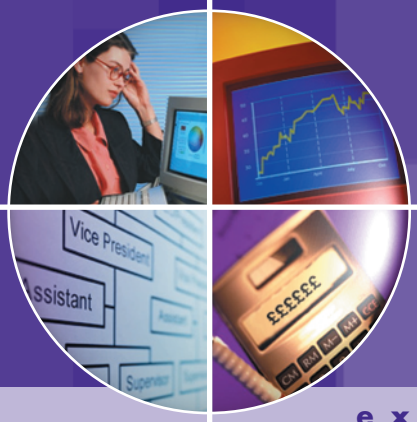

ISSUE explORer

exploring issues relevant to business

Wasting space in trucks and containers costs big money

Are you spending more than you need to on logistics and transportation?

How O.R.: The Science of Better can cut transport and storage costs

Most companies that manufacture and transport products wrestle with the problem of getting the maximum load value in a truck or container. After all, wasted space usually means wasted money.

In a perfect world, when loading cases onto pallets, these would make use of 100% of the pallet board area with no wasted space in the centre or edges. Better still the loaded pallets would completely utilise the available loading height.

So, how do you pack a container to make the best use of the available space? How can you find the best arrangement if your product mix means having a range of different sized cases or irregularly shaped objects? How do you take into account the growing list of additional regulations that have to be considered such as the need for even weight distribution of loads and EU packaging legislation?

Avoiding wasted space – and money – requires a detailed understanding of the organisation's product design, packaging and palletisation strategy.

Issue 1

In order to improve profitability, a manufacturer of cakes initiated a root and branch review of its cost base. As this was a regular process, it proved difficult for the management to find any obvious wastage in the usual cost centres of ingredients and human resources.

However, by using OR techniques, it was determined that by reducing the pack size of their best selling line by a mere 2mm on one dimension, by removing excess packaging material, the company could get 25 percent more product on each pallet. Consequently, a substantial saving was achieved in storage and transport costs as well as a small reduction in packaging material costs..

It is clear that logistics, transportation and packaging costs can be reduced by better resource utilisation.

Is your approach to packing, storage and distribution costing your organisation more than it need? A well considered approach will take into account ways of optimising palletisation specification. It will also allow for detailed examination of **all** the options in designing or modifying the design of packages and cases taking into account issues such as material costs and characteristics.

Solving problems associated with determining the most effective strategy for packing and loading of products is very complex. **You may need expert help.**

THE OR SOCIETY
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continued from overleaf

Issue 2

A toy manufacturer produces a range of over 2000 products of various shapes and sizes. Products are regularly dispatched to major multiple retailers in the UK and Europe.

Working with OR specialists, the company has developed a packing strategy that incorporates the ability to dictate case sizing, case design, packaging material selection and product design. Not only are significant savings achieved in storage and transport costs, but the company is able to be proactive in suggesting to export customers that they can take advantage of the fact that additional cases can be purchased at a discount because there's room in the container for a number of additional cases for no additional shipping cost.

Because of this strategy, this company wins twice – lower costs and increased sales.

Does your packing, storage and transportation strategy offer you the opportunity to achieve maximum load values? You may need to re-appraise the way you're dealing with your company's packing and loading.

What can you do?
Analytical techniques exist that can help you gain a better understanding of packing and loading planning. For example, **optimisation techniques** can be used to calculate the best configuration of cases on a pallet; **Sensitivity Analysis** can determine the additional benefits that can be gained by making small adjustments to constraints such as product or pack size.

Computational geometry is helpful in solving the problems of irregular shapes whilst **Meta heuristics** can find a range of 'very good' solutions to problems that can't be solved optimally.

The techniques mentioned here are usually applied by Operational Research (O.R.) practitioners. In a nutshell, O.R. is the discipline of applying advanced analytical methods to help make better decisions.
O.R. professionals are skilled in determining and deploying the most appropriate **analytical** tools, have the capability of understanding the broad **business** implications of their work and can **communicate** their findings clearly and cogently.

When considering packing and loading projects, O.R. practitioners can determine the most beneficial inputs into models as well as analyse and use the outputs. They have the ability to select relevant data and information to structure the most appropriate inputs to build models. They are also skilled in knowing what to leave out of models so making them less complex and easier to understand and use whilst still giving the appropriate level of insight.

OR practitioners are found within OR groups attached to some organisations and as part of both independent networks and major consultancy organisations. Practitioners are attached to the OR Society in the UK and more information can be obtained by getting in touch with The Society.

THE OR SOCIETY

The OR Society, Seymour House, 12 Edward Street, Birmingham B1 2RX, UK
Telephone +44(0)121 233 9300
Facsimile +44(0)121 0321
e-mail@orsoc.org.uk

For more details about OR, visit our website www.scienceofbetter.co.uk

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