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MANUFACTURING

There is little incentive for manufacturers to design out waste: most (if they do anything) will take the reactive (short-sighted) route of just minimising landfill, waste water and energy costs.

Waste can arise at various stages:

Goods arriving at site

When goods arrive on site then waste may arise from the packaging or from defective or incorrectly specified goods. SMEs have little control over either of these.

Product Design

Major design houses and specialist firms provide “Eco-design” expertise, but at a cost which would be likely to be prohibitive for a small company. It is important that design should address the whole life-cycle of the product: for example, designing specifically to reduce waste in the manufacturing stage may result in increased waste at other stages in the product lifecycle.

Manufacturing processes

There are often simple things which can be done which improve efficiencies dramatically. We send students out into industry to do project work which very often involves exactly this: wastage reductions of 10 to 30 per cent are routinely achieved, with associated revenue gains. Much of what they suggest is really just common sense, though backed up by data-collection. Companies often don't manage this unaided because (even if they suspect that there are savings to be made) they don't have the time to: measure what is happening; analyse the data; define a strategy; implement change.

Some processes are inherently less wasteful of energy or material than others. But changing a process normally has implications for capital investment in equipment, so there are huge barriers to radical change.

Quality

Off-specification goods constitute waste: at the least, re-work; at worst, discarding the product. Resource spent on improving quality control is well spent, but small companies running hard to maintain their position often fail to do this. Getting the manufacturing operation correctly set up initially is part of this (including having the right design), but huge improvements can often be achieved simply by ensuring that routine maintenance is carried out.

SMALL MANUFACTURERS

SMEs typically have little influence on the supply chain, up or down. They can rarely improve their market potential by being actively “green”.

An example of an initiative which seems to be doing exactly the right thing is Resource Saver¹. Funded by EEDA, this aims to help companies reduce waste. It sends trained volunteers (often students) out into companies (particularly small businesses) to help them do this. Training consists of a sensible one-day course leading to a “Waste Awareness Certificate” put on by the Chartered Institute for Waste Management². The course is largely awareness-raising and common-sense, but includes very practical advice on how to make simple improvements together with persuasive examples of revenue savings. Lists of local recycling centres are provided. This course is open to anyone, and local businesses are encouraged to attend.

LEAN MANUFACTURING AND SIX SIGMA

The “Six Sigma” approach aims to improve quality. It involves detailed measurement and statistical analysis, followed by a comprehensive plan of action and a rolling programme of improvement. This obviously helps to reduce waste by reducing the fraction of off-specification goods produced. For small companies the full Six Sigma approach is usually inappropriate (and training is expensive). Information on courses is readily available on the web.

“Lean” embodies principles of waste reduction (encompassing material and energy as well as human capital and work efficiencies). “Just in time” manufacturing (part of the “lean” philosophy) helps to avoid waste by reducing the amount of stock lying around and subject to damage, and also avoids un-necessary production of unwanted goods. Full training in Lean manufacturing (again plenty of information is on-line) is expensive, but understanding of even the elements is helpful. A “light” version could be very helpful for many SMEs.

HOW WASTE REDUCTION CAN BE PRESENTED AS A BUSINESS OPPORTUNITY

Regional development authorities are in a good position to make an impact, with their knowledge of companies and businesses. They do need to actively go out to them, making it as easy and unthreatening as possible³.

For small businesses, mutual support and information-sharing is very important. Anything that can be done to encourage them to share best practice (which may include waste reduction) is valuable. Leaders in the SME community may have set up “clubs” to do this (e.g. a good local example in the Cambridge area is Ludo Chapman, MD of Grant Instruments, Shepreth).

Businesses should use children and family and community initiatives. Children are learning about waste, reuse and recycling at school: bring this awareness into the workplace, e.g. schoolchildren on “take your son/daughter to work” days.

Free SME attendance at courses such as “Waste awareness certificate” plus incentives such as local “green-listed” companies.

It’s not difficult to make savings, but people do have to be encouraged to stop and think a little.

¹ <http://www.resourcesaver.org.uk/>

² <http://www.ciw.co.uk/pm/389>

³ e.g. <http://www.resourcesaver.org.uk/> mentioned above.

Recyclers could be more pro-active at seeking out businesses as waste suppliers. For individual small businesses, volumes are often too small to be commercially interesting, so business parks should be targeted as a matter of course.

GAPS IN KNOWLEDGE THAT PREVENT BUSINESSES FROM REDUCING WASTE

The immediate reaction is often “It will cost more”, followed by “don’t have time”.

Many are completely unaware of the range of materials which can be recycled. Even if they wish to make improvements, a common complaint is lack of time to seek out recyclers and find what they require.

Manufacturing and business practices are often inherited, or have developed in an ad-hoc way. Small companies may not be aware that more resource-effective processes exist. However, finding out may be beyond their scope.

HOW COMPANIES CAN FIND OUT WHAT THEY NEED TO KNOW

The problem is not that there is a lack of information, rather that there is too much. People either want to start (a) by telephoning someone, or (b) to be able to quickly find authoritative material on-line.

(a) Do the RDAs have help-lines?

(b) There are some very useful resources on-line, but there is also a great deal of rubbish! We need to have resource portals which are managed, so that they are prepared to filter information (and keep it up-to-date), to provide the quick answer (and where to go for the more detailed answer) for sets of waste-related questions.