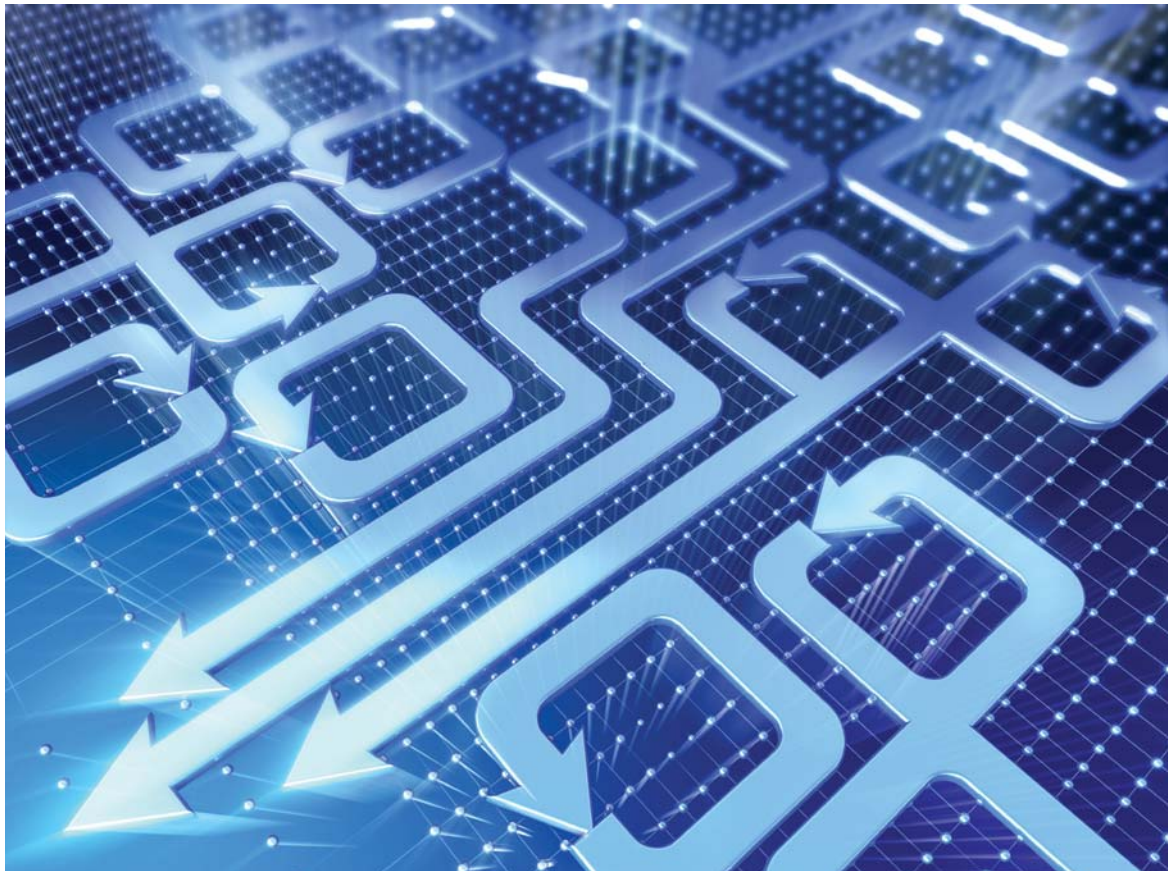


Streamlining operations

Discrete manufacturers pursue improved efficiency

A report from the Economist Intelligence Unit



Sponsored by





Preface

Streamlining operations: Discrete manufacturers pursue greater efficiency is an Economist Intelligence Unit white paper, sponsored by SAP.

This is the last in a series of six reports addressing the opportunities and challenges faced by midsize manufacturers. The Economist Intelligence Unit bears sole responsibility for the content of the reports. The Economist Intelligence Unit's editorial team executed the survey, conducted the analysis and wrote the reports. The findings and views expressed here do not necessarily reflect the views of the sponsor.

Our research drew on two main initiatives:

- We conducted a wide-ranging online survey in October and November 2007. In all, 179 executives of midsize manufacturing firms took part from around the world, of which 85 hailed from discrete producers.
- To supplement the survey results, we also conducted in-depth interviews with senior executives of midsize discrete manufacturers.

The author of this report was Stephen Harris and the editor was Denis McCauley. Mike Kenny was responsible for design and layout.

Our sincere thanks go to the survey participants and interviewees for sharing their insights on this topic.

July 2008



Streamlining operations

Discrete manufacturers pursue improved efficiency

Executive summary

As the near-term outlook for manufacturing demand growth dims in major world markets and prices of raw materials and energy continue to climb, midsize discrete manufacturers may be forgiven intense concerns about their profit margins. For this reason, the improvement of operating efficiency figures prominently in their business strategies for the coming three years. Tightening inventories, reducing waste and shortening cycle times are good medicine for periods of weaker demand and will help lay the foundation for

renewed growth in better times.

This study, based on a global survey of manufacturing executives, finds that midsize discrete producers are placing great store in continuous improvement programmes to help improve efficiency. Firms will continue to pursue well-tried improvement strategies but will also adopt newer approaches, some of which entail the closer integration of customers and suppliers into manufacturing operations.

The major findings of the research including the following:

- Lean manufacturing is the most widespread of improvement techniques employed by midsize discrete manufacturers (cited by 44% of respondents). It will remain central to improvement efforts, but producers will also increasingly utilise other approaches, such as design collaboration with suppliers and partners.
- Demand-driven manufacturing, which involves integrating customer and market information into the production process, will also figure prominently in discrete manufacturers' improvement initiatives. Indeed, customers and suppliers will increasingly be drawn directly into these initiatives. Better asset utilisation is also part of improvement efforts at many manufacturers.
- IT initiatives, including implementation of supply-chain management and other enterprise systems, are considered integral to discrete manufacturers' operational improvement efforts. Respondents look to order management and inventory control as the areas where IT tools can be brought to bear with the best results.

Who took the survey?

Fully 179 executives from around the world participated in the *Midsized manufacturers* survey, conducted in October–November 2007. This number includes 85 respondents from discrete manufacturing firms, from the industrial machinery, high technology, automotive, aerospace, medical equipment and other sectors. The analysis in this report is based on this sub-group of 85 discrete manufacturing executives.

The respondents in the sub-group were cosmopolitan: 37% were based in Europe, 35% in North America and 20% in Asia-Pacific, with the remainder hailing from the Middle East, Africa and Latin America. The sample was also very senior: 48% were C-level executives such as CEOs, CFOs and CIOs, as well as owners. All the firms in our survey earn annual revenue of between US\$20m and US\$500m. For more detail on the survey sample, please see the Appendix to this report.



Streamlining operations

Discrete manufacturers pursue improved efficiency

Responding to tougher conditions and margin pressure

To the casual investor, the relationship between gross revenues and profit can be confusing.

When all of the metrics of an enterprise point to full utilisation and maximum capacity, it can be easy to gloss over the most important indicator—profit margin. Those inside the confines of corporate management are not so easily distracted, however, as exemplified in our sample of senior executives at midsize discrete manufacturers: while eager to grow revenue, they reveal an even stronger desire to increase profit. Discrete manufacturers appear to be especially focused on profitable expansion, but not without significant reservations about the obstacles.

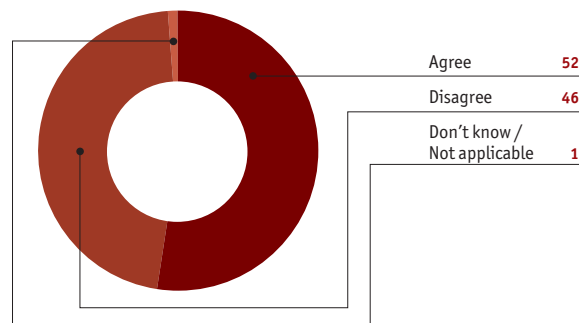
With signs abounding of a tightening demand outlook, and the prices of production inputs continuing to climb—46% of survey respondents cite the rising cost of raw materials, energy and services as the greatest impediment to their growth—executives of discrete manufacturers are turning up the heat under operating efficiency improvement. In fact, a majority of them agree with the assertion that gains in operating efficiency, rather than revenue growth, will remain the key to meeting their profit growth targets.

Therefore, it is possible to view the threat of

economic contraction as good medicine, as decision-makers have tempered their enthusiasm for “top-line” growth with a good dose of “bottom-line” enhancement. The benefits of tighter inventories, improved customer service and better sourcing can force old habits to be questioned and new means of improving operations to be explored. Producers that survive this type of self-examination and continual improvement will be better positioned for growth when expansionary conditions return.

Our study next explores how midsize discrete manufacturers will set out to achieve such improvement.

**Do you agree or disagree with the following statement?
“Operating efficiency improvement, rather than revenue growth, will remain the key to meeting our profit growth targets”**
(% respondents)



Source: Economist Intelligence Unit survey



Streamlining operations

Discrete manufacturers pursue improved efficiency

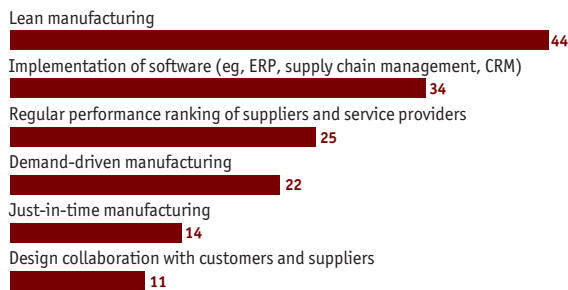
Continuous improvement

Large manufacturers have been active proponents of continuous improvement programmes, such as “lean manufacturing”, as means of boosting enterprise efficiency. A process-management philosophy which focuses on waste reduction as the optimal way of producing goods, lean manufacturing is also the most widely adopted of improvement programmes among midsize discrete manufacturers. Fully 44% of survey respondents report that it is the technique utilised most consistently in their respective enterprises. More than one-third also rely heavily on the implementation of enterprises software applications.

Hypertherm, a midsize US manufacturer of plasma cutters, has been on a “lean journey” for a number of years, according to founder and CEO Richard Couch. Suggestions for reducing operating waste are sought through the use of employee “shift meetings”, where line employees are joined by Mr Couch for a free-ranging discussion about all details of the business. “These discussions are always lively and thought-provoking,” he says, “and something useful invariably emerges.” Over 2,300 suggestions for improving shop-floor

Which operational improvement techniques does your company currently utilise with the greatest consistency?

(Top responses, % respondents)



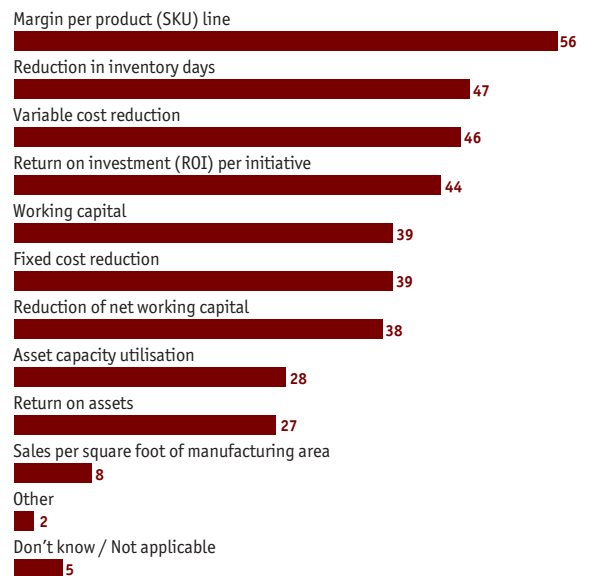
Source: Economist Intelligence Unit survey

operations were received from the line in 2007, according to Mr Couch, and more than 1,500 were ultimately implemented.

Another result has been a substantial reduction in finished goods inventory and enhanced parts inventory management. “Our parts room operates on a Kanban system of stock-out control cards,” says Mr Couch, “while the inventory of our basic models is kept down to two-day supply. This prevents us from having to track and house the stranded resources associated with unneeded and unsold product.” He maintains that Hypertherm’s search for continuous improvement in operations has helped it to overcome downward pressure on price, as well as the loss of flexibility as its operations expand.

A relatively recent convert to lean manufacturing is Scanfil of Finland, a midsize producer of components for the telecommunications and industrial electronics

What metrics does your company use to measure the success of operational improvement initiatives? Select all that apply. (% respondents)



Source: Economist Intelligence Unit survey

Streamlining operations

Discrete manufacturers pursue improved efficiency



industries. According to Lasse Pylväs, director of European telecoms enclosure operations: “We are starting to implement lean manufacturing techniques. We have trained key project managers for ‘black belts’ and ‘green belts’ in lean thinking, and have initiated pilot projects. As these projects develop, each manager will spread the philosophies from one person to the next and from one plant to the next.” Scanfil has also put a testing programme into place to try and measure the projects’ results, says Mr Pylväs.

Measuring the effectiveness of these and other

efficiency-improvement programmes is indeed a challenge. For the discrete manufacturers in our survey, profitability by product line is the most commonly used metric to gauge the success of operational improvement initiatives—this is the case with 56% of respondents. Inventory levels are an easy measure of manufacturing vigilance, and return on investment (ROI) is usually analysed before a programme is approved, so it would appear that midsize manufacturers are not taking their eye off the preeminence of profit as the most salient metric of success.



Streamlining operations

Discrete manufacturers pursue improved efficiency

Suppliers, customers and production assets

Looking ahead, lean manufacturing will remain a widely-implemented improvement programme by discrete producers, but the latter will increasingly turn also to other strategies for boosting efficiency. One of these is demand-driven manufacturing, an approach which seeks to integrate customer and market information more fully into the production process to enhance flexibility. As we reported in a previous paper in this series,¹ the vast majority of midsize discrete manufacturers in our survey group believe that becoming demand driven is vital to the success of their overall strategy. In fact, the implementation of lean manufacturing is one step along the way to becoming demand driven.

Executives' interest in demand-driven manufacturing and supply-chain initiatives underscores the likelihood that suppliers and customers will become increasingly involved in midsize producers' efforts to improve operating efficiency. Involving both types of stakeholders in product design, for example, will become an increasingly common element of operational improvement strategies, according to survey

Which operational improvement strategies do you intend to introduce within the next two years?

(Top responses, % respondents)



Source: Economist Intelligence Unit survey

1. *Producing to order: Discrete manufacturers and customer demand*, Economist Intelligence Unit, March 2008, sponsored by SAP.

How has your company approached the need to increase operational efficiency in the supply chain in the last 12 months?

(Top responses, % respondents)



Source: Economist Intelligence Unit survey

respondents.

Srinivasa Rangam, operations manager of Titanium Tantalum, an Indian manufacturer of precision metal and other engineering products, confirms that his firms' suppliers have a critical role to play in keeping the manufacturing process moving forward. "As an operations man, I insist upon coordination amongst all those associated with a job." In this context, he says, "We work to get our suppliers to embrace our goals. We lecture them on the importance of timely participation, and the ones that react properly are rewarded with additional business with us." This focus on the timely sequencing of the supply chain is a critical aspect of lean manufacturing.

Better asset utilisation is also an element of improvement initiatives at many discrete manufacturers. Scanfil's Mr Pylväs believes that the key is to understand customers' needs and try to make right decisions in terms of resource and asset management. He relates, for example, that in recent months the company has taken to move machinery between its various plants to target customers in the best possible location. It may seem obvious, but good investment planning at the outset, he believes, is the best means of ensuring efficient utilisation of assets down the road.

For manufacturers with international operations, this may involve different asset acquisition plans in

Streamlining operations

Discrete manufacturers pursue improved efficiency



different regions. For example, the level of production automation required by Scanfil in Europe, according to Mr Pylväs, has been higher than that required in China. “From a functional point of view, we have the same level of production quality and efficiency in Europe and China, but the processes are more automated in Europe”. In China at least, the lower investment in automation reduces concerns about asset utilisation down the road.

Asset utilisation has been less of an issue for smaller manufacturers that have been experiencing extremely rapid growth. Antti Salminen, CFO of another midsize Finnish producer, Salcomp, which

manufactures chargers and other power equipment for mobile phones, reports that his firm has of late had no idle resources in terms of people, equipment or factories. To meet fast demand growth from its customers—mobile phone producers—it has been able to increase capacity quickly and flexibly, he says.

Given the tougher demand conditions on the horizon in many sectors, producers such as these may find themselves in the unfamiliar position of having some underutilised assets. Developing asset-utilisation strategies earlier rather than later may prove a wise investment to help guard against the effects of a downturn.



Streamlining operations

Discrete manufacturers pursue improved efficiency

Gauging the right role for IT

It may be no surprise that IT figures strongly in discrete manufacturers' efforts to improve operating efficiency. It is noteworthy, however, that many executives of discrete manufacturers regard certain IT initiatives as improvement techniques in their own right. For example, when asked which operational improvement techniques their firms current utilise with consistency, more than one-third of respondents point to implementation of enterprise software packages, such as supply-chain management (SCM) and customer-relationship management (CRM) systems. Nearly as many say such IT initiatives will be as important to efficiency improvement over the next two years as implementing demand-driven manufacturing or integrating design collaboration with customers and suppliers.

Mr Pylväs affirms the importance of IT in all aspects of manufacturing operations, among them being enterprise communication and management decision-making. "One of the keys to success for

all manufacturing companies is to have efficient IT tools. Some of our firm's unique qualities are fast decision-making and good flexibility based on real-time communication amongst top managers, and between those managers and clients, fulfillment and manufacturing. IT has had a clear role in enhancing this communication."

Where will IT most impact on operating efficiency in future? Survey respondents mainly look to order management, inventory control and factory and plant controls as the areas where IT tools can be brought to bear with the best results.

Reijo Itkonen, president and chief executive of Enics AG, a Switzerland-based contract manufacturer of industrial and medical electronic, characterises the IT role in improving efficiency broadly. "IT's primary contribution to our success lies in the improvement of supply-chain management, including materials and logistics, inventory control and global shipping. It also improves our interaction with our customers, our network of suppliers and within our own network. While our company is not 'technology driven', we succeed because of the technological tools we have used to support our objectives."



Conclusion

Since completing the research, in early 2008, for this wide-ranging outlook of the midsize manufacturing sector, thick clouds have gathered over economic and demand conditions in many parts of the world. In our first paper in this series, we remarked on the optimism of manufacturing executives regarding their growth prospects, expressed even as concerns of downturns in major world markets were mounting. If surveyed today, it is likely that many manufacturing executives,

particularly in Europe and North America, would express greater circumspection about their firms' growth outlook over the coming three years.

Executives of discrete manufacturing firms—as of all midsize manufacturers in our survey group—have nevertheless made clear that the improvement of operating efficiency is central to achievement of both their revenue and profit growth objectives. Boosting operational efficiency may be of only marginal help in seeking to replace lost demand in a downturn. But by relentlessly pursuing efficiency improvement, and embedding a culture of continuous improvement, midsize manufacturers will position themselves well for renewed growth when conditions improve.

Appendix: Midsize Manufacturers survey respondents

Streamlining operations: Discrete manufacturers pursue improved efficiency

Appendix: Midsize Manufacturers survey respondents

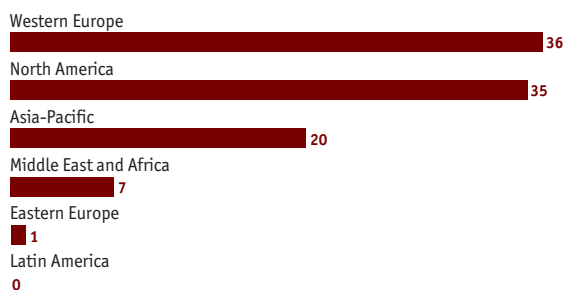
In October–November 2007, the Economist Intelligence Unit conducted a survey of 179 executives of midsize manufacturing firms from around the world. Of these, 85 hailed from discrete manufacturing firms—those specialising in the production of distinct items, such as electronics and machinery. Our sincere thanks go to all who took part in the survey.

Please note that not all answers add up to 100%, because of rounding or because respondents were able to provide multiple answers to some questions.

Following is a profile of the survey respondents from discrete manufacturing firms.

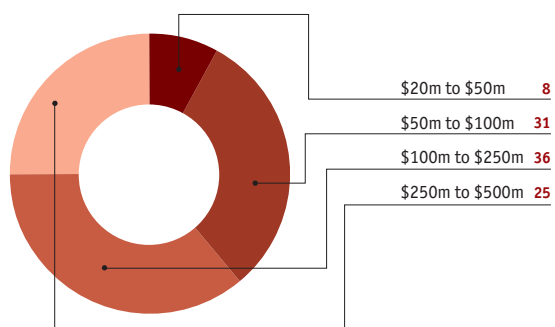
In which region are you personally based?

(% respondents)



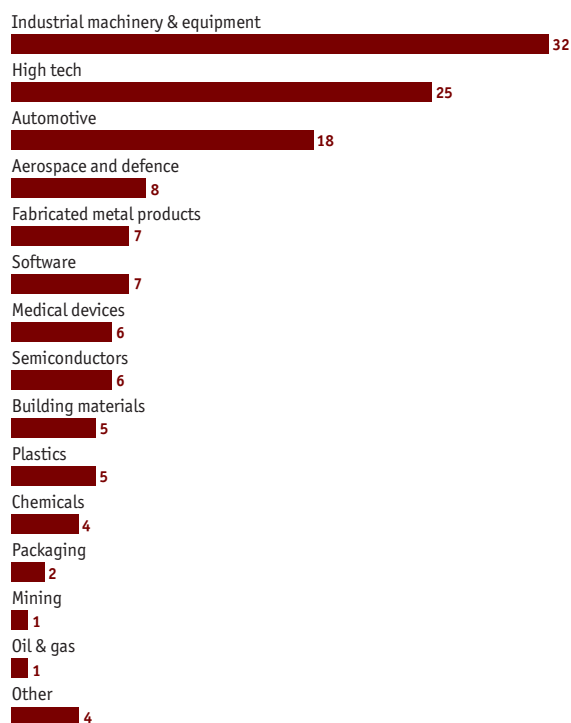
What are your company's annual global revenues in US dollars?

(% respondents)



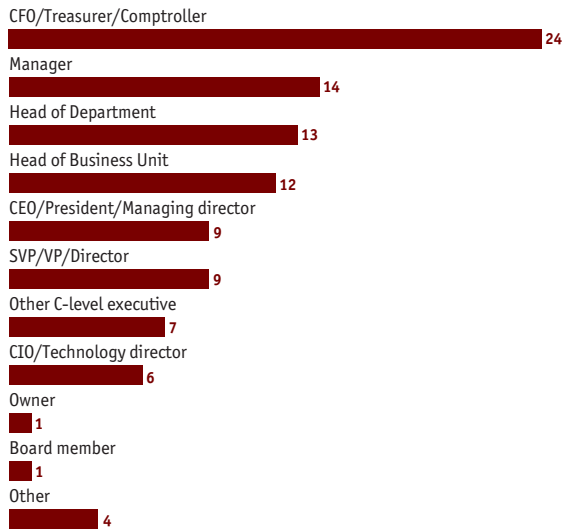
In what specific type(s) of manufacturing is your company engaged? Select all that apply.

(% respondents)



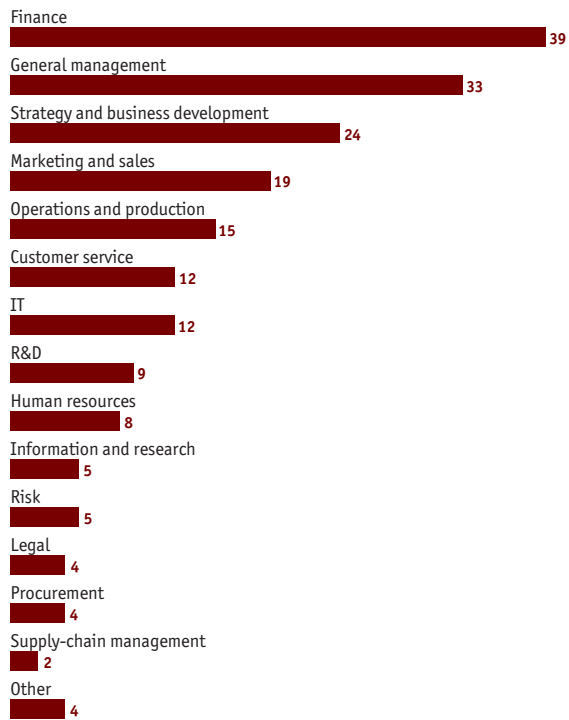
What is your title?

(% respondents)



What are your main functional roles? Please choose no more than three functions.

(% respondents)



Whilst every effort has been taken to verify the accuracy of this information, neither The Economist Intelligence Unit Ltd. nor the sponsor of this report can accept any responsibility or liability for reliance by any person on this white paper or any of the information, opinions or conclusions set out in the white paper.

LONDON
26 Red Lion Square
London
WC1R 4HQ
United Kingdom
Tel: (44.20) 7576 8000
Fax: (44.20) 7576 8476
E-mail: london@eiu.com

NEW YORK
111 West 57th Street
New York
NY 10019
United States
Tel: (1.212) 554 0600
Fax: (1.212) 586 1181/2
E-mail: newyork@eiu.com

HONG KONG
6001, Central Plaza
18 Harbour Road
Wanchai
Hong Kong
Tel: (852) 2585 3888
Fax: (852) 2802 7638
E-mail: hongkong@eiu.com