back to the first quarter in 1999 to see worse figures in UK order intake.

Plans for both capital and training investment have dropped further than they have ever been. Training plans in particular has taken its second major dive in two quarters. The capital investment situation continues to fall as companies find that they cannot afford to invest. This is the fourth consecutive quarter of negative results, and the one that is causing most concern.

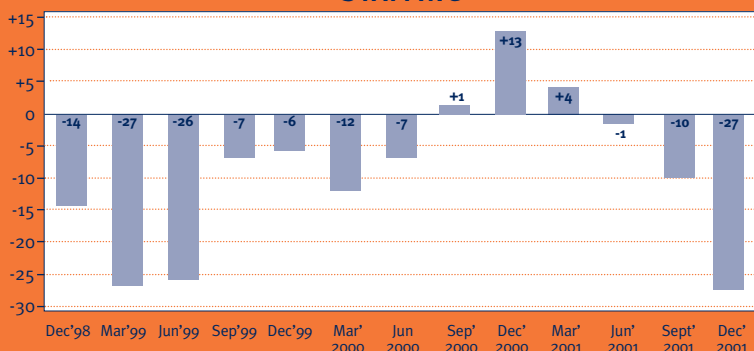
ORDER INTAKE



EXPORTS

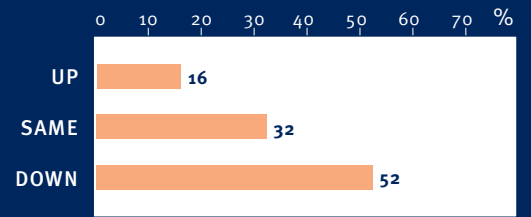


STAFFING

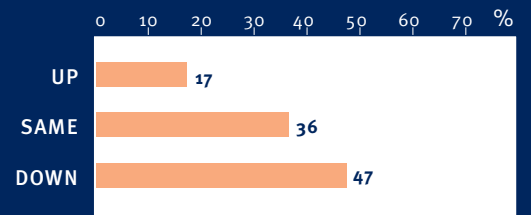


Balance between reports of increases and reports of decreases

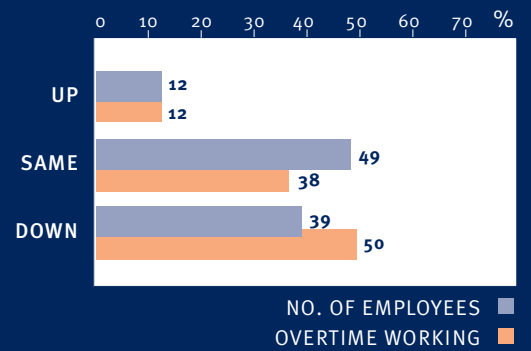
ORDER INTAKE



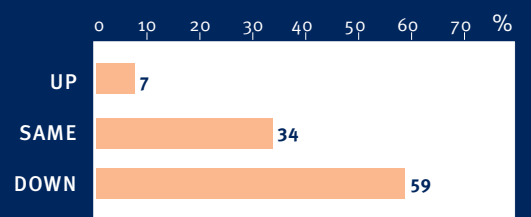
OUTPUT VOLUME



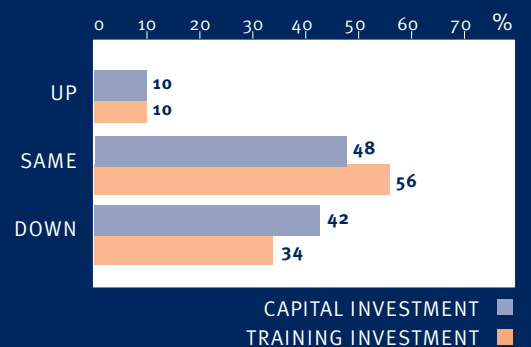
STAFFING



OPTIMISM



INVESTMENT



ORDER INTAKE

There has been a general decline in all sectors with the exception being oil and gas.

OUTPUT VOLUME

All sectors are in decline with oil and gas holding firm.

STAFFING

The oil and gas sector continues to recruit while all other manufacturing engineering sectors are reducing labour.

OPTIMISM

Overall the situation is at rock bottom and even oil and gas is cautiously looking forward.

INVESTMENT

The oil and gas sector's commitment to capital and training investment continues to move ahead strongly, all other sectors being forced to cut back.

This quarter's performance figures for the manufacturing engineering industry have moved even further downwards, surpassing all previous indicators and confirming that the sector is in recession.

While the data received does not identify specific reasons for the dire state of the industry, the solid decline in the export market, caused by the weakness of the Euro and the further deterioration of the US market following the Trade Centre disaster, continues unabated.

Orders

The total order level (16%up,32%same,52%down) is a continuation of the fall reported in the previous two quarters of this year. As in the past the only sector with a positive return is oil and gas (38%up,62%same,0%down). In the three size gradings of companies there was little difference between small (16%up,32%same,52%down), medium (16%up,30%same,54%down) and large (0%up,46%same,45%down).

Machine shops (0%up,40%same,60%down) continue on a negative track while electrical goods (11%up,45%same,44%down) pull back slightly, though remain in a negative situation.

UK order levels continue to fall generally (16%up,33%same,51%down) though the negative levels of some sectors show a slight lessening. Both the electronic sector (14%up,29%same,57%down) and electrical goods (0%up,44%same,56%down) remain depressed but non-metal products (25%up,50%same,25%down) show a balance of companies reporting ups and downs. Oil and gas (38%up,62%same,0%down) remains upbeat and healthy.

The export market falls further not only in general terms (9%up,34%same,57%down) but also in large companies (0%up,50%same,50%down) and in the electronic sector (8%up,17%same,75%down) and metal manufacturing (7%up,22%same,71%down) both of which see additional, progressive decline in export orders.

Again the oil and gas sector (38%up,50%same,12%down) is the only positive indicator.

Predictions for the next three months show a surprising negative return from oil and gas for the UK market (0%up,38%same,62%down) while the electronic sector (8%up,54%same,38%down) and fabricators (8%up,38%same,54%down) maintain their downward trend.

Optimism

From last quarter's all time low, the level of optimism in the manufacturing engineering sector has dropped even further. The general figure (7%up,34%same,59%down) is reflected in small companies (5%up,31%same,64%down) electrical goods (0%up,33%same,67%down) and mechanical equipment (6%up,26%same,68%down).

One interesting indicator is in oil and gas (12%up,76%same,12%down) where there is a balance between positives and negatives.

Investment

For the second consecutive quarter there is a negative response to training investment plans in general (10%up,56%same,34%down) and that trend continues across all sectors and size of company, except in oil and gas (62%up,38%same,0%down).

In so many cases companies are forced to cut back on investment, but until last quarter the training element was almost protected. Even the electronic sector (0%up,50%same,50%down) which has traditionally invested heavily in training has seen a downturn.

Capital investment plans, so essential for maintaining and improving competitiveness within the manufacturing engineering sector has slipped in general terms (10%up,48%same,42%down) for the fourth consecutive quarter. The electronic sector (0%up,50%same,50%down) and mechanical equipment (4%up,36%same,60%down) have a high negative response with non-metal products (25%up,50%same,25%down) reporting a balance and oil and gas (62%up,38%same,0%down) continuing to increase their commitment.

Prices and margins

Prices in general continue their downward movement in both UK markets (3%up,70%same,27%down) and exports (2%up,74%same,24%down) where the pace of descent is picking up.

UK price movement is still downwards with large companies (0%up,50%same,50%down), the electronic sector (0%up,47%same,53%down) and machine shops (0%up,60%same,40%down) all reporting a further decline in prices. Fabricators, (7%up,80%same,13%down) on the other hand seem to have pulled back the decline.

Export prices have dropped noticeably in the last three months within the electrical goods sector (0%up,38%same,62%down) and non metal products (0%up,71%same,29%down).

Margins remain negative for UK and exports across all sectors and size of company. Even oil and gas with only a balance of ups and downs in their UK margins (12%up,76%same,12%down) report a fall in margins on exports (0%up,88%same,12%down).

The electronic sector has been hard hit with both UK margins (0%up,40%same,60%down) and export margins (0%up,38%same,62%down) showing decline. The oil and gas sector has seen a balance in ups and downs in their UK margins (12%up,76%same,12%down) and a negative response for exports (0%up,88%same,12%down).

Forecasts for margin movement in the next three months are predictably negative for both UK (0%up,43%same,57%down) and export (0%up,50%same,50%down) markets.

Staffing

The level of staffing throughout the manufacturing engineering industry has declined quite dramatically (12%up,49%same,39%down) in the last three months. Hardest hit has been the electronic sector (7%up,26%same,67%down) but machine shops (0%up,60%same,40%down) and mechanical equipment (9%up,48%same,43%down) has not been left unscathed.

The forecasts for the next three months show even more companies considering staff losses. Metal manufacturing (5%up,52%same,43%down) and mechanical equipment in particular (7%up,50%same,43%down) are looking to shed more labour.

Savage cuts in overtime working has been seen, particularly in electrical goods (0%up,22%same,78%down) and machine shops (0%up,20%same,80%down).

Capacity

The utilisation of capacity has declined even on last quarter's figures. Metal manufacturing (15%up,15%same,70%down) and machine shops (0%up,30%same,70%down) report the lowest figures with the electronic sector (14%up,22%same,64%down) and electrical goods (11%up,22%same,67%down) not far behind. Oil and gas (38%up,50%same,12%down) sees the only positive return within the review.

Total output volumes decline quarter on quarter throughout the industry (17%up,36%same,47%down). Large companies (9%up,27%same,64%down) and the electronic sector (20%up,20%same,60%down) are using less of their capacity than in the last quarter. Forecasts for the next three months throughout the manufacturing engineering sector (12%up,40%same,48%down) are less than encouraging.

The reasons given for companies working below capacity are increasingly because of lack of orders at 86 per cent and less because of manpower shortages, now at 9 per cent.

The facts in this Review were acquired by a survey of Scottish Engineering's members and certain other electronic companies and foundries. The membership covers all sectors of the industry. The response rate was 40 per cent of members. Companies are described as: Small (less than 100 employees), Medium (100-500) and Large (over 500).

The Back Page



PROFESSOR ALAN HENDRY
Dean of Engineering Faculty
University of Strathclyde

With the demise of the student apprenticeship and university sandwich courses there has been a considerable challenge in the last few years for Scottish universities to train engineering students to the high levels of learning and skill expected by employers while keeping that university training relevant to the real needs of industry.

The Scottish universities have sustained both a high number and an excellent quality of engineering graduates in the face of increased choice of course for pupils leaving school and decline in those numbers who have good maths and physics qualifications and are eligible for Chartered Engineering courses.

This article is confined to consideration of that level of engineering education and while in no way denigrating other levels of engineering training which also have an important role to play in supporting the Scottish economy, tries to illustrate from experience at University of Strathclyde (Scotland's largest and most diverse Engineering Faculty) the way in which the challenge of relevance in student training can be addressed.

The starting point for these issues lies in the principle that we must try to establish an engineering mind-set in our students from the earliest stage of their university experience. That is, to teach students to be enquiring, innovative and questioning, to be entrepreneurial and to look for the relevance of taught material to its applications. That is not to say that they should have classes devoted to such things but that they should be pervasive in the teaching methods which are employed.

The best, but by no means the only example of this is the Mechanical Engineering "New Approaches to Teaching & Learning in Engineering" NATALIE project at Strathclyde where, put very simply, concepts are taught to first-year students through interactive, question/answer methods rather than the traditional lecture. The same group of students have, for example, their first experience of the role of materials in engineering by taking a car to pieces and establishing the selection criteria for themselves - with a little help from enthusiastic staff!

The latter aspect should not be underestimated; good teaching, especially of this kind, can only come from good and well-motivated staff and the Scottish Executive must find the means to foster (and fund) good university lecturers.

In the Department of Design, Manufacture & Engineering Management (DMEM) Manufacturing Engineering and Product Design Engineering students are exposed like the Mechanical Engineers to similar interactive learning environments throughout their courses. Transferable skills are taught through the subject specialisations - students have to make presentations to one another and to invited audiences, for example - such that by the time they graduate they are confident in tackling open ended, real-life problems, searching for information, group working, project management and making professional reports.

This approach has recently been widened to include inter-disciplinary and inter-departmental project work in which the students communicate via the engineering faculty intranet to choose their project, set up their own team and share information. The next step which will be in place later this year is to use laptop computers with wireless connection as a further tool to support the principal of group learning - this is called the CLIENT project; Collaborative Learning in Engineering Environments.

These are only some of the Strathclyde examples and there are many more in the engineering faculties in Scotland where we are ahead of most of the world in higher education of engineers; the NATALIE interactive teaching rooms opened in the summer of 2000 at Strathclyde are the first outside of the USA and the methods used are ahead of even those. The underlying principle is not about the technology but about instilling in the young engineer the ability to question and innovate because that is then the foundation on which industry can build its workforce.

Students are encouraged to seek sponsorship from companies, take summer placements, go on international exchanges to increase the feeling of relevance in their education. DMEM at Strathclyde has made use of Royal Academy of Engineering visiting professors and industrial companies to allow groups of students to act as "consultants" on real problems in the fourth and fifth years of their course where they can begin to apply the synthesised skills and knowledge built up in earlier years.

The future of engineering education lies in preparing students appropriately for industry and the future for Scottish industry lies in working with our highly innovative engineering faculties to train the graduates they need.

